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STUDENTS' CHARACTERISTICS AND ATTITUDE TOWARDS THE USE OF COMPUTER RELATED LEARNING FACILITIES IN THE NORTH WEST AND SOUTH WEST REGIONS OF CAMEROON

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ABSTRACT

This study investigated the attitude of students imbued with different characteristics towards the use of computer related learning facilities in the North West and South West Regions of Cameroon. It was designed to respond to two questions, namely: Do female students have a different attitude towards the use of computer related learning facilities from male students? Do students who are inclined to the Arts subjects have a different attitude towards the use of computer related learning facilities from the students who are inclined towards the science subjects? The sample consisted of 1353 students from 18 schools. These schools were randomly selected from 35 schools with computer laboratories and internet facilities in the North West and South West Regions of Cameroon. The research instrument used was a student questionnaire. The data collected were subjected to descriptive and inferential statistical analysis, using the Statistical Package for the Social Sciences (SPSS). The major findings of the study were that female students have a less positive attitude towards the use of computer related learning facilities than male students. Irrespective of subject area, the students' attitude towards the use of computer-related learning facilities was generally positive. On the basis of these findings, recommendations for enhancing students' attitude towards the use of computer-related learning facilities were made for education policy development and for teaching.

Key Words: *Students' Characteristics, Attitude, Computer Related Learning Facilities, North West Region, South West Region, Cameroon.*

INTRODUCTION

The use of the computer in education reflects and responds to present and future needs of people functioning in an intensely changing and challenging environment. The computer is very important for providing opportunities for students to learn to operate in an information age. The use of the computer has become one of the basic building blocks of modern education. Many countries now regard the understanding and mastery of computer basic skills and concepts as part of the core of education, alongside reading, writing and numeracy. International organisations are also promoting their use in schools. The use of computer related learning facilities opens new doors for education. Many people now learn via self-paced, interactive, computer-based courses (Long, 2003, p.27). Development, according to Nwagwu (2006), is partly determined by the ability to establish a synergistic interaction between technological innovation and human values. Since the mid 20th century, the use of the computer has developed at a rate that gives it a strong role in development and globalization. According to Brakel and Chisenga (2003), computer related learning facilities have a significant impact on all areas of human activity. Yusuf (2005) says that the field of education has been affected by the computer which has undoubtedly affected teaching, learning and research. They have the potential to 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. The use of computer related learning facilities has many benefits. According to Capel, Leask and Turner (2001), the benefits of integrating the computer into the teaching and learning process are many. Learning is stimulated, difficult ideas are made more understandable, students are given the power to try different ideas and to take risks and analytical and divergent thinking is encouraged. The use of these facilities makes teachers take a fresh look at how they teach and the ways in which students learn. Students make more effective use of computers if teachers know how and when to intervene. According to Alessi and Trollip (2001), with computer based instruction, learning takes less time, lesson materials are handed out easily and cheaply. Students work at their own pace and convenience. They are also offered the opportunity for extensive practice, through which their motivation is stimulated. The ability to access and use the computer is no longer a luxury but has become indispensable in almost all domains of life. Its use prepares students to face challenges in further education and professional life.

According to Mbangwana (2008 p.3), in 1995 when the educational experts met in Yaounde to discuss how the educational system could be improved upon, nothing was mentioned about the use of the computer in the classroom. The Cameroon education law 9/004 of 14 April 1998 does not make mention of the use of computers in the school system. Teacher training colleges are only now making provision for teaching computer use for pedagogic purposes. This implies that the teaching core is to a great extent computer illiterate. The use of the computer in Cameroon secondary schools was formally introduced in 2001. In his February 2001 message to the youths, the President of Cameroon called for the embracing of the knowledge economy (Cameroon, 2007 p.3). In preparation, he promised the introduction of the computer in schools and the endowment of computer rooms to schools. There was the impact of that presidential speech in 2002 with the introduction of the computer in secondary general and technical schools. Numerous schools have benefited from presidential "gifts" of multimedia centres connected to the internet. Officially programmes of ICT were designed official programmes of ICT were designed for secondary schools in 2003. (ERNWACA-Cameroon, 2005, p.11). The Ministry of Secondary Education developed a strategy for the implementation of national ICT policy in Basic Education over

