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UNIVERSITY OF YAOUNDE I

FACULTY OF EDUCATION

DOCTORAL RESEARCH AND
TRAINING CENTRE IN SOCIAL
AND EDUCATIONAL SCIENCES

DOCTORAL RESEARCH AND
TRAINING SCHOOL IN
EDUCATION AND EDUCATIONAL
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**EDUCATIONAL TECHNOLOGIES AND STUDENTS' ACADEMIC
PERFORMANCES IN THE UNIVERSITY OF YAOUNDE I.**

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DEDICATION

This piece of work is dedicated to my beloved Mother FUASHAALE KUNWI Rose.

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Abstract

This work is entitled “Educational Technologies and students’ academic performances”. The COVID-19 pandemic imposed some restrictions such as social distancing and as a result schools were closed and this led to students’ poor academic performances. The purpose of this study is to examine the effects of educational technologies on students’ academic performances in the University of Yaoundé I. From this general objective, the question the research seeks to answer is what is the link between students use of educational technologies and students’ academic performances? The general hypothesis state that educational technologies significantly determines students’ academic performances. The theories that guided this work are the Unified theory of acceptance and use of technology and the social constructivism theory. The research design was a cross-sectional survey and the sample size selected was 377 from a population of 21497. The sampling technique was the simple random sampling method and the questionnaire was the instrument used for data collection. The simple linear regression model was used as data analysis technique and SPSS help us to analyzed and present the data descriptively and inferentially. The finding reveals that for hypothesis 1,the result of the linear regression analysis shows that the use of social media significantly influences students’ academic performances($R = 0.210$, $R^2 = 0.044$, $(F (1, 273) = 12.636, p < 0.05)$) and for hypothesis 2the result of the linear regression analysis shows that the use of mobile technologies significantly influences students’ academic performances($R = 0.224$, $R^2 = 0.050$, $F (1, 273) = 14.448, P < 0.05$) and for hypothesis 3,the result of the linear regression analysis shows that the use of Google Classroom significantly influences students’ academic performances($R = 0.288$, $R^2 = 0.083$, $F (1, 273) = 24.686, P < 0.001$). From the results we conclude that educational technologies significantly influence students’ academic performances. We recommend that University policy makers should therefore provide a standard network to enable students to effectively use educational technologies.

RESUME

Cette étude s'intitule « Technologies éducatives et performances académiques des étudiants ». La pandémie de COVID-19 a imposé la restriction de mouvement et la distanciation sociale qui a mis un terme aux activités en salle et par conséquent, les écoles ont été fermées. Cette situation pose donc le problème du faible rendement académique des élèves. Le but de cette étude est d'examiner les effets des technologies éducatives sur le rendement académique des étudiants de l'Université de Yaoundé 1. Après cet objectif général, la question de recherche à répondre est : quel est le lien entre l'utilisation des technologies éducatives et les performances académiques des étudiants ? L'hypothèse générale indique que l'utilisation des technologies éducatives influence significativement les performances académiques des étudiants. Les théories qui ont guidé ce travail sont la théorie socioconstructiviste, la théorie de l'apprentissage de la communauté d'enquête et la théorie unifiée de l'acceptation et de l'utilisation de la technologie. L'étude a été menée par le biais d'une enquête transversale. La population de l'étude était constituée de 21 497 étudiants avec un échantillon de 377 qui a été obtenu par la technique d'échantillonnage simple. L'instrument de collecte de données était le questionnaire. Les données ont été analysées, grâce au logiciel statistique SPSS, en utilisant une régression linéaire simple et ont été présentée de manière descriptive et inferentielle. Les résultats de l'étude révèlent que l'hypothèse 1 indique que l'utilisation des réseaux sociaux est efficace pour améliorer les performances académiques des étudiants ($R = 0.210$, $R^2 = 0.044$, $F(1, 273) = 12.636$, $p < 0.05$), l'hypothèse 2 indique aussi que l'utilisation des technologies mobiles est efficace pour améliorer les performances académiques des étudiants ($R = 0.224$, $R^2 = 0.050$, $F(1, 273) = 14.448$, $P < 0.05$) et enfin l'hypothèse 3 démontre que l'utilisation de Google Classroom est efficace pour améliorer les performances académiques des étudiants ($R = 0.288$, $R^2 = 0.083$, $F(1, 273) = 24.686$, $P < 0.001$). Sur la base de ces résultats, l'utilisation des technologies éducatives est efficace pour améliorer les performances académiques des étudiants et l'étude recommande que les décideurs politiques de l'Université doivent fournir donc un réseau standard pour permettre aux étudiants d'utiliser efficacement les technologies éducatives.

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LIST OF ABBREVIATIONS

AECT:	Association for Educational Community and Technology
BBC:	British Broadcasting Cooperation
CEMAC:	Economic and Monetary Community of Central Africa
CUTI:	University Center for Information and Technology
CTI:	Computer Teaching Initiative
ESS:	Education Sector Strategy
GESP:	Growth and Employment Strategy Paper
ICT:	Information and Communication Technology
NDS:	National Development Strategy
SPSS:	Statistical Package for Social Sciences
TAM:	Technology Acceptance Model
TV:	Television
UK:	United Kingdom
UNESCO:	United Nation Education and Cultural Organization
UTAUT:	Unified Theory of Acceptance and Use of Technology

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GENERALINTRODUCTION

In recent times, education has undergone a major paradigm shift, from traditional teacher-centered pedagogy to student centered pedagogy and one of the educational objectives of higher education institutions is enhancing students' academic performances through teaching and learning to prepare them for the society of tomorrow. Educational technologies have been introduced in schools to transform teaching and learning process and improve strategies for academic achievement. But in most less developed countries especially Cameroon unfortunately, educational technologies are not utilized effectively during the teaching learning process. Especially with the restriction of movement and social distancing imposed by the COVID-19 pandemic that put a stop to classroom activities have exposed this weakness in the Cameroon education system. The problem in this study is the poor students' academic performances. According to recent reports by UNESCO (2020), more than 1.9 billion students from 190 countries have been forced to shift from face-to-face to online learning and it is becoming increasingly difficult to impart knowledge to students due to poor availability and accessibility to technological facilities such as good smart phones and computers whose battery can store energy for more than two hours to support lectures. The unsatisfactory utilization of the instructional materials is equally linked to some reasons among which are low availability and less quality of educational technologies provided to school, lack of internet connection and teachers and students are not trained properly for the effective utilization of educational technologies for instructional process.

Despite the significant development in educational policy of Cameroon in the recent years, educational technologies are a new concept in Cameroon's system of education. Educational technologies have been introduced in the primary, secondary and higher education. Educational technology has been dominating in Cameroon's system of education for the past years and it is mandatory that learners are face with problem which they need to solve. With the use of educational technologies, learners do not only acquire knowledge but also use it in a meaningful way like solving of real life situation problems. The idea of Educational technology is a key factor in Curriculum Development and a driving force behind the process of the change. The have been a great change in the educational landscape in the developed countries as well as the less developed countries over the last three decades. For example, increasing access to higher

education has led to diversification of student population that comes with a wide range of learning styles and learning needs which are rather different from the traditional, student population. Higher education institutions are having the task to respond to the demands of globalization and knowledge economy, to prepare students with 21st century skills and competences for the labor market, which require changes in curriculum and teaching practices that facilitate a linkage with the world.

Educational technologies are seen as some of the tools to help manage some of these changes by some policy makers. Higher educational institutions are having a great challenge in how to prepare their students to meet the demands of the knowledge society. According to Figueiredo and Afonso (2005), the internet and communication technology are increasing and becoming more pivotal than ever as they take more roles as the leading information providers in the 21st century. Technological development in computer applications since the last decades has now brought alternative concepts of teaching and learning reality with the coming of e-learning and this has led to vital changes in education. In accord with Raja (2004), the new information and communication technologies (ICTs) such as the internet and the introduction of a broadband internet bandwidth to opt for e-learning as part of the efforts to meet the needs of the digital natives, enhancing the learning experiences and accelerating knowledge and skills acquisition. ICTs include internet, satellite, cable data transmission and computer assisted tools (Idegbekwe, 2019). The empowerment of individuals with educational technologies enhances student's preferences of traditional and student-centered learning approaches.

Online communication includes the social media which is a medium through which people create networks communities to share and collect information, ideas, messages and other content (Lee & Louis, 2016), Google Classroom and Mobile Technologies such as computers and smart phones. Social media is a wide range of things such as facebook, whatsapp, telegram, instagram, linkIn, video portals such as YouTube and email client such as Gmail. Social media is seen as technologies that facilitate social integration, make possible collaboration and enable deliberations across stakeholders. It is also a group of internet-based applications that allows the creation and exchange of user-generated content (Mensah, 2016). The concept of educational technology has moved across three phases of development. In 1967, it was termed as the audio visual aid. It was acknowledged as methods of materials and techniques till 1975. Then it was

referred as a system analysis by 1978. Therefore, the managers of educational technologies moved from technicians to specialists and then to group. At the first stage, the objectives were limited to technical and practical skills. At the second stage, these objectives were restricted to optimization of teaching learning process through the media. At the third stage, these were restricted to new attitude and approaches (Rashid, 1998).

The main objective is to examine the effects of educational technologies on students' academic performances or better still to show how educational technologies influences students' academic performances in the higher education context. To apprehend this problem, we divided our work in to two main parts; the first part is made up of three chapters and the second part is made up of three chapters.

Part one of our work is termed the theoretical framework, which is made up of the following chapters; chapter one titled the problematic of the study, chapter two, literature review on educational technologies and student academic performance and finally chapter three with title theoretical insertion on educational technology and student academic performance.

Part two on the other hand is equally termed the methodological part, made up of the following chapters; chapter four titled methodology of the study, chapter five, presentation and data analysis, and finally chapter six, data interpretation, discussion of results and suggestions.

CHAPTER ONE: PROBLEM OF THE STUDY

This chapter consist of contextual background, justification of the study, observation and problem of the study, formulation and stating of the problem, research question, secondary research questions, general and specific hypothesis of the study, the general and specific objectives of the study, thematic analysis, significant of the study and scope, thematic and geographical delimitation of the study and definition of concept.

1- Contextual background and justification of the study

International/ global context

Technology has change over the years. The evolution of technology in the education sector dates back 2,500 years ago (Floyd, 2020). Technology has transformed learning in classroom, with teachers keen to emulate new learning techniques with the help of technology. In ancient times, word of mouth was the only form of communication. As a matter of fact, learning was verbal.

In 1924, the British Broadcasting Corporation (BBC) started transmitting educational-based radio series, furthermore educational programs came to play in the 60s. In 1968, the United Kingdom (UK) government forms an opened University program partnering with BBC specifically designed to televise educational TV series meant for university students (Floyd, 2020). In 1989the UK Computer Board for the universities and Research Council established the Computer Teaching Initiative (CTI) centers to encourage the use of computers for learning and teaching. In 1874 the first institutionally sponsored distance program began in the United State at the Illionois Wesleyan University. The idea of a digital device to hold reading materials for immediate access existed long before the Amazone kindle and ipad. American engineer and inventor Vannevar (1945) described such a device “as we may think”, the device was intended for individuals to store books, records and communication. It inspired the development of early hypertext systems that evolved in to the worldwide web. Digital apps and cloud-based access are now available on multiple platforms. Digital textbooks, business and leisure materials can be downloaded on demand and libraries have even expanded to digital space by offering online books rentals and this has reduced the cost of educational content.

In France, by 1985 the subject of “technology” replaced “manual and technical education”. The French ministry of National Education has worked on computer integration in teaching with aim being to encourage innovation and several steps have been taken for the development of

computer and multimedia skills, both in school systems and at all levels, with a marked commitment at the University level (Bruillard, 2011). Germany calls for an overall digital transformation in the whole society. The initiative “Economy 4.0” and “Industry 4.0” from Germany contribute to promote digitalization of production and services. Since digital economy requires the support of talent education, Germany put forward the concept of “work 4.0 (Arbeit4.0)”, “vocational educations 4.0” and education 4.0”. Since 2012 HassoPlattner initiative in Germany has developed “opne HPI”, a free initiative online teaching platform, under the concept of Massive Open Online Courses (MOOCs) and spreading knowledge in the most advance way. In Italy one of the earlier formed of distance learning was done through correspondence courses and learning evolves from Web-based learning to computer-based learning as well as to online learning, e-learning and distance learning (Giovanni, 2008).

In South Africa, the changes in the national education policy Act and implementation of curriculum 2025 saw the introduction of technology as a school subject in schools (National Development of Education Policy Act no 27 of 1996). In Nigeria educational technology attempts to address educational challenges, it usage is to provide information and aids in the teaching learning process, it provides necessary resources to teachers, students and researchers when it is needed (Cabaleiro & Vera, 2020). These resources may be in the form of academic and non-academic journals, digital libraries, online assessment systems, textbooks, magazine, statistics, and tools to improve communication (Meshkat et al., 2011). In Ghana, the basic school computerization was created in 2011 to introduce computers and e-learning in to the entire education system to promote training and life-long learning. The government of Ghana have championed the use of ICTs in education for improve educational outcomes. The educational strategic plan (2003-2015) and (2010-2020) of Ghana education service identified the need for ICT education to help achieve the objective of the education strategic plan, which are carved in to Access, Quality, Gender and inclusiveness, and education management (James, 2015). The government of Kenya is prioritizing the use of ICT in teaching and learning at basic and higher education level, including through, collaboration with international agencies and organizations. In response to technological changes, the 2006 National ICT policy was revised, resulting in the development of the 2019 National ICT policy, which aims to achieve a knowledge-based society and ensure the availability of access, efficient, reliable and affordable ICT services (Peter, 2021).

1-1 National context

Cameroon is an ambitious country, having top decision making policies and millennial goals to become an emerging nation in 2035. The country is conscious of the input of technological advancement in the domain of education, economy, culture, and governance (Charles, 2012). The 1995 national forum on education which was held from the 22-27 of May 1995, chaired by the Minister of National Education, Robert Mbella-Mbape was generally focused on the problems that characterised our educational system which were; (1) a pedagogy that was based on reproduction rather than production; (2) a system demoralized by high dropout rates, irregular attendance and high repetition and failure rate; (3) poor quality teaching and irrelevant curriculum content with respect to geo and socio-historical circumstances of life at all levels (Fonkeng, 2010, p.201). In this respect, the recommendations of the forum and after deliberations and adoption by the parliament, the president of the republic in 1998 enacted the 1998 law to lay down guidelines for education in Cameroon. To respond to these, major strategic orientations, Cameroon involved in the Elaboration of the Education Sector Strategy (ESS) between 2006 and 2011, based on the Poverty Reduction Strategy Paper (PRSP, 2003). In adopting this Growth and Employment Strategy Paper (GESP, 2009) the government took it as a responsibility to promote growth as a source of wealth and employment. This is seen within the framework of vision 2035. The Cameroon government in respect to information and communication technologies has put in place a strategy of conceiving and implementing efficient and reliable programs in almost all sectors, inscribed in a document entitled National Development Strategy on Information and Communication Technology (2007).

It is without doubt that the state has prioritized Information and Communication Technology (ICT) in all sphere of the political, social, economic, cultural, and educational life. The president of Cameroon usually insists on Cameroon active involvement in the wake of technological development in a rapid changing world in all of his addresses to the nation. Besides Cameroon is among the sub-Saharan Africa countries that are making enormous progress in the use of information and communication technologies (ICTs) in the various development sectors, including education (Charles, 2012). Information and communication technologies were officially introduced into education in 2001 by the president of the republic (Tetang, 2007). Cameroon has multiple international affiliations in terms of bilateral and multilateral cooperation. In order to strengthen technological ties, ICT has a vital place in central Africa

(CEMAC) sub regional integration in higher education. Cameroon is a signatory to the 2005 “Libreville Declaration” which aims at constructing a space for higher education, professional training and research. It was followed by a conference of ministers of higher education to work on strategies of implementing reforms and new technologies in University system. There is no doubt that Cameroon has distinguished itself in attempting to materialize the use of ICTs in her higher education sector.

According to the National Development Strategy (NDS30), the government objectives consist of reconfiguring the national digital ecosystem, in particular by restructuring the sector by strengthening the management of a digital infrastructure heritage company, building the required digital infrastructure, securing the network generally. The government is considering the creation of digital parks and technological complexes with a view to develop digital content production, increase and diversified digital uses and services, develop the manufacture and assembly of digital parts and devices (National Development Strategy 2020-2030).The ministry of higher education has the responsibility to streamline issues of ICT to suit its contribution to nation building through state owned and private Universities and higher institutions of learning.

The state and higher institution of learning implement programs, strategies, cooperation and partnership to enhance successful teaching and learning as well as research. Cameroon has eight state Universities and many private and higher institutions of learning. The higher education policy guideline is contained in law No 2001/005 of 16 April 2001 on the orientation of higher education in Cameroon. Each higher institution of learning defines its specific and content based ICT priorities within the general framework of the ministry’s prescriptive line of action. The ministry has a budgetary line from which it gives subvention to both state and private institutions with the goal of modernizing every aspect of higher education in the area of ICT. The Cameroon ministry of higher education is primarily concern with the building of staff and students’ capacities, the establishment of international cooperation and the involvement of national and internal expertise in this domain.

The University of Yaoundé 1 is Cameroon’s pioneer University and is supposed to be the leading University in the country. In terms of technological advancement, the University has taken the initiative to create learning platforms with the repository site for a multiplicity of course content, for both online and offline exploitation. Cell phones, palmtops and handheld computers; tablet,

laptops and media players are all mobile learning devices. The education industry has move from distance learning to e-learning and to mobile learning. The teaching machine today has become the computer, the modern tablet and the smart phones.

1-2 Justification

I have chosen this study for many reasons among which are the following;

-Educational institutions all over the world are witnessing a substantial increase in online learning enrolment. The current Covid-19 situation has left no choice other than learning online for both educational institutions and the students. Educational institutions are now moving towards online platforms for delivering their courses. Changes in information and communication technologies have also change the qualifications and abilities expected from people in the current information age.

-In the 21st century, named as the information age with changes encountered in science and technology, people are expected to be active in creating and interpreting knowledge rather than directly obtaining information presented and needing to be directed. It is quite important for people to acquire these skills named as the 21st century abilities.

-It is evident that educational institutions also attempt to encourage individuals to think, criticize, know how to acquire knowledge, and have these abilities, and thus develop curriculum in this respect. In the curriculums which are accordingly, teacher and students' role have also changed to promote the learning of these 21st century skills. Students actively participate in the knowledge acquisition process rather than being passive listeners, teachers take a counselor role and direct students in this process.

-Another evident is that technology is used to address issues of access to education with equality and quantity. Besides technology is an essential life skill in the workforce, schools now have the responsibility to integrate technology in to curriculum and prepare students for 21st century skills. Technology provides students with easy-to-access information, accelerated learning, and opportunities to practice what they learned.

-In another perspective, the use of digital learning tools in classroom can increase students' engagement, help teachers improve their lesson plan and facilitate personalized learning.

Educational technology can foster collaboration not only can teachers engage with students during lessons, but students can also communicate with each other. Through online lessons, students get to work together to solve problems.

-Information media have an important part to play in the education and economic progress generally, and that new technique of communication offers special opportunities for acceleration of education. Students can learn on their own with media-self instruction and media keeps the student active in the learning process and this help bridges the concrete-abstract continuum and brings about equality in education and acquisition of new skills.

Thus it is from this that the researcher set out to find “the effects of educational technologies on student academic performance in the University of Yaoundé 1.”

