



TECHNOLOGY-ACCEPTANCE MODEL: GENDER-DIVIDE IN GOVERNMENT TECHNOLOGY-ENTRENCHMENT POLICY ENFORCEMENT EFFORTS BY PRINCIPALS IN MIXED DAY SENIOR SCHOOLS IN KISUMU COUNTY, KENYA

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Abstract:

As educational goals become more digitally globalized, there is increasing nationally induced, policy-driven demand for local educational administrators to technologically align their institutions. This underpins the need to be integrated into cross-border flows of data and virtual relationships in the course of wealth creation by producing and consuming educational outputs which translate into goods and services. Technology acceptance by school principals is key for effective operation of computers and other electronic and non-electronic devices in institutions for desired outputs. In this regard, in Kenya, principals play a pivotal role in facilitating government policy enforcement efforts towards school-wide digitalization by sensitizing teachers, support staff and learners in the entrenchment of Information and Communication Technology (ICT) and the use of electronic and non-electronic technology. In Kisumu County, mixed day senior schools are comparatively less technologically facilitated, personnel-wise and infrastructurally, than boarding schools. Only 6% of mixed day schools are rated as adequately prepared for technology-entrenchment as compared to 11% of boarding schools based on findings of a preliminary survey for this study. This would be enhanced if the school principal appreciates the value of technology, accepts technology, and acts as a government policy bridge to his school population. Given this, the principal, as a role model, ought to be a torch-bearer by creating a road map for motivating technological adoption in the school. Sensitization of teacher trainees in colleges for technology use in schools is a rather recent idea; therefore, it is minimally likely that already practising teachers are skilled in this respect. In addition, literature indicates that males are more technologically adept than females. Therefore, the purpose of this study is to determine the gender divide in government technology-entrenchment policy enforcement efforts by principals in mixed day senior schools in Kisumu County. The findings of this descriptive study are that, out of an optimal rating of 4.0, given the census sample, the 28 female principals have a mean

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score rating of 2.5 (High), whereas the 39 male principals have a mean score rating of 2.9 (High) based on Technology Acceptance Model questionnaire items for principals. Interview responses from 20 principals and 20 deputy principals reveal that principals of both genders make fairly adequate effort towards technology-entrenchment in their respective schools. The conclusion is that there is negligible gender difference as regards principals' government technology-entrenchment policy enforcement efforts in mixed-day senior schools in Kisumu County.

Keywords: ICT; technology-entrenchment; digitalization; gender; technology Acceptance Model

1. Definition of Operational Terms

Mixed Day Senior Schools - a co-educational senior school that has been in existence for at least 20 years, has administrators who graduated from teacher trainee college at a minimum of 15 years ago, and has all learners return home at the end of a school-learning day.

Government technology - entrenchment policy enforcement efforts - propagation by the principal for the use of computers in school, by the principal himself and for the staff working in his charge, for institutional business.

1.1 Technology Acceptance Model

The Technology Acceptance Model (Davis & Granic, 2024) explains how people who are exposed to technology decide to adopt and use new technology. It serves as a useful general framework and is consistent with a number of investigations into the factors that influence older adults' intention to use new technology (Braun, 2013).

It has the following components:

- **Perceived Usefulness:** This refers to the degree to which a user believes that employing a specific technological system would result in effective job performance. This would enhance efficiency; without it, improvement in work performance would not be realized, hence hindering institutional goal achievement.
- **Perceived Ease-of-use:** This refers to the degree to which a user believes that applying a particular technology requires minimal mental and physical effort. In addition, operating a particular technological system would be trouble-free or at least minimally troublesome.
- **Attitude Towards Using:** A person's general interest in technology and its use, which can be signalled by the person's overall positive or negative feeling about using the system. Does the person read about technology? What sort of comments does the person make about technology-related matters?

- **Behavioural Intention:** How strongly a person plans or decides to use the technology to address workplace needs such as data storage, communication, and data manipulation. This is based on the belief that technology enhances efficiency for institutional goal achievement.
- **Actual System Use Behaviour:** The stage where perception, attitude and intention give rise to action whereby the person actually applies the technology.
- **Limitations of Technology Acceptance Model:** It assumes human choices to adopt technology are completely logical, rational, self-driven and self-determined.