2007-2015. 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 included productivity and research, applying ICT to teaching and learning, evaluation, and lastly, social, moral and human questions related to ethics and equality (Cameroon, 2007a). These efforts have led to some moves from traditional pedagogical and administrative culture, moves from teacher-centred pedagogies and memorization as a learning technique to a more constructivist, pupil-centred approach, with pupils assuming more responsibility because of increased development of research and problem solving skills through the use of ICT (ERNWACA – Cameroon, 2005, p.11). As the world is advancing rapidly in technology computers are becoming more a part of everyday life. It is generally felt that computer literacy is vital to success in today's world. Within the field of education over the last decades, a gradual but significant shift has taken place, resulting in less emphasis on teachers and teaching and greater stress on learners and learning. The gradual change from a teacher- centred to a learner – centred education system the world over is contributing to the increasing use of computers in education. Computer use encourages self-directed learning. Self-directed learning according to Petty (2004) is a humanistic approach in which the teacher takes on a facilitating role. It gives control and responsibility for learning to the learners. The ability to learn by oneself is the greatest gift any teacher can give a learner; indeed it is the ultimate aim of education. Self-directed learning has many advantages. It encourages active learning, develops student autonomy, and gives the responsibility for learning to the student (Petty, 2004, p.351). According to this author, the educational gains for self-directed learning are the same as for independent learning. It reduces the pace and pressure of teaching, thus enabling the teacher to deal with difficult material more slowly, and increases the proportion of time spent active, student-centred activities. It increases motivation. The coaching involved encourages students to take full responsibility for their own learning, challenges passive to learning, and teaches the active learners' coping strategy and mind-set. Students develop independent learning skills and attitudes which are of vital importance for educational development and progress. Students can learn at their own pace, and in a manner which suits their own preferences and learning style. It is a change, and students very much enjoy it. It becomes a preferred learning method. It can encourage "deep" rather than "surface" learning if assessments focus on understanding. Students discover they can without a teacher (Petty, 2004, p, 348).There are many other advantages of the use of computers. Computers lead to interactive learning. When using the computer, students can work at their own pace, learning can take place anywhere, anytime, via communication links to available resources. Computers, according to Shelly, Cashman and Vermaat (2002) have the advantages of speed, reliability, consistency, storage and communication. Williams (2000) tells us that students who use computers achieve better results in communications, cooperation and problems-solving than students who do not use the computer. The use of computers also broadens the horizons of young people. Mikropoulos (2003) is of the pinion that the use of computers supports the improvement of pupils' mental and creative activities. Wheeler (2000) says that creative use of computers in education can increase creative thinking. Computers are looked upon as tools for increasing efficiency and productivity in the curriculum. Another advantage of the computer use is that learning is focused on problem solving. It leads to the increased motivation of learners. According to Allessi and Trollip (2001), students work at their own pace and convenience. Students are also offered the opportunity for extensive practice, through which their motivation is stimulated. According to Capel et al (2001, p. 41), interactive technology motivates and stimulates learning. Difficult ideas are made more understanding when computer facilities make them visible. They give students the power to try out different ideas and to take risks.

THE PROBLEM

In spite of the many advantages associated with the use of computer related facilities, if students do not use computer learning facilities, they would not be able to pursue education at their own pace; self- directed learning would not be encouraged; learning will only take place within the confines of a classroom. Students will not be able to achieve expected results in communication, co-operation and in solving problems. The horizons of young people will not be broadening. Their mental and creative activities will not be improved upon. There will be no creative thinking. There will be no efficiency and productivity in the curriculum. The attitudes of students towards computer use matters a lot. If students are to adopt computer technologies, they must have the right attitude towards computers. It is therefore very important to assess students' attitude in order to know where it is negative and where it is positive. This view is supported by Sam, Othman and Nordin (2005). According to these authors, researchers have proposed that attitudes towards the use of computer related learning facilities could be an important factor in helping people learn computer skills and use the computers. Monitoring the user's attitude toward computer related learning facilities should be a continuous process if this is to be used effectively as a teaching and learning tool. In this connection, the problem for this study is to ascertain the attitude of students of different characteristics towards the use of computer related learning facilities in Cameroon schools. In other words, do students' attitudes towards the use of computer related learning facilities differ with their gender and subject of study?

