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PERSONAL FACTORS INFLUENCING USE OF INFORMATION COMMUNICATION AND TECHNOLOGY DURING TEACHING PRACTICE AMONG RONGO UNIVERSITY STUDENT - TEACHERS IN KENYA

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Abstract

This research examined personal factors influencing information communication and technology (ICT) integration in teaching and learning by student teachers during teaching practice in secondary schools in Kenya. Specific objectives were to investigate the influence of knowledge and education of teachers on the use of ICT and determine the influence of gender on the use of ICT. The study used descriptive survey research design since the researcher was interested in finding out the characteristics of the population as it was. The target population was all the 604 student teachers who participated in teaching practice during the 2023 session. Ten percent was used as the determinant of the sample size. In that case, the sample size was 60 student teachers. The methods of data collection were questionnaires and observation used to check the physical use of electronic media facilities. The computer programme, SPSS version 21 was used in the quantitative data analysis. Results of this data analysis were presented using frequency distribution tables. Logistic Regression analysis was done to determine the influence of the independent variables on the dependent variable. Teacher competence was found to significantly influence integration of ICT in teaching and learning among the sampled student teachers. The study concluded that effective integration of technology into classroom practices poses a challenge to teachers. The factor that influenced integration of ICT was teacher competencies in ICT. The empirical evidence in this research highlights the importance of implementing ICT training programs for teachers to encourage greater and better use of ICT and to take advantage of the potential benefits of these tools. In this case, recommendations are made along the lines of promoting ICT training for teachers from the educational centres themselves with internal training and group dynamics among teachers to compare experiences in the use of ICT. In this context of the increased role of ICT in schools, all the recommendations made in this research should be considered to take advantage of the improvement of teacher training in ICT and to develop educational policies or carry out actions to promote ICT use. Nevertheless, the results presented in this research may be useful for other countries, in the absence of being corroborated with their own research. In this sense, it should be noted that ICT is a global phenomenon that is bursting into society and the educational system in all countries, so it is to be expected that the conclusions reached in this research can also be adopted in other areas. The study therefore recommends schools to provide teachers with regular trainings and seminars on how to adopt ICT in the teaching and learning process, as well as adopt policies that guide structured integration of ICT in the process of teaching and learning.

Keywords: *Factors, Influence, Use, Electronic Media, Student Teachers, teaching*

Introduction

The twenty-first century highly demanded learning competencies have made Information and Communication Technology (ICT) to be a key mover in the education sector. Istifanus, Zakar and Hamisu (2023) say that global investments in ICT infrastructure, equipment and professional development to improve teaching

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and learning in schools have been initiated by many governments. Nerea and Mauro (2022) say Information and Communication Technologies (ICTs) have become a key factor in the educational context, especially in the aftermath of the COVID-19 pandemic, and, correctly implemented, can help to improve academic performance. (Kenya Institute of Curriculum Development, 2015)

To meet the increasing demand for ICT as a means to learning the 21st century skills, many countries in the world have greatly invested in ICT to improve teaching and learning. In the United Kingdom, Education Technology was already experiencing substantial growth prior to the COVID-19 pandemic (EdTech-funding-report, 2021). Globally, the United States has the largest number of EdTech companies and the most venture funding for those companies (Letizia etal., 2022).

In Africa, a lot has been invested on research to monitor integration of ICT in teaching and learning in African schools. In Nigeria, according to Echono (2023), over N27.6 billion has been spent on ICT support intervention programmes in tertiary institutions in the last seven years. In Kenya, a policy framework for mainstreaming ICT in schools has already been formulated in the form of sessional paper no 14 of 2012 to promote acquisition of 21st century skills and attitudes such as critical thinking and problem solving, creativity and imagination, communication and collaboration, citizenship, self- efficacy and digital literacy that prepare the learners to competitively participate in a knowledge-based economy. Integrating ICT at all levels of subjects and education is also encouraged (Ministry of Education, 2012; Kenya Institute of Curriculum Development, 2015).

Despite all these investments in ICT infrastructure, equipment and professional development to improve education in many countries, Gulbahar (2007) claimed that huge educational investment have produced little evidence of ICT adoption and use in teaching and learning. Evidence suggests that education sector is investing heavily on ICT but ICT adoption in education sector lagged behind the business sector. Observations made by the researcher during teaching practice indicated limited use of ICT during the lesson, hence the need for the current study. ICT for education heralded much promise for improving learning outcomes, but results have not lived up to expectations. To understand why, researchers are increasingly exploring the factors that affect teachers' acceptance and use of ICT in the classroom (Sujata and Tushar, 2018).

Use of computer technology in teaching and learning is one of the modern methods of instruction and the teacher is seen to be key to its effective implementation. Evidence suggests that majority of teachers who reported negative or neutral attitude towards the integration of ICT into education lacked knowledge and skills (Bordbar, 2010). Nerea and Mauro (2022) in their study found that motivated teachers who have received ICT training, teach calm and respectful classes, and work at schools where students have access to digital devices and frequently use ICT at home, have a high predisposition to use ICT in their classes.

Askim (2003) reviews the perspectives and awareness levels of specific technologies among teachers and confirms that lack of computer expertise causes low levels of technical knowledge. He further reiterates that teachers' incompetence is due to lack of training and insufficient training opportunities. According to Pelgrum (2002), many school leaders perceive the lack of ICT related knowledge of teachers as a major obstacle to the realization of their ICT related goals.

According to Tondeur et al. (2008), computer competence is defined as being able to handle a wide range of varying computer applications for various purposes. The success of educational innovations depends largely on the skills and knowledge of teachers (Pelgrum, 2002). Hence lack of teacher competence may be one of the strong barriers to the integration of technologies into education. It may also be one of the factors involved in resistance to change. Newhouse (2002), states that teachers need to not only be

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computer literate but they also need to develop skills in integrating computer use into their teaching/learning programmes.

Gender is also an important cross-cutting theme that needs to be addressed in all teacher policy areas including training, teaching and usage. In Africa, the Research ICT Africa (RIA) Household and Individual Access and Usage Survey reveals that very little ICT data is disaggregated on gender lines (Gillwald *et al.,* 2010). Indicators related to teacher training can demonstrate persistent inequalities. Based on analysis of twelve different countries in Africa, male and female teachers are not equally likely to be trained to use ICTs in classrooms; moreover, male teachers are more likely to be trained to teach basic computer skills and computing (Mwebaze, 2011).

In a research conducted by Kay (2006) on teacher's attitudes on ICT, findings were that male teachers had relatively higher levels of ICT attitude and ability before implementation, but there was no difference between males and females regarding ICT attitude and ability after the implementation of the technology. He observes that quality preparation on technology can help lessen gender inequalities. This study confirms report by Yukselturk and Bulut (2009) that gender gap has reduced over the past years, presently, a greater number of females than males have used internet and web technologies. These revelations according to some studies conclude that gender variable was not a predictor of ICT integration into teaching. In relation to the foregoing discussion the study therefore sought to establish whether teachers' gender influences integration of ICT in teaching.

This research is novel and supposes a contribution to the previous literature for following fundamental reasons: the scarce attention given in literature to- date to the factors that determine the frequency of ICT use in the classes, the analysis of potentially explanatory factors for the frequency of ICT use that have not been explored in previous studies and the possibility of linking students and teachers, something which is achieved through ICT integration during teaching and learning.

The study findings will help schools to provide teachers with regular trainings and seminars on how to adopt ICT in the teaching and learning process, as well as adopt policies that guide structured integration of ICT in the process of teaching and learning.

Methodology

The researcher used a descriptive survey research design. Lokesh (2004) indicates that descriptive survey is conducted to collect detailed description of existing phenomenon with the intent of employing data to justify current conditions and make recommendations for improving them. The use of descriptive survey was preferred because the researcher's intention was to find out the factors influencing integration of ICT in teaching and learning in secondary schools in Kenya. The study population consisted of 604 student teachers. According to Gay (1992), at least 10% of the population is a good representation where the population is large and 20% where the population is small. In this study, 10% percent of 604 of teachers was used as the sample size. In that case the sample size was 60 student- teachers. The 60 student teachers as respondents were selected using simple random sampling technique.

Questionnaires, and observation schedule were the data collecting instruments. According to Orodho (2002), questionnaires are the most suitable instruments for data collection where large numbers of subjects are involved in a study. Use of questionnaires is anonymous and helps to produce more candid responses than is possible in an interview.

The observation schedule intended to check the use of various ICT media during the lesson. It consisted of a list of ICT that would guide the researcher in observation.

After all data was collected, the researcher conducted data cleaning to remove outliers or unfilled questionnaires and categorized data manually according to the questionnaire items and then the data was coded. The quantitative

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data was analyzed using frequency counts, means and percentages. The computer programme, SPSS (Statistical Package for Social Sciences) version 21 was used to enhance efficiency in the quantitative data analysis. The result of this data analysis was presented using frequency distribution tables and percentages. The researcher finally used results of data analysis to draw explanations, conclusions and recommendations about the study.

Results and Discussions

Influence of Teacher's Competence on Integration of ICT in Teaching and Learning in Secondary Schools in Kenya

Utilization of ICT among teachers to achieve instructional objectives

Teachers were presented with a list of teaching and learning activities and requested to indicate how often they used ICT to achieve these objectives. Table 1 presents the findings.

Table 1

Teachers' ICT integration activities in education

Activity	Daily		Weekly		At least once per term		Never		WA
	F	%	F	%	F	%	F	%	
Create handouts & tests	20	33.3	25	41.7	15	25.0	0	0.0	3.1
Internet Browsing	42	70.0	18	30.0	0	0.0	0	0.0	3.7
Prepare slides	0	00.0	7	11.7	38	63.3	15	25.0	1.9
Use power point projection	0	00.0	12	20.0	34	56.7	14	23.3	2.0
ICT animations	0	00.0	8	13.3	15	25.0	37	61.7	1.5
Communicate through online platforms	35	58.3	25	41.7	0	0.0	0	0.0	3.6
Process marks	0	00.0	15	25.0	45	75.0	0	0.0	2.3
Total									**2.6**

Findings in Table 1 indicate the extent to which teachers utilized ICT in teaching and learning. According to the Table, teachers used ICT to create materials for students use (e.g. handouts, tests) weekly (WA=3.1), daily, teachers utilized ICT to research on the internet (WA=3.7), and at least once in a term teachers utilized ICT to prepare slides and power point projection (WA=1.9; 2.0). This indicates that utilization of ICT using slides and projector in teaching and learning was minimal. Further, the results show that teachers never used ICT animations during lessons, indicating low technology integration ((WA=1.5), that teachers used ICT daily to communicate with others (WA=3.6), at least once in term to process marks (WA=2.3). Teaching and learning happens on a daily basis in secondary schools and since none of the teachers indicated that they used ICT on a daily basis is confirmation that teachers had not fully embraced ICT in teaching and learning in secondary schools during teaching practice. The total mean rate of 2.6 indicates average ICT integration. Observations made by the researcher confirms this low level of technology integration during teaching and learning. Gulbahar (2007) found out that huge educational investment have produced little evidence of ICT adoption and use in teaching and learning. Evidence suggests that education sector is investing heavily on ICT but ICT adoption in education sector lagged behind other sectors of the economy. Buabeng (2012) notes that despite the investments in ICT infrastructure, Equipment and professional development to improve education in many countries, ICT adaption and integration in teaching and learning has been limited due to various factors which included personal, institutional and technological factors. He also cited teacher level, school level and system level factors that prevent teachers from ICT use which included lack of teacher ICT skills, lack of teacher confidence, lack of pedagogical teacher training, lack of suitable education software, limited

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access to ICT, rigid structure of traditional education system and restrictive curricula.

Attendance of courses in computer studies

Teachers were required to indicate whether they had attended any trainings or refresher courses in Computer Studies. The results are shown in table 2.

Table 2

Attendance of computer courses

Attendance of courses in computer studies	Frequency	Percentage
Yes	27	45
No	33	55
Total	**60**	**100**

According to Table 2, majority (550%) of the teachers had not attended any training or refresher courses in computer studies. Refresher courses are part of professional development for teachers and are crucial for any successful technology adoption and education programs. Baylor and Ritchie (2002) carried out a quantitative study that looked at the factors facilitating teacher skill, teacher morale, and perceived student learning in technology-using classrooms. Petko etal.,(2018) built a structural equation model with data from Swiss primary schools and found that educational technology integration is dependent on the readiness of individual teachers based on perceived skills and beliefs.

Extent of confidence in Computer use in Particular areas

The teachers were asked to indicate the extent of confidence of using computers in some specific areas. The results of data analysis are presented in Table 3.

Table 3

Extent of confidence in Computer use in Particular areas

Statement	Very Confident		Confident		Slightly confident		Not Confident	
	F	%	F	%	F	%	F	%
Edit test questions online	11	18	39	65	7	12	3	5
Teaching using power point presentation	17	28.3	31	51.7	8	13.3	4	6.7
Organize computer files in folders and subfolders	22	36.7	20	33.3	10	16.7	8	13.3
Use a spreadsheet	10	16.7	16	26.7	14	23.3	20	33.3
Produce a text using a word processing programme	26	43.3	20	33.3	10	16.7	4	6.7
Use emails to communicate with others	32	53.3	24	40	3	5	1	1.7
Create a presentation with simple animation functions	8	13.3	11	18.3	31	51.7	10	16.7
Create a presentation with video or audio clips	17	28.3	20	33.3	16	26.7	7	11.7
Download or upload curriculum resources from/to websites or learning platforms for students touse	27	45	30	50	3	5	0	00.0

The findings showed that 65% of the teachers were confident of using computers and/or internet to edit questions online and 18% of the teachers were very confident while 5% of the teachers were not confident of using computers and/or internet to edit questions online. The study findings showed that majority of the student teachers were confident in using computers and/or internet to edit questions online. In addition, 51.7% of the teachers were confident of using computers and/or internet for teaching using power -point presentation, 28.3% of the teachers were very confident and (13.3%) teachers were slightly confident while 6.7% of the

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teachers were not confident in using computers for teaching using

Power point presentation. From the responses, it emerged that majority 51.7% of the teachers of were confident while teaching using power point presentation. This implies that that most of the teachers could easily use power point presentation for teaching. According to Akinyi (2010), power point presentations facilitate and support communication during the teaching and learning process.

Further, 36.7% of the teachers were very confident in using computers to organize computer files in folders and subfolders, 33.3% teachers were confident in using computers to organize computer files in folders and subfolders, 16.7% of the teachers were slightly confident while 13.3% of the teachers were not confident in using computers to organize computer files in

Folders and subfolders. From the responses, it can be shown that most of the teachers in secondary schools in the study area were confident in using computers to organize computer files in folders and sub-folders. It can therefore be shown that teachers could easily store students‟ information in sub-folders as per events occurring in schools. In addition, 33.3% of the teachers were not confident in the use of spreadsheets, 23.3% of the teachers were slightly confident in the use of spreadsheets and 26.7% of the teachers were confident in the use of spreadsheets while 16.75% of the teachers were very confident in the use of spreadsheets. From the responses, it can be concluded that most of the student teachers are not confident while using spreadsheet. This implies that the use of spreadsheets like excel is limited.

Furthermore, 43.3% of the teachers were very confident in use of computers to produce a text using a word processing programme, 33.3% of the respondents were confident and 16.7% of the teachers were slightly confident while 6.7% teachers were not confident in the use of computers to produce a text using a word processing programme. This implies that most teachers were knowledgeable on word processing in computers and therefore were able to use computer word processing for teaching.

Similarly, 53.3% of the teachers were very confident in the use of emails to communicate with others, 40% of the teachers were confident and 5% of the teachers were slightly confident while 1.7% of the teachers were not confident in use of emails to communicate with others. The study findings indicate that majority of the teachers used emails to communicate with others. Yusuf, (2005) pointed out that use of ICT materials such as emails provide opportunities for teachers and students to communicate with one another more effectively during formal and informal teaching and learning.

Further, 51.7% of the teachers were slightly confident in the use of computers to create a presentation with simple animation functions, 18.3% of the teachers were confident and another 13.3% of the teachers were very confident while 16.7% of the teachers were not confident in the use of computers for creation of a presentation with a simple animation function. The results showed that majority of the teachers need training on animation technologies so as to be able to integrate fully ICT in the teaching process.

Moreover, 11.7% of the teachers were not confident in use of computers to create a presentation with video or audio clips. 26.7% of the teachers were slightly confident, 33.3% of the teachers were confident while 28.3% of the teachers were very confident in the use of computers to create a presentation with video or audio clips. From the responses, it can be argued that a higher percentage of teachers were confident in the use of computers to create a presentation with video or audio clips. This implies that use of computers for teaching through video or audio clips is not difficult for teachers. In addition, 45% of the teachers were very confident on the use of internet to download or upload curriculum resources from/to websites or learning platforms for students to use, 50% of the teachers were confident and 5% of the teachers were slightly confident From the responses, it can be shown that most of the teachers able to download or

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upload curriculum resources from/to websites or learning platforms for students to use.

Regression Analysis

A logistic regression analysis was conducted to predict the relationship between factors influencing integration of ICT and integration of ICT. The predictors included teacher competence and gender. Table 4 shows the results of the logistic models for the association between teacher competence, and gender and the frequency of ICT used to carry out projects or do exercises in class.

Table 4

Determinants of ICT use in classes (logistic models)

Variables	
ICT training (Teacher)	1.304 ***
	(0.103)
Female (Teacher)	0.955
	(0.0937)
Constant	0.00615
	(0.0513)
Observations	60

Standard error in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$; ** Results are expressed in odd ratios.

With respect to teacher competence, the results show that odds ratio is 1.304 times higher that a teacher who has received ICT training will use ICT in his or her classes compared to a teacher who has not received ICT training. These findings are in line with Inan and Lowther (2010), Shin (2015), and Gerick (2017) who suggest that teachers trained in the use of ICT are more likely to use ICT in their classes. In this sense, the researcher considers that these results highlight the need to implement training programs in the use of ICTs in order to increase their frequency and quality of use in schools.

With respect to other teacher characteristics, we find that the gender of the teacher do not affect the probability of ICT use based on our results. These results concur with a research conducted by Kay (2006) on teacher's attitudes on ICT, findings were that male teachers had relatively higher levels of ICT attitude and ability before implementation, but there was no difference between males and females regarding ICT attitude and ability after the implementation of the technology. He observes that quality preparation on technology can help lessen gender inequalities. Further, a report by Yukselturk and Bulut (2009) says that gender gap has reduced over the past years, presently, a greater number of females than males have used internet and web technologies. These revelations by these studies conclude that gender variable was not a predictor of ICT integration into teaching. In relation to the foregoing discussion the study therefore sought to establish whether teachers' gender influences integration of ICT in teaching.

However, these results contract the findings of Tenai (2017) who found a significant relationship between gender and integration of ICT in public secondary schools in Eldoret East. The researcher also observed no significant difference in the use of ICT between male and female student teachers.

Conclusion and Recommendation

The results of the multilevel logistic regressions show that teachers' decisions to implement ICT are motivated by a series of personal characteristics.

Regarding the teachers' characteristics, teachers who had received ICT training were more likely to use ICT frequently in their classes. In this sense, the teacher's level of ICT training would affect the frequency of use. The empirical evidence in this research highlights the importance of implementing ICT training programs for teachers to encourage greater and better use of ICT and to take advantage of the potential benefits of these tools. In this case, recommendations are made along the lines of promoting ICT training for teachers from the educational centres themselves with internal training and group dynamics among teachers to compare experiences in the use of ICT.

In this context of the increased role of ICT in schools, all the recommendations made in this research should be considered to take advantage of the improvement of teacher training in ICT

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and to develop educational policies or carry out actions to promote ICT use.

Nevertheless, the results presented in this research may be useful for other countries, in the absence of being corroborated with their own research. In this sense, it should be noted that ICT is a global phenomenon that is bursting into society and the educational system in all countries, so it is to be expected that the conclusions reached in this research can also be adopted in other areas.

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This article was solely written by the author

Declaration of conflict of interest

The author declares that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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References

Askin, A. (2003). Computer Technology Awareness by Elementary School Teachers: A Case Study from Turkey. *Journal of Information Technology Education: Research*, *2*(1), 153–164.

Bordbar, F (2010) English teacher's attitudes towards computer–assisted languages learning. *International journal of language studies*, 4(3), 27-54.

Buabeng, A. C. (2012). Factors influencing teachers' adoption and integration of information and communication technology into teaching: A review of the literature. *International Journal of Education and Development Using ICT*, *8*(1), 136-155. https://www.learntechlib.org/p/188018/

EdTech Evidence EXCHANGE (2021). *U.S. K-12 Public Education Technology Spending*. https://www.innovateedunyc.org/

Gerick, J., Eickelmann, B., & Bos, W. (2017). School-level predictors for the use of ICT in schools and students' CIL in international comparison. *Large-Scale Assessments in Education*, *5*(1), 5. https://doi.org/10.1186/s40536-017-0037-7

Gikonyo, N. W. (2012). *Factors influencing university managers' participation in distance education: A case of public universities in Kenya* [Unpublished PhD thesis]. University of Nairobi.

Gülbahar, Y. (2007). Technology planning: A roadmap to successful technology integration in schools. *Computers & Education, 49*(4), 943-956.

Inan, F. A., & Lowther, D. L. (2010). Factors affecting technology integration in K-12 classrooms: A path model. *Educational Technology Research and Development*, *58*(2), 137–154. https://doi.org/10.1007/s11423-009-9132-y

Received 10/10/2024
Revised 09/07/2025
Accepted 16/07/2025

Istifanus, J., Zakar N., & Hamisu, A. (2023). *Teachers' factors influencing adoption and integration of information and communication technology into teaching and learning*. https://www.researchgate.net/publication/373171460

Kay, R. (2006). Addressing Gender Differences in Computer Ability, Attitudes and Use: The Laptop Effect. *Journal of Educational Computing Research*, *34*(2), 187–211. https://doi.org/10.2190/9BLQ-883Y-XQMA-FCAH

Lokesh, K. (2004). *Methodology of Educational Research*. Vikash Publishing House Pvt. Ltd.

Mwebaze, E., & Quinn, J. A. (2011). Finding Predictive Relationships between Notifiable Diseases with Markov Blanket Discovery. *International Journal of Computing and ICT Research, Special Issue, 4*(1), 30 - 36. http://www.ijcir.org/Special-Issuevolume4-number1/article4.pdf

Nerea, G. F., & Mauro, M. (2022). Factors Influencing Teachers' Use of ICT in Class: Evidence from a Multilevel Logistic Model. *Mathematics*, *10*(5), Article 5. https://doi.org/10.3390/math10050799

Newhouse, C. P. (2002). The impact of ICT on learning and teaching: A literature review for the Western Australian Department of Education. *Recuperado El*, *23*.

Omwenga, E.L. (2003). *Pedagogical issues and E-learning cases: Integrating ICTS into teaching and learning processes*. https://www.researchgate.net/profile/Elijah-Omwenga/publication/228349268

Orodho, A. J. (2003). *Essentials of Educational and Social Sciences Research Method*. Masola Publishers.

Pelgrum, W. J. (2001). Obstacles to the integration of ICT in education: Results from a worldwide educational assessment. *Computers & Education*, *37*(2), 163–178. https://doi.org/10.1016/S0360-1315(01)00045-8

Petko, D., Prasse, D., & Cantieni, A. (2018). The Interplay of School Readiness and Teacher Readiness for Educational Technology Integration: A Structural Equation Model. *Computers in the Schools*, *35*(1), 1–18. https://doi.org/10.1080/07380569.2018.1428007

Shin, W. S. (2015). Teachers' use of technology and its influencing factors in Korean elementary schools. *Technology, Pedagogy and Education*, *24*(4), 461–476. https://doi.org/10.1080/1475939X.2014.915229

Tenai, N. K. (2017). *Teacher factors influencing integration of information communication technology in teaching of English language in secondary schools in Eldoret-East Sub-County, Kenya* [PhD Thesis, Strathmore University]. https://su-plus.strathmore.edu/bitstream/handle/11071/5621/

Tezci, E. (2011). Turkish primary school teachers' perceptions of school culture regarding ICT integration. *Educational Technology Research and Development*, *59*(3), 429–443. https://doi.org/10.1007/s11423-011-9205-6

The ministry of education &the ministry of higher education, science and technology (2012). *Sessional paper no. 14 0f 2012: A policy framework for educational training; reforming education and training in Kenya*. Government printers

Tomei, L. A. (2005). *Taxonomy for the technology domain*. Information Science Publishing.

Tondeur, J., Hermans, R., van Braak, J., & Valcke, M. (2008). Exploring the link between teachers' educational belief profiles and different types of computer use in the

Received 10/10/2024
Revised 09/07/2025
Accepted 16/07/2025

classroom. *Computers in Human Behavior*, *24*(6), 2541–2553. https://doi.org/10.1016/j.chb.2008.02.020

Yukselturk, E., & Bullut, S. (2009). Gender difference in self-regulated online Learning environment. *Journal of Educational Technology & Society, 12*(3), 12-22.

Yusuf, M. O. (2005). Information and communication education: Analyzing the Nigerian national policy for information technology. International *Education Journal, 6*(3), 316-321.