According to Braum (2013), it does not account for emotional impulses, social pressure, peer pressure, or forced mandatory use in certain technology-aligned workplaces. In addition, Davis (1989) reported that the Technology Acceptance Model has been one of the most influential models of technology acceptance, with two primary factors influencing an individual's intention to use new technology: perceived ease of use and perceived usefulness. He explains that an adult who perceives digital games as way too difficult to play or that these games are a waste of time will be unlikely to want to adopt this technology. This would be in contrast with the case of an adult who perceives digital games as providing needed mental stimulation and as easy to learn, who will be more likely to want to learn how to use digital games.

2. Introduction

Educational institutions have begun to recognize and adopt the importance of technology in enhancing the management of their educational enterprise inputs for outcomes that are globally competitive. For this reason, many governments have launched major initiatives to enhance technology user acceptance and adoption, and invested heavily to build and maintain ICT infrastructures in schools, hopefully institutionally inspired by the school principals (Pelgrum, 2001). In this regard, in the last two decades, researchers have been interested in identifying the conditions or factors that facilitated technology integration into businesses, among them those that are education-related (Legris, Ingham, & Colletette, 2003). Research has given forth models that can be used to predict technology acceptance. Among these models, the Technology Acceptance Model is among the most popular models in technology acceptance studies (McCoy, Galletta & King, 2007). The Technology Acceptance Model has received empirical support for being robust and parsimonious in predicting technology acceptance and adoption in various contexts and using a variety of technologies. For example, the Technology Acceptance Model was empirically proven successful in predicting about 40% of system use and found to be a parsimonious representation of how perceptions and attitudes affect technology use (Legris *et al.*, 2003)

As reported by Lee, Ranmasamy and Subbarao (2026), globally there is still a lot of scepticism about technology use and adoption among health practitioners. A substantial percentage present a lack of trust in the healthcare industry to embrace

innovation, even though it has the potential to revolutionise services and the results of patient treatment. This suspicion stems from health-worker concerns about the potential for new technology to make significant mistakes, perhaps resulting in fatalities. As a result, it is still difficult for practitioners in the healthcare industry to trust technology. They tended to believe more in their skills and considered medical technology unreliable and imperfect. This implies that mistakes, or even patient deaths, could occur, and even patient deaths could result, which could put them in trouble because they recommended using the technology on the patient. For instance, a minor error during surgery, such as a chemical overdose, could result in quite serious consequences for them. As a real-world illustration, delays in the implementation of clinical decision support systems during the COVID-19 pandemic resulted in inefficiencies and missed opportunities to enhance patient care. This situation underscores the importance of removing barriers that hinder the adoption of healthcare technologies. This report is about the health sector, which has a critical need to adopt technology in its services as a means of improving digital services. The current study was focused on a third-world educational setting that is minimally facilitated for technological adoption, which underpins necessary competitive performance outcomes in Kenya.

Many studies have examined the effectiveness of technology-mediated learning, with a common emphasis on comparing technology-mediated learning and classroom-based, face-to-face learning. Inconsistent results are reported. Several meta-analysis studies show technology-mediated learning is not significantly different from face-to-face learning in terms of learning effectiveness (Wozney, Venkatesh, & Abrami, 2006) or learning satisfaction (Allen, Bourhis, Burrell, & Mabry, 2002). This study focused on the learning outcomes of learners, the result of their technological adeptness. It did not focus on the school managers, the school principal who facilitates overall school learning activities. The current study seeks to reveal the phenomenon of technology acceptance among school principals. Several researchers have specifically cautioned against the gender equality implications in technology-mediated learning (Hills, 2003). Hvorecky (2004) argues that technology-mediated learning requires great self-discipline and self-motivation from students; therefore, it may not be equally appropriate for every student, given the varied gender roles, traditional or otherwise. According to Arbaugh (2000), female students tend to participate more in online discussions than male students but tend to perform worse in online examinations that are technologically weighted. This quagmire needs to be demystified given that education is outcome-oriented. Manochehr (2006) reports that learning style may not impact students' learning effectiveness in conventional classroom-based learning. The concerns about important gender equality implications in technology-mediated learning demand proper consideration. The aforementioned literature focused on the gender of learners with reference to technology learning outcomes. However, the current study focused on gender differences among school principals as regards technology acceptance for the entrenchment of government policy enforcement efforts.