OBJECTIVES OF THE STUDY

The objectives of this study are to find out if female students have a different attitude towards the use of computer related learning facilities from male students and if students who are inclined towards the Arts subjects have a different attitude towards the use of the computer from the students who are inclined towards the science subjects.

RESEARCH QUESTIONS

Do female students have a different attitude towards the use of computer related learning facilities from male students? Do students who are inclined to the Arts subjects have a different attitude towards the use of the computer from students who are inclined towards the science subjects?

HYPOTHESES OF THE STUDY

The following hypotheses have been formulated to act as tentative answers to the research questions.

$H0_1$: There is no significant difference between female and male students' attitude towards the use of computer related learning facilities.

Ha_1: There is a significant difference between female and male students' attitude towards the use of computer related learning facilities

H02: There is no significant difference in attitude between students who are inclined towards the Arts and those who are inclined towards the Science subjects.

Ha2: There is a significant difference in attitude between students who are inclined towards the subjects.

RESEARCH METHODOLOGY

The design of this study is in terms of a survey of the cross-sectional variety. Frankel and Wallen(2000 p.432) defines a survey as research in which a group of people are studied by collecting and analysing data from only a few people considered to be representative of the entire group and for a cross sectional survey, information is collected at one point in time although the time it takes to collect all of the data desired may take anywhere from a

day to a few weeks or more. Data were collected from respondents across the period from April 2013 to June 2013. The population of the study consisted of all the Form Five students in secondary schools with computer laboratories and internet facilities in the North West and South West Regions of Cameroon. Statistics from the Inspectorate of Pedagogy in charge of Computer Science, Regional Delegation for the South West Region – Buea (2011), gave us the list of schools with computer laboratories and internet services in the South West Region. The Inspectorate for Pedagogy in charge of Computer Science in the North West Region – Bamenda (2011), gave us the list of schools with Computer Laboratories and Internet services in the North West Region. Table 1 below summarises the information obtained from these two sources.

Table 1: Enrolment of Form Five Students in Secondary Schools with Computer Laboratories and Internet Facilities in the North West and South West Regions

	North West Region	**South West Region**	**Total**
Public Schools	2728	3232	5960
Denominational Schools	546	579	1125
Lay Private Schools	502	05	507
Total	**3776**	**3816**	**7592**

The secondary schools involved in the study were selected through the simple random sampling technique. The lottery method through the hat-and-draw technique was used. The name of each secondary school with computer laboratory and internet facility was written on a piece of paper, squeezed and put in three different hats, one representing public secondary schools, the other representing denominational and lay private schools in the North West Region. The same procedure was repeated for secondary schools with computer laboratory and internet in the South West Region. After properly shaking the papers, the researcher pulled out at least five pieces of paper from each box. That constituted the list of secondary schools where Form Five students were involved. To get the students from the randomly selected schools, the researcher got to class and numbered the students. Those who had odd numbers were administered the questionnaire. In other classes those who had even numbers were administered the questionnaire.

The sample of this study was 1353 Form Five students selected from public, denominational, and lay-private secondary schools with computer laboratories and internet facilities in the North West and South West Regions of Cameroon. Following the sampling procedure described above, 18 schools were selected from the 35schools with computer laboratories and internet facilities in the North West and South West Regions of Cameroon. The population of these schools was calculated and the Krejcie and Morgan's (1970) table cited in Amin (2005:454) was used to select the sample from the population of the 18schools selected. 684 came from public schools, 447 from denominational schools and 222 from lay-private schools.