1-2-1 Observation and problem of the study

1-2-2 Observation

In recent times, education has undergone a major paradigm shift, from traditional teacher-centered pedagogy to student centered pedagogy. Information and Communication Technologies have been introduced in schools to transform teaching and learning process and improve strategies for academic achievement. Educational technologies are utilized effectively and dynamically to strengthen and facilitate teaching learning process in the developed countries. But it is observed that in most less developed countries especially Cameroon unfortunately, educational technologies are not utilized effectively during the teaching and learning process. Especially with the restriction of movement and social distancing imposed by the COVID-19 pandemic that put a stop to classroom activities have exposed this weakness in the Cameroon education system.

It is becoming increasingly difficult to impart knowledge to students due to poor availability and accessibility to technological facilities such as good smart phones and computers whose battery can store energy for more than two hours to support lectures. The unsatisfactory utilization of the instructional materials is equally linked to some reasons among which are low availability and less quality of educational technologies provided to school, lack of internet connection and students are not properly trained to effectively use educational technologies for instructional process.

Furthermore, the infrastructure is not designed for the effective and successful integration of educational technologies. There is also the lack of institutionally and technologically sound software, poor or slow internet connectivity and electricity as well as lack of training in the use of computers. Therefore, it is right to say that our education is collapsing day by day.

1-3 Statement of the problem

According to Donna (2002), “online learning is not the next big thing, it is the now big thing” is a statement that in 2021 seems more accurate than ever before. Ever since 2002 there have been a shift towards mobile digital devices, such as tablets, laptops computers, computers as well as an expansion of wireless network connections has allowed for a rapid digitalization processes that have changed industries and everyday life. Different countries have switched to technology and on line teaching for a limited time to response to crises and shutdown of schools and Universities. In addition, education have undergone a major paradigm shift, from traditional teacher-centered pedagogy to student centered pedagogy (Oyarinde et al., 2020).

According to recent reports by UNESCO (2020), more than 1.9 billion students’ from 190 countries have been forced to shift from face-to-face education to online learning. There is therefore the need for effective integration of educational technologies in institutional delivery for purposeful and experimental learning to take place (Ibrahim et al., 2020).

The COVID-19 pandemic imposed some restrictions such as social distancing and as a result schools were closed and this led to students’ poor academic performances. This situation created a gap in students’ academic performances due to poor availability and poor accessibility to educational technological facilities and the lack of effective integration of educational technologies within the University of Yaoundé 1 and this study set out to complete the gap to enable the continuity of the teaching learning process during any pandemic.

1-3-1 Research questions Principal research question

To what extent does the used of educational technologies affects students’ academic performances in the University of Yaoundé 1?

1-3-2 Secondary research questions

To what extent does the used of social media affects students’ academic performances in the University of Yaoundé 1?

To what extent does the used of mobile technology (computers, smart phones) affects students' academic performances in the University of Yaoundé 1?

To what extent does the use of Google Classroom affects students' academic performances in the University of Yaoundé 1?

1-4-1 Hypothesis of the study

General hypothesis

The used of educational technologies significantly influence students' academic performances in the University of Yaoundé 1.

Specific hypothesis

Ha1. There is a significant relationship between the use of social media and students' academic performances.

Ha2. There is a significant relationship between the use of mobile technologies (computers and smart phones) and students' academic performances.

Ha3. There is a significant relationship between the use of Google Classroom and students' academic performances.

1-4-2 The objectives of the study

The general objective

The general objective of this study is to examine the effects of the use of educational technologies on students' academic performances in the University of Yaoundé 1.

The specific objectives

To examined the effects of the use of social media on students' academic performances.

To examined the effects of the use of Google Classroom platform on students' academic performances.

To examined the effects of the use of mobile technology (computers and smart phones) on students' academic performances.

1-5 Analysis of the main factors of the study

The following are the main factors of educational technology

1-5-1 Social Media technology

According to Kolan and Dzandza (2018), the continuous change in social media make it difficult to assign a fixed definition to it. However, some scholars have come up with different definitions based on their individual perspectives. Social media is defined as the different forms of online information, ideas, messages and others content (Lee & Louis, 2016). Using this definition, we can understand social media to be a wide range of things such as messaging apps like WhatsApp and Viber, profile-based platforms such as Facebook and LinkedIn, video portals such as YouTube and email clients such as Gmail. Social media is technology that facilitates social interaction, make possible collaboration and enable deliberations across stakeholder (Bryer & Zavatoro, 2016). Mensah (2016) described it as a group of internet-based application that allows the creation and exchange of user-generated content. Social media is seen as modern interactive communications channels through which people connect to one another, share ideas, experiences, pictures, messages and information of common interest (Ezeah et al., 2015). Social media technologies include the following:

- Facebook to form educative groups for sharing information on various subjects.
- LinkedIn to build profession connection.
- YouTube for teachers to upload course videos or create class presentations.
- Twitter to stimulate open debates on academic topics.
- WhatsApp for discussions forums.

1-5-2 Mobile technology, computer and tablets

Mobile devices are small and portable. This is advantageous because learners can carry them around and access information from everywhere. With mobile learning, educators can create e-books on various subjects. Students can then access this information by the click of a few buttons. Apart from that, the advancement of smartphones has made it possible to have advanced mobile apps. This software can be used in mobile learning and increases classroom lessons. Computers are available in portable sizes in the form of laptop together with tablets. These devices can be used to access websites and online journals. Students can carry out their research projects without the hustle of looking for library books.

1-5-3 Educational technology software

- Courseware
- Assessment software
- Reference software
- Classroom aids
- Educational games
- Simulation
- Desktop publishing

1-5-4 Television technology

Television as an audio-visual medium, is one of the effective media in distance education by its characteristics like widespread coverage of audience, supplying equality opportunity, transmitting the human resources to a big audience mass (Mediha & Serap, 2021). Television broadcasting reaches a large range of audience. The radio-television is the best teaching technology to provide all individual equal opportunities. Television, which has an important place in mass communication, has a significant role in distance teaching, instruction, explaining, clarifying, reinforcing, motivating, changing behavior, presenting unreasonable facts and events as well as using supplementary for other materials (Mediha & Serap, 2021). Explanations related to the subject and examples can be presented visually through the television, so the learners get motivated, his/her desire for learning increase, and therefore learning and remembering becomes easier.

Television broadcast help overcome the problem of inequality and imbalance among by providing equality in opportunities. Television may grant positive motivation such as attracting the learner's attention to a certain point or arousing attention with the movement of the camera's coming close, going away, and reflecting details. Television is an effective tool in expressing abstract concepts or ideas. Abstract concepts are usually produced and conveyed with words. According to Bates (1998, 215, 217), television in the learning process could be helpful in understanding abstracts ideas directly. Television is especially useful for lessons such as Geography, because it enables users to see whatever possible to see (Turan, 1994, P.160). Pettit, in his article titled "learning to swim alone" which is about the learners support system, point out that all distance education course element can give learner support (Pettit, 1998, P. 259). To him,

it is natural to use television, a multifunctional tool, in providing student support. According to Gibson, giving support to student through television is a significant factor in passing to learners (Gibson, 1998, pp 247-249). Consistent research shows that television motivates the learners by attracting him/her and increases the interest in the learning process (Sherry, P. 337)

1-6 Virtual Classroom

Virtual classroom permits students to take part in classroom even when absent from school. Here there is real-time interaction between teachers and students, thereby mimicking a traditional classroom. Virtual classroom combines several technologies and tools. By including webcams or video conference, participants can see each other. Students can put up their hands to ask or answer question. Learners can receive instructions from their teacher and get instant feedback. Virtual classroom can use live chat messaging. With virtual classroom instructors can trigger a high level of engagement and collaboration. Parents may gain from virtual classroom because if they are allowed, they can watch teaching and learning sessions to ensure satisfaction with the education their children are receiving.

1-6-1 Cloud Technology

The cloud host apps and services on the internet enable information to be stored, shared and access on any device that's connected to the internet. In education, the cloud is used to stored and share digital textbooks, lessons plan, videos, and assignments. It also gives students opportunity to chat live with their instructors and other classmates. In other words, cloud technology is enabling new educational model known as flipped classroom in which students can watch a lecture before class and spend the class time engaged in discussions, group work, and analytical activities. It is reducing the time of homework and getting lost between school and home and equally reduces the need for students to carry textbooks. It permits students to easily access information from any device connected to the internet and enable quick and easy access to the teacher through live chat options.

1-6-2 Virtual reality

One of the primary uses for this technology in the classroom is to take students on virtual flied trips to places otherwise inaccessible. For example, a student could take a virtual flied trip to ancient Egypt or to the bottom of the ocean. It provides engaging real-life experiences that

could otherwise be harmful or inaccessible. It appeals to virtual learners who like to see and experience things instead of merely reading about them.

1-6-3 Digital Readers and tablets

Schools are increasingly looking for ways to replace the bulky hard-copy textbooks with digital ones that are accessible through a tablet. They provide a centralized, accessible place for all reading materials as well as eliminate the need for students to carry around a heavy backpack full of books. Furthermore, the regular update of digital content eliminates the cost of purchasing new textbook edition every few years.

1-6-4 Artificial Intelligence

Artificial intelligence has the potential to personalized learning. Artificial intelligence is making its way into the educational sphere by means of automating grading and feedback and providing personal learning opportunities. It can save the teacher time by doing the grading and giving feedback on their behalf. It equally provides greater insight in to a student’s learning patterns.

1-6-5 Gamification

It increases student engagement since students learn better when they are having fun. The used of gaming in the classroom applies this concept and creates enthusiasm for lesson as well as provides immediate feedback.

Based on students interviewed we had the following statistics in terms of percentages about the link between educational technology and it sub factors on the table below.

Table 1

Main factor	number	Sub Factor	Corresponding response in terms of percentage %
Does Educational Technology have a link with the following sub factors?	1	Social Media	Yes 80 No 20
	2	Mobile technology, computer and tablet	Yes 80

			No 20
	3	Educational Technology Software	Yes 75 No 25
	4	Television technology	Yes 60 No 40
	5	Virtual Classroom	Yes 72 No 28
	6	Cloud Technology	Yes 55 No 45
	7	Virtual Reality	Yes 50 No 50
	8	Digital Readers and tablet	Yes 65 No 35
	9	Artificial Intelligence	Yes 58 No 42
	10	Gamification	Yes 60 No 40

Source: data from the field.

1-7-1 Significance of the study

1-7-2 Scientific significance

The study carried out in the context of this dissertation lead to a significant gain in knowledge for research in higher education and offers various opportunities for further research and practice at the university.

1-7-3 Social significance

These findings are of practical values for curriculum planning and identifying opportunities and barriers to the integration of technologies in the study context-especially in the transition to digital teaching formant, as has often been necessary, for example, in 2020 due to the COVID-19 pandemic.

1-7-4 Personal significance

The study carried out in the context of this dissertation lead to a significant gain of knowledge and research methodology.

1-8 Delimitation of the study

Thematic delimitations

Educational technology is a broad subject and therefore it was not possible to cover all the technologies in this single study. So the researcher concentrated only on those that are sued. Therefore, the study carried out in the context of this dissertation are limited to educational technological tools such as the social medial, the Google Classroom platform and the use of computers and smart phones in higher education.

Geographical delimitation

The study carried out in the context of this dissertation is only limited to the center region of Cameroon.

1-8-1 Definition of concepts

1-8-2 Educational technology

According to the association for educational communications and technology (AECT), educational technology is the “study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological resources” (Januszewski & Molenda, 2008, p.1; Reiser & Dempsey, 2007; Seels & Glasgow, 1998; Seels& Richey, 1994)

Educational technology is the development, application and evaluation of systems, techniques and aid to improve the process of human learning (Lucido & Borado, 1997).

According to Mathew (2020), educational technology is the utilization of apps and technological devices for the purpose of teaching and learning. Educational technology can happen inside or

outside of classroom, at any time, and in any place. Most modern technologies involve the use of wireless internet connection and electronic devices such as a smart phone, tablet or laptop or desktop computer.

Educational technology basically means all the intellectual and operational efforts made during recent years to regroup arrange and systematized the application of scientific methods to the organization of new sets equipment and material so as to optimize learning process (British Journal of educational technology, 1971).

1-9 Academic achievement

Academic achievement indicates performance outcomes that show the extent to which a person has accomplished specific goals that were the focus of activities in instructional environment, specifically in school, college, and university (Steinmayr et al., 2017).

Kimberly et al. (2009) defined academic achievement as the way students deal with their studies as well as the realization of different tasks assigned to them by their teachers.

Academic achievement is referring to as the product of education-the extent to which students, teachers, or instructors have achieved their educational objective (Ward et al., 1996).

School systems mostly define cognitive goals that are either apply across multiple subject areas (e.g., critical thinking or include the acquisition of knowledge and understanding in a particular or specific intellectual domain (e.g., numeracy, literacy, science, history). Therefore, academic achievement should be considered to be a multifaceted construct that comprises different domain of learning.

Due to the fact that the field of academic achievement covers abroad variety of educational outcomes and is very wide-ranging, academic achievement definition depend on the indicators used to measure it (Clement, 2019)

Among the many criteria that indicate academic achievement, there are general indicators such as procedure and declarative knowledge, knowledge acquired in educational system, more curricular-based criteria such as grades or performance on educational achievement test, and cumulative indicators of academic achievement such as educational degrees and certificates

(Steinmayr et al, 2017). All criteria have in common that they represent intellectual endeavors and thus, more or less, mirror the intellectual capacity of an individual.

Academic achievement is defined as apparent demonstration of understanding, concepts, skills, ideas and knowledge by a person (Tuckman, 2008).

Adane (2013) referred to academic achievement as the way student deals with their studies and how they cope with or accomplish different tasks given to them by their teachers in a fixed time or academic year.

Students' academic achievement is the hallmark and determinant of a student's success and future. It plays an important role in producing the best quality graduates who will become great leaders and manpower for the country; those who will be responsible for the country's economic and social development.

Academic achievement defines whether one can take part in higher education and based on the educational degree one attains, influences one's vocational career after education.

Besides the relevance for an individual, academic achievement is of great importance for the wealth of a nation and its property.

According to Adzharuddin (2014), student achievement is a multidimensional construct, consisting of three dimensions: students' characteristics, lecturer/teacher competencies and academic environment. Student characteristic dimension concerns how students deal with their studies and how they cope with or accomplish different tasks given to them by their teachers. The determinants of this dimension are student intelligence, personal and socioeconomic status (Salvation & Adzharuddin, 2014).

Within the academic context, for example, students to study and remember facts and being able to communicate their knowledge verbally or down on paper enhances academic achievement. Teachers' competencies dimension of academic achievement involves how well lecturers can impart knowledge to learners. In addition to this, the numbers of nonhuman elements in academic environment and their functionality help to define the academic achievement of students.

CHAPTER TWO: LITERATURE REVIEW

This chapter focuses on literature reading on educational technologies and its sub-factors such as social media, mobile technologies, Google Classroom and their impact on student academic performance.

2-1 Social media and its impact on student academic performance

According to Selywn (2012), Raymond and Afua (2021), the term social media is defined as the application that allows users to converse and interact with each other, to create, edit and share new forms of textual, visual and audio content, and categorize, label and recommend existing form of content. Social media therefore include the wide collection of internet based mobile services that connect people together to communicate, participate, collaboratively interact, discuss and exchange ideas and information on an online community.

The Cambridge dictionary defines social media as “forms of media that allow people to communicate and share information using the internet or mobile phones”.

Leonardi et al. (2013), defined social media as a wide range of software applications, which allow a large number of users to freely interact and share content with each other.

Kaplan (2010) and Boyd et al. (2017) affirmed that social media are internet-based applications built on Web 2.0 ideology and technology. Therefore, social media are built on Web-based facilities that allows for the construction of public or semi-public profiles by individuals or group of individuals. The most commonly used platforms that have been identified include Wiki pedia, instagram, WhatsApp, facebook, pinterest, Twitter, LinkedIn, Reddit, YouTube etc.

According to Michaeidou et al. (2011), social media is considered a tool for facilitating communication mechanisms, and bringing people together through sharing content, which is known as user-generated communication. Nah and Saxton (2013) stated that social media has become an important information channel from the perspective of work organization as a tool for searching for and finding available information, which evolves through collaboration between workplace employees. Social media refers to internet-based media that allows individuals to share information and knowledge (Chang & Chaung, 2014). Social media is defined as the means of interactions between people in virtual communities and network (Zeng & Gerritsen,

2014). Social media refer to new media technologies facilitating interactivity and co-creation that allow the development and sharing of users- generated content among and between organizations such as teams, governing bodies, agencies and media groups and individuals such as consumers and Journalists (Filo et al, 2015)

In the view of Dewing (2010), social media poses a liberal environment for and at any time where internet connection is available in order to meet their educational needs. The cell phones numbers and Wechat are used to get to teachers quickly during school days, if a student is going to be absent or late to school for an emergency. The teacher uses social media to communicate to with their students out of class as well as to plan school events. It also gives room for students to get from their teachers on school work especially doing the evening, weekend and even on holidays to help them not to be lagging behind. According to Hanks (2014), social medial may be seen as those activities involving human environment and the individual living and sharing resources together in the environment.

West (2012), asserted that social media has the ability to close the gap between the learners even if the teacher is physically distance away but exist among them and this therefore enable learners from all over the world to learn and work together without any hindrance. Social media is referred to as any media circulated with the help of social interactions. Social may also be refer to as the cybernetic and simulated relationships, among people, organizations, and companies etc., this involve the innovation, sharing or exchanging of data in the form of texts, images, and symbols (Basil et al., 2020).

George and Charles (2019), define social media as a means through which people interact together for the common good of all. Social media is seen as a central path through which individuals frequently interact and share ideas despite been far apart (Miah et al., 2013). Mehmood (2013) pointed out that social media networking sites can become useful instruments in ameliorating correct writing and spelling among students as it offers elasticity in learning, inspire inventive ideas and increase interpersonal interactions between students and instructors. Gulbahar et al. (2008), asserted that social media have a great impact on communication and have improve communication skills, ensures the realization of education based on collaborative strategies as well as improve peers support and social participation and commitment, learning and research in education in general.

Papacherissi (2010) acknowledges that some critics talk of social media as a self-networked acknowledging avenue serving as a key site for society and identity recognition in people's lives. There is always the potential for things to go wrong, and that is true for technology. Gurman (2015) argued that there is the likelihood of users not being courteous and respectful of others which could lead to derogations inappropriate for the school environment that circulate sometimes in this platform. Furthermore, users could easily display, send, receive or download any items that are sexually explicit or discriminating materials without the notification of their teachers or even the school administration. Omachonu and Akanya (2019) pointed out that despite the benefits of social media, it appears that the negative impacts of it on students is alarming a students tend to abandon their studies in a bit to catch up with the trends and distractions of this platforms such as texting and gaming.

In a study carried out by Raymond and Afua (2021), social media is rapidly changing the communication setting of today social world. The emergence of social media significantly influences the academic life of students. The study implored a qualitative approach in assessing the impact of social media on student academic life in higher education. The study targeted a sample of ten students that were interviewed within a period of two weeks. After studying the phenomena of interest to the study, and transcribing the different responses of the participants, the results pointed out that social media is widely used by students of higher education and participants are in support of the idea that social media contribute to their academic achievement.

Furthermore, the result of the study reveals that students are conversant and familiar with social media most importantly as a platform of discussion for their assignment and other course work. By the use of social media students can easily receive feeds on class schedules, class venues, send and get information from their peers, explore issues related to their course work and a host of others. This have gained support from Boyd and Ellison (2007) idea that social medial allow people to identify other users with whom they have a connection, read and react to posting made by them on site and send and receive messages either privately or publicly.

According to a study by Clement and Joseph (2019), the numbers of social media users are growing worldwide. This has culminated in to the world becoming a global village. It is therefore important to ascertain the impact of social media on student academic achievement. The study implored a quantitative approach to find out the effects of social media on student

academic achievement. It is anchored on the time displacement theory developed by Maxwell MC Combs. The sample consisted of 400 students. A questionnaire was the instrument used for data collection. After analyzing the phenomena of interest to the study using sample percentage, the results reveals that majority of student sampled used social media, spending a lot of time which displaces their study time. From Clement and Joseph (2019) finding, it shows that students spend much time on social media finding friends, messaging and profile update, fun and leisure, watching movies, dating and interacting with friends rather than on academic studies. The findings demonstrate that only a few students use social media for academic studies and decisions. This shows that a majority of students use social media for different purposes at the detriment of their studies.

The results of this study are in agreement with Kolan and Dzandza (2018) who pointed out that most students in higher education institutions exposed to social media networks and that they use social media for a variety of reasons. The study also revealed that students spend much time on social media and this agreed with the finding of Kirschner and Karpinski (2010) who observed that over involvement with social media have a negative effect on students' academic performance. Furthermore, student spent daily a huge part of their time on social networks for entertainment (Maqableh et al., 2015). Shah and Balaji (2020) noted that students are well consumers of social medial and become major content developers adding value to social network. Social medial is beneficial to students in the classroom and it built confidence as well as multiple task handling and effective usage of media, time management and how to restore their important academic literature on web device (Tynes, 2009). Schwartz (2009) noted that social media is a valuable tool in student academic learning.

Social media are technologies that made social communication easy and enable discussion among its participants (Shah & Balaji, 2020). Social media are the key sources for interaction with academic people through online networks (Muhammad, et al., 2021). According to Hughes (2009), social media are collections of internet-based websites, services and practices that support collaboration, community building, participation and sharing. Hamid et al (2011) noted that young students get help from scholars, improve their expertise and lessons with the help of social media which is vital for advance education. Studies showed that social media enhance the knowledge and collaboration among individuals in a supporting sense of educational learning

which potentially build an e-educational system that effectively creates easiness for the students for extra curriculum activities (Rao, 2017). Chu (2020) argued that social media provides the occasion to get opportunities for virtual education instead of traditional education where the physical distances between faculty and students are immaterial. Andresen (2009) advocated that, it is possible to improve efficient learning process as the main purpose of online conversation is to create an online learning environment that will achieve high level learning.

In a study carried out in Spain by Sonia (2019) to find out the impact of social media participation on academic performance in undergraduate and postgraduate students. The study applied the quantitative and the qualitative research approach. The participants in this study involve students taking one or two courses at undergraduate or postgraduate level. The results showed that the students who participated in social media-base activities presented a better academic performance than those who did not carry out any activity or who took part in a more traditional learning activity. These findings are in conformity with those of Welch and Brown-Forsyth and in line with Al-Rahmi (2015) who noted that social network participation is a means that can facilitate learning.

2-1-1 Mobile learning technology and its impact on student academic performance

Student academic use of mobile technology has grown exponentially in the last decade due to the extraordinary increase in the use of mobile devices particularly in education. As a result of the emergence of mobile technology, students have decrease the use of desktop computers in favor of personal technology, such as laptop, tablets and smartphones and their ownership of hand-held mobile devices have increased due to the development of universal technology. The impact of mobile devices on daily life is increasing each day. According to the “digital in 2020” report (Kemp, 2020) there are 5 billion, 190 million individual mobile learning users worldwide and this rate corresponds to 67% of the world population. Mobile learning can be conceptualized as a sub dimension of e-learning (Semerci et al., 2014).

According to Sharples et al (2010), mobile leaning can be thought of as supporting learning environment through technological tools such as computers, tablets or smartphones. Traxler (2007) noted that one of the most important features of mobile devices is to support and develop learning environments without space or time limit. Keskin and Kilinc (2015) noted that mobile tools provide interactive environment and enable various activities. Students can interact with

each other or with teachers. With the help of mobile tool, it is thought that the development of chat environments will support not only direction learning but also in direct learning.

According to Motiwalla (2007), mobile tools can be used actively in learning environments by developing the necessary software. Furthermore, Chinnery (2006) argued that individual interest in mobile tools can be used in the use of positive classroom environments and in supporting meaningful learning. Shamir-Inbal and Uzun (2019) noted that this generation uses mobile technologies to interact with others, absorb information from multiple sources, engaged in content creation, share information and views, acquired knowledge from online learning and open-access education resources and study in personalized learning environments using hand-held devices.

Burden et al. (2019) alongside Chen and Sager (2011) pointed out that the empowerment of individuals with mobile technologies enhances students' performances regarding the content and processes of traditional and student centered learning approaches. Beetham and Sharpe (2014) noted that student use of mobile technology can contribute to active experiences both inside and outside the classroom. Mobile technologies for individual student have changed the meaning of learning in and out of the classroom, influencing learning experiences with more active interactive tasks.

According to Kuh and Vesper (2021), the incorporation of digital technology in to pedagogical approaches can enhance student digital skills which can impact academic performance at university. Furthermore, Sung and Chang (2016) affirmed that student academic use of mobile devices facilitate their effective aspect and beside, their use of technology increase their participation rate in classroom, interest in learning, motivation to perform (Uzun, 2019; Trimmel, 2004). Hye and Pilnam (2021) found out that a well-planned instructional approach that integrate technology help students be engaged, perform well, and ultimately achieve success. The use of technology in advance learning experiences such as discussions, reasoning, problem solving, creating and scaffolding activities can be considered to facilitate student advanced cognitive development.

According to Sung (2016) mobile technology multi-functionality increases the potential for diverse type of teaching and learning and various learning scenarios. Mobile technologies enable

students to remain online constantly to access information at anytime and anywhere (UzunandKilis, 2019). Mobile technology enables students to access University services, apps, and websites to view their academic progress, course information, and other institutional services such as checking grades, viewing course syllabi, entering course/learning management system or accessing library resources.

Song (2014) and Ranieri (2016) pointed out that student use mobile technology to engage in active learning such as through classroom interaction using a game-based student response system, personalized learning with various apps, and collaborative activities using communication tools or informative tools (Song, 2014). Drain (2012) noted that the use of mobile technology by students have also contributed to their literacy and information processing skills. Students who use technology for academic purposes tend to demonstrate better academic outcomes.

Hyeand (2021) pointed out that the used of mobile technologies positively influence student academic performance. Furthermore, the finding of this study showed that students who actively use mobile technology for academic work are likely to be highly engaged in class, because they are more prepared for class activities due to their purposeful focused use of mobile technology. This finding are in line with Fu.Q.K and Hwang showing the positive impact of using mobile technologies to engage active learning during academic activities. However, Chen and Peng (2008) as well as Sana et al (2013), argued that the use of technology in a course does not always guarantee a positive impact on learning and performance. Furthermore, Rashid and Asghar explained that a negative relationship between technology use and academic performance may be triggered by the use of unreliable technology or by the excessively frequent use of technology, which can cause distraction and a shortage of time academic tasks.

According to Rashid and Asghar (2016), the integration of technology in to courses should be done with caution, as it may be disruptive or distracting and may consequently pose a threat to both students and faculty members. Duaghtery and Berge (2017), argued that the ability and portability of mobile devices, in particular bring with them unique opportunities and mobile devices are thought to have pedagogical affordances which make them potentially good for altering the way teaching and learning is done by providing new methods of instruction (Traxler, 2007).

Thanks to the ability to be online, mobile tools provides interactive environments and enable various activities. Student can interact with each other or with their teachers. With help of mobile tools, it is thought that the development of chat environment will support not only direct learning but also indirect learning (Keskin & Kilinc, 2015), due to the fact that learning is both a conscious and unconscious process. Mobile supported applications can be supported in both the formal and non-formal education (Ozturk & Talas, 2015).

Motiwalla (2007) noted that mobile tools can be used actively in learning environment by developing the necessary software. Ertas et al. (2011) argued that students interest and attitude towards a course can be change positively with the used of mobile technology. Rosenberg (2001) pointed out that e-learning environment has been noted to be the link between today and the future and therefore it should be supported and developed. Ruchteret al. (2010) investigated the effect of using mobile tools in environmental literacy and stated that there was a positive development in the motivation of the participants. Senel (2016) stated in his research on mobile driving habits that the self-efficacy benefits of students differ significantly according to the variable such as the monthly income of the family, gender, having mobile interest package and class level.

Kule (2012) conducted a research to investigate the perception of graduate students towards mobile learning and explained that their perception of mobile learning were high. Furthermore, Tanriverdi (2011) questioned student views at the end of the process that designed distance reported that mobile learning environment with mobile learning. He said mobile learning environment were effective in giving immediate feedback by the teacher, making changes in homework and being aware of learning environments. Students used mobile tools to strengthen their communication with their teachers and to improve their relationship with their teachers positively (Lan et al., 2009). Added to this, students stated that there was an increase in their questioning skills and motivation. Mcconathaet al. (2008) reported that mobile learning environment had a positive effect on students' repetition, practicality behavior, and their academic achievement increase.

2-1-2 Google classroom and its impact on student academic performance

Google Classroom is an online learning platform for schools that aim at virtual creation distribution and grading of assignment. It is an e-learning platform, which promotes critical

thinking, collaboration and social interaction with students and teachers on academic activities (Oyarinde et al., 2020).

According to Hemerungrote (2017), Google Classroom is an online educational platform created by Google companies. It is very easy to use and allow teachers to create classes, distribute assignment, post announcement, send feedback, upload course material for students to view and interact in the class stream or by email. The goal of the Google Classroom service is to streamline the process of sharing teaching files or assignment between teachers and students. Kean (2012) defined Google Classroom as a digital tool that enables students to attend classes online. Teachers work together with their students without meeting face to face. Teachers can post materials for their students through this medium, they can also make announcements and create assignment and quizzes for students to complete, submit and save online either in a web browser or Google Classroom App.

According to Al-Marroof and Al-Emran (2018), Google Classroom is a kind of blending way of learning that was initiated in 2014. It takes in to consideration the achievement of specific functions such as simplifying the student-teacher communication, and the ease of distributing grading assignment. It provides students with an opportunity to submit their work to be graded by their teachers online within the deadlines (Rana et al., 2018). Digital learning tools such as desktop computers, notebook computers, tablet computers, and smart phones enable learning to take place without teachers and students meeting face to face and this guarantee continuity in learning activities.

Digital technology is an essential tool that provides innovative educational opportunities by reorganizing students learning content, actively engaging students in classroom activities, and changing instructors' role in the classroom. In this digital era where technology simplifies virtually everything, contemporary student uses this technology in various formats in their daily activity, both within and outside the classroom environment (Oyarinde, et al., 2020).

Aagaard (2017) argued that this is the reason why majority of Educational activities is inseparable from technological practices. Nagele (2019) noted that one of the emerging digital technological tools is the Google Classroom which is a product of digital industry that provides numerous benefits to facilitate virtual teaching and learning. Furthermore, when students submit

their assignment, the teacher can highlight the content of each assignment, provide the student with instant constructive feedback, and evaluate his/her performance.

Hemrungle (2017) noted that Google Classroom also allows students to work through problem or assignment at their own pace while receiving support and guidance when needed. It therefore permits students to be self-directed and produces a learning environment that improves their knowledge and skills in subject area.

Oyarinde et al. (2020) reported that the Google Classroom platform create a space for private comment for students to interact with their mates or teachers on things relating to the topic taught which make the class interesting. Google Classroom is a free application designated to assist students and teachers connect, work together, organize and create assignment, it enable learning to be paperless (Iliyasu et al., 2020).

Mafa (2018), Shaharane et al. (2016) reported that Google Classroom is fascinating education and learning, students thought indicated satisfaction towards the learning activities in Google Classroom. Furthermore, Fashrurrozi et al. (2019) concluded a study to determine the requirement for development of learning that is exciting, active, and autonomous and effective. The results of the study show that integrated learning design based on Google Classroom is needed to improve student digital literacy. More so, Northey et al. (2015) stated that Google Classroom is very helpful and effective and present newer challenges in continuing education in different ways for both teachers and learners. First, it is available to anyone around the world with tools and applications that make up a package called Google App for education. The tools include Gmail, Drive and Doc. Janzen (2014) noted that Google Classroom is easy to use.

Northey et al. (2015) reported in their study that within the first six months of initiation of the Google Classroom, Google Classroom received approximately 30 million assignments from teachers and students. This shows that Google Classroom is highly recommended by educational community. Chika (2012) noted that the mode of learning among students in the digital age is quite different compared with the past generation of students. Digital age students are active experimental students, proficient in multitasking and depend on digital technologies to access information and to interact with others.

Rana (2018) stated that Google Classroom free students of papers which is a crucial factor in developing learning strategies. Therefore, students can keep their files more organized and less stored paperless in a single program.

According to Al-Emran & Al-Marouf (2018), Google Classroom is a newly recognized, innovation, and considered as one of the best platforms for teaching and learning. It provides a set of powerful features that make it a great tool for online learning. In addition, there are four pages available on Google Classroom that are helpful to support online learning, namely (1) Stream. In this stream is a place where teachers share announcements and post, (2) Classwork. It is the main page to organize assignments into units or folders. In this page teachers can create questions, quiz, assignment, post materials for students. (3) People. In this page teacher can notice list of teachers and students who enrolled in her class, and (4) Grades. In this page, the teacher can see all grades of her students.

Google Classroom help teachers save time and keep class organized and improve communication with students. It is free and available to anyone with Google App for Education (Iftakhar, 2016). Negara (2018) stated that Google Classroom is an online application promoted by Google for schools intended to facilitate teachers in compiling, creating and assessing student assignment by using automatic document storage and in a paperless way.

Dewle (2019) conducted a study to investigate the use of Google Classroom to improve listening skills in English for academic purposes for students of the second semester at university in India. The finding showed that Google Classroom platform was engaging and useful in improving students' listening skills. Furthermore, Haggag (2019) in his study discussed the use of Google Classroom in enhancing communicative grammar use on post-graduates' students and found out that students' performance improved after using Google Classroom in learning activities. Moreover, Fonseca and Peralta pointed out in their study to discuss the impact of using Google Classroom to teach writing skills in an EFL composition course at a national University in Costa Rica that, the use of this platform gave benefits and help students in developing their writing skills. They also found that Google Classroom was more satisfactory than other platforms.

Although the use of technology has been appreciated by many researchers such as Heggart and Yoo (2018) and Northey et al. (2015) and Everson et al. (2013), some educators do not perceive

it to be as good as traditional method of teaching and learning (Pienta, 2016; Henrie, Halv et al., 2015; Ranieri & Manca, 2013; Kitsanta & Dabbah, 2011). Furthermore, Jakakaew and Hhemrungrote (2017) argued that implementation of any technology in the classroom will not be successful if there is no openness to accept the tools and thus it will only drain resources.

CHAPTER THREE: THEORIES USED IN THE STUDY

The term theory is often used in everyday language to mean a guess or supposition. It is based on hypothesis and backed by evidence. According to the Business Dictionary, a theory is a set of assumptions propositions, or accepted facts that attempts to provide a rational explanation of the cause and effect relationship among a group of observed phenomenon. Theories are used to provide a model understanding of human thoughts, emotions and behavior (Kendra, 2009).

Theoretical framework is always important to educational authors whom sometimes they referred to them as pedagogies/instructional epistemologies. Theoretical framework is always considered by researchers depending on their outcomes that may be specific in teaching methods/strategies that may better up ones' framework. It should be noted that no framework is better or effective more than the other but they only help to provide a conceptual review which is separated from the methodologies or implementation. Many theoretical frameworks exist in educational technology but only a few will be examined. This study will examine three theories which are Technology Acceptance Model, Social Constructivism and the Community of Inquiry theory of learning and Unified Theory of Acceptance and Use of Technology.

3-1 Technology Acceptance Model

This study uses technology acceptance model (TAM) to give an insight in to user reaction to the technology adopted for the teaching and learning process. Technology acceptance model was first developed by Davis (1989) based on the theory of reasoned and action by Fishbien and Ajzen (1975) in psychological research. The theory of reasoned action points out that individual behavior is driven by behavioral intention where behavioral intention is a function of an individual attitude toward the behavior and subjective norms surrounding the performance of the behavior. In other words, it states that one's behavior and the intent to behave is a function of one's attitude towards the behavior and their perception about the behavior.

Alaa (2020) noted that the theory of reason action is one of the most fundamental theories of human behavior and is designed to explain virtually any human behavior. But it is general, corresponded, and does not refer to other variables that affect behavioral intention like fear, threat, mood, or previous experience.

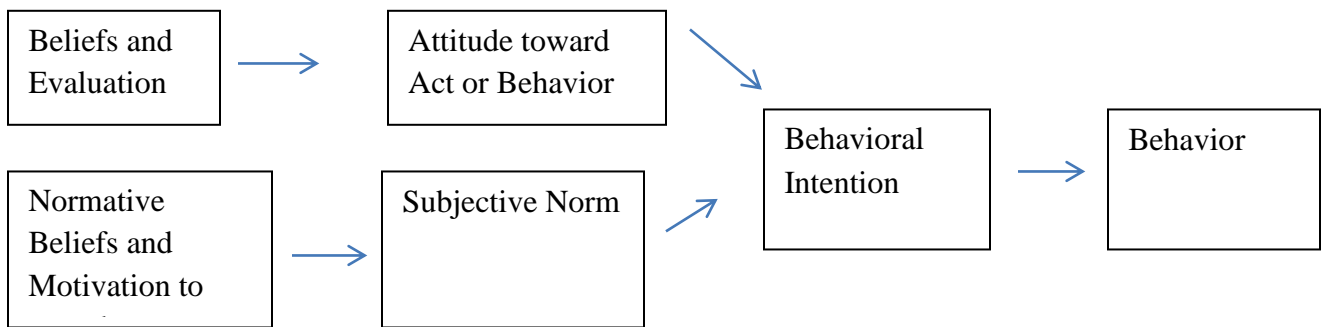


Figure 1: Theory of Reason Action

Davis (1989) developed and introduced the technology acceptance model and provided a theoretical framework that could explain the relationship of attitude-intention-behavior. The TAM received empirical support for being robust and parsimonious in predicting technology acceptance and adoption.

TAM explained that individuals’ performance of a specified behavior is determined by their behavioral intention to perform a certain task. There are two fundamental variables (perceived usefulness and perceived ease of use) which are considered the determinants of user acceptance. The TAM was developed to predict the probability of an individual or organization adopting a new technology. TAM asserted that the future use of technology could be predicted by applying the model at the time the technology was first used (Turner et al. 2010).

TAM consist of five variables, including perceived ease of use, perceived usefulness, attitude toward use, behavioral intention to use, and actual use. The two most significant factors in the model are perceived ease of use, which refers to the belief that effort, will not be required and perceived usefulness, which describes the belief that the technology enhances performance. These two variable, in conjunction with attitude toward use comprise the core variable of TAM. Outcomes variables include behavioral intention to use and actual use. TAM proposes that perceived ease of use and perceived usefulness of technology are predictors of user attitude towards using the technology, subsequently behavioral intention and actual usage. Perceived ease of use was also considered to influence perceived usefulness of technology.

An explanation of these variables is provided below.

Perceived Usefulness

Perceived usefulness refers to the degree to which the user believes that using the technology will improve his or her work performance (Davis, 1989). Students tend to use or not use an application based on the extent that they believe it will enhance their academic achievement. This implies that attitude towards educational technologies use, whether positive or negative is shaped by how users perceive the usefulness of technology in teaching and learning.

Perceived Ease of Use

Davis et al (1989) defined this as the subjective probability of the potential user that using a specific technology will increase his performance and how effortless he or she perceives using the technology will be. In addition, perceived usefulness has a direct impact on the intention to use while perceived ease of use indirectly influences intention to use through attitude. Perceived ease of use is a factor that directly affect students' attitude (Sumak et al, 2011).