The Kenyan government has highlighted digital literacy as a key pillar towards achievement of Vision 2030 (Republic of Kenya, 2008). Through this, learners' digital literacy is a major focus to be achieved through providing digital devices, internet connectivity and teacher training for public school services. To facilitate school achievements, such as implementation of digital programmes, the school principal is a motivator. According to Obuoda, Dawo and Sika (2020), without the power of the principal in ICT entrenchment in Schools, there would be limited achievement. In a study on the relationship between ICT usage in internal communication and principals' administrative quality in Homa Bay County in Kenya, Social Technical Systems theory (Bertalanffy, 1968) was used. There was a strong positive correlation between ICT usage and principals' administrative quality at $r=0.418$; p -value 0.05, with an ANOVA at Adjusted $R^2=0.170$, a 17% variation. Studies across Africa also emphasize the value of digital literacy. As reported in UNESCO (2002), ICT must radically enhance conventional teaching-learning experiences; hence, school management ought to quickly adopt technology. Given the pivotal role of the school principal in school management and literature with gender connotations, this study sought to determine the gender divide in government technology-entrenchment policy enforcement efforts by principals in mixed day senior schools in Kisumu County.

3. Research Design

The study adopted a descriptive survey design. It collected information about existing situations about a matter of concern which needed accurate and systematic data (Salaria, 2012). This was useful in identifying trends based on frequencies of responses on issues of interest within the population.

3.1 Area of Study

Kisumu County has a total land mass area of 2,085.9 Km between latitude $0^{\circ}02'26''N$ to $0^{\circ}41'68''S$ and longitude $34^{\circ}41'69''E$ and $35^{\circ}34'33''E$. The area has a large mass of Lake Victoria where commercial fishing, fishing competition and other lake-related tourist activities such as boat-riding take place. It has Nyabondo Plateau, the Ahero rice irrigation scheme, a sugarcane belt, and both highland and lowland horticultural production. There are several commercial centres such as Kisumu, Maseno, Sondu, Kombewa and Muhoroni. Kisumu County ranks 25th out of the 47 counties in poverty severity nationally, with approximately 39% of the population living below the overall poverty line (Republic of Kenya, 2022).

3.2 Study Population

There are 72 Mixed Day Senior Schools, which have 72 senior school principals and 72 deputy headteachers in charge of school administration.

3.3 Study Sample Size and Sampling Technique

Out of the 72 schools in Kisumu County Mixed Day Senior Schools, with a female principal population of 30 and a male principal population of 42, census sampling was used to select 28 female and 39 male principals for this study. Some 20 deputy school principals in charge of administration and 7 female principals and 13 male principals chosen by simple random sampling were interviewed.

3.4 Instruments of Data Collection

Questionnaires were used for the school principals. They were useful in allowing the participants to respond to providing information about their knowledge, experiences, or opinions (Roopa & Rani, 2012). These were given to the 67 principals (28 females and 39 males).

Interview schedules were used for 20 principals and 20 deputy principals in charge of administration. Interviews provide in-depth information based on a guide for a fair, similar interrogation across a variety of respondents (Salaria, 2012).

3.5 Validity and Reliability of Instruments

3.5.1 Validity

Validity refers to the extent to which an instrument measures what it is intended to measure (Price, 2020). Face validity and content validity were applied to ensure high-quality instruments.

3.5.2 Reliability

Reliability refers to the consistency of outcomes based on specific measurements (Price, 2020). Test-retest was used for piloting of instruments. Some 5 principals was used for the study piloting phase.

3.6 Data Analysis Techniques

Frequencies and means were used for quantitative data, whereas thematic coding was used for qualitative data.

4. Results and Discussion

The following is Table 1, which is a presentation on the findings on the gender divide in principals' technology acceptance rating of Kisumu County's Mixed Day Senior Schools as regards principals' perceived usefulness of computers in school operations. This is based on a Likert scale ranging from 1 to 4 (1.0-1.149 = Very Low; 1.5-2.49 = Low; 2.5-3.49 = High; 3.5-4.0 = Very High).