Table 2: Sample Size

	North West Region	**South West Region**	**Total**
Public Schools	338	346	684
Denominational Schools	226	221	447
Lay Private Schools	217	05	222
Total	**781**	**572**	**1353**

The main research instrument used in this study was the student questionnaire. The questionnaire was designed for the principal respondents who were the Form Five students of some respective institutions with computer laboratories and internet facilities. The questionnaire was divided into two sections. One section focused on demographic data and the other on the attitude of students towards the use of computer related learning facilities. The researcher carried out informal visits to some multimedia centres in the North West and South West Regions of the country. She also had informal discussions with some directors of multimedia centres, chiefs of centre as well as some Heads of Department of Computer Science in some secondary schools. Discussions with these personalities, in collaboration with the literature review, helped in the construction and validation of the student questionnaire. Schools had different computer learning facilities. Knowledge of all these helped the researcher to come up with a questionnaire for the study. Validity is an important concept in the acceptability of the use of an instrument for research purposes. The design of the questionnaire was guided by the different computer Attitude Scales available in the literature. Content and construct validity were checked. Content validity focuses on the extent to which the content of an instrument corresponds to the content of the theoretical concept it is designed to measure. Fraenkel and Wallen (2000) content that with content validity the following questions are to be considered. How appropriate is the content? How comprehensive? Does it logically get at the intended variable? How adequate does the sample of items or questions represent the content to be assessed? Is the format appropriate? The content and format must be consistent with the definition of the variable and the sample of subjects to be measured. In this study, content validity of the questionnaire was ensured by sampling the opinions of targeted groups of persons and consulting existing literature in the area of Information and Communication Technologies. With the assistance of curriculum experts and other experts in the area of Information and Communication Technology, content validity was checked in terms of the appropriateness of the content, the comprehensiveness of the instruments, the adequacy of the sample of items or questions in representing the complete content that was intended to be measured and the appropriateness of the format of the instrument.

Specifically, the inter-judge coefficient of validity (Amin, 2005) was used to establish a Content Validity Index (CVI). Eight judges, including the two supervisors and six expert researchers in computer were used. The CVI was calculate at 0.81 higher than 0.7. The value justified the validity of the instrument. After that, the researcher gave the questionnaire to the supervisors who reviewed the process used in developing the instrument as well as the instrument itself. They made some suggestions and modifications.

Quantitative research method was used in order to investigate the research problem. Students' responses to the questionnaire were statistically analyzed according to gender, type of school, subject area and type of student. The data were analyzed using the statistical package SPSS version 17.0. Alpha level was set to test each hypothesis. Descriptive statistics, which include frequency counts and percentages on all variables, was used to indicate the level of implementation of each item.

$H0_1$: There is no significant difference between female and male students' attitude towards the use of computer related learning facilities

Table 3: Means of Attitude by Gender

	Gender	N	Mean	Std. Deviation
Attitude	Male	612	99.0523	12.20343
	Female	727	96.4869	13.43568

The table presents group statistics for means of attitude of students by gender. The mean of attitude for male students is 99.05 and that for female students is 96.49. The t test was used to determine if the means are significantly different.

Table 4: The T-test of Attitude by Gender

Group	N	$\bar{x}$	s	df	std error	t-cal	t-crit	Dec.
Male	612	99.05	12.2					
				1337	.7012	3.65	1.960	Reject Ho_1
Female	727	96.49	13.43					

From the table above, since the calculated value (t_{cal} = 3.65) is more than the critical value ($t_{crit.}$ = 1.960) with df = 1337 at $p \leq 0.05$ level of significance, the null hypothesis was rejected. It is concluded there is no significant difference between female and male students' attitude towards the use of computer related learning facilities. The males have a more positive attitude towards the use of computer-related learning facilities than the females.

HO2: There is no significant difference in attitude between students who are inclined towards the Arts and those who are inclined towards the Science subjects in the use of computer related learning facilities.

Table 5: Means of Attitude by Subject Area

Group Statistics				
	Subject Area	N	Mean	Std. Deviation
Attitude	Arts inclined	842	97.78	12.72
	Science inclined	497	97.46	13.33

The table presents group statistics for means of attitude for students by subject area. The mean of attitude for students who are Arts inclined is 97.78 and that for those who are science inclined is 97.46.

Table 6: The T-test of Attitude by Different Subject Area

Group	N	$\bar{x}$	s	df	std error	t-cal	t-crit	Dec.
Arts	842	97.78	12.72					
				1337	.7414	0.432	1.960	Accept Ho
Science	497	97.46	13.33					

To verify if the means are significantly different, the student t test was used. From the table above, since the calculated value (t_{cal} = 0.432) is less than the critical value ($t_{crit.}$ = 1.960) with df = 1337 at $p \leq 0.05$ level of significance. The null hypothesis is retained. It is concluded that the attitude of students inclined towards the Arts is not significantly greater than that of students inclined towards the Science subjects. Irrespective of subject area, the students' attitude towards the use of computer related learning facilities is generally positive.

DISCUSSION AND CONCLUSIONS

Research Question One sought to know if female students have more or less positive attitude towards the use of computer related learning facilities than male students. From there it was hypothesized that there was no significant difference between female and male students' attitude towards the use of computer related learning facilities. The study revealed that the males have a more positive attitude towards the use of computer related learning facilities than the females.

According to Shashaanni (1993), the issue of females tending to have negative attitude towards computers can be linked to the differences in self-confidence and the stereotyping of genders in relation to computers and technology. Low confidence in learning and using computers deters an individual from participating in computing. Negative stereotypes, such as the computer field being a man's field; also reduce female self-competence in computer use. Another factor which may attempt to explain these sex differences is socialization, "The acquisition of culture and ability through participation in group life in order to regulate social interaction" (Shashaani; p 171). According to the theory of socialization, the family is the primary exposure that an individual receives, shaping his beliefs, basic attitude, sex role identity and self-image. This identity is then shaped further by the school system, an environment that formally transmits society's basic culture to children and provides them with values, feelings, and norms beyond their families. Socialization is the main influence on gender differences regarding behaviour. It assigns males and females different role identities, which include different values and tasks (Shashaani; p 176). Socialization of gender role may very well be the cause for low self confidence and low expectations among women. According to Shashaani (1993), many parents and teachers have different educational expectations of male students and females students. Boys are encouraged to take computer science courses and mathematical courses more than girls. Social modelling according to Redmond (2010) is one of the sources of self-efficacy. Social modelling related to witnessing other people successfully completing a task. According to Bandura (1994), seeing people similar to one succeed by sustained effort raises observers' beliefs that they too possess the capability and matter comparable activities to succeed (1994). It is just now that things are changing in Cameroon. Computer knowledge had been associated with males. In the domain of social persuasion, Bandura also asserts that people could be persuaded to believe that they have the skills and capabilities to succeed. Getting verbal encouragement from others helps people overcome self-doubt and instead focus on granting their best effort to the task at hand. According to Margolis and McCabe (2004) many students resist academics because they do not believe they have the ability to succeed, regardless of their effort. These students have a low level of self-efficacy. It is of the same with attitude towards the use of computer related learning facilities. Teachers can strengthen students self efficacy. Some other characteristics which may explain why males have a more positive attitude towards the use of computer related learning facilities than females in Cameroon may vary from social, cultural as well as some practical life experiences. According to AERA (2007), male dominance in information technology can be linked to social, cultural and educational influences and patterns formed from childhood. From observation and discussion, boys are more versed with electronics than girls. Boys are generally brought up to deal more with electronics and a computer is one. Many boys use the computer for other reasons than just for learning. Some of them are involved in scamming. Most boys love talking about sports and films. They want to be current and not left out in any discussion. There are websites which even have the latest football news; websites which make them download very recent films. Boys like playing games and the internet has many of these games.

Secondly the study sought to know if students who are Arts inclined have a more or less positive attitude towards the use of computer related learning facilities than the students who are science inclined. It was hypothesized that there was no significant difference in attitude between students who are Arts inclined and those who are science

inclined towards the use of computer related learning facilities. The null hypothesis was accepted. Irrespective of subject area, the students' attitude towards the use of computer related learning facilities was significantly positive. This study is inconsistent with Adebowale, Adediwura and Baba (2009). The study was specifically targeted at determining if socio-demographic variables like field of study had any effect on computer attitude of the learners. It was found that the field of study the students pursue had a significant influence on their attitude towards the computer. Students in the vocational fields of study seemed to possess better attitude towards the computer than other students, even better than what students in the commercial field demonstrated. Commercial students also demonstrated better attitude than students in the science and Arts fields. According to Adebowale, Adediwuga and Baba (2009), perhaps students in the Sciences and Arts possess erroneous belief that they are supposed to give more attention to their school subjects rather than learning or attempting to take up vocation in computing and its related fields. Another study inconsistent to this study was Usun (2004) which had two objectives. The first aim of the study was to determine undergraduate students' attitude towards the use of computers in education. The second aim was to determine whether there were statistically differences in attitude between the students of the Department of Computer and Educational Technology and Department of Educational Sciences at Canakkale Onsekiz Mart University (Turkey). The study showed that the mean score for students of Educational Technology was higher. Usun (2004) explained that students of computer and educational technologies work more in the computer environment and benefit more from these tools in education. The current study reveals that irrespective of subject area, the students' attitude towards the use of computer related learning facilities was generally positive. The finding indicates that area of study does not have any influence on students' attitude towards computer related learning facilities in schools in Cameroon. Some explanations may account for this situation. From observation and discussion, most of the students take almost all the subjects until Form Five where they choose to be Arts inclined or Science inclined. Also all human beings have a natural propensity to learn; the role of the teacher is to facilitate such learning. This includes: setting a positive climate for learning, clarifying the purposes of the learner(s), organizing and making available learning resources, balancing intellectual and emotional components of learning, and sharing feelings and thoughts with learners but not dominating. According to Rogers, learning is facilitated when: the student participates completely in the learning process and has control over its nature and direction. This likely affects their attitude towards the learning process. Students in our schools in Cameroon choose to be Arts inclined or Science inclined they are not forced to thus they participate completely in the learning process and have control over its nature and direction. The finding also indicates that irrespective of subject area, the students' attitude towards the use of computer related learning facilities is generally positive. The null hypothesis which stated that there is no significant difference in attitude between students who are Arts-inclined and those who are Science-inclined towards the use of computer-related learning facilities is rejected. In most schools in Cameroon, the students take all the subjects until they get to form five. Their knowledge of Arts and Science in some of the subjects cut across the two domains. The society possess the erroneous belief that Science – inclined students are supposed to give more attention to computer related learning facilities than Arts-inclined students.

RECOMMENDATIONS

Since the computer is becoming more a part of everyday life, for students are to adopt computer technologies, they must have the right attitude towards computers. Schools have the responsibility of preparing this generation for life. Schools which neglect this essential discipline are actually placing their students, teachers and administrators at great disadvantage in a new world order. The use of the computer has so many advantages. After a careful examination of the findings of this study, it is recommended that teachers should strengthen students' self-efficacy. Regardless of gender, with a high level of self efficacy, students' attitudes towards the use of

computer related learning facilities will be positive. One of the ways to do this is through social modelling; seeing people similar to one succeed by sustained efforts raises observers' beliefs that they too possess the capacities. There should be no negative stereotypes; no socialization of gender role because this causes low self-confidence and low expectations among the females. Teachers and parents should have the same educational expectations of male and female students. Gender differences should be avoided. Boys and girls should have equal opportunity to work with and benefit from computers. Teachers need to encourage girls not to give up too quickly. They should offer thoughtful support and hints instead of doing the task for them. Same-sex groups should be created as another strategy to address gender differences. According to Barker and Aspray (2006), girls in same sex classrooms behave more positively towards the computer. This also limits aggressive, dominating behaviour by boys. Teachers should be sensitive to the experiences and interests of girls. Teachers should promote activities which encourage students to be resourceful and construct their own knowledge since girls are often more interested in using computers to complete personally meaningful tasks. Female teachers should be role models. Bandura (1971) demonstrated that behaviours are acquired by watching another performed the behaviour. The model displays it and the learner observes and tries to imitate it. Teachers are invariably, role models whose behaviours are easily copied by students. What teachers like or dislike, appreciate and how they feel about their learning or studies could have a significant effect on their students. Unfortunately, however, many teachers seldom realize that how they teach, how they behave and how they interact with students can be more paramount than what they teach. In a nutshell, teachers' attitudes directly affect students' attitudes. Parent should have the same educational expectations of male and female students. Teachers should integrate computers into a variety of contexts and subject area. Computer technology on their own will not bring about improvement in educational quality but when we change our mindsets to use them reflectively and strategically, teaching and learning processes can be deepened.

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