

# E-learning Skills' Impact on Teachers' Performance in Higher Technical Teachers' Training College of the University of Buea, Cameroon

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## Abstract

The aim of this study was to evaluate the effect of E-learning skills on the performance of teachers in HTTTC Kumba. It was hypothesized that E-learning skills have no significant effect on teachers' performance in HTTTC Kumba. A sample of 42 respondents was obtained by multistage sampling and administered a questionnaire to. The data were analyzed using frequencies and percentages for descriptive statistics, while the Chi-Square Test was used for testing the hypothesis. The results revealed that teachers in HTTTC Kumba are aware of E-learning and E-learning tools and are also of the opinion that the use of E-learning tools can improve performance, but they do not use E-learning platforms, nor do they believe that their students are better at E-learning platforms than in their traditional classrooms. It was recommended that education stakeholders should put all hands on deck to ensure a smooth integration of E-learning tools into the classroom.

**Keywords:** E-learning skills, teachers' performance, teacher training

## Introduction

The coming of technology has transformed the methods of teaching/learning, teaching aids, curriculum design, educational administration and education generally. Khalil and Ebner (2017) present two main challenges for educators following rapid technological advancement. The first challenge is that teachers must stay abreast with relevant instructional technologies. That is, they must be able to assess the value of educational technologies and acquire and continually update their technological skills. Secondly, teachers will have to begin blending new technologies into their instructional settings. To successfully upgrade skills and integrate technology into the educational environment, teachers will have to make a time commitment and education departments will need to provide ample training and support for instructional practitioners. Bates (2005) defines Information & Communication Technology (ICT) as a set of computer-based technologies, microelectronics, telecommunications (including networks), multimedia and broadcasting, which, when combined and interconnected, allow to search, storage, process and transmit information in the form of data of various types (text, audio, still images, video, etc.) as they permit interactivity between people, and between people and machines. ICT has opened new avenues, like, Online learning, E-learning, Virtual University, E-coaching, E-education, E-journal, etc. ICT brings more rich material to the classrooms and libraries for the teachers and students. It has provided an opportunity for the learner to use maximum senses to get the information. It has broken the monotony and provided variety in the teaching-learning situation. ICT provides innovative means not only for knowledge dissemination but also for the

exploration of learning strategies that promote skills-building (Kumar, 2018). Hanane and Djilali (2015) opine that although most teachers do have a degree of knowledge concerning ICT, they have little know-how or techno-pedagogical ability with which to integrate those technologies into their teaching practice.

The use of new technologies in education involves new roles for teachers, new pedagogies, as well as new approaches to teacher training (Mahgoub & Elyas, 2014). The teacher, therefore, has to understand the role of technology and the implications of technology-mediated changes in creating interest in learning among students through unique utilities like animation, simulation, and the Internet, planning and designing effective learning environments with necessary technical support and making the best use of technology-enhanced lessons to enrich student learning.

## E-learning Tools

E-learning is the use of information and communication technologies (ICTs) to mediate and enhance teaching and learning (Makrakis & Kostoulas- Makrakis, 2005). The different definitions of E-learning from different authors boil down to a simple summary that it consists of combining information and communication technologies with pedagogics skills to ensure an effective teaching/learning interaction. All of the all emphasize that integrating ICT tools into the learning process facilitates it. This, therefore, makes E-learning skills one of the main technical skills necessary for teachers, especially teachers of a teacher-training college like HTTTC Kumba.

Bates (2005) made a clear distinction between some confusing terms around the concept of E-learning which are online learning

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and E-learning. E-learning encompasses any form of telecommunications and computer-based learning, while online learning specifically uses the Internet and the Web for teaching and learning activities. Teaching and learning that takes place with the use of CD-ROM are categorically E-learning but not online learning.

Chugh (2006) distinguished between synchronous and asynchronous E-learning. Synchronous E-learning involves the use of tools where all the participants have to be connected simultaneously to communicate, while asynchronous E-learning involves using tools whereby the participants do not necessarily have to be connected simultaneously. For instance, e-mails, CD-Rooms and Discussion groups are asynchronous E-learning tools, while video conferencing and audio-conferencing are synchronous E-learning tools. Asserted that using technology should not be the only purpose of E-learning but making use of technology to complement students' ingenuity and individuality must be the main objective.

Examples of E-learning environments and tools include commercial software applications, open-source platforms, 3D virtual worlds, and massive open online courses (MOOCs) like Blackboard, Moodle, Sloodle and Coursera, respectively. Other open-source platforms identified in the literature were Desire2learn, Sakai, OLAT, E-College, Chat rooms, E-mails, and CD-Rooms (Bokhari & Ahmad, 2011)

### **Effects of E-learning Skills on Teachers' Performance**

Teacher performance is a work result, according to quality and quantity, that can be achieved by an employee in conducting duty consistent with the responsibility assigned to him or her (Lebrun, 1999).

Almada et al. (2014) carried out a study to present a techno-pedagogical lecturer training model that was validated in an intensive hybrid-mode workshop/course for lecturers. The course aimed to train lecturers on how to use the Moodle virtual learning environment (VLE) as didactic support in their classrooms. A research action method was applied to the study, and the instruments used were interviews, questionnaires, blogs and opinion surveys, together with the planning and development of an online course by each participant as the end product. The course was then analyzed to see how each of the 16 participants had gradually appropriated the technology without overlooking the pedagogical aspects.

The results revealed that some participants had progressed from beginner to intermediate level, and others from intermediate to advanced level, while those already at advanced level developed sophisticated courses and sought ways of improving them on their own. Also, the researchers found that the role of the university institution had been fundamental to the proper running of the course and that constant communication between the facilitator and the lecturers/learners had been important. In the advanced-level group, the lecturers/learners learned to look for ways of improving their courses on their own. Likewise, 12 out of the 16 participants had their online courses as classroom support. This led to the conclusion that this techno-pedagogical lecturer training model was validated because it worked. In the recommendation, it was underscored that constant communication with the lecturers is very important.

Etikan (2015) conducted a study at Selcuk University in Turkey to determine the influence of technologies on the learning process of students and to find whether there are any similarities and differences that arise between the faculty that they have been educated and their learning process. In addition to this, the study sought to determine the level of ICT usage of students studying at the university level. The study used a survey design with a questionnaire to collect the data. Data obtained by polling method were analyzed by using SPSS 15.0. The arithmetic mean and standard deviations of data obtained from each item were calculated. A *t*-test was used for the analysis of the data and because of this, findings were obtained. The importance of level control in the study was selected as .05. Cronbach Alpha coefficients were used to test for reliability and the overall reliability scale was Alpha = .86.

The results of the findings revealed that computers, projection devices, mobile phones and wireless connections were the most

frequently used technologies in education. Moreover, sending messages to students about the results of exams and some announcements is an important and beneficial implementation, but it must be continued with some developments. According to the results of this survey, it is seen that education without technology affects success negatively. It is not expected that education without communication technologies is not going to be effective and permanent. It was recommended that teaching staff should be encouraged to learn and use communication technologies for their courses.

Valcárcel (2014) also carried out a study to analyze data concerning ICT contributions to collaborative work processes in the classroom from the point of view of teachers at schools accredited with a high level of ICT by the Regional Government of Castile and Leon. The researchers also took into account the limitations of these tools, as well as teachers' conceptions of collaborative learning strategies. The methodology was based on the qualitative content analysis of interviews with teachers from a representative sample of schools.

The results indicated that teachers think that ICT has great potential for enhancing collaborative activities among students and for developing highly relevant generic skills, although they are also aware of the difficulties that both students and teachers face in educational practice. The researchers concluded by insisting on the transformation that needs to take place in school practices so that practices will promote the development of collaborative projects with ICT and so that ICT will become the channel for communication and information that is essential for guaranteeing learning environments that are open, interactive, replete with incentives and sources of information, motivating for students, and focused on developing skills. They recommended that teacher training in techno-pedagogy should be maximized.

Etikan (2015) carried out a study to promote student online collaborative learning using a Web 2.0 tool. The study adopted an action research approach and in order to understand better the effect of the wiki on the students' learning outcomes, qualitative research methodology became a primary technique for data collection. The researchers used a content analysis approach to explore students' online behavior, as demonstrated in each group's folder. As for individual learners, survey questions elicited students' perceptions of using the wiki in the classroom. Fifty-five college students majoring in information technology and management participated in the two-week study conducted in a programming language course.

The results show that the technological tool motivated students to engage in collaborative learning, and its use supports student learning. The wiki platform created in the study project just provides a learning context in which students can improve their professional knowledge using collaborative learning. It was recommended that in the future, based on negative student comments, the current instructional strategy should be modified and a new learning activity that can better facilitate teamwork and support student learning.

Karsenti (2001) also conducted a study to investigate the effect of using synchronous and asynchronous communication tools in online group activities to develop collaborative learning skills. An experimental study was implemented on a sample of faculty of education students at Mansoura University. The sample was divided into two groups, one group studied using synchronous communication tools, and the other group studied using asynchronous communication tools.

The findings highlighted the fact that electronic communication tools affect the development of collaborative skills. However, the researchers found that synchronous communication tools are more useful than asynchronous communication tools for developing collaborative learning skills in online group activities. The implications of the findings offer support for using synchronous communication tools in online group activities to develop collaborative skills.

Most of the empirical studies conducted in support of E-learning skills of teachers point to the relevance of possessing such skills, the successfulness of implementing virtual classrooms and the degree of awareness among teachers of the need for E-learning skills and techno-pedagogical skills in general. These studies failed

to properly measure the degree of effect of having E-learning skills on the performance of a teacher. Most of the studies used qualitative approaches leaving research with the gap of identifying the probability score for the effect of E-learning skills on teachers' performance which is what this study seeks to achieve.

### Objective

The main objective of this study was to investigate the effect of E-learning skills on teachers' performance in HTTTC Kumba.

### Research Question

How do E-learning skills affect teachers' performance in HTTTC Kumba?

### Hypotheses

Null Hypothesis: E-learning skills have no significant effect on teachers' performance in HTTTC Kumba.

Alternative Hypothesis: E-learning skills have a significant effect on teachers' performance in HTTTC Kumba.

### Methodology

The sample for this research was 42 teachers from Higher Technical Teacher's Training College, Kumba, in Cameroon. A questionnaire was extracted from the one done by Hanane and Djilali (2015). This questionnaire consisted of four-point Likert scale items (strongly Agree (SA), Agree (A), Disagree (D) and Strongly Disagree (SD). Where SA = 4, A = 3, D = 2, and SD = 1. The questionnaire was personally administered to the respondents by the researchers.

The multistage sampling technique was used to get the sample. In the first step, total population sampling was used and all fourteen departments in HTTTC Kumba were included in the study. Total population sampling is a type of purposive sampling. According to Etikan (2015), purposive sampling, also known as subjective or judgmental sampling, is a non-probability sampling technique that does not need underlying theories or a set number of participants. That is, the researcher decides what needs to be known and sets out to find people who can and are willing to provide the information by virtue of knowledge or experience (Etikan, 2015). In the second and final step, the simple random sampling technique, a type of probability sampling approach, was used to select three teachers from each department. According to Amin (2005), simple

random sampling is a technique of selecting a sample from the population in such a way that all the elements in the population of the same size have equal chances of being selected. Since the questionnaire was constructed from an already existing one, the reliability and validity of the questionnaire were guaranteed. Descriptive and Inferential Statistics were used to analyze the data.

### Results and Discussion

The majority, 25(59.5%) of the 42 teachers randomly sampled in HTTTC Kumba, were males, while the rest, 17(40.5%), were females. It is a clear depiction of the average higher technical institution in Cameroon, which is often dominated by male teachers; hence a random selection is more likely to fall on a male teacher. Concerning age, the majority, 15(35.7%) of the 42 sampled teachers, were aged between 36-40 years; 12 (28.6%) were aged between 41-45 years; 7 (16.7%) were aged between 46-50 years; 6 (14.3%) were aged between 31-35 years while an equal 1(2.4%) and 1(2.4%) were aged between 51-55 years and 25-30 respectively. In relation to their qualifications, the majority, 22(52.4%) of the respondents, were Ph.D. holders; 14 (33.3%) were holders of master's degrees, while the rest, 6(14.3) were holders of DIPET/DIPES II. Concerning academic rank, it can be seen that the majority, 20(47.6%), were Assistant Lecturers; 12(28.6%) were Instructors; 8(19.0%) were Lecturers and 2(4.8%) were Associate Professors. In relation to the longevity of service, the majority, 30(71.4%) of the sampled teachers, have worked in HTTTC Kumba for between 01-05years and the rest, 12(28.6%), have worked for between 06-10 years.

To tackle the research question of this study which was "how do E-learning skills affect teachers' performance in HTTTC Kumba?" with the aim of evaluating the effect of E-learning skills on the performance of teachers in HTTTC Kumba, the results obtained from the survey are presented in Table 1 below.

From Table 1, it was observed that for the statement "E-learning tools like chat, file sharing, video conferences, shared whiteboards, CDs, Flash drives and DVD make it easy to deliver content to learners," a total majority of 40(95.3%) of the sampled teachers opted for agreed options while a minority 2(4.8%) disagreed and that led to the overall decision "agree" for that particular statement. The table further revealed that concerning the statement "I use online -learning platforms to deliver lessons to my students at distant places," a total majority of 23(54.8%) disagreed while 19(45.2%) agreed to the suggestion. This indicated that most of the teachers in HTTTC Kumba do not use E-learning platforms to deliver their lessons.

**Table 1**  
Teachers' View on the Effects of E-learning on their Performance in HTTTC Kumba

Variable	Description	Frequency	Percentage
E-learning tools like chat, file sharing, video conferences, shared whiteboards, CDs, Flash drives and DVD make it easy to deliver content to learners	Strongly agree	23	54.8
	Agree	17	40.5
	Disagree	2	4.8
	Total	42	100
	Decision	Agree	
Use online E-learning platforms to deliver lessons to my students at distant places	Strongly agree	8	19
	Agree	11	26.2
	Disagree	13	31
	Strongly disagree	10	23.8
	Total	42	100
When I use multimedia, it facilitates the comprehension of my learners	Decision	Disagree	
	Strongly agree	8	19
	Agree	29	69
	Disagree	5	12
	Total	42	100
My use of E-learning makes my students participate more in the lessons than during traditional lessons.	Decision	Agree	
	Strongly agree	5	12.2
	Agree	20	48.8
	Disagree	15	36.6
	Strongly disagree	1	2.4

Variable	Description	Frequency	Percentage
	Total	41	100
	Decision	Disagree	
Learning through online learning platforms improves the performance of my students	Strongly agree	5	11.9
	Agree	10	23.8
	Disagree	23	54.8
	Strongly disagree	4	9.5
	Total	42	100
	Decision	Disagree	
My students feel more comfortable expressing themselves through E-learning platforms than in traditional classrooms	Strongly agree	4	9.5
	Agree	14	33.3
	Disagree	22	52.4
	Strongly disagree	2	4.8
	Total	42	100
	Decision	Disagree	
My E-learning skills improve my performance in teaching	Strongly agree	20	47.6
	Agree	15	35.7
	Disagree	4	9.5
	Strongly disagree	3	7.1
	Total	42	100
	Decision	Agree	

Table 1 also revealed that concerning the third item, which was "When I use multimedia, it facilitates the comprehension of my learners," a total majority of 37(88.1%) opted for agreed options while a minor of 5(11.9%) disagreed and that led to the overall decision "agree" for that item. The fourth item in Table 1 reveals that a total majority of 25(61%) agreed while a total of 16(39%) disagreed out of the 41 participants who attempted answers to the statement "my use of E-learning makes my students participate more in the lessons than during traditional lessons" leading to the decision "agree" for that statement. In the fifth item, which was "learning through online learning platforms improves the performance of my students," a total majority of 27(64.3%) of the respondents disagreed while 15(35.7%) agreed and that led to the overall decision "disagree" for that particular item.

Table 1 further reveals that when presented with the statement my students feel more comfortable expressing themselves through E-learning platforms than in traditional classrooms", a total majority, 24(55.2%) of the teachers in HTTTC Kumba disagreed while 18(42.8%) agreed to the statement leading to the overall

decision "disagree" for that item. In the last item, a total majority 35(83.3%) of the respondents agreed while 7(16.6%) disagreed and this led to the overall decision "agree" for that item.

From the results in Table 1, it can be deduced that teachers in HTTTC Kumba are to a greater extent aware of the E-learning and E-learning tools and are also of the opinion that the use of E-learning tools can improve performance, but they do not use E-learning platforms nor do they believe that their students are better on E-learning platforms than in their traditional classrooms. The responses indicate that there is a significant disagreement towards the application of E-learning in HTTTC Kumba but with a significant agreement towards the positive effect of E-learning on teachers' performance.

### Teachers' Performance

The dependent variable of this study was teachers' performance and it was assessed using one item for which the results are presented in Table 2.

**Table 2**  
Teachers' Measure of their Level of Performance

Variable	Description	Frequency	Percentage
My skills in using technology for teaching and learning is	Excellent	4	9.5
	Very good	7	16.7
	Good	12	28.6
	Average	15	35.7
	Poor	4	9.5
	Total	42	100
	Decision	Good	
My use of technology for teaching improves my performance in teaching	Strongly agree	14	33.3
	Agree	23	54.8
	Disagree	2	4.8
	Strongly disagree	3	7.1
	Total	42	100
	Decision	Agree	

Table 2 shows that out of the 42 teachers sampled in HTTTC Kumba, the majority, 15(35.7%) have average skills in using technology for teaching; 12(28.6%) are good at using technology for teaching; 7(16.7%) are very good in using technology for teaching; 4(9.5%) are excellent while the rest 4(9.5%) are poor in the use of using technology for teaching. This implied that the overall rate of E-learning skills of teachers in HTTTC Kumba is "good." Table 2 further revealed that a total majority of 37(88.1%) of the respondents agreed while 5(11.9%) disagreed with the statement that "my use of technology for teaching

improves my performance in teaching," and this led to the decision "agree" for that statement.

### Verification of Hypothesis

Null Hypothesis: E-learning skills have no significant effect on teachers' performance in HTTTC Kumba.

Alternative Hypothesis: E-learning skills have a significant effect on teachers' performance in HTTTC Kumb

**Table 3**  
Crosstab

Variable	Teachers' performance				Total		
	AVG	GD	VG	EX			
E-learning tools like chat, file sharing, video conferences, shared whiteboards, CDs, Flash drives and DVD make it easy to deliver content to learners	SA	Observed	3	17	3	0	23
		Expected	1.6	16.4	2.7	2.2	23.0
	A	Observed	0	13	2	2	17
		Expected	1.2	12.1	2	1.6	17.0
	D	Observed	0	0	0	2	2
		Expected	.1	1.4	.2	.2	2.0
Total	Observed	3	30	5	4	42	
	Expected	2.9	29.9	4.9	4.0	41.7	

(Approx. 42)

**Table 4**  
Chi-Square Tests Results

Particulars	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	23.721 <sup>a</sup>	6	.001
Likelihood Ratio	17.300	6	.008
Linear-by-Linear Association	10.594	1	.001
N of valid cases	42		

Note. <sup>a</sup>10 cells (83.3%) have an expected count of less than 5. The minimum expected count is .14.

\*p-value < .001.

The Chi-Square results presented in Table 4 above are derived from the crosstab in Table 3. Table 4, it can be seen that the calculated chi-square ( $X^2_{cal}$ ) of 23.721 while the  $df = 6$  and the  $p$ -value is .001. At  $df = 9$ , the critical value from the chi-square table of values is 12.592 assuming a significance level of .05. This indicates that the calculated chi-square is greater than the critical value;  $23.721 > 12.592$ . Since the calculated chi-square is greater than the critical value at a .05 level of significance, it is less than 5% risky for the researcher to reject the null hypothesis.

Still, from Table 4, the  $p$ -value = .001 is less than  $\alpha = .05$ , indicating that the researcher can reject the null hypothesis with less than 5% risk. In that light, with 95% confidence, the null hypothesis, which states that E-learning skills have no significant effect on teachers' performance in HTTTC Kumba" is rejected and the alternative is retained. Therefore, E-learning skills have a significant effect on teachers' performance in HTTTC Kumba.

The researcher sought to assess the relationship between techno-pedagogical skills and teachers' performance in HTTTC Kumba. The responses from teachers indicate that there is possibly a relationship between techno-pedagogical skills and teachers' performance in which techno-pedagogy skills improve learning outcomes, improve learner participation, sustain learner attention, improve assessment quality and improve carrier development for the teacher. Şimşek and Arat (2015) also supported the results when they found out that computers, projection devices, mobile phones and wireless connections were the most frequently used technologies in education. Equally, Amuko et al. (2015) indicated in their study that new frontiers on technology integration be made accessible to both teachers and students for learning purpose to increase access to information and also that capacity building in educational technology integration be increased for teachers and awareness be built among pre-service teachers' trainees integrating ICT in teaching and learning. Further, Onwusuru and Ogwo (2019) in their study found that the features of the cloud-based portal that can enhance the transitioning from physical to the virtual classroom include easy E-learning materials and skills for retrievability of instructional materials and records, secured communication tools for peer-peer interaction, etc. They concluded that without sufficient and well-planned transition program, technology educators will find the emerging e-learning classroom a hostile environment for teaching and learning.

### Conclusion

Based on the results of the findings, it can be concluded that E-learning and E-learning tools are well-known and practiced

concepts in HTTTC Kumba, though a significant majority do not practice E-learning. It is therefore concluded that E-learning has a significant positive effect on teachers' performance. The results show that the teachers do not put into practice the E-learning skills online; rather, they practice them in the classrooms.

### Recommendations

Drawing from the results of this study, several recommendations were made. Firstly, the managers of HTTTC, Kumba should institute a compulsory first-year course on the integration of technology into the classroom. Provision should also be made for seminar courses from time to time for lecturers of the institution to be drilled on some practicalities of using technology in the classroom. This could be done by resource persons even from amongst the staff of the institution. Also, the government and the School Authority should ensure that they provide the necessary resources that will facilitate the integration of technology into the classroom, like subsidized Internet, laptops, projectors, computers, etc.

A suggestion for further studies to this research could be on how to improve the performance of teachers at HTTTC, Kumba. Another suggestion could be the effect of teachers' E-learning skills on students' academic performance.

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