**Table 1: Principal's Responses on Principal's
 Perceived Usefulness of Computers in School Operations**

Items on Principal's Perceived Usefulness of Computers in School Operations	Mean for Females (N=28)	Mean for Males (N=39)	Mean
Using computers makes me accomplish school tasks more quickly for organizational effectiveness	3.7	3.1	
Using computers increases overall productivity of teachers and students for our school success	1.8	2.7	
Using computers makes task simplification realizable and also makes task performance easier	3.2	2.5	
I find computers useful in achieving my day-to-day school role routine goals	3.7	2.9	
I am of the opinion that use of computers is better than manually performing tasks	2.7	3.3	
I use computers in school goal achievement because I believe I am better off working with computers than without them	3.1	3.4	
Average	3.0	3.0	3.0

Table 1 reveals that principals' perceived usefulness of computers in school operations rates at 3.0 (High) for female principals and 3.0 (High) for male principals. The questionnaire item that has the most significant mean score difference in rating between the 2 gender is "I find computers useful in achievement of my day-to-day school role routine goals" with a difference of 0.8. The similarity in overall score disagrees with the gender difference undertones, as indicated in Arbaugh (2000). It can also be argued that principals' administrative quality of both genders is high given their ICT adeptness. Obuoda, Dawo and Sika (2020) found that ICT use was a major driver for quality school management. From interview, some 3 deputy principals said that female principals have a phobia for computers, and therefore appear to bully staff into performing tasks meant to be performed by the principal.

The following is Table 2, which is a presentation on the findings on the gender divide in principals' technology acceptance rating of Kisumu County's Mixed Day Senior Schools as regards principals' perceived ease of use of computers in school operations. This is based on a Likert-scale ranging from 1 to 4(1.0-1.49 = Very Low; 1.5- 2.49 = Low; 2.5-3.49 = High; 3.5-4.0 = Very High)

**Table 2: Principal's Responses on Principal's
Perceived Ease of Use of Computers in School Operations**

Items on Principal's Perceived Ease of Use of Computers in School Operations	Mean for Females (N=28)	Mean for Males (N=39)	Mean
I think that learning to operate computer systems is an easy venture	3.8	3.8	
Computers are a simple-to-use technology	1.4	2.2	
Based on already acquired information, computers easily do what I want it to do	1.9	2.3	
When using computers, I feel encouraged because manual operations would be more frustrating	1.6	2.9	
Learning computer applications and skills for use is a simple undertaking	1.1	1.9	
I can readily and easily induct staff working with me in my school using my knowledge in computer applications	1.0	1.4	
Average	1.8	2.5	2.15

Table 2 reveals that principals' perceived ease of use of computers in school operations rates at 1.8 (Low) for female principals and 2.5 (High) for male principals. The questionnaire item that has the most significant mean score difference in rating between the 2 gender is on "Computer is a simple to use technology" and "Learning computer applications and skills for use is an simple undertaking" with a difference of 0.7. The similarity in overall score agrees with the gender difference undertones as indicated in Arbaugh (2000). Literature on integration of ICT in Nigerian schools indicates that the greatest barrier to ICT entrenchment in schools was the resistant and/or ICT-illiterate school principal (Orie, Orie, Otoboh, Nwokoma, Odika, & Orie, C.E., 2025). In this regard, as regards perception of the ease of use of computers, the male principal needed to be motivated more than the female principal. Some 2(10%) male deputies seemed to agreed just like 20(100%) principals that computer learning is an interesting venture for school principals.

The following is Table 3, which is a presentation of the findings on the gender divide of principals' technology acceptance rating of Kisumu County's Mixed Day Senior Schools as regards Principal's Attitude Towards Using Computers. This is based on a Likert scale ranging from 1 to 4 (1.0-1.149 = Very Low; 1.5-2.49 = Low; 2.5-3.49 = High; 3.5-4.0 = Very High).

Table 3: Principal's Responses on Principal's Attitude Towards Using Computers

Items on Principal's Attitude Towards Using Computers	Mean Scores for Females (N=28)	Mean Scores for Males (N=39)	Mean
Working using computers is exciting to me	1.9	3.2	
It would not take long to learn new computer applications for use in my school	2.3	2.7	
To understand computers, one does not need to undergo gruesome training by technicians	1.9	3.4	

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Employing computers in my school will not cause unemployment in my school environment	2.5	2.5	
Introduction of computers at a workplace does not cause idleness among staff	3.2	3.5	
I like to learn more about computer applications for my own benefit	3.2	3.9	
Average	2.5	3.2	2.85

Table 3 reveals that Principal's Attitude Towards Using Computers rates at 2.5 (High) for female principals and 3.2 (High) for male principals. The questionnaire item that has the most significant mean score difference in rating between the 2 gender is "I like to learn more about computer applications for my own benefit", with a difference of 0.7. The variance in overall score agrees with the gender difference undertones in favour of males' adeptness, as indicated in Arbaugh (2000). According to UNESCO (2002), for the global technology revolution, schools bore the centrifugal force. This indicates that the value of the school principal in manipulating school resources towards achievement of global digitalization cannot be gainsaid. From interview, some 3(24%) male principals indicated that when under training, males acquired necessary skills faster than their female counterparts; this was in disagreement with the 7(100%) female principals.

The following is Table 4, which is a presentation of the findings on the gender divide of principals' technology acceptance rating of Kisumu County's Mixed Day Senior Schools as regards principals' perceived usefulness of computers in school operations. This is based on a Likert scale ranging from 1 to 4 (1.0-1.149 = Very Low; 1.5-2.49 = Low; 2.5-3.49 = High; 3.5-4.0 = Very High)

Table 4: Principal's Responses on on Principal's Behavioural Intention of Use of Computers

Items on Principal's Behavioural Intention of Use of Computers	Mean Scores for Females (N=28)	Mean Scores for Males (N=39)	Mean
I intend to attend computer applications upgrading lessons for further exposure to induct others better	1.7	1.9	
I intend to employ computers for more effective service in school	4.0	4.0	
If I need to offer efficient services, computers are a must-use in my school	3.6	3.9	
I will always store all my school data on a computer	2.1	3.3	
To avoid and easily detect mistakes in my work, I will be using computers	3.5	3.9	
I will be a regular user of computers due to their valuable contribution to service delivery in my school	1.9	2.3	
Average	2.8	3.2	3.0

Table 4 reveals that the Principal's Behavioural Intention of Use of Computers rates at 2.8 (High) for female principals and 3.2 (High) for male principals. The questionnaire item that has the most significant mean score difference in rating between the 2 gender is "I will always be storing all my school data in a computer", with a difference of 1.2. The variance in overall score is in tandem with assertions about gender difference undertones in favour of males' adeptness, as indicated in Arbaugh (2000). Available literature notes that one of the key uses of computers is data storage (Legris, Ingham and Collette, 2003; Hills, 2003; Wozney, 2004; Obuoda *et al.*, 2020). There is a need to investigate the reason for a variance with respect to data storage disavouring the female principals. Where and how would they store school data?

The following is Table 5, which is a presentation of the findings on the gender divide in principals' technology acceptance rating of Kisumu County's Mixed Day Senior Schools as regards principals' actual usage behaviour. This is based on a Likert scale ranging from 1 to 4 (1.0-1.149 = Very Low; 1.5-2.49 = Low; 2.5-3.49 = High; 3.5-4.0 = Very High).

Table 5: Principal's Responses on on Principal's Actual Usage Behaviour

Items on Principal's Actual Usage Behaviour	Mean Scores of Females (N=28)	Mean Scores of Males (N=39)	Mean
When using a computer, I do not keep re-confirming my schoolwork	1.6	2.8	
I am not normally quite anxious when working with a computer	1.9	2.6	
I do not always confirm my work based on a competent person's oversight	2.2	2.9	
I celebrate success given complete school work where computer has been used	3.5	3.7	
I try to oversee what my school inductees are doing using computers for the achievement of school objectives	1.7	2.3	
I am confident of succeeding in my school based on my level of computer knowledge	1.9	2.6	
Average	2.13	2.8	2.5

Table 5 reveals that Principal's Actual Usage Behaviour rates are 2.13 (Low) for female principals and 2.8 (High) for male principals. The questionnaire item that has the most significant mean score difference in rating between the 2 gender is "When using a computer, I do not keep re-confirming my school work" with a difference of 1.2. The variance in overall score agrees with the gender difference in technology-related outcomes in favour of males in performance, as indicated in Arbaugh (2000). According to Abdul-rahman (2020), technology usage outcomes are to a large extent determined by perceived barriers held by the learner-user more than the competencies of the user. This showed a major difference between levels of confidence that male principals had over their female counterparts.

5. Conclusion

The following is Table 6, which is a presentation of the findings on the gender divide in principals' technology acceptance rating of Kisumu County's Mixed Day Senior Schools as regards Principal's Technology-entrenchment Policy Enforcement Efforts. This is based on a Likert scale ranging from 1 to 4 (1.0-1.149 = Very Low; 1.5-2.49 = Low; 2.5-3.49 = High; 3.5-4.0 = Very High).

Table 6: Principal's Responses on Principal
Technology-entrenchment Policy Enforcement Efforts

Items on Principal Technology-entrenchment Policy Enforcement Efforts		Mean Score of Responses of Female Principals (N=28)	Mean Score of Responses of Male Principals (N=39)
1	Principal's Perceived Usefulness of Computers in School Operations	3.0	3.0
2	Principal's Perceived Ease of Use of Computers in School Operations	1.8	2.5
3	Principal's Attitude Towards Using Computers	2.5	3.2
4	Principal's Behavioural Intention of Use of Computers	2.8	3.2
5	Principal's Actual Usage Behaviour	2.13	2.8
Average		2.5	2.9

Table 6 reveals that female principals' technology acceptance rating is 2.5 (High) while that of male principals is 2.9 (High); therefore, overall, the scores are negligibly different. Principal Technology-entrenchment Policy Enforcement Efforts can be said to be non-gender biased since female and male principals both score "High", which falls between a mean score of 2.5 and 3.49 on a rating scale of 1 to 4 in Kisumu County Mixed Day Senior Schools.

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Conflict of Interest Statement

I hereby declare that I have no conflict of interest as regards this publication.

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References

- Abdul-Rahman A. (2020). ICT Competences and Level of Its Application for Educational Studies in Nigeria in the Amid of Covid. *Journal of Economics and Sustainable Development*, Vol. 11, No. 16. Retrieved from <https://core.ac.uk/download/pdf/352514200.pdf>
- Allen. M.J., Bourhis, J. Burrell, N. & Mabry, E. (2002). Comparing Student Satisfaction with distance education to traditional classrooms in higher education: A meta-analysis. *American Journal of Distance Education*, 16(2). https://doi.org/10.1207/S15389286AJDE1602_3
- Arbaugh. J.B. (2000). Virtual Classroom Characteristics and Student Satisfaction with Internet-Based MBA Courses. *Journal of Management Education* 24(1) pp. 32-54 <https://doi.org/10.1177/105256290002400104>
- Bertalanffy, L. (1968). *General System Theory: Foundations, Development, Applications*. University of Alberta, Edmonton. Canada. Retrieved from https://books.google.ro/books/about/General_System_Theory.html?id=N6-woQEACAAJ&redir_esc=y
- Braum, J. (2013). Going Over the Top: Online Television Distribution as Sociotechnical Systems. *Communication Culture & Critique* 6(3), pp. 432-458. <https://doi.org/10.1111/cccr.12015>
- Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *Management Information Systems Quarterly*, 13(3). <https://doi.org/10.2307/249008>
- Davis, F. D., & Granić, A. (2024). *The Technology Acceptance Model: 30 Years of TAM*. Springer International Publishing. <https://doi.org/10.1007/978-3-030-45274-2>
- Hill, P.R. & Dhanda, K.K. (2003). Technological Achievement and Human Development: A View from the United Nations Development Program. *Human Rights Quarterly*, Vol. 25, No. 4 (Nov., 2003), pp. 1020-1034. <https://doi.org/10.1353/hrq.2003.0044>
- Hvorecky, J. (2004). Can e-learning break the digital divide? *European Journal of Open, Distance and E-learning*. 15(11). Retrieved from

- https://scholar.google.com/citations?view_op=view_citation&hl=en&user=DwoBZ74AAAAJ&citation_for_view=DwoBZ74AAAAJ:u5HHmVD_uO8C
- Lee, A. T., Ramasamy, R., & Subbarