

Principals' ICT Proficiency Level and Tutors' Willingness to Adopt Modern Technological Devices in Teaching in the Volta and Greater Accra Regions, Ghana

Abraham Lois N.¹, Prince Edem Dzakpasu^{1*}, Kwabla Destiny Amenyedzi²

¹University of Port Harcourt, Rivers State, Nigeria

²Francis College of Education, Hohoe, Volta Region, Ghana

*Corresponding author: princezapps@gmail.com

Received June 04, 2019; Revised July 07, 2019; Accepted July 21, 2019

Abstract The proficiency level of College Principals in effective utilization ICT has been related to the effective integration of ICT into Colleges and its integration by Tutors in enhancing the learning conditions of students. The descriptive survey was conducted to assess the ICT proficiency level of Principals and Tutors willingness to adopt ICT in their teaching in the Colleges of Education in the Volta and Greater Accra Regions of Ghana. The study utilized a descriptive survey design. The research instrument employed for the study was questionnaires for data collection. The sample size of 10 for Principals was purposively selected from the Colleges of Education in the two regions. In addition, through the use of random sampling, 195 Tutors were selected as sample for the study. Generally, the Principals had a high proficiency level with the use of ICT materials such as computer for making a presentation, computer for teaching, browsing on the internet using different websites. It was observed that the Tutors were willing to adopt ICT in their teaching via their willingness to employ projectors in their teaching, use Microsoft word, excel and power point in teaching, and the purchase of personal computers to use for teaching. It was concluded that the Principals had a high proficiency level in ICT use and the Tutors were as well ready to adopt ICT in their teaching.

Keywords: principals ICT proficiency, technology in teaching, ICT adoption in teaching

Cite This Article: Abraham Lois N., Prince Edem Dzakpasu, and Kwabla Destiny Amenyedzi, "Principals' ICT Proficiency Level and Tutors' Willingness to Adopt Modern Technological Devices in Teaching in the Volta and Greater Accra Regions, Ghana." *American Journal of Information Systems*, vol. 7, no. 1 (2019): 1-6. doi: 10.12691/ajis-7-1-1.

1. Introduction

The improvement of science and technology, particularly the utilization of information and integration advances (ICT) in the new period has significantly impacted instructing and learning in education. Educational transformation has turned into a critical issue all over the globe to satisfy the needs of new educational targets in the information-based economy [1].

Implementing ICT into Colleges is one of the duties of the College principal. The Principals must guarantee that the best advantages of the students are served through successful ICT framework and staff proficient advancement. The principal is capable that the project, budgetary and anything else, of ICT in the College, is appreciated by the entire institution. The presentation of ICT in the course of the most recent twenty years has implied a reassessment of how Colleges work as a learning network, from educating and learning to business and organization. The

principal's knowledge of ICT is basic with the goal that systems can be set up to make organizational procedures progressively effective [2], including the work of faculty to oversee and direct the ICT foundation. Over every one of the prerequisites of ICT for authoritative reasons, the principal needs to understand that ICT is a basic segment in drawing-in students for learning. It is through the advancement of Tutors' ICT use that successful instructional methods can be acknowledged [3].

ICT assets such as notepads, laptop computers together with programming and innovative equipment, such as, intuitive whiteboards, projectors, advanced cameras, and scanners are currently a piece of an educator's expert "tool stash". Tutors are relied upon to demonstrate utilizing ICT as well as to improve student's ICT skills too.

Many Colleges and colleges are currently connected with ICT for organizational administration. The new focus ought to empower Tutors' use of ICT by recognizing and effectively elevating ICT as essential to the educating and learning process. Principals ought to help Tutors to connect with their students using new advancements, for

example, web 2.0 (weblogs and wikis) or "social programming" that is accessible as free downloads from the web and the utilization of students' close to home things like iPod, cell phones and PDAs. These are ICT learning devices that students are now utilizing ably in their own lives. Utilizing these and other ICT tools is basic in most learning institutions and their effective instruction will build students commitment and accomplishment in learning [4].

The student in the 21st century is of another age, a different set of people with more noteworthy needs and requests for learning. They are digital natives. For sure, on account of this new type of students, instructors are stretched as far as possible and are tested to adjust, advance, and be imaginative in the educating learning process. The objective of instructing is not to awe but rather to be comprehended. Be that as it may, Tutors ought to be adjusted with the new pattern in passing on information to students.

Complete technology selection and incorporation can be a staggering chore for the average Ghanaian teacher. Since the utilization of ICT in education, there has been a continuous discussion with regards to the various jobs of Tutors [5]. Truth be told, new educational advancements don't check the past jobs of Tutors, however, they require a redefinition or extra jobs for Tutors. The job of Tutors has changed and keeps on changing from being an educator to turn into a constructor, facilitator, mentor, and maker of learning situations. Today, Tutors are required to be facilitators helping students to make decisions about the quality and legitimacy of new sources and information [3].

This change requires new skills of Tutors. For Tutors to have the option to incorporate the utilization of ICT into educating, an immense range of abilities should be grown, for example, imagination, adaptability, calculated skills for appointing work and study parts, just as gathering students' skills for tasks, managerial and organizational skills, teaming up skills, and computer fitness. In accepting their new jobs, Tutors are required to update their insight and procure new skills, including new academic skills and ICT fitness to completely incorporate educational technology into the curriculum [6]. The study, consequently, looked to survey the ICT capability level a principal must have and the willingness of Tutors to adopt modern technological devices in teaching.

1.1. Research Objectives

- i. To determine ICT proficiency level of principals in the Volta and Greater Accra Regions, Ghana
- ii. To assess the teacher's willingness to adopt modern technological devices in teaching in the Volta and Greater Accra Regions, Ghana.

1.2. Research Questions

- i. What is ICT proficiency level of principals in the Volta and Greater Accra Regions, Ghana?
- ii. To what extent are Tutors willing to adopt modern technological devices in teaching in the Volta and Greater Accra Regions, Ghana?

2. Literature Review

2.1. Principal's ICT Proficiency Level

Leadership is a key segment in controlling the teaching and learning process pertinent to preparing the present generation of students with significant information and skills in the present society to turn into a gainful resident of the 21st century.

[7] opined that, leadership is significant in creating powerful, inventive Colleges and encouraging quality teaching and learning. The present principals must not just manage the everyday activities of a College. In addition they have to focus on student learning, guidelines, information driven decision making and rebuilding endeavours.

As expressed earlier, the principals assume a fundamental job in technology combination [8]. This job is significant in helping Tutors make the present perfect learning condition for students. In accordance with this thought, [8] expressed that "Information Technology may be effectively actualized in Colleges if the principal effectively bolsters it, learns too, gives satisfactory expert improvement and supports his/her staff during the time spent change". Subsequently, principals are one of the key leaders of progress at the College level. Their activities, interests, and self-adequacy can profoundly affect program change and instructional practice. In this way, viable administrators must have information, dispositions, and performance.

ISTE standards are ultra high Technology education benchmarks for both learners and teachers. These standards are to be used by students, teachers, administrators tech-coaches and computer science educators. The 21st century school principal is expected to be a learner, visionary leader who should process digital age learning culture, excellent in his or her professional practice leading to systematic improvement and should be a digital citizen.

The principals as leaders are important in this study because they should drive the technology integration by facilitating a collective approach to setting and implementation of ICT goals. Bates (2011).

The digital skill is equally one of the skills required in a knowledge society since most of the knowledge based activities people are involved in require the use of technology. The learners we have in schools today are users of so many facilities with digital Technology especially social media such as Twitter, Facebook, instant messaging, video games, blogs etc which requires the use of various applications and devices such as mobile phones iPads laptops and the like. A larger part of the lives of the digital natives which we have in the classrooms today are immersed in the social media. Prensky (2001).

In this era of information, principals must incorporate ICT into their day by day practice and to give steady and positive leadership to technology use in the instructing learning process. Truth be told, they should be technology leaders. As indicated by [3], Technology leadership includes both understanding the advancements and how they can be connected to achieving undertakings. In a study that analysed the job of administrators in the intergration of technology into the learning condition of three United States school regions, [9] expressed that College principals must concentrate their energies on ten

technology classifications: existing work on, arranging, curriculum, assets, staff issues, communications, support, deterrents, staff advancement, and usage. Thusly, principals need to comprehend the limits of the new innovations, to have an individual capability in their utilization, and have the option to advance a College culture which empowers investigation of new systems in instructing, learning, and management [10]. In this manner, Colleges need leaders who can encourage the change procedure and bolster a learning network for technology joining.

In the words of [11] no effective enormous social change or College change exertion has progressed exceptionally far without the help of the College leaders. Likewise, Schiller expressed that "principals have a key task to perform in carrying out the assistance of educational change". In their studies of the primary College principal as a change facilitator for ICT, [10] infers that principals who adopt a functioning strategy to development can cultivate a domain that has more prominent advantages for their students and staff. Thus, principals' mindfulness, comprehension, and utilization of ICT are basic for compelling utilization of computers in the College [7]. A College manager should be acquainted with ICT and recognize what to search for in the classroom if viable supervision, assessment or backing for a classroom instructor is to be made [12]. This view is upheld by [3] who noticed that College leaders should utilize technology themselves, building up a familiarity with how technology can be utilized and displaying the training to the College staff.

Also, [7] expressed that it is significant for principals to utilize computers, to look for help and guidance from specialists, from technology advisory groups, visit different Colleges, conceptualize thoughts and contract and train technology 'wise' Tutors. Consequently, effective ICT advancement inside the College will require the pioneer to know about the conceivable outcomes and future improvement of technology and how the College may coordinate these into instructing and learning.

As leaders, the principals must make steady conditions to cultivate the mix of technology [13]. In the views of [14], productive College principals ought to motivate a mutual vision for far-reaching reconciliation of technology and cultivate a domain and culture helpful for the acknowledgment of that vision. Additionally, these principals ought to depict an enthusiastic responsibility for giving proper ICT proficient staff improvement for individual staff members [14]. Along these lines, the principal's job changes as she/he drives technology reconciliation. Like Yee's examination, Schiller's discoveries feature the key role that the principal must play in supporting technology yet in addition encouraging change and intercession methodologies in the educating learning process [7]. Additionally, he expressed that principals must work cooperatively with the teaching staff to viably lead the infusion of technology in their Colleges. To lead this integration, they should be prepared and ceaselessly reinforce the utilization of technology. Subsequently, administrators who are educated and comfortable with technology usage must become key players in driving and supporting technology into the Colleges.

At that point, the principal must go about as a good example and they ought to be capable clients of ICT devices. As portrayed above, leaders who are utilizing technology while they are studying hypothesis are substantially more effective at getting it and afterward putting it with regards to instructing and learning. Along these lines, leaders must realize how to utilize technology to change practice to achieve new objectives as an impetus for change and as an apparatus in making, implementing, overseeing, and communicating another origination of educating and learning [15]. These new models share instructional practices that incorporate dynamic commitment, communication, coordinated effort, critical thinking, basic reasoning, an autonomous investigation and genuine assignments [15]. Henceforth, leaders must almost certainly adjust to change as the earth moves and creates. At that point, the inquiry moves toward becoming what leadership style is required for the principal to enable Tutors to adapt to the requests of this innovative and pedagogical change.

2.2. The Willingness of Tutors' to Adopt ICT

Studies have shown that ICT integration in the classroom is often ill-implemented in classrooms around the world. Although many Tutors are aware that ICT integration in teaching can help student learning, most of them are still unwilling to integrate ICT into teaching [16].

Numerous investigators have reviewed Tutors' ICT usage levels and related factors in Colleges [17]. A study by [18] assessed Tutors' ICT skill levels and the extent of ICT integration in classroom instruction in training Colleges and vocational education. This study found the vocational educators' basic ICT knowledge to be adequate. [17] used a quantitative approach to investigate the perceptions of College educators on the use of computer technology in the classroom. The results showed that Tutors' beliefs and attitudes influenced their use of ICT in the classroom. In another study involving 390 Tutors, [19] examined instructional practices and found that few Tutors applied ICT in the classroom despite almost all of them being adequately ICT competent; some even used higher levels of ICT skills in their personal lives. [20] carried out a survey on educators in 11 Colleges and found that less than a quarter of the educators integrated ICT into the classroom regularly. [21] investigated factors that encouraged the inventive use of ICT by Tutors. Their study revealed that a learner-oriented pedagogical attitude, computer experience, positive attitude toward computers and personal entrepreneurship of the teacher engendered a positive influence on the inventive use of ICT by the educator. [22], examined educational technology usage among Turkish VET College educators. They discovered that educators used ICT most regularly for administrative purposes and less for actual educational purposes. [23], investigated the degree of ICT acceptance among Malaysian secondary College Tutors. They found that older Tutors, more than new Tutors, would regularly use educational technology in classroom teaching. With the benefit of both teaching experience and basic competency in ICT, older Tutors could easily integrate educational technology into their teaching practice. [24], argued that educators might accept and integrate ICT into their

classroom if teacher training programs also focused on ICT skills and innovative techniques for classroom activities. The length of the training period should be adequate so that trainee Tutors have sufficient practice that would bolster their confidence in using ICT in the classroom.

The researchers are of the opinion that principals and Tutors need to understand that it has become “imperative” and not “optional” according to Kirunya (2014) for educators to move from the traditional approach to teaching and become facilitators in order to enhance learning for the digital natives. This is therefore the way to make learning appealing to them and equally make them connected to the schools.

The digital natives are immersed in the use of digital tools. That is their world. this has naturally created the gap between them and their digital immigrant teachers and principals. The only way to bridge this gap is for the teachers and principals to migrate into the digital world of the natives and speak the digital language with them by getting acquainted with the tools they use and bring this digital tools to the classrooms. This migration will help the teachers who already have the pedagogical and content knowledge to use the technological knowledge effectively to guide the digital natives in their learning journey.

3. Methodology

The study utilized a descriptive survey design. The target population consisted of College principals and Tutors in Colleges of Education in Volta and Greater Accra Regions of Ghana. The Yemane formula was used to calculate the sample size of the Tutors for study from the population, while 10 Principals were purposively selected from the Colleges of Education in the two regions because of their limited number. In addition, through the use of random sampling, 195 Tutors were selected as sample for the study. The fundamental instrument for information collection for the study was copies of a questionnaire designed for the purpose. The information gathered was analysed utilizing the Statistical Package of the Social Sciences (SPSS) version 25. In particular, descriptive statistics, Tables, Percentages, Frequencies, means, and Standard Deviations were depended on to do the analysis. Regression and correlation were performed to test the hypothesis.

4. Results

4.1. Gender of Respondents

From Table 1 it was observed majority (7) of the principals representing 70% were males while rest of the 30% were females. Pertaining to Tutors most (125) of them representing 64.1% were males and 70 of them representing 35.9% were females.

From Figure 1 it was observed that all the principals in the considered colleges representing 100% had a personal computer. Regarding Tutors’ majority (188) of them representing 96.4% had personal computers while only 3.6% did not have personal computers.

Table 1. Gender of respondents and availability of personal computers

	Principals (Total=10)	Tutors (Total=195)
Variables	N (%)	N (%)
Male	7 (70)	125 (64.1)
Female	3 (30)	70 (35.9)

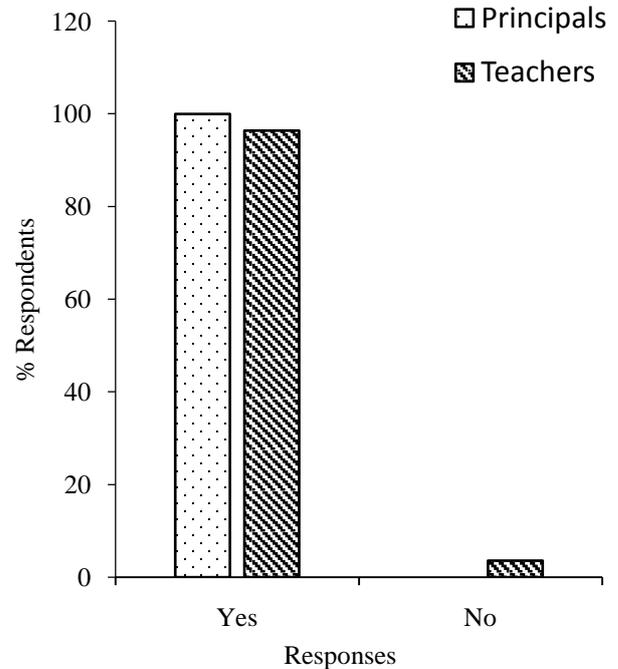


Figure 1. Availability of personal computers by respondents

Table 2. Principals proficiency level of ICT usage

Statement	N	Min.	Max.	Mean	S.D	Remarks
I can use internet for accessing information on my computer	10	1	5	3.91	0.433	High
I can use email to communicate with colleagues, family and friends	10	1	5	4.13	0.365	High
I can use computer for performing assignments	10	1	5	4.20	0.341	High
I can use computer for keeping records/data	10	1	5	4.52	0.316	High
I can use computer for making presentation	10	1	5	4.34	0.338	High
I can use computer for teaching	10	1	5	4.42	0.321	High
I can browse on the internet	10	1	5	3.96	0.411	High
I can use projector for doing presentations	10	1	5	4.05	0.409	High
I can use Microsoft word, excel, and power point for document preparation	10	1	5	4.47	0.314	High

Table 3. Tutors' willingness to adopt modern technology devices

Statement	N	Min.	Max.	Mean	S.D
Tutors are willing to use projectors in teaching	195	1	5	4.31	0.364
Tutors are willing to use Microsoft word, excel and power point in teaching	195	1	5	4.12	0.381
Tutors are willing to purchase computers to use for teaching	195	1	5	3.84	0.421
Tutors are willing to use email in communicating with colleagues and students	195	1	5	4.09	0.394
Tutors are willing to use internet for accessing information in the classroom	195	1	5	3.89	0.486
Tutors are willing to use computer to perform assignments	195	1	5	4.22	0.354
Tutors are willing to use computer for keeping records/data	195	1	5	4.18	0.351
Tutors are willing to use computers for making presentation	195	1	5	3.97	0.460
Tutors are willing to use software packages (SPSS, STATA, etc.)	195	1	5	3.72	0.471
Tutors are willing to be trained to build their capacity in ICT	195	1	5	4.17	0.344

4.2. Principals ICT Proficiency Level

In assessing the level of ICT proficiency of principals in Colleges of Education in the Volta and Greater Accra Regions of Ghana a descriptive analysis was employed to measure the statistical result of variable in [Table 2](#) using means, and standard deviations (SD). A scale ranging from 1 to 5 (1. Very low, 2. Low, 3. Moderate, 4. High, and 5. Very High), was adopted in measuring the agreements of respondents on their ICT proficiency level. A mean ranging from 3.5 to 5 represented respondents with high proficiency in the use of ICT, a mean from 2.5 to 3.4 implies respondents been moderate in their proficiency in ICT usage and a mean from 1 to 2.4 indicates respondents with low proficiency in the use of ICT.

From [Table 2](#) majority of the principals had high proficiency in the use internet for accessing information on their computers with a mean value of 3.91 and a S.D of 0.433. With respect to principal's ability to use email to communicate with colleagues, family and friends, several of the principals had high proficiency level with a mean value of 4.13 and a SD of 0.365. Most of the principals as well had high proficiency in the usage of computers for performing assignments with a mean value of 4.20 and a SD of 0.341. The mainstream of the principals had high proficiency using computers for keeping records/data this recorded a mean value of 4.52 and a SD of 0.316. The highest fraction of the principals had high proficiency employing computers for making presentation with a mean value of 4.34 and a SD of 0.338. Most of the principals also had high proficiency in utilizing computers for lecturing with a mean value of 4.42 and a SD value of 0.321. With respect to principal's ability to browse on the internet, most of the principals had high proficiency level with a mean value of 3.96 and a SD of 0.411. Majority of the principals as well had high proficiency using projector for doing presentations with a mean value of 4.05 and a SD of 0.409. Majority of the principals as well had high proficiency use Microsoft word, excel, and power point for document preparation with a mean value of 4.05 and a SD of 0.409.

From [Table 3](#) majority of the Tutors agreed that they are willing to use projectors in teaching with a mean value of 4.31 and a S.D of 0.364. With respect to Tutors' willing to use Microsoft word, excel and power point in teaching, several of the Tutors agreed to this item with a mean value of 4.12 and a SD of 0.381. Most of the Tutors as well

agreed they are willing to purchase computers to use for teaching with a mean value of 3.84 and a SD of 0.421. The mainstream of the Tutors agreed that they are willing to use email in communicating with colleagues and students this recorded a mean value of 4.09 and a SD of 0.394. The highest fraction of the Tutors agreed they willing to use internet for accessing information in the classroom with a mean value of 3.89 and a SD of 0.486. Most of the Tutors also agreed that they are willing to use computer to perform assignments with a mean value of 4.22 and a SD value of 0.354. With respect to Tutors willing to use computer for keeping records/data, most of the Tutors agreed to this item with a mean value of 4.18 and a SD of 0.351. Majority of the Tutors as well agreed that they are willing to use computers for making presentation with a mean value of 3.97 and a SD of 0.460. Majority of the Tutors as well agreed that they are willing to use software packages (SPSS, STATA, etc.) having a mean value of 4.05 and a SD of 0.409. Finally, majority of the Tutors agreed that they are willing to be trained to build their capacity in the usage of ICT facilities with a mean value of 4.17 and a SD of 0.344.

5. Discussion

The result in [Table 2](#) indicated that the principals in the colleges of education in Volta and Greater Accra regions of Ghana had high proficiency in the usage of the following ICT materials; internet for accessing information on computer, email to communicate with colleagues, family and friends, computer for performing assignments, computer for keeping records/data, computer for making presentation, computer for teaching, browse on the internet using different websites, projector for doing presentations, Microsoft word, excel, and power point for document preparation. Result from [Table 3](#) indicates that the Tutors are willing to adopt ICT by willing to; use projectors in teaching, use Microsoft word, excel and power point in teaching, purchase computers to use for teaching, use email in communicating with colleagues and students, use internet for accessing information in the classroom, use computer to perform assignments, use computer for keeping records/data, use computers for making presentation, use software packages (SPSS, STATA, etc.), and be trained to build their capacity in ICT. This outcome agrees with the observation of [8], who

in their study stated that principals play a fundamental role in ICT integration in College through their effective use of ICT themselves. This according to [8] help Tutors endeavour to integrate ICT in their teaching resulting in a perfect learning condition for students. Thus, principals' mindfulness, comprehension, and utilization of ICT are basic for compelling utilization of computers in the College [7]. A College manager should be acquainted with ICT and recognize what to search for in the classroom if viable supervision, assessment or backing for a classroom instructor is to be made [12]. This view is upheld by [3] who noticed that College leaders should utilize technology themselves, building up a familiarity with how technology can be utilized and displaying the training to the College staff.

6. Conclusion

It can be concluded that principals in colleges of education in Volta and Greater Accra Regions are averagely proficient in the usage of ICT materials such as computer for making presentation, computer for teaching, browse on the internet using different websites, projector for doing presentations, and use Microsoft word, excel, and power point for document preparation. Tutors were willing to adopt ICT into their teaching through their willingness to use projectors in teaching, use Microsoft word, excel and power point in teaching, and purchase computers to use for teaching.

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