Attitude toward Use

It refers to “user’s evaluation of desirability of his or her using educational technologies” (Schneberger et al. 2008).

Behavioral Intention to Use

It is defined as the “strength of one’s willingness to use the technology” (ching, 2018).

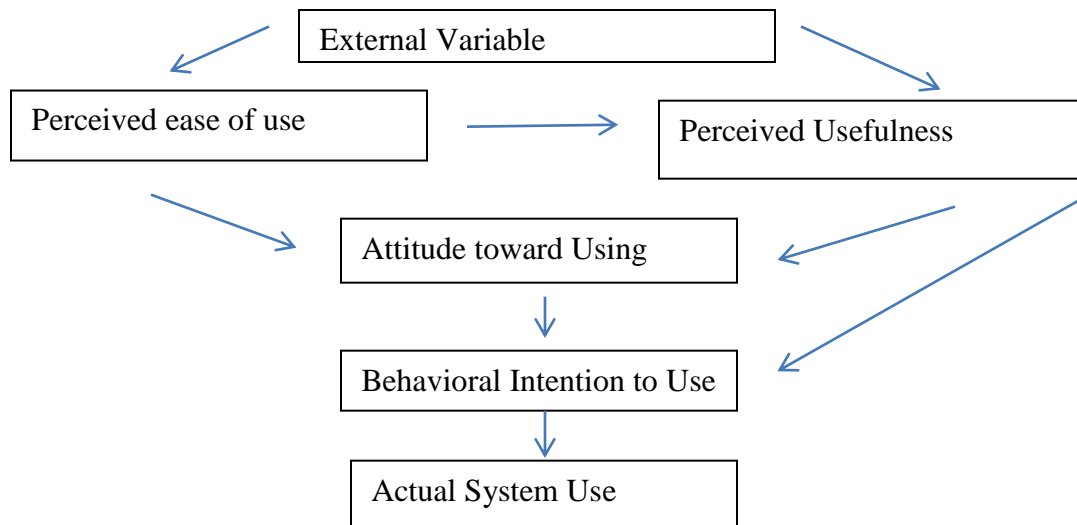


Figure 2: Original Technology Acceptance Model (Davis, 1989)

3-1-1 Social Constructivism Theory and the Community of Inquiry Theory of learning (CoI)

According to Garrison, Anderson, and Archer (2000), if a student is able to communicate purposefully in a trusting environment and develop interpersonal relationship within his or her knowledge and learning community, deep learning will take place. The study employed the social constructivism theory of learning which originated from Garrison community of inquiry theory (Garrison et al, 2000).

3-1-2 Social Constructivism theory

Swan (2010) described the social constructivism theory of learning as the knowledge that is constructed within social context through interactions within a knowledge community. According to Swan (2010), the theory was first developed by Vygotsky (1978), and over the years, it was extended by a number of researchers, such as Brown, Collins and Duguid (1998). According to Anderson and Dron (2011, p.84), social constructivist pedagogy acknowledges the social nature of knowledge and of its creation in the minds of individual learners. According to these theorists, a teacher's role is to guide the learning process while learners create the knowledge through interaction, and integrate it with existing knowledge. Anderson and Dron (2011), identify three levels of social constructivism during the learning process, namely cognitive, social and teaching presence, which is based on the community of inquiry theory framework developed by Garrison et al (2000). This framework indicates that all the three presence need to occur concurrently during online learning, hence learning experience in the intersection.

The interconnected components are described as follows:

- Cognitive Presence: the extent to which learners are able to construct and confirm meaning through course activities, sustained reflection, and discourse.
- Teaching Presence: the design, facilitation and direction of cognitive and social processes to realize meaningful and educationally worthwhile learning outcomes.

- Social Presence: the ability of participants in a community of inquiry to project themselves socially and emotionally as real people through the medium of communication (Anderson & Dron, 2011).

According to Moore (1993) in his interactions (student-student, student-teacher, student-content), the three presences have to be present for learning experience to be achieved. The combination of these three interactions is vital for learning to occur (Moore, 1993). The community of inquiry learning theory framework considers learning in an online environment, which requires learners to be actively engaged with the instructor, other learners and content to achieve meaningful deep learning (Saadatmand et al., 2017). Community of inquiry theory presences imply that there should be some form of interaction or collaborative learning, for example the teacher presence refers to interaction with instructor, cognitive presence relates to interaction with the content and social presence refers to interaction with other learners (Saadatmand et al, 2017). According to Harrisim (2012, p.90) online collaborative learning (OCL) ‘provides a model of learning in which students are encouraged and supported to work together to create knowledge, to invent, to explore ways to innovate, and, by so doing, to seek the conceptual knowledge needed to solve problems rather than to recite what they think is the right answer’.

3-1-3 Unified Theory of Acceptance and Use of Technology (UTAUT)

Recently, the Unified Theory of Acceptance and Use of Technology have taken place as one of the most developed and intensive model to test technology adoption and acceptance. The research study was carried out by Venkatesh et al. (2003) aimed to define a unified form of technology acceptance theories models. The Unified Theory of Acceptance and Use of Technology becomes one of the most integrated and developed technology acceptance theories by adopting the most advantage constructs from other older theories and model.

These limitations are summarized as follows:

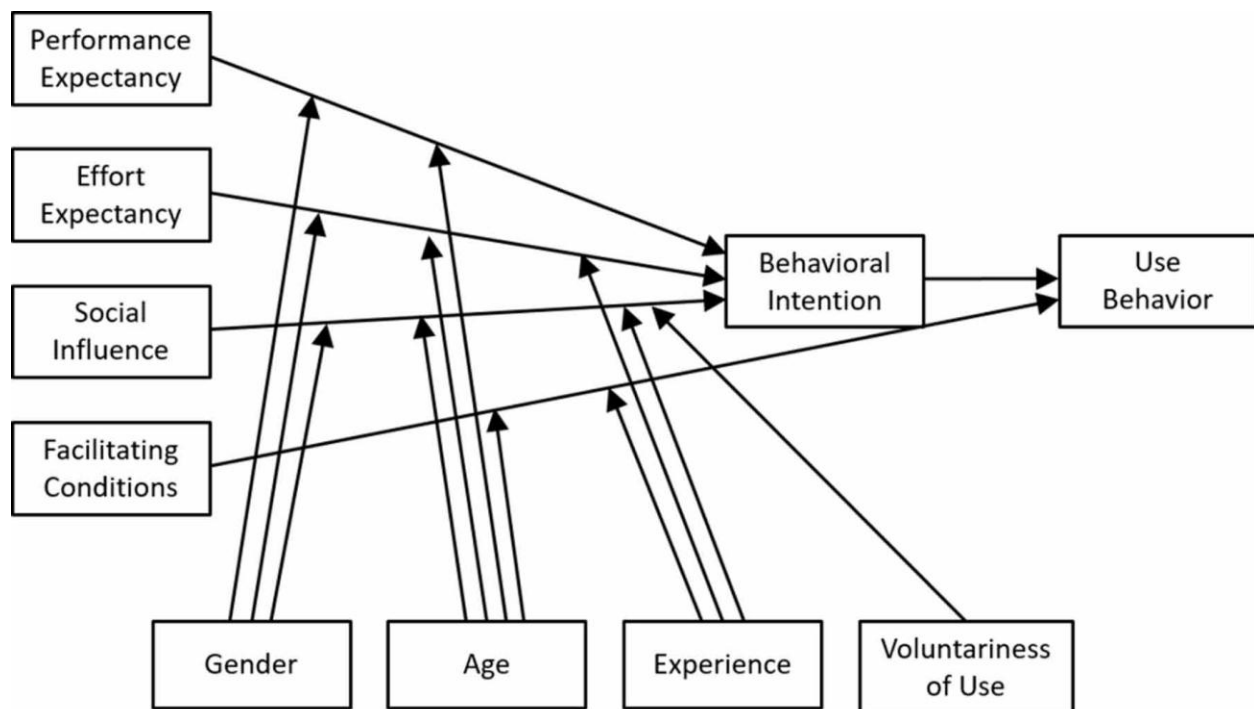
- The information technologies which have been studied by the older theories were simple and individual-oriented and faraway from complexity and sophisticated organizational technologies.

- Most of the testing operations applied via the older theories were picked up after the participant decision to accepting or rejecting the technology while it should be applied during the technology adoption stage. So, the adoption decision was retrospective.
- The majority of the comparative studies of the theories were cross-sectional.
- Most of the testing operations have been picked up in the voluntary usage contexts, were unable to generalize their results on the mandatory usage setting.

This theory is one of the most powerful technology acceptance theories which were adopted to examine the ability of users to accept technology and their intention to adopt new technologies.

In 2003, Venkatesh and his research group reviewed the following eight theories of technology acceptance: The Theory of Reason Action (TRA), the Theory of Plant Behavior (TPB), Technology Acceptance Model (TAM), the combined form of TAM and TPB (C-TAM-TPB), Model of PC Utilization (MPCU), Innovation Diffusion Theory (IDT), Motivational Model (MM), and Social Cognitive Theory (SCT). As a result, they proposed a new theory named as the Unified Theory of Acceptance and Use of Technology (UTAUT) to be as a unified form benefiting from the unique characteristics of all other older mentioned theories and model.

Figure 3: Unified Theory of Acceptance and Use of Technology (UTAUT)



(Venkatesh et al., 2003)

3-1-4 Definition of constructs of the Unified Theory of Acceptance and Use of Technology

- Performance Expectancy: the capability of the technology to providing benefits and enhancing the performance to the user according to his/her expectation (Venkatesh et al. 2003, P 447).
- Effort Expectancy: user expectations about the ease of use technology (Venkatesh et al. 2003, P 450).
- Social Influence: the expected influence of others on the user to start and continue using the technology (Venkatesh et al. 2003, P 451).
- Facilitating conditions: the expected level of organizational and technological infrastructure that can support the use of technology (Venkatesh et al. 2003, P 453).
- Behavioral intention: the expectation of the users' intention to perform plans and decision regarding the use of technology (Venkatesh et al. 2003).

The research work of Tan (2013) studied Taiwanese college students' needs for English Language e-learning system. The researcher used the Unified Theory of Acceptance and Use of Technology model for investigating Taiwanese students' acceptance of English Language e-learning web sites. This study applied over 176 Taiwanese college students. The results showed that performance expectancy, effort expectancy on behavioral intention and facilitating conditions as well as the behavioral intention has a positive effect on usage behavior.

3-1-5 Limitations of the theories

Technology Acceptance Model has been applied in numerous studies testing user acceptance of information technology, for example Word Processor (Davis et al, 1998), Spreadsheet application (Mathieson, 1991), e-mail (Szajna, 1996), web browser (Morris & Dillon, 1997), telemedicine (Hu et al., 1999), websites (Koufaris, 2022), e-collaboration (Dasgupta, & McGarry, 2022), and blackboard (Landry, Griffeth et al., 2006). Maslin (2007) in his study investigated Technology Acceptance Model for work-related tasks with the e-learning, and used TAM as the bases for hypothesizing the effect of such variable on the use of e-learning as the application and found out that the contrary to what TAM hypothesizes, attitude was found to have no effect on intention to use. This reflects limitations of the TAM's applicability with respect to technologies,

user population or both. Furthermore, TAM appears to lack adequate specificity to explain and enunciate attitude and intention of students.

Furthermore, according to Alaa (2020), TAM is a powerful model for technology application, it replaced Theory of Reason Action attitude towards behavior with two technology acceptance measures: perceived usefulness and perceive ease of use. It is less general than the theory of reason action. But TAM does not include the theory of reason action subjective norms. It does not provide any feedback on some factors like integration, flexibility, completeness of information, and information currency. It does not specify how expectancies are influencing behavior.

According to Harrisim (2012), learning needs to include conceptual learning and knowledge building which should be based on the norms of discipline. Bate (2015) note that based on these three social constructivism levels and the community of inquiry learning theory framework, it is evident that an online environment also need to incorporate online collaborative learning and community of practice. The role of the teacher or teaching assistance is seen as critical, not only in facilitating the learning process and providing appropriate resources and learners activities that encourage this type of learning, but also, as a representative of knowledge community, by ensuring that the core concepts, practices, standards and principles of the subject domain are fully integrated in to the learning cycle (Harrisim, 2012). According to Wenger (2015), community of practice refers to members of a community informally bound by what they do together and by what they have learned through their mutual engagement in these activities. Lave and Wenger (1991) model of situated learning suggests that learning comes from being involved and participating in a community of practice.

Akbar (2013) applied the Unified Theory of Acceptance and Use of Technology model to investigate the effective factors of students' technology acceptance and use at a higher-education institution in Qatar. This exploratory longitudinal study examined the Unified Theory of Acceptance and Use of Technology's constructs and moderators and its applicability for academic environment and introducing educational technologies to students. The results showed that all constructs and moderating variables have significant influences, except the level of experience. Furthermore, the researcher reported that the UTAUT model could be utilize to test

technologies in the educational setting, with a probable need to be modified in order to fit the context.

CHAPTER FOUR: METHODOLOGY

This chapter constitutes different techniques used by the researcher to collect data on the topic; **‘Educational technologies and students’ academic performances in the University of Yaoundé 1’**. The techniques are; recall of the problem, recall of research questions, research design, area of study, population of the study, sampling techniques and sample size, instrument for the data collection, method of data collection, return rate of questionnaire and method of data analysis and ethical consideration.

4-1 Recall of the Problem

The research problem is the axis around which the whole research effort revolves, and is the basis for inter relational elements of a research study, including purpose, research question, method, results and conclusion. The purpose of this theoretical paper is to show how the use of educational technologies can positively facilitate and influence student academic achievement rendering them more competitive in the global society.

However, we have notice that despite the efforts being put in place by the government through the ministry of higher education, the administration of the University of Yaoundé 1 as well as international partners, much is still to be done because of low availability and poor students’ accessibility to educational technologies within the University of Yaoundé 1.

4-1-1 Recall of research questions

A research question is simply a question that a research project set to answer or it is an answerable inquiry in to a specific issue, meaning that it is an initial step in to a research project. We will have two types of research questions i.e. general and specific.

4-1-2 General question

To what extent does the use of educational technologies affects students’ academic performances in the University of Yaoundé 1

The synoptic table

Tableau 1: synoptic table highlighting research general hypothesis, variables, modalities, indicators and indices

General Hypothesis	Variables	Modalities	Indicators	Indices
	Educational technologies	Social media	<ul style="list-style-type: none"> • WhatsApp • Telegram • You Tube • Facebook 	<ul style="list-style-type: none"> • Interaction • Collaboration • communication
		Mobile technology (computers, smart phones, tablets)	<ul style="list-style-type: none"> • Computers • Smart phones • Tablets 	<ul style="list-style-type: none"> • Information search • Interaction • Class presentation
		Google Classroom	<ul style="list-style-type: none"> • Classes • Settings • Classroom folders 	<ul style="list-style-type: none"> • Organization of classes • Send email notification • Uploading class materials
	Student academic achievement			

Recall of hypothesis

General hypothesis

Educational technologies significantly influence student academic achievement

Table2: Presentation of variable

General hypothesis	General research question	Specific hypothesis	Specific research questions	I.V	D.V	Data collection instrument	Data analysis
Education al technologies significantly influence student academic achievement	To what extent does the use of educational technologies affect students' academic achievement in the University of Yaounde 1?	S.H.1 The used of social media significantly influence student academic achievement in the University of Yaounde 1	S.R.Q.1 To what extent does the use of social media affects student academic achievement in the University of Yaounde 1?	<ul style="list-style-type: none"> Social media 		Questionnaire	Analysis of content
		S.H.2 The used of Google Classroom	S.R.Q.2 To what extent does the	<ul style="list-style-type: none"> Google Classroom 			

		significantly influence student academic achievement	used of Google Classroom affects student academic achievement in the University of Yaounde 1?				
		S.H.3 The use of computers and smart phones significantly influences student academic achievement	S.R.Q.3 To what extent does the use of computers and smart phones affects student academic achievement	<ul style="list-style-type: none"> Computers and smart phones 			

4-1-3 Research design

According to Deng (1998), he defined research design as a plan, structure and strategy of investigation conceived by the researcher to obtain answers to research questions and to control variance. A research design also refers to the overall strategy that the researcher chooses to integrate the different components of the study in a coherent and logical way, thereby ensuring that the research will properly address the research problem; it constitutes the blueprint for the

collection, measurement, and analysis of data. A research design will typically include, how data is collected, what instruments will be used, how the instrument will be used and the intended means for analyzing data collected. The design adopted for this study is the descriptive survey design in which data will be collected at a single point in time. This design will enable the researcher to yield maximum information and provide an opportunity for considering many different aspects of the problem. The research design also helped to minimize bias and maximize the reliability of data collected. A survey is chosen because the breadth of coverage of educational technology is massive and it could produce a large amount of data in a short time for a fairly low cost. The researcher is also able to set a definite time span for the study which will assist in planning and delivering the results. A survey is chosen because the design is well suited for descriptive data which the researcher intends to collect on ‘**educational technologies and student academic performance in the University of Yaoundé 1**’. The results gotten from the study, the sample shall be generalized to the entire population.

4-1-4 Site of Study

A site of study according to Fonkeng, Chaffi and Bomda (2014) is a geographical and sociological place where your population of study lives, with the specificity of Cameroon that is made up of 10 regions, our study will be limited precisely in the center region (Yaoundé) which is the political capital of Cameroon, within a time, frame MAY to JUNE 2022. Our sample will be made up of undergraduate, postgraduate and Doctorate students from three faculties (faculty of science, faculty of Arts, Letters and Social Sciences, faculty of Education) of the University of Yaoundé 1. The place that will serve us for our cross-sectional survey is no other place but the University of Yaoundé 1.

4-1-5 Description of site of study

The University of Yaoundé 1 is a public University in Cameroon, located in the capital Yaoundé. It was form in 1993 following a University reform that split the country’s oldest University, the University of Yaoundé in to two entities: The University of Yaoundé 1 and the University of Yaoundé 2. The main campus is Ngoa-Ekelle located in Yaoundé 3 sub Division in the Mfoundi Division of the Central region.

The University of Yaoundé 1 consists of:

- The faculty of Arts, Letters and Social Sciences (FLASH)
- Faculty of science (FS)
- Faculty of Medicine and Biochemical Sciences (FMBS)
- The teacher's Training College of Yaoundé HTTC
- The national Advance School of Engineering
- The Higher Teacher's Training School of Ebolowa

Source CUTI (UY1)

4-1-6 Population and sample

It is important to note that data collection imposes your choice of population of study. It is a group of individuals on which research will be carry out on. This group of individuals should be able to bring out objective and positive responses to the researcher's questions. Champagne and al (1994) paraphrase by Noubissie. A population is the entire group that you want to draw conclusion about. Whereas a sample is the specific group that you will collect data from. The size of the sample is always less than the total size of the population. In research, a population doesn't always refer to people. Throughout our research, we will work with the students of the three faculties of the University of Yaoundé 1. In this regard, the populations we are going to use for our scientific research are the students of the University of Yaoundé 1. As sample we have decided to take 350 students from the three different faculties.

Table3: Targeted population

Faculty	Population
1. Science	8536
2. Arts, Letters and Social Sciences	12060
3. Education	901
TOTAL	21497

Source: CUTI (UY1)

4-1-7 Sampling and sample technique

Mbua (2003) defined a sample as a sub unit of a population or a total group which the researcher composes and investigate as a part of the study. Also, Nworgu (1991) defined sampling population as a smaller group of elements drawn through a definite procedure from a specified population. The elements making up this sample are those students the researcher actually studied

Sampling technique according to Graw hills and technology Dictionary is a method used in drawing samples from population usually in a manner that the sample will facilitate determination of some hypothesis about the population. We can distinguish 2 main types of sampling i.e. probability and non-probability sampling. In probability sampling, the sample is selected based on randomization criteria, and every member of the population has a chance of being included. On the other hand, non-probability sampling method includes convenience sampling, voluntary response sampling, purposive sampling, snowball sampling and quota sampling. On this note 350 students were selected using the simple random sampling technique in the sense that all the students were given equal opportunities to be selected from the three faculties as participants in this research. Using quantitative questionnaires, this study was design to understand and demonstrate the impact of educational technologies on student academic achievement through a cross-sectional survey of the phenomenon. The researcher used Strongly Disagree (SD), Disagree (DA), Agree (A), and Strongly Agree (SA).

4-1-8 Accessible population

The accessible population is made up of students selected from the following faculties; of Science, faculty of Arts, Letters and Social Sciences, faculty of Education of the University of Yaoundé 1.

4-2 Sampling population

Mbua (2003) defined a sample as a sub unit of a population or a total group which the researcher composes and investigate as a part of the study. Also, Nworgu (1991) defined population as a smaller group of elements drawn through a definite procedure from a specified population. The elements making up this sample are those students the researcher actually studied.

4-2-1 Sample size

A sample size is a representation or proportion of the population. The sample used in this study is composed of 350 students from the following faculties; the faculty of Science, the faculty of letters art and human sciences and the faculty of education. Since the population was large and infinite the sample was drawn from the Krejcie and Morgan table for sample size

Table4: Sample size

Faculty	Accessible population	Sample size of students
Science	8536	200
Letters, Art and Human Sciences	1260	100
Education	901	77
Total	21497	377

Source: CUTI (UY1)

4-2-2 Sampling techniques

Graw hills Science and technology Dictionary defined sampling techniques as a method used in drawing samples from population usually in a manner that the sample will facilitate determination of some hypothesis considering the population. The sampling technique used for this study is the simple random technique in the sense that all the students where giving equal opportunities to be selected. The researcher used Strongly Disagree (SD), Disagree (D), Agree (A) and Strongly Agree (SA).

4-2-3 Procedure and criteria of selection of participants

Our study is based on the effects of educational technologies on student academic achievement in the University of Yaoundé 1. So to act as a participant you have to fulfill certain conditions that are the criteria of selection. Beside the criteria, we have a scale of selection and this will be done following a procedure.

4-2-4 Criteria of selection

To be selected our participants have to be submitted to the criteria of inclusion and exclusion.

❖ Inclusion criteria

We primarily limited the research to the University of Yaoundé 1.

Participants chosen for our study were selected randomly from the faculty of science, faculty of letters art and human sciences and the faculty of education through the simple random sampling technique

❖ Exclusive criteria

You can be a student of the University of Yaoundé 1 inscribed in more than one faculty but must be a student in one of the three faculties.

4-2-2-1 Type of research: choice and justification of choice

Being a survey form of research, our work will be based on quantitative research methodology, using questionnaires as data collection method. A quantitative research method is defined as the process of collecting and analyzing numerical data. It is used to find pattern, averages, make predictions, test causal relationship, and generate results to wider population (Creswell, 2012). We choose this research method because the use of scientific methods for data collection and analysis make generalization possible with this type of approach. Interaction made with one group can be generalized. Similarly, the interpretation of research findings needed not to be seen as a mere coincidence (Williams and May, 1998, P2-34). It is important to note that research methods in research are essential, for it determines its success, validity and reliability.

4-2-2-2 Data collection

The research team used one main approach to study the impact of technology on student academic achievement which is the use of a questionnaire. Administering a questionnaire allows the researcher to generate data specific to their own research and offers insight that might otherwise be unavailable (O'Leary, 2014). Furthermore, the questionnaires enable us to reach a large number of respondents, represent an even larger population as well as allow for comparisons and generate quantitative data through the use of closed-ended questions.

4-2-2-3 Instrument of data collection

❖ Questionnaire

A questionnaire is a list of questions or items used to gather data from respondents about their attitudes, experiences or opinion (Creswell, 2012). Questionnaires are more common because they are easy to implement and inexpensive and give a deeper insight. The questions on the questionnaire are closed-ended questions which offer respondents a set of choices to select from. Close-ended questions are the best for collecting data on quantitative variable.

Data collection for this study was done through a structure questionnaire that was developed for this purpose. The items are contextualized and form to fit the research design of this study. A 4-point likert scale, ranging from 1-point represented 'strongly disagree,' 2-point represented 'disagree' 3-point represented 'agree' and 4-point represented 'strongly agree' is employed to measure all the survey items. The survey involves a total of 28 items. It also includes demographic data such as gender, age, educational level, Faculty.

The questionnaire survey was pilot tested with a panel of students, academics, and researchers, after which essential amendments were made in order to enhance the clarity and content of the questionnaire.

4-3 Method of data analysis

The researcher used descriptive statistics to draw conclusions from the data collected. In this case, simple tables, conclusions are drawn with regards to the respondents on the issues raised and simple linear regression used to test for the hypotheses.

Tableau 5: Return rate of students' Questionnaire

Faculty	Number Given	Number Returned	Percentage (%)
Science	200	160	80
Arts, Letters and Social Sciences	100	79	79
Education	77	36	72

Source: Data from the field

4-3-1 Validation of the data collected tool

The validity of an instrument is the capacity of what is purport (Orodh0, 2004) to measure. It refers to the level of correctness of the implications whose ground is on the study outcomes. It is also seen as the degree to which research findings truly reflects on the objectives under the study. Validity focuses on the accuracy of results. The questionnaire was appraised by supervisor and due adjustments were done to realize the content validity. Finally face validity was done through pilot study and the cronbach alpha coefficient was 0.812 above the 0.5 standard for validity of a questionnaire.

4-3-2 Reliability of the instrument

Mugenda et al. (2003) indicates reliability as the measures of the extent to which the study instruments give consistency on result in two or more trials. The investigator adopted the test retest reliability test which determined the reliability of the instruments. Then, the collected scores were computed using the Pearlman correlation coefficient.

4-3-3 Data collection procedure

The researcher obtained research permission from the faculty, which was signed by the dean of studies. After that, a prior visit to the internship school where the first phase of the administered questionnaire was carried out in order to test the validity and the reliability of the instruments. After this was done, the researcher set out for his sampled faculties in the University of Yaoundé 1. While there, the investigator contacts the students to familiarize himself with the respondents and explain to them the procedures and the purpose of the study after which the questionnaire was administered immediately the questionnaire were filled out.

Tableau 6: Background information about subject;

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THEME (modalities)	SUB THEMES (indicators)	CLARIFICATION
1. Social media	<ul style="list-style-type: none"> • WhatsApp • Telegram • You Tube • Facebook 	
2. Mobile technologies	<ul style="list-style-type: none"> • Computers • Smart phones • Tablets 	
3. Google Classroom	<ul style="list-style-type: none"> • Classes • Settings • Class Folders 	

4-3-3-1 Formulation of concept

I am FUASHAALE KUKE KINGSLEY a master student in the University of Yaoundé 1, Faculty of Education, Department of Curriculum and Evaluation. I am carrying out a research on the topic ‘**educational technologies and students’ academic performances**’. I am appealing to you to help me answer these questions and your identity and responses will be kept confidential and you have the right to quit from participating at any time when need arises. Thanks for participating in this research.

Immediately the data was collected, analysis started at once. Where the process involves sorting out incorrect responses, coding and categorization then follows depending on the items on the questionnaire. The quantitative data was arranged systematically by the researcher and was computed applying statistical tolling SPSS (statistical Package for Social Sciences).

CHAPTER FOUR: DATA PRESENTATION AND ANALYSIS

In this chapter we will be presenting data collected from the field by grouping, classifying and arranging them according to different categories, themes or area of interest in order to facilitate understanding.

5-1 Presentation of data

This section details with the background information of the participants. It gives information on the gender of the participants, age of the participants, level of education of the participants, and the faculty of the participant. The information was purposed at testing the appropriateness of the participants in answering the questions regarding their use of educational technologies.

5-1-1 Frequency distribution by Gender

From the analysis, the figure below indicates that out of 275 participants involve in this study, there were more male [m=163, %=59.3] than female [f=112, %= 40.7]

Gender			
Element		Frequency	Percentage
Valid	Male	163	59,3
	Female	112	40,7
	Total	275	100,0

Table7: presenting the frequency distribution by Gender

Frequency distribution by age group

This section was focus on participants' age group distribution. The finding revealed that most participants were within the age group of 15-25 years [f=239, %=86.9] followed by the group 26-36 [f=35, %12, 7]. The group >37 years had the least number of participants [f=1, %=0.4].

Age range			
Element		Frequency	Percentage
Valid	15-25 years	239	86,9
	26-36 years	35	12,7
	37-47 years	1	,4
	Total	275	100,0

Table8: presenting the frequency distribution by age group.

Frequency distribution by education level

This section presents the participant education level distribution and the findings revealed that the majority of the students are undergraduates [f=206, %=74.9]. The findings also revealed that a good number of them were postgraduate students [f=68, %=24.7] and very few of them were doctorate students [f=1, %=0.4].

		Level of Study	
Element		Frequency	Percentage
Valid	Undergraduate	206	74,9
	Postgraduate	68	24,7
	Doctorate	1	,4
	Total	275	100,0

Table9: presenting the frequency distribution by education level

Frequency distribution by faculty

This section presents the participants frequency distribution according to the participant's faculties. The findings revealed that majority of the participants were from the faculty of science [f=160, %=58.2]. The findings also revealed that a good number of the participants were from the faculty of art letters and human sciences [f=79, %=28.7] and the least of the participants were from the faculty of education [f=36, %=13.1].

Faculty

Element		Frequency	Percentage
Valid	Faculty of Science	160	58,2
	Faculty of Arts, Letters and Social Sciences	79	28,7
	Faculty of Education	36	13,1
	Total	275	100,0

Tableau 10: presenting the frequency distribution by faculty

Presentation of data according to the items of the questionnaire

the questionnaire is made up of 24 items and the 24 items are shared in to four sections with each section having 6 items and each item is having four responses which are; Strongly Disagree (SD), Disagree (DA), Agree (A), and Strongly Agree (SA).

Item 1: The different educational technologies such as social media technology, Google Classroom and Mobile technology (computers and smart phones) are adopted by the students of the University of Yaounde1.

Element		Frequency	Percentage
Valid	Strongly disagree	14	5,1
	Disagree	12	4,4
	Agree	122	44,4
	Strongly agree	127	46,2
	Total	275	100,0

Source: Data from the field

The number of students who strongly agreed that the different educational technologies such as social media, Google Classroom and Mobile technology (computers and smart phones) are adopted by the students of the University of Yaoundé 1 was 127, giving a percentage of 46.2 and 122 students agreed that the different educational technologies such as social media technology, Google Classroom and Mobile technology (computers and smart phones) are adopted by the students of the University of Yaoundé 1 and this gave a percentage of 44.4.

Item 2: I use social media to find classmates and friends, messaging and profile update and for academic studies.

Element		Frequency	Percentage
Valid	Strongly disagree	17	6,2
	Disagree	16	5,8
	Agree	143	52,0
	Strongly agree	99	36,0
	Total	275	100,0

Source: Data from the field

Here 99 students strongly agreed that they use social media to find classmates and friends, messaging and profile update and this gave a percentage of 36.0. 143 students agreed that they use social media to find classmates and friends, messaging and profile update and for academic studies giving a percentage of 52.0.

Item 3: I make use of social media for information search, to communicate with instructors, for sharing materials or documents and for collaboration with classmates and instructors.

Element		Frequency	Percentage
Valid	Strongly disagree	16	5,8
	Disagree	11	4,0
	Agree	139	50,5
	Strongly agree	109	39,6
	Total	275	100,0

Source: Data from the field

Students who strongly agreed that they make use of social media for information search, to communicate with instructor, for sharing materials or documents and for collaboration with classmates and instructor were 109, giving a percentage of 39.6 while 139 agreed to this question giving a percentage of 50.5.

Item 4: WhatsApp, Telegram, You Tube, Facebook are the different social media used by students for interactions

Element		Frequency	Percentage
Valid	Strongly disagree	19	6,9
	Disagree	17	6,2
	Agree	135	49,1
	Strongly agree	104	37,8
	Total	275	100,0

Source: Data from the field

Item 4 present 104 students who strongly agreed that What Sapp, Telegram, You Tube, Facebook are the different social media used by students for interaction giving a percentage of 37.8 and 135 students agreed to the question giving a percentage of 49.1.

Item 5: I am able to submit an assignment and received feedback using social media

Element		Frequency	Percentage
Valid	Strongly disagree	20	7,3
	Disagree	27	9,8
	Agree	118	42,9
	Strongly agree	110	40,0

	Total	275	100,0
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Source: Data from the field

The number of student who strongly agreed to be able to submit assignment and received feedback using social media were 110, giving a percentage of 40.0. While the number of students who agreed to this were 118 giving a percentage of 42.9.

Item 6: The use of social media increases my academic performance			
Element		frequency	Percentage
Valid	Disagree	5	1,8
	Agree	237	86,2
	Strongly agree	33	12,0
	Total	275	100,0

Source: Data from the field

33 students strongly agreed that the use of social media increases their academic performance giving a percentage of 12. 0 while 237 agreed to this question giving a percentage of 86.2.

Item 7: Computers, Smart phones and Tablets are the types of mobile technologies used by students			
Element		Frequency	Percentage
Valid	Strongly disagree	13	4,7
	Disagree	12	4,4
	Agree	102	37,1
	Strongly agree	148	53,8
	Total	275	100,0

Source: Data from the field

This show that 148 students strongly agreed that computers, smart phones and tablets are the types of mobile technologies used by students giving a percentage of 53.8 while 102 agreed to this question giving a percentage of 37.1.

Item 8: I am able to type my assignments and presentations using a computer			
Element		Frequency	Percentage

Valid	Strongly disagree	9	3,3
	Disagree	21	7,6
	Agree	103	37,5
	Strongly agree	142	51,6
	Total	275	100,0

Source: Data from the field

The number of students who strongly agreed that they are able to type their assignment and presentations using a computer were 142 and this gave a percentage of 51.6 while 103 students agreed to this question giving a percentage of 37.5.

Item 9: I am able to use my smartphone to search for academic documents in the Internet			
Element		Frequency	Percentage
Valid	Strongly disagree	3	1,1
	Disagree	12	4,4
	Agree	105	38,2
	Strongly agree	155	56,4
	Total	275	100,0

Source: Data from the field

155 students strongly agreed that they were able to use their smart phones to search for academic documents in the internet giving a percentage of 56.4. While 105 students agreed to the question giving a percentage of 38.2.

Item 10: The use of tablets enables me to read or visualize documents that are not quite visible with the smartphone			
Element		Frequency	Percentage
Valid	Strongly disagree	19	6,9
	Disagree	62	22,5
	Agree	112	40,7
	Strongly agree	82	29,8
	Total	275	100,0

Source: Data from the field

Here, 82 students strongly agreed that the use of tablets enables them to read or visualize documents that are not quite visible with the smart phones and this gives the percentage of 29.8 and 112 students agreed to this question giving a percentage of 40.7.

Item 11: In the absence of my computer, I can type my academic works using my smartphone			
Element		Frequency	Percentage
Valid	Strongly disagree	19	6,9
	Disagree	41	14,9
	Agree	141	51,3
	Strongly agree	74	26,9
	Total	275	100,0

Source: Data from the field.

Item 11 presents 74 students who strongly agree that in the absence of their computers, they can type their academic work using their smart phones giving a percentage of 26.9. While 141 agreed to this giving a percentage of 51.3

Item 12: The fact that I use mobile technologies increases my academic performance			
Element		Frequency	Percentage
Valid	Strongly disagree	1	,4
	Agree	231	84,0
	Strongly agree	43	15,6
	Total	275	100,0

Source: Data from the field.

This item shows that 43 students strongly agreed that the fact that they use mobile technologies increases their academic performance giving a percentage of 15.6 and 231 students agreed to this question giving a percentage of 84.0.

Item 13: I know how to use Google Classroom application			
Element		Frequency	Percentage
Valid	Strongly disagree	24	8,7
	Disagree	46	16,7
	Agree	125	45,5
	Strongly agree	80	29,1

	Total	275	100,0
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Source: Data from the field.

Item 13 present 80 students who strongly agreed that they know how to use Google Classroom application giving a percentage of 29.1 and 125 agreed to this question which gave a percentage of 45.5.

Item 14: I find Google Classroom useful in my learning activities in asking of questions or discussion			
Element		Frequency	Percentage
Valid	Strongly disagree	27	9,8
	Disagree	57	20,7
	Agree	126	45,8
	Strongly agree	65	23,6
	Total	275	100,0

Source: Data from the field

The number of students who strongly agreed that they found Google Classroom useful in their learning activities in asking of questions or discussions was 65 giving a percentage of 23.6. While 126 students agreed that they found Google Classroom useful in their learning activities in asking of questions or discussions giving a percentage of 45.8.

Item 15: Using Google Classroom enable me to accomplish my task more easily or class presentations			
Element		Frequency	Percentage
Valid	Strongly disagree	26	9,5
	Disagree	67	24,4
	Agree	119	43,3
	Strongly agree	63	22,9
	Total	275	100,0

Source: Data from the field.

Item 15 presents 63 students who strongly agreed that using Google Classroom enable them to accomplish their task more easily or class presentations and this gave a percentage of 22.9 and 119 students agreed to this question giving a percentage of 43.3.

Item 16: The attached course materials are easy to access on Google Classroom to work with classmates out of class			
Element		Frequency	Percentage
Valid	Strongly disagree	24	8,7
	Disagree	68	24,7
	Agree	119	43,3
	Strongly agree	64	23,3
	Total	275	100,0

Source: Data from the field.

This item presents 64 students who strongly agreed to this question giving a percentage of 23.3 percent and 119 students agreed to this question giving a percentage of 43.3.

Item 17: I prefer Google classroom than the traditional face to face classes			
Element		Frequency	Percentage
Valid	Strongly disagree	93	33,8
	Disagree	91	33,1
	Agree	59	21,5
	Strongly agree	32	11,6
	Total	275	100,0

Source: data from the field.

This item indicates that 32 students strongly agreed that they prefer Google Classroom than the traditional face to face giving a percentage of 11.6 and 59 students agreed to this question giving a percentage of 21.5.

Item 18: The use of Google Classroom increases my academic performance			
Element		Frequency	Percentage
Valid	Strongly disagree	16	5,8
	Disagree	27	9,8
	Agree	208	75,6
	Strongly agree	24	8,7
	Total	275	100,0

Source: Data from the field.

Here 24 students strongly agreed that the use of Google Classroom increases their academic performance giving a percentage of 8.7 and 208 students agreed to this question giving a percentage of 75.6.

Item 19: I was able to develop research skills through collaboration			
Element	Frequency	Percentage	
Valid	Strongly disagree	16	5,8
	Disagree	34	12,4
	Agree	145	52,7
	Strongly agree	80	29,1
	Total	275	100,0

Source: Data from the field.

Item 19 show that 80 students strongly agreed to the fact that they were able to develop research skills through collaboration giving a percentage of 29.1. While 145 agreed to this question giving a percentage of 52.7

Item 20: I was able to develop new skills and knowledge from other members in my group.			
Element	Frequency	Percentage	
Valid	Strongly disagree	10	3,6
	Disagree	28	10,2
	Agree	147	53,5
	Strongly agree	90	32,7
	Total	275	100,0

Source: Data from the field.

This Item presents 90 students who strongly agreed that they have developed new skills and knowledge from other members in their groups giving a percentage of 32.7 and 147 students agreed to this question giving a percentage of 53.5

Item 21: Collaborative learning in the social media environment is better than in a face to-face learning environment

Element		Frequency	Percentage
Valid	Strongly disagree	67	24,4
	Disagree	87	31,6
	Agree	72	26,2
	Strongly agree	49	17,8
	Total	275	100,0

Source: Data from the field.

Here 49 students strongly agreed that collaborative learning in social media environment is better than in face to-face learning environment giving a percentage of 17.8 and 72 students agreed to this question giving a percentage of 26.2.

Item 22: Use of social media facilitate academic activities and coordination with peers

Element		Frequency	Percentage
Valid	Strongly disagree	12	4,4
	Disagree	33	12,0
	Agree	159	57,8
	Strongly agree	71	25,8
	Total	275	100,0

Source: Data from the field.

This item presents 71 students who strongly agreed that the use of social media facilitate academic activities and coordination with peers giving a percentage of 25.8 and 159 students agreed to this question giving a percentage of 57.8.

Item 23: My performance through interaction with classmates and lectures has improved

Element		Frequency	Percentage
Valid	Strongly disagree	21	7,6
	Disagree	54	19,6
	Agree	121	44,0
	Strongly agree	79	28,7

	Total	275	100,0
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Source: Data from the field.

The number of students who strongly agreed that their performance have improved through their interaction with classmates and lecturers were 79, giving a percentage of 28.7. While 121 students agreed to this question giving a percentage of 44.0.

Item 24: Academic digitalization is more advantageous to me than the old system			
Element		Frequency	Percentage
Valid	Disagree	1	,4
	Agree	179	65,1
	Strongly agree	95	34,5
	Total	275	100,0

Source: Data from the field.

Here 95 students strongly agreed that academic digitalization is more advantageous to them than the old system giving a percentage of 34.5 and 179 agreed to this question giving a percentage of 65.1.

5-1-2 Analysis according to Research questions

In an effort to answer the research questions, measures of central tendency (mean) and percentage of each likert scale were used. The decision rule for determining the magnitude and direction of an item was based on the fact that the mean estimates of an item should be greater than the mean estimate of the criterion for it to be positively scale. However, when the mean criterion estimate is greater than the mean estimate of the items then the responses are interpreted not to be positively scaled. ($Mean > 2.5$) implying a positive scaled item, ($mean < 2.5$) it implies a negatively scaled item. Also the percentage for each likert scale was determined to present the distribution across the responses from strongly disagreed to strongly agree

5-1-3 Research question one: To what extent does the used of social media affects students' academic performances in the University of Yaoundé 1?

Table11: Presenting items on how social media affects student academic performance.

Items	Sample	Minimum	Maximum	Mean	Standard deviation (SD)	Decision
The different educational technologies such as social media technology, Google Classroom and Mobile technology (computers and smart phones) are adopted by the students of the University of Yaounde1.	275	1,00	4,00	3,3164	,78181	Positive
I use social media to find classmates and friends, messaging and profile update and for academic studies	275	1,00	4,00	3,1782	,79751	Positive
I make use of social media for information search, to communicate with instructors, for sharing materials or documents and for collaboration with classmates and instructors.	275	1,00	4,00	3,2400	,78340	Positive
WhatsApp, Telegram, YouTube, Facebook are the different social media used by students for interactions	275	1,00	4,00	3,1782	,82892	Positive
I am able to submit an assignment and received feedbacks using social media	275	1,00	4,00	3,1564	,87603	Positive
The use of social media increases my academic performance	275	2,00	4,00	3,1018	,35816	Positive
N valid (list wise) Overall mean	275			3,1952	0.73764	Positive

Analysis of items of research question one revealed that the use of social media had a positive effect on student academic performance. The mean scores and standard deviations of item 1, 2 and 3 are (Mean=3.3164, SD= 0.78181), (Mean=3.1732, SD=0.79751), (Mean=3.2400, SD=.78340) respectively were greater than the mean criterion (Mean=2.5). This indicates that these items are positively scaled and thus have a positive effect on student academic performance. Furthermore, findings revealed that the mean scores and standard deviations for item 4, 5 and 6 are (Mean=3.1782, SD=0.82892), (Mean=3.1564, SD=0.87603), (Mean=3.1018, SD=0.35816) respectively are positively scale since their means are greater than the mean criterion, meaning that these items have a positive effect on student academic performance.

Summarily, the overall mean score of the items was found to be positively scaled (Mean=3.1952, SD=0.73763) that is more than mean criterion (Mean=2.5) and this indicate that the use of social media has a positive effect on student academic performance.

5-1-2-3 Research question two: To what extent does the use of mobile technology (computers and smart phones) affects students’ academic performances in the University of Yaoundé 1?

Table12: Presenting Items on how mobile technology (computers, smart phones) affects student academic performance.

Items	Sample	Minimum	Maximum	Mean	Standard deviation (SD)	Decision
Computers, Smart phones and Tablets are the types of mobile technologies used by students	275	1,00	4,00	3,4000	,78303	Positive
I am able to type my assignments and presentations using a computer	275	1,00	4,00	3,3745	,76517	Positive
I am able to use my smartphone to search for academic documents in the Internet	275	1,00	4,00	3,4982	,63576	Positive
The use of tablets enables me to read or visualize documents that are not quite visible with the smartphone	275	1,00	4,00	2,9345	,89366	Positive

In the absence of my computer, I can type my academic works using my smartphone	275	1,00	4,00	2,9818	,83471	Positive
The fact that i use mobile technologies increases my academic performance	275	1,00	4,00	3,1491	,38629	Positive
N valid (list wise) Overall mean	275			3.2230	0.71644	Positive

The research findings revealed that the use of mobile technology (computers and smart phones) have a positive effect on student academic performance as the majority of the students agreed that computers, smart phones and Tablets are the types of mobile technologies they used (Mean=3.4000, SD=0.78303). They also agreed that they are able to type their assignments and presentations using a computer (Mean=3.3745, SD=0.76517) and the majority of students confirm that, they are able to use their smart phones to search for academic documents in the internet (Mean=3.4982, SD=0.63576). Therefore, item 1, 2, and 3 had a positive scale and therefore positively affects student academic performance. The research finding revealed that the mean scores and standard deviations of items 4, 5 and 6 (Mean=2.9345, SD=0.89366), (Mean=2.9818, SD= 0.83471), (Mean=3.1491, SD=0.38629) were greater than the mean criterion (Mean=2.5). This indicates that the items are positively scaled and does have a positive effect on student academic performance.

Summarily, the overall mean score of the items was found to be positively scaled (Mean=3.2230, SD=0.71644) that is greater than the mean criterion (Mean=2.5) and this indicates that the use of mobile technologies (computers, smart phones and tablets) has a positive effect on student academic performance.

5-1-2-4 Research question three: To what extent does the use of Google Classroom affects students' academic performances in the University of Yaoundé 1?

Table13: Presenting items on how the use of Google Classroom affects student academic performance.

Items	Sample	Minimum	Maximum	Mean	Standard deviation (SD)	Decision
I know how to use Google Classroom application	275	1,00	4,00	2,9491	,89868	Positive

I find Google Classroom useful in my learning activities in asking of questions or discussion	275	1,00	4,00	2,8327	,90074	Positive
Using Google Classroom enable me to accomplish my task more easily or class presentation	275	1,00	4,00	2,7964	,90133	Positive
The attached course materials are easy to access on Google Classroom to work with classmates out of class	275	1,00	4,00	2,8109	,89232	Positive
I prefer Google classroom than the traditional face to face classes	275	1,00	4,00	2,1091	1,00496	Negative
The use of Google Classroom increases my academic performance	275	1,00	4,00	2,8727	,63518	Positive
N valid (list wise) Overall Mean	275			2.7285	0.8722	Positive

The analysis of the items of research question three revealed that the use of Google Classroom had a positive effect on student academic performance as it was observed that the majority of the students asserted that they know how to use Google Classroom application (Mean=2.9491, SD=0.8986) and also the majority also agreed that they found Google Classroom useful in their learning activities in asking of questions and discussions (Mean=2.8327, SD=0.9004). Most of the students confirmed that using Google Classroom enable them to accomplished their task more easily or class presentations (Mean=2.7964, SD=0.90133) and a majority of them agreed that the attached course materials were easy to access on Google Classroom to work with classmates out of class (Mean=2.8109, SD=0.89232). Furthermore, most students agreed that the use of Google Classroom increases their academic performance (Mean=2.8727, SD= 0.63518).

The positive assertion was observed with all the other items as the mean score were greater than the mean criterion except for item 5 (Mean=2.1091, SD=1.00496) that was negatively scaled. Summarily, the overall mean score (Mean= 2.7285, SD=0.8722) was greater than the mean criterion (Mean=2.5), therefore it was positively scaled and this indicate that the use of Google Classroom had a positive effect on student academic performance.

Table14: presenting items on students’ academic performances

Items	Sample	Minimum	Maximum	Mean	Standard deviation (SD)	Decision
I was able to develop research skills through collaboration	275	1,00	4,00	3,0509	,80438	Positive
I was able to develop new skills and knowledge from other members in my group	275	1,00	4,00	3,1527	,74380	Positive
Collaborative learning in the social media environment is better than in a face-to-face learning environment	275	1,00	4,00	2,3745	1,04011	Negative
The use of social media facilitate academic activities and coordination with peers	275	1,00	4,00	3,0509	,74306	Positive
My performance through interaction with classmates and lecturers has improved	275	1,00	4,00	2,9382	,88777	Positive
Academic digitalization is more advantageous to me than the old system	275	2,00	4,00	3,3418	,48280	Positive
N valid (list wise) Overall Mean	275			2.9848	0.7837	Positive

The research findings revealed that the majority of the students asserted that they were able to develop research skills through collaboration online (mean=3.0509, SD=0.80438), they also agreed that they were able to develop new skills and knowledge from other members in their groups (mean=3.1527, SD=0.74380) and a majority of the students confirm that the use of social media facilitate academic activities and coordination with peers (Mean=3.0509, SD=0.74306). Most of the students agreed that their performance through interaction with classmates and lecturers have improved (Mean=2.9382, SD=0.88777) and furthermore, most students agreed that academic digitalization is more advantageous to them than the old system (mean=3.3418, SD=0.48280). The positive assertion was observed with all the others items as the mean score were greater than the mean criterion except item 3 (Mean=2.3745, SD=1.04011) that was negatively scaled. Summarily, the overall mean score (Mean=2.9848, SD=0.7837) was greater

than the mean criterion (Mean=2.5), therefore it was positively scaled and indicate a positive effect.

5-1-1-1-1 Testing of Hypothesis

5-1-1-1-2 Hypothesis 1 There is no significant relationship between the use of social media and students' academic performances.

Table 00 below summarizes the Linear Regression Analysis results. In the regression, Social media was the independent variable while students' academic performances were the dependent variable. The results indicate $R = 0.210$, $R^2 = 0.044$, $(F(1, 273) = 12.636, p < 0.05)$. The R value explains how well the model describes the data. In this case, the model describes 21.0% of the data. R^2 explains the extent to which the variability of the dependent variable, students' academic performances are explained by the independent variable social media. In this case, 4.4% of the variability in students' academic performances was explained by the independent variable social media. Sometimes R^2 may be overestimated so SPSS gives us the adjusted R^2 which in this case gave 4.1% meaning that 4.1% of students' academic performances were explained by social media.

The analysis of variance (ANOVA) table provides statistics about the overall significance of the model being fit. The significant value which is also P-Value in the model is 0.000 which indicates that the independent variable in the model explains the dependent variable. This value is less than 0.001 means that, researcher can reject the null hypothesis. Therefore, this case states that the model has an explanatory power. The Researcher therefore rejects the null hypothesis and state that the use of social media is a predictor of students' academic performances.

Further, in the coefficients table, the P-value for the independent variable is 0.000 further indicating that the use of social media is significance at prediction the dependent variable students' academic performances.

The Beta (B) values were used as coefficients to complete the previously formulated regression model $Y = \beta_0 + \beta_1 X_1 + \epsilon$. The regression model therefore was as follows: $SY = 2.195 + .247 X_1$ Where; 2.195 = constant value of student academic performance when the value of competence is zero, that is, if social media technologies are competent in improving students' academic performances and 0.247 = Coefficient of social media. For every unit increase in social media

technology, we expect approximately 24.7% increase in students' academic performances. Where Y = student academic performance and X1 = social media technologies.

Model Summary				
Model	R	R Square	Adjusted R Square	Std Error of the Estimate
1	,210	,044	,041	,47691

a. Predictor: (constant), Sum of Social Media

The independent variable studied, explain that student academic performance is influence by 4.4% by the independent variable, as represented by the R² in the table above. This indicates that social media has a significant influence on students' academic performances and **95.6%** of students' academic performances are influenced by other factors.

ANOVA						
Model		Sum of squares	Df	Mean Square	F	Sig.
1	Regression	2,874	1	2,874	12,636	,000
	Residual	62,091	273	,227		
	Total	64,965	274			

a. Dependent Variable: Sum of students' academic performances

b. Predictor: (constant), Sum of Social Media

The analysis of variance (ANOVA) was used to check the significant level. A significant regression equation was obtained as (F (1, 273) =12.636, P <0.05). The p-value obtained indicated that there was a statistical significant influence of social media on students' academic performances. The result above reveals that the social media is a strong predictor of students' academic performances because they are linearly related.

coefficients						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig
		B	Standard Error	Beta		
1	(Constant)	2,195	,224		9,789	,000
	Sum of Social Media	,247	,070	,210	3,555	,000

a. Dependent Variable: Sum of students' academic performances

The simple linear regression model indicates that the independent variable (social media) had a positive β coefficient. According regression equation established, social media at a constant of zero, students' academic performances will be 2,195. The findings also reveal that every unit increase in the use of social media will lead to a 0,274 increase in students' academic performances. At 5% level of significance and 95% level of confidence social media usage had a 0,000 level of significance, which means it has significance influence on students' academic performances.

5-1-1-3 Hypothesis 2: There is no significant relationship between the use of mobile technologies and students' academic performances

Table 00-00 below summarizes the linear regression analysis results. In the regression, mobile technologies were the independent variable while students' academic performances were dependent variable. The result indicates that $R = 0,224$, $R^2 = 0,050$, $F(1, 273) = 14,448$, $P < 0,05$. The R value explains how well the model describes the data. In this case, the model describes 22, 4% of the data. R^2 explains the extent to which the variability of the dependent variable, students' academic performances are explained by independent variable mobile technologies. In this case 5% of the variability in students' academic performances were explained the independent variable mobile technologies. Sometime R^2 may be overestimated so SPSS give us

the adjusted R2 which in this case gave 4, 7% meaning that 4, 7% of students' academic performances were explained mobile technologies.

The analysis variance (ANOVA) table provides statistics about the overall significance of the model being fit. The significant value which is also the P-Value in the model is 0,001 which indicates that the independent variable in the model explains the dependent variable. This value which is less than 0, 05 mean that research can reject the null hypothesis which in this case states that the model has an explanatory power. The Researcher therefore rejects the null hypothesis by stating that mobile technologies are a predictor of students' academic performances.

Further, in the coefficient table, the P-Value for the independent variable is 0,001 further indicating that mobile technologies are significance at prediction the dependent variable students' academic performances. The Beta (B) values were used as coefficients to complete the previously formulated regression model $Y = \beta_0 + \beta_1 X_1 + \epsilon$. The regression model therefore was as follows: $Y = 2,079 + 0,281 X_1$ where; 2,079 = constant value of students' academic performances when the value of the use of mobile technologies is zero, that is, if the value of students' does not use mobile technologies and 0,281= coefficient of mobile technologies.

For every unit increase in the use of mobile technology, we expect approximately 28.1% increase in student academic performance. Where Y = students' academic performances and X1 = Mobile technology.

Model Summary				
Model	R	R2	Adjusted R Square	Std. Error of Estimate
1	,224	,050	,047	,47540

a. Predictor: (constant), Sum of Mobile Technologies

The independent variable studied, explain that students' academic performances are influence by 5% by the independent variable, as represented by the **R2** in the table00 above. This indicates that Mobile technology has a significant influence on students' academic performances and **95%** of student academic performance is influence by other factors.

ANOVA ^a						
Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	3,265	1	3,265	14,448	,000 ^b
	Residual	61,699	273	,226		
	Total	64,965	274			

a. Dependent Variable: Sum of students' academic performances

b. Predictor: (constant), Sum of Mobile Technologies

The analysis of variance (ANOVA) was used to check the significant level. A significant regression equation was obtained as, $F(1, 273) = 14.448$, $P < 0.05$. The p-value obtained indicated that there was a statistical significant influence of Mobile technology over students' academic performances. The result above reveals that the Mobile technology is a strong predictor of students' academic performances because they are linearly related.

Coefficient						
Model		Unstandardized coefficients		Standardized coefficient	t	Sig.
		B	Standard Error	Beta		
1	(constant)	2,079	,240		8,667	,000
	Sum of mobile technologies	,281	,074	,224	3,801	,000

a. Dependent Variable: Sum of students' academic performances

The simple linear regression model indicates that the independent variable (Mobile Technology) had a positive β coefficient. According to the regression equation established, Mobile technology at a constant of zero, student academic performance will be 2.079. The finding also reveals that every unit increase in Mobile technology will lead to a 0.281 increase in students' academic performances. At 5% level of significance and 95% level of confidence Mobile technology had a 0.000 level of significance, which means it has significance influence in student academic performance

b. Dependent Variable: Sum of student academic performance

The simple linear regression model indicates that the independent variable (Mobile Technology) had a positive β coefficient. According to the regression equation established, Mobile technology at a constant of zero, students' academic performances will be 2.079. The finding also reveals that every unit increase in Mobile technology will lead to a 0.281 increase in students' academic performances. At 5% level of significance and 95% level of confidence Mobile technology had a 0.000 level of significance, which means it has significance influence in students' academic performances.

5-2-1-1-1 Hypothesis 3: there is no significance relationship between the use of Google Classroom and students' academic performances

Table 00-00 below summarizes the Linear Regression Analysis results. In the regression, Google Classroom was the independent variable while students' academic performances were the dependent variable. The results indicate $R = 0.288$, $R^2 = 0.083$, $F(1, 273) = 24.686$, $P < 0.001$. The R value explains how well the model describes the data. In this case, the model describes 28.8% of the data. R^2 explains the extent to which the variability of the dependent variable, students' academic performances are explained by the independent variable Google Classroom. In this case, 8.3% of the variability students' academic performances were explained by the independent variable Google Classroom. Sometimes R^2 may be overestimated so SPSS gives us the adjusted R^2 which in this case gave 8% meaning that 8% of students' academic performances were explained by Google Classroom.

The analysis of variance (ANOVA) table provides statistics about the overall significance of the model being fit. The significant value which is also P-Value in the model is 0.001 which indicates that the independent variable in the model explains the dependent variable. This value which is less than 0.05 means that researcher can reject the null hypothesis which in this case states that the model has an explanatory power. Researcher therefore rejected the null hypothesis and states that Google Classroom is a predictor of students' academic performances.

Further, in the coefficients table, the P-value for the independent variable is .001 further indicating Google Classroom is significance at prediction the dependent variable students' academic performances. The Beta (B) values were used as coefficients to complete the previously formulated regression model $Y = \beta_0 + \beta_1 X_1 + \epsilon$. The regression model therefore was as follows: $Y = 2.350 + 0.233 X_1$ Where; 2.350 = constant value of students' academic performances when the value of Google Classroom is zero, that is, if students do not have the required knowledge of Google Classroom and 0.233 = Coefficient of Google Classroom For every unit

increase in the use of Google Classroom, we expect approximately 23.3% increase in students' academic performances. Where Y = student academic performance and X1 = Google Classroom.

Model Summary				
Model	R	R2	Adjusted Square	Std. Error of the Estimate
1	,288	,083	,080	,46715

a. Predictor: (constant), Sum of Google Classroom

The independent variable studied, explain that student academic performance is influence by 8.3% by the independent variable, as represented by the **R2** in the table00 above. This indicates that Google Classroom has a significant influence on students' academic performances and **91.7%** of students' academic performances are influence by other factors.

ANOVA						
Model		Sum of squares	df	Mean square	F	Sig
1	Regression	5,387	1	5,387	24,686	,000
	Residual	59,577	273	,218		
	Total	64,965	274			

a. Dependent Variable: sum of students' academic performances

b. Predictor: (constant)' Sum of Google Classroom

The analysis of the variance (ANOVA) was used to check the significance level. A significant regression equation was obtained as $F(1, 273) = 24.686, P < 0.05$. The P-value obtained indicated that there was a statistical significant influence of Google Classroom on students' academic performances. The result above reveals that the Google Classroom is a strong predictor of students' academic performances because they are linearly related.

Coefficients					
Model	Unstandardized coefficients		Standardized coefficient	t	Sig
	B	Standard Error	Beta		

1	(Constant)	2,350	,131		17,954	,000
	Sum of Google Classroom	,233	,047	,288	4,968	,000

a. Dependent Variable: Sum of students' academic performances

The simple linear regression model indicates that the independent variable (Google Classroom) had a positive β coefficient. According to the regression equation established, Google Classroom at a constant of zero, students' academic performances will be 2,350. The findings also reveal that every unit increase in Google Classroom will lead to a 0,233 increase in students' academic performances. At 5% level of significance and 95% level of confidence, Google Classroom had a 0,000 level of significance, which means it has significance influence on students' academic performances.

CHAPTER SIX: DISCUSSION, CONCLUSION AND RECOMMENDATIONS

6-1 Discussion

This chapter presents the discussion, conclusion and recommendation arrived at according to the researcher's findings based on the data collected from the field through the use of questionnaires. The recommendation and further studies given will be of great importance to lecturers, University Administration and the ministry of Higher Education.

6-1-2 Socio-demographic data

This part of the study is based on the information concerning gender participation, age of participants, educational level and the faculty of participants. The information was purposed at testing the appropriateness of participants in answering the questions regarding their use of educational technologies. From the findings it reveals that from the 275 participants involved in the study, there were more males [M=163, %59.3%] than female [F=112, %=40.7%]. Looking at the age, the study showed that most participants were within the group of 15-25 years. [f=239, %=86.9], the age group 26-36, [f=35, %=12.7]. The age group >37 years had the least number of participants [f=1, %=0.4].

The section on educational level showed a greater number of those that are undergraduates [f=206, %74.9] and the findings equally reveals that a good number of students were postgraduates [f=68, % 24.7] and few participants were doctorate students [f=1, %=0.4]. The section on faculty revealed that most of the participants were from the faculty of science. [f=160, %58.2] and a good number of the participants were from the faculty of art, letters and human sciences. [f=79, %=28.7] and the findings also revealed that the list participants were from the faculty of education [f=36, %=13.1].

Discussions by objectives

6-1-3 Research question 1: To what extent does the used of social media affects students' academic performances in the University of Yaoundé 1?

This objective was focused to evaluate the use of social media as an educational technology utility within the University of Yaoundé 1. This revealed that the respondents mean score for item 1

{The different educational technologies such as social media technology, Google Classroom and Mobile technology (computers and smart phones) are adopted by the students of the University of Yaounde1} showed that the mean score was 3.3164 which is greater than 2.5 indicating that majority of students uses social media, Google Classroom and mobile technology such as computers and smart phones as educational technological utilities.

The second item 2 {I use social media to find classmates and friends, messaging and profile update and for academic studies} reveals that the mean was greater than criterion estimate and it was $MQ2=3.1782$ which means that most of the students uses social media to find classmates and for academic studies as well as for messaging and profile update.

The findings on item Q3 had the mean ($MQ3=3.2400$) greater than 2.5 indicating that they make use of social media for information search, to communicate with instructors, for sharing materials or documents and for collaboration with classmates and instructors. Item Q4 reveals that WhatsApp, Telegram, You Tube, Facebook are the different social media used by students for interactions as shown in the mean ($MQ4=3.1782$ greater than 2.5).

Item 5 revealed that students were able to submit their assignments and received feedbacks using social media as shown in the mean ($MQ5=3.1564$) that is greater than the 2.5 mean estimate. The findings on item 6 had a mean ($MQ6=3.1018$) greater than 2.5 indicating that the use of social media increases student academic performance.

The overall mean score for the six items related to the use of social media is $M=3.1952$ greater than Mean (estimate) =2.5. From the result, it indicates that most students were able to use social media and the use of social media as an educational technological utility increases student academic performance. This is in accordance to a study carried out in Spain by Sonia Santovena (2019) to find out the impact of social media participation on academic performance in undergraduate and postgraduate students.

The study applied the quantitative and the qualitative research approach. The participants in this study involve students taking one or two courses at undergraduate or postgraduate level.

The results showed that the students who participated in social media-base activities presented a better academic performance than those who did not carry out any activity or who took part in a more traditional learning activity. These findings are in conformity with those of Welch and Brown-Forsyth and in line with Al-Rahmi, Othman and Yusuf (2015) who noted that social network participation is a means that can facilitate learning.

Further analysis by Hypothesis was done to test the hypothesis for the use of social media, and the analysis of variance (ANOVA) was used to check the significant level. The significant regression equation obtained was as. $(F(1, 273) = 12.636, p\text{-value} < 0.05)$. The p-value obtained revealed that there is statistical significant influence between the use of social media and students' academic performances and is linearly related. This could also be viewed when the model summary explained that students' academic performances are influenced by 24.7% by the independent variable as represented by table00 above. This explained that the use of social media has a significant influence on students' academic performances and 75.3% of student academic performance is influenced by other factors.

Finally, the simple linear regression model revealed that the independent variable (social media) had a positive beta coefficient.

According to the regression equation established, the use of social media at a constant zero students' academic performance will be 2.195. The findings also indicate that every unit increase in social media usage will lead to 0,247 increases in students' academic performances. At 5% level of significant and 95% level of confidence competence had a 0.000 level of significant influence in students' academic performances.

6-1-4Research question 2: To what extent does the used of mobile technologies (computers and smart phone) affects students' academic performances?

This objective was assessed on the use of mobile technologies such as computers and smart phones and majority of them agreed that the use of mobile technologies such as computers, smart phones and tablets have a positive effect on student academic performance. Majority of the items had a mean score above the mean criterion. Mean (score) =3.2230 greater than Mean (criterion) 2.5. From these results, this shows that many students use mobile technologies as an educational technology utility.

This is in agreement with the study of Kuh and Vesper (2021), who affirmed that the incorporation of digital technology in to pedagogical approaches can enhance student digital skills which can impact academic performance at university.

Furthermore, Sung and Chang (2016) affirmed that student academic use of mobile devices facilitate their effective aspect and beside, their use of technology increase their participation rate

in classroom, interest in learning, motivation to perform (Uzun, 2019; Trimmel, 2004). Hye and Pilnam (2021) found out that a well-planned instructional approach that integrate technology help students be engaged, perform well, and ultimately achieve success. The use of technology in advance learning experiences such as discussions, reasoning, problem solving, creating and scaffolding activities can be considered to facilitate student advanced cognitive development.

Further analysis of variance (ANOVA) was used to check the significant level of the hypothesis. And the significant regression equation was obtained as, $F(1, 273) = 14.448$ p-value < 0.05 . The P-value obtained indicated that there was a statistical influence of mobile technologies on students' academic performances. The findings above show that the use of mobile technology is a stronger predictor of students' academic performances because they are linearly related. This is so because the findings show that the overall mean for mobile technology was found above the mean criterion [$M(\text{overall}) = 3.2230 > M(\text{estimate}) = 2.5$] indicating that mobile technologies can predict students' academic performances. This can also be explained that students' academic performances are influenced by 5% by the independent variable as represented by R^2 in the table 00 above. This indicates that the use of mobile technologies has a significant influence on students' academic performances and 95% of students' academic performances are influenced by other factors.

The results also indicated that simple linear regression model shows that the independent variable (mobile technologies) had a positive beta coefficient and the regression equation established, the use of mobile technology at a constant of zero, students' academic performances will be 2.079. This finding also reveals that every unit increase in the use of mobile technology will lead to 0.281 increases in students' academic performances. At 5% level of significant and 95%, level of confidence mobile technology had a 0.000 level of significance influence on student academic performance.

6-1-1-1 Research question 3: to what extent does the use of Google Classroom affects students' academic performances

This objective shows that most students had a good knowledge on the use of Google Classroom as the results reveals that mean of all the five items were above the expected level of the mean. This indicates that majority of participants agree to the greater extend that the use of Google Classroom have improve their academic performances. The overall mean of the six items was

above the mean criterion. [M (overall) =2.7285> M (estimate) =2.5]. This indicates that the majority of students have good knowledge on the use of Google Classroom and it has helped them in improving their academic performances.

This is viewed in the study of Oyarinde et al. (2020) reported that the Google Classroom platform create a space for private comment for students to interact with their mates or teachers on things relating to the topic taught which make the class interesting. Google Classroom is a free application designated to assist students and teachers connect, work together, organize and create assignment, it enables learning to be paperless (Iliyasu et al., 2020).

Mafa (2018) and Shaharane et al. (2016) reported that Google Classroom is fascinating education and learning, students thought indicated satisfaction towards the learning activities in Google Classroom. Furthermore, Fashrurrozi et al. (2019) concluded a study to determine the requirement for development of learning that is exciting, active, and autonomous and effective. The results of the study show that integrated learning design based on Google Classroom is needed to improve students' digital literacy. More so, Northey et al. (2015) stated that Google Classroom is very helpful and effective and present newer challenges in continuing education in different ways for both teachers and learners. First, it is available to anyone around the world with tools and applications that make up a package called Google App for education. The tools include Gmail, Drive and Doc. Janzen (2014) noted that Google Classroom is easy to use.

Furthermore, analysis of variance (ANOVA) was done to check the significant level of hypothesis. A significant regression equation was obtained as $F(1, 273) = 24.686, p < 0.001$. The p-value gotten indicated that there was a statistical significant in the use of Google Classroom on students' academic performances. The results above reveal that the use of Google Classroom is a stronger predictor of students' academic performances because they are linearly related. This explained the fact that students' academic performances is influence by 8.3% by the independent variable, as represented by the R^2 in the table 00 above, indicating that Google Classroom has a significant influence on students' academic performances and 91.7% of students' academic performances is influence by other factors.

The simple linear regression model indicates that the independent variable (Google Classroom) had a positive beta coefficient and according to the regression equation established, Google Classroom at a constant zero, students' academic performances will be 2.350. The findings also

reveal that every unit increase in the use of Google Classroom will lead to a 0.233 increase in student academic performance. At 5% level of significance and 95% level of confidence Google Classroom had a 0.000 level of significance, which means it has significance influence on students' academic performances

6-1-1-2 Recommendation

This study has been focused purposely on the effect of educational technologies on students' academic performances in the University of Yaoundé 1 in the central region, Mfoundi Division in Yaoundé III Sub Division. The researcher recommends that, this topic or similar study should be carried out on students of other Universities in the same region and in other regions of the country.

Based on the fact that social media has a statistical significance influence on students' academic performances, the ministry of higher education should bump in more facilities, materials and emphasize on the methodology to be strictly practiced in the building of staffs and student's capacities and should focus on increasing the budgetary line of subventions to Universities to improve on technological development.

On the other hand, mobile technology equally had a statistical significance influence on the students' academic performances. This shows that mobile technologies are more apt to improving students' academic performances. So before admission of any student in the University, he/she should be provided with mobile technological tools such as the computer, smart phones and tablets and institutions should focus on providing free internet connection on campuses as well as building of modern day infrastructures to meet up with modern day standards to facilitate availability and accessibility to students.

Also, Google Classroom equally presented a statistical significance influence on students' academic performances. So the government lay private and denominational heads should always organize seminars, workshops and indoor services to train their lecturers on how to go about with the use of Google Classroom. Furthermore, the Universities should create focal points to train students on how to go about the Google Classroom upon their admission in to the Universities. Lecturers should equally be motivated to facilitate the practice and the University should also provide a standard network to enable students to effectively use educational technologies and to submit their assignment.

The researcher suggests that other researchers who wish to choose this same topic or a related topic should carry it out in a different region, use a larger sample size and the methodology should be different from this one in order to give the study a global view. Also, different objectives, method of data collection and data analysis should be used so as to come out with a better conclusion of the findings.

In the course of carrying out this study, the researcher was faced with a number of difficulties such as time management, financial difficulties, insufficient textbooks, documents on educational technologies in most libraries and couple with the fact that the study was based only on the University of Yaoundé 1.

CONCLUSION

In conclusion, we seek to discuss on the data collected from the field, analyzed and discussed on the various views of the students' points of view, contributions of the experimentation, recommendation and suggestions for further studies or research.

The objective of this research was to examine the effects of educational technologies on students' academic performances. This study has explored the role of technology in education and, in particular, their effects as a determinant of academic performances. Specifically, it has analyzed the impact of social media technology, mobile technology, and Google Classroom technology used by the students of the University of Yaoundé 1 from a quantitative perspective, and equally employed Technology Acceptance Model, Social Constructivism Theory and the Community of Inquiry Theory of Learning as well as the Unified Theory of Acceptance and Use of Technology, in order to contribute to a better understanding of the use and effect of educational technologies on the learning process.

This study has made two contributions:

It has expanded the base of knowledge on the role of technology in education, and it has evaluated the impact of social media technology, mobile technology, and Google Classroom technology on students' academic performances in the University of Yaoundé 1.

With respect to the results, it is clear that educational technologies significantly impact students' academic performances and the three hypotheses were all accepted. The findings of the study

demonstrate that the use of social media and mobile technology for learning purposes offers a great chance for collaborative learning and can increase student academic performance. Furthermore, Google Classroom provides a veritable platform for students to utilize digital technological tools for student engagement in an online environment. The platform promotes active learning which make the learning materials more accessible to students anywhere anytime. In view of the identified institutional benefits, derived from using Google Classroom platform, it is imperative for education.

In addition, because of the current global pandemic (COVID-19), and due to the restricted movements and social distancing, educational technologies offer assistance to students to connect, work together and can also ask questions about areas they do not understand. Educational technologies offer advantage of achieving quality in the teaching and learning process at all levels of education and even during any pandemic period.

Although the collected data supports the research model, this study is subjected to various limitations that need to be tackled by further studies. The study was conducted only in the University of Yaoundé 1. Thus findings cannot be generalized. A similar study could be conducted in other Universities to compare if the findings are consistent with the study. The research is based on the principles of quantitative research design. Data for this study was collected through survey questionnaires. Furthermore, a convenience sampling method was employed to select respondents for this study. The respondents were from three faculties in the University of Yaoundé 1.

Accordingly, further research is deemed necessary to achieve a degree of generalizability regarding the findings of this study. Finally, the current study focuses on social media technology, mobile technology, and Google Classroom technology and have not differentiate between all the educational technologies in terms of their impact on students' academic performances. Specifically, the functionality, popularity and level of experience with the various educational technologies varied among students. Follow-up studies might apply research model with different educational technologies separately in order to determine if students' performance is impact more by a particular technology. This may help in identifying which of the educational technologies has a greater impact on students' performance, and therefore revealing such a

difference in such a way as to help educators to select the most appropriate technologies that can enhance students' performances.

REFERENCES

- Aagaard J.(2017). *Breaking down barriers: The ambivalent nature of technologies in the Classroom.**New Media and Society.*19(7):1127-1143.
- AbuShanab, E., and Pearson, J. M. (2007). *Internet Banking in Jordan the Unified Theory of Acceptance and Use of Technology (UTAUT) Perspective.**Journal of Systems and Information Technology*, 9(1), 78–97.doi:10.1108/13287260710817700.
- Agarwal, R., and Prasad, J. (1997). *The Role of Innovation Characteristics and Perceived Voluntariness in the Acceptance of Information Technologies.**Decision Sciences*, 28(3), 557–582. doi:10.1111/j.1540-5915.1997.tb01322.x.
- Ajzen, I. (1985). *From Intentions to Actions: A Theory of Planned Behaviour.* In J. Kuhl & J. Beckmann (Eds.), *Action Control* (pp. 11–39). Springer-Verlag Berlin Heidelberg.doi: 10.1007/978-3-642-69746-32.
- Ajzen, I. (1991). *The Theory of Planned Behavior.**Organizational Behavior and Human Decision Processes*, 50(2), 179–211. doi:10.1016/0749-5978(91)90020-T
- Ajzen, I. (2002). *Perceived Behavioral Control, Self-Efficacy, Locus of Control, and the Theory of Planned Behavior.* *Journal of Applied Social Psychology*, 80(6), 2918–2940.
- Ajzen, I., and Fishbein, M. (1980). *Understanding Attitudes and Predicting Social Behavior* (1st ed.). Englewood Cliffs, NJ: Pearson.
- Akbar, F. (2013). *What Affects Students' Acceptance and Use of Technology? A Test of UTAUT in the Context of a Higher-Education Institution in Qatar.* Carnegie Mellon University.
- Al-marouf, R.A.S and Al-Emran, M. (2018). *Students Acceptance of Google Classroom an Exploratory Study Using PLS-SEM Approach.**JET Vol.13, No. 06.*
- Alrasheedi, M., Capretz, L. F., and Raza, A. (2015). *A systematic review of the critical factors for success of mobile learning in higher education (university students' perspective).* *Journal of Educational Computing Research*, 52(2), 257-276.
- Anderson, T., and Dron, J. (2011). *Three generations of distance education pedagogy.* *International Review of Research in Online and Distance Learning*, 12(3), 80–97. <http://www.irrodl.org/index.php/irrodl/article/view/890/1663>
- Angrist, J. and V. Lavy (2002). "New evidence on classroom computers and pupil learning",

The Economic Journal, vol. 112, No. 482, Royal Economic Society.

- Baker, E. W., Al-Gahtani, S. S., and Hubona, G. S. (2007). *The Effects of Gender and Age on New Technology Implementation in a Developing Country: Testing the Theory of Planned Behavior (TPB)*. *Journal of Information Technology & People*, 20(4), 352-375. doi:10.1108/09593840710839798.
- Bandura, A. (1986). *Social Foundations of Thought and Action: A Social Cognitive Theory* (1st ed.). Englewood Cliffs, NJ: Prentice Hall.
- Bates, A. W. (1998). "Television, Learning and Distance Education". *Journal of Educational Television*. Vol.14, No.3, 213-225.
- Beetham, H. (2013). Sharpe, R. *Rethinking Pedagogy for a Digital Age: Designing for 21st Century Learning: Rethinking Pedagogy for a Digital Age*, 2nd ed.; Routledge: New York, NY, USA.
- Becta (2007), "Inclusive Learning": An Essential Guide [online] http://www.tes.co.uk/teaching_resource/Inclusive-learning-anessential-guide-6072357/.
- Bruillard, E. (2011). *Le déploiement des ENT dans l'enseignement secondaire : entre acteurs multiples, Défis et illusions*. *Revue française de pédagogie*, 177(4), 101-130.
- Burden, K.; Kearney, M.; Schuck, S.; Hall, T. (2019). *Investigating the use of innovative mobile pedagogies for school-aged students: A systematic literature review*. *Comput. Educ.* 138, 83–100.
- C. Cabaleiro-Cerviño, Vera. (2020). "The Impact of Educational Technologies in Higher Education," *GIST Education and Learning Research Journal*, vol.20, pp. 155-169.
- Chang, H. H., and Chuang, S.-S. (2011). *Social capital and individual motivations on knowledge sharing: Participant involvement as a moderator*. *Information & Management*. 48(1), 9- 18.
- Chee, K. N., Yahaya, N., Ibrahim, N. H., and Hasan, M. N. (2017). *Review of mobile learning trends 2010- 2015: A meta-analysis*. *Journal of Educational Technology & Society*, 20(2), 113-126.
- Cheng, M.T.; Lin, Y.W.; She, H.C. (2012). *Learning through playing Virtual Age: Exploring the interactions among student concept learning, gaming performance, in-game behaviors, and the use of in-game characters*.
- Chika C. (2012). *Information and communication technology: a modern tool for education management in Nigerian Universities*. *Journal of African Studies in Educational Management and Leadership*, 2(1) :7– 15.

- Claro, M. (2011), "El papel de las tecnologías de la información y las comunicaciones en la educación inclusiva", *Project Document (LC/W.434)*, Santiago, Economic Commission for Latin America and the Caribbean (eclac).
- Comsis, Corporation. (1984). *Review of the state-of-the-art of educational technologies implemented in programs serving LEP students funded by the Department of Education*. Silver Spring, MD: COMSIS Corporation.
- Creswel, J.W., (2017). *Research Designs Qualitative, quantitative and mixed methods approaches*. Los Angeles, CA: SAGE publications.
- Daughtery, C., and Berge, Z. (2017). *Mobile learning pedagogy*. *International Journal for the Scholarship of Technology Enhanced Learning*, 1(2), 111-118.
- Davis, F. D. (1986). *A Technology Acceptance Model for Empirical Testing New End-User Information System: Theory and Results*. Massachusetts Institute of Technology.
- Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. (1989). *User Acceptance of Computer Technology: A Comparison of Two Theoretical Models*. *Management Science*, 35(8), 982–1003. doi:10.1287/mnsc.35.8.982.
- Deci, E. L., and Ryan, R. M. (1985). *Intrinsic Motivation and Self-Determination in Human Behavior* (1st ed.). Plenum Press. doi:10.1007/978-1-4899-2271-7.
- Dewle, M. (2019). *Use Google Classroom as a tool to improve listening skills in an EAP classroom*. *A Journal of Teaching English Language and Literature*.
- Dictionarire de Francais Larouse, edit Larouse, (2016) Tonlinet. <http://www.Larouse.fr/dictionarire/francais/comp%C3A9tence/17648>.
- Drain, T.S. ; Grier, L.E. ; Sun, W. (2012). *Is the growing use of electronic devices beneficial to academic performance? Results from archival data and a survey*. *Issues Inf. Syst.* 13, 225–231.
- Ertaş, H., Şen, A.İ., and Parmaksızoğlu, A. (2011). *The effect of out-of-school scientific activities on the level of 9th grade students associating energy with daily life*. *Necatibey Faculty of*

Education Electronic Journal of Science and Mathematics Education, 5(2), 178-198.

Fahrurrozi, U. Hasanah, R. S. D. (2019). "Integrated Learning Design Based on Google Classroom to Improve Student Digital Literacy," 2019 5th International Conference on Education and Technology (ICET), Malang, Indonesia (pp.108-111.).

Fishbein, M., and Ajzen, I. (1975). *Belief, Attitude, Intention, and Behavior: An Introduction to Theory and Research*. Addison-Wesley.

Filo, K., Lock, D., and Karg, A. (2015). *Sport and social media research: A review*. *Sport management review*. 18(2), 166-181.

Fonseca, K. A. B and Peralta, F. S. (2019). *Google Classroom: an effective virtual platform to Teachwriting in an EFL composition course*. *Internatioanal Journal of English Language Teaching*. Vol. 6, No.1.

Fu, Q.K.; Hwang, G.J. (2018). *Trends in mobile technology-supported collaborative learning: A systematic review of journal publications from 2007 to 2016*. *Comput. Educ.* 119, 129–143.

Garrison, D. R., Anderson, T., and Archer, W. (2000). *Critical inquiry in a text-based environment: Computer conferencing in higher education*. *Internet and Higher Education*, 2(2/3), 87–105.

Gibson, Dr. C. C. (1998). *Supporting the Distance Learner in Context*. *Turkiye İkinci Uluslararası Uzaktan Eğitim Sempozyumu Bildirileri*. *Uzaktan Eğitim Vakfı*, Ankara, turkey 545-550.

Haggag, M. H. (2019). *Using Google Classroom in Enhancing Communicative Grammar Use And Attitudes of Non-English Specialized Post Graduates*. *European Scientific Journal*. Vol. 15.No. 1.

Harasim, L. (2012). *Learning Theory and Online Technologies*. New York/London: Routledge.

Hemrungle S, Jakkaew P, Assawaboonmee S. (2017;200-2004). *Deployment of google classroom to enhance SDL cognitive skills: A case study of introduction to information technology course*. *International Conference on Digital Arts, Media and Technology (ICDAMT)*, Chiang Mai. DOI : 10.1109/ICDAMT.2017.7904961.

Iftakhar, S. (2016). *Google Classroom: What Works and How?* *Journal of Education*

And Social Sciences. Vol.3, pp.12-18.

Januszewski, A., and Molenda, M. (2008). *Chapter 1: Definition. Educational technology: A definition with commentary. New York: Lawrence Erlbaum Associates*
<https://doi.org/10.4324/9780203054000>.

Kaplan, A. M., and Haenlein, M. (2010). *Users of the world, unite! The challenges and opportunities of Social Media. Business horizons. 53(1), 59-68.*

Keskin, N.Ö., and Kılınç, A.G.H. (2015). *Comparison of development platforms and sample applications for mobile learning applications. Journal of Open Education Applications and Research, 1(3), 68-90.*

Kripanont, N. (2007). *Examining a Technology Acceptance Model of Internet Usage by Academics within Thai Business Schools. Victoria University.*

Kuh, G.D.; Vesper, N. (2001). *Do computers enhance or detract from student learning? Res. High. Educ. 42, 87–102. [CrossRef]*

Küle, G. (2012). *Determining the Students Who Educated Marketing Management Lesson Mobile Learning Perception. (Master Dissertation, Bahçeşehir University, Turkey).*

Lan, Y.F., and Hsieh, C.L. (2009). *The design of a question solving mechanism to encourage students to participate in learning activities through handheld mobile devices. In: Virtual Environments, Human-Computer Interfaces and Measurements Systems. United States: VECIMS'09. pp. 261-265.*

Lara, P. and J.M. Duart (2005), "Gestión de contenidos en el e-learning : acceso y uso de objetos de información como recurso estratégico", *Revista de Universidad y Sociedad del Conocimiento*, vol. 2, No. 2 [online] <http://www.uoc.edu/rusc/2/2/dt/esp/lara.pdf>.

Leonardi, P. M., Huysman, M., and Steinfield, C. (2013). *Enterprise social media: Definition, history, and prospects for the study of social technologies in organizations. Journal of Computer-Mediated Communication. 19(1), 1-19.*

Lingnar, A., Hoppe, H. U., and Mannhaupt, G. (2003). *Computer supported collaborative writing in an early learning classroom. Journal of Computer Assisted Learning, 19(2), 186-195*

Lingnar, A., Hoppe, H. U., and Mannhaupt, G. (2003). *Computer supported collaborative writing in an early learning classroom. Journal of Computer Assisted Learning, 19(2), 186-195.*

Mafa, K. R. (2018). *Capabilities of Google Classroom as a Teaching and Learning Tool in Higher Education, (November), 3–8.*

Mcconatha, D., Praul, M., and Lynch, M.J. (2008). *Mobile learning in higher education: An empirical assessment of a new educational tool. Turkish Online Journal of Educational Technology-TOJET, 7(3), 15-21.*

Michaelidou, N., Siamagka, N. T., and Christodoulides, G. (2011). *Usage, barriers and measurement of social media marketing: An exploratory investigation of small and medium B2B brands. Industrial marketing management. 40(7), 1153-1159.*

M. Meshkat, M. Rezaee, M. Jafari, and F Hamidi. (2011). "Information technology in education.," *Procedia Computer Science, vol. 3, pp. 369-373.*

Motiwalla, L.F. (2007). *Mobile learning: A framework and evaluation. Computers and Education, 49(3), 581-596.*

Nagele N. (2019). *Teaching with Google Classroom. Udemy*
Available: <https://www.udemy.com/googleclassroom/> (retrieved October 10, 2019).

Nah, S., and Saxton, G. D. (2013). *Modeling the adoption and use of social media by nonprofit organizations. New Media & Society. 15(2), 294-313.*

Okanlawon AE, Fakokunde, JB. (2019). *Using Video Captured on Lecturer-owned Mobile phone to facilitate the acquisition of Laboratory Teaching Skills. Nigeria Journal of*

Educational Technology (NIJET).1(1):87-99.

Onasanya SA, Ayelaagbe SO, Laleye, AM. (2012). *Mobile phones and adult education in Nigeria: prospects and future challenges. The International Institute for Science, Technology and Education (IISTE). 8:1–7.*

Öztürk, M.F., and Talas, M. (2015). *Interaction of social media and education. Journal of World of Turks, 7(1), 101-120.*

Oyarinde ON, Komolafe OG. (2019). *Pre-service mathematics teachers' attitude and computer Skill toward the use of video based instruction as a delivery method in algebra. Journal of Studies in Education. 19(1):25-40.*

Papadopoulos, T., Stamati, T., and Nopparuch, P. (2013). *Exploring the determinants of knowledge sharing via employee weblogs. International Journal of Information Management. 33(1), 133-146.*

Pettit, Mr. J. (1998). *Learning To Swim Alone. Turkiye İkinci Uluslararası Uzaktan Eğitim Sempozyumu Bildirileri. Uzaktan Eğitim Vakfı, Ankara, Turkey, 259-267.*

Raman A. (2011). *The usage of technology among education students in University Utara Malaysia: an application of extended technology acceptance model. International Journal of Education and Development using Information and Communication Technology (IJEDICT). 7(3):4–17.*

Rambe, P., and Nel, L. (2015). *Technological utopia, dystopia and ambivalence: Teaching with social media at a South African university. British Journal of Educational Technology. 46(3), 629-648.*

Rashid, M. (1998). *Study Guide on Educational Technology. Course Code 843, Allama Iqbal Open University Islamabad. p.2.*

Rashid, T.; Asghar, H.M. (2016). *Technology use, self-directed learning, student engagement And Academic performance: Examining the interrelations. Comput. Human. Behav. 63, 604–612. [CrossRef*

Reiser, R. A., and Dempsey, J. V. (Eds.). (2007). *Trends and issues in instructional design and technology. Second Ed. New Jersey, Ohio MA: Pearson.*

Rosenberg, M.J. (2001). *E-Learning: Strategies for Delivering Knowledge in the Digital Age.*

Vol. 3. United States: McGraw-Hill.

Ruchter, M., Klar, B., and Geiger, W. (2010). Comparing the effects of mobile computers and traditional approaches in environmental education. Computers and Education, 54(4),1067.

Seels, B., and Richey, R. C. (1994). Instructional Technology: The Definition and domain of the field. Washington, DC: Associations for Educational Communications and Technology.

Şenel, M. (2016). Analysis of elt students' perceptions as to mobile phones through metaphors. Kastamonu Education Journal, 24(4), 1749-1764.

Sharma, R. A. (1993). Advanced Educational Technology, Meerut, Loyal Book Depot.p.16.

Shamir-Inbal, T.; Blau, I. (2016). Developing digital wisdom by students and teachers: The ImpactofIntegrating tablet computers on learning and pedagogy in an elementary school. J.Educ.Comput. Res54, 967–9.

Sherry, L. (1996). Issues in Distance Learning. Instructional Journal of Educational Telecommunication 1(4). 337-365. <http://www.cudenver.edu/~Isherry/pubs/issues.html>

Soetan AK, Coker AD. (2018). University lecturers' readiness and motivation in utilising online technologies for instructional delivery in Kwara State, Nigeria. World Journal on Educational Technology: Current Issues.10(4):1-15.

Suleman, Q., Aslam, H. D., Sarwar, S., Shakir, M. N., Shabbir, F. and Hussain, I. (2011b). Effectiveness of Educational Technology in Teaching Chemistry to Secondary School Students in Khyber Pakhtunkhwa (Pakistan).American Journal of Scientific Research Issue 41(2011), 115-131.

Sung, Y.T.; Chang, K.E.; Liu, T.C. (2016). The effects of integrating mobile devices with teaching and learning on students' learning performance: A meta-analysis and

researchsynthesis.Comput. Educ. 94, 2575. [[CrossRef](#)].

Sharples, M.; Scanlon, E.; Ainsworth, S.; Anastopoulou, S.; Collins, T.; Crook, C.; Jones, A.; Kerawalla, L.; Littleton, K.; Mulholland, P.; eal. (2015). *Personal inquiry: Orchestrating science investigations within and beyond the classroom. J. Learn. Sci.* 24, 308–341.[[CrossRef](#)]

Sunkel, G. and D. Trucco (eds.) (2012). *Las tecnologías digitales frente a los desafíos de una Educación Inclusiva en América Latina: algunos casos de buenas prácticas*(LC/L.3545) Santiago, United Nations.

Swan, K. (2010). *Teaching and learning in post-industrial distance education. In M. F. Cleveland- Innes & D. R. Garrison (Eds.), An introduction to distance education: Understanding teaching and learning in a new era (pp. 113–114). New York, NY: Routledge.*

Tan, P. (2013). *Applying the UTAUT to Understand Factors Affecting the Use of English E-Learning Websites in Taiwan.*SAGE Open.

Tanrıverdi, M. (2011). *Development of a Mobile Learning Application to Support E-learning and Analyze Its Effects. (Master Dissertation, Gazi University, Turkey).*

Terzis, V. and A. Economides (2011), “The acceptance and use of computer based assessment”, *Computers & Education*, vol. 56, No. 4, Amsterdam, Elsevier.

Tomes, N., and Higginson, C. (1998). *TALiSMAN Training Needs Analysis, Exploring the Network for Teaching and Learning in Scottish Higher Education.*

<http://www.talisman.hw.ac.uk/tna/>

Traxler, J. (2007). *Defining, discussing and evaluating mobile learning: The moving finger writes and having writ.... International Review of Open and Distance Learning*, 8, 1–12.

Turan, E. (1994). *MedyaninSiyasiHayataEtkileri [Effects of The Media to Politic Life]. IrfanYayincilik, Istanbul, Turkey.*

Uzun, A.M.; Kilis, S. (2019). *Does persistent involvement in media and technology lead to lower academic performance? Evaluating media and technology use in relation to multitasking, self- regulation and academic performance. Comput.Human.Behav.*

90, 196–203.

- Venkatesh, V., Morris, M. G., and Ackerman, P. L. (2000). *A Longitudinal Field Investigation of Gender Differences in Individual Technology Adoption Decision-Making Processes. Organizational Behavior and Human Decision Processes*, 83(1), 33–60. doi:10.1006/obhd.2000.2896 PMID:10973782.
- Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). *User Acceptance of Information Technology: Toward a Unified View. Management Information Systems Quarterly*, 27(3), 425–478. doi:10.2307/30036540.
- Venkatesh, V., Thong, J. Y. L., and Xu, X. (2012). *Consumer Acceptance and Use of Information Technology: Extending The Unified Theory. Management Information Systems Quarterly* 36(1), 157–178. doi:10.2307/41410412.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes. Cambridge, MA: Harvard University Press.* Weimer M. *Learner-centered teaching: Five key changes to practice. San Francisco: Jossey-Bass; 2013.*
- Witte, K.N. and N. Rogge (2014), “Does ict matter for effectiveness and efficiency in mathematics education?”, *Computers & Education*, vol. 75, Amsterdam, Elsevier.
- Wrycza, S., Marcinkowski, B., and Gajda, D. (2017). *The Enriched UTAUT Model for the Acceptance of Software Engineering Tools in Academic Education. Information Systems Management*, 34(1), 38–49. doi:10.1080/10580530.2017.1254446.
- Wu, M., Yu, P., and Weng, Y. (2012). *A Study on User Behavior for I Pass by UTAUT: Using Taiwan’s MRT as an Example. Asia Pacific Management Review*, 17(1), 91–111.
- Wu, P. F. (2012). *A Mixed Methods Approach to Technology Acceptance Research. Journal of the Association for Information Systems*, 13(3), 172–187. doi:10.17705/1jais.00287.
- Zeng, B., and Gerritsen, R. (2014). *What do we know about social media in tourism? A review. Tourism Management Perspectives*. 10, 27-36.

Appendix A

I am **FUASHAALE KUKÉ Kingsley**, a master student of the University of Yaounde 1, Faculty of Education, Department of Curriculum and Evaluation carrying out a research on the topic: ***EDUCATIONAL TECHNOLOGIES AND STUDENT ACADEMIC PERFORMANCE IN THE UNIVERSITY OF YAOUNDE 1***

This questionnaire is designed for academic/statistical purpose and will serve just for this purpose. The information gotten from you will not be disclosed or used in an unidentifiable form for other purpose. The information provided by you on this questionnaire is voluntary and will be strictly confidential.

Thank you for your time and effort put in place to respond to this questionnaire. Your doubts and questions will be clarified.

Instructions

A) Tick the correct option in the boxes provided below.

Demographic Information

1. **Gender:** Male Female
2. **Age:** 15-25 26-30 31-36 37-47
3. **Level of Education:** Undergraduate , 2. Postgraduate , 3. Doctorate
4. **Faculty:** 1. Science , 2. Art, Letters and Social Sciences , 3. Education

B) Please answer all the questions in the table below by providing the correct answers in space provided by placing a tick below the number that corresponds to your opinion (please be honest with your answer) following the judgment below.

- 1 = Strongly Disagree
- 2 = Disagree
- 3 = Agree
- 4 = Strongly Agree

SECTION C: INDEPENDENT VARIABLE1, SOCIAL MEDIA

S/N	STATEMENTS	SD	D	A	SA
1	The different educational technologies such as social media technology, Google Classroom and Mobile technology (computers and smartphones) are adopted by the students of the University of Yaoundé 1.				
2	I use social media to find classmates and friends, messaging and profile update and for academic studies.				
3	I make use of social media for information search, to communicate with instructor, for sharing of materials or documents and for collaboration with classmates and instructor.				
4	WhasApp, Telegram, You Tube, Facebook are the different social media used by students for interactions.				
5	I am able to submit an assignment and received feedback using social media.				
6	The use of social media increases my academic performance.				

SECTION D: MOBILE TECHNOLOGY

S/N	STATEMENTS	SD	D	A	SA
7	Computers smart phones and Tablets are the different types of mobile technologies used by students.				
8	I am able to type my assignment and presentations using a computer.				
9	I am able to use my smart phone to search for academic documents in the internet.				
10	The use of tablets me to read or visualize documents that are not quite visible with the smartphones				

11	In the absence of my computer, I can type my academic work using my smartphone				
12	The fact that I use mobile technology increases my academic performance.				

SECTION E: GOOGLE CLASSROOM

S/N	STATEMENTS	SD	D	A	SA
13	I know how to use Google Classroom application.				
14	I found Google Classroom useful in my learning activities in asking of questions or discussion				
15	Google Classroom enables me to accomplish my task more easily or class presentation.				
16	The attached course materials are easy to access on Google Classroom to work to work with classmates out of class.				
17	I prefer Google Classroom than the traditional face to face classes.				
18	The used of Google Classroom have increased my academic performance.				

SECTION F: DEPENDENT VARIABLE.

Students' academic performances

S/N	STATEMENTS	SD	D	A	SA
19	I was able to develop research skills through collaboration.				
20	I was able to develop new skills and knowledge from other members in my group.				

21	Collaborative learning in the social media environment is better than in a face-to-face learning environment.				
22	The use of social media facilitates academic activities and coordination with peers.				
23	My performance through interaction with classmates and lecturers has improved.				
24	Academic digitalization is more advantageous to me than the old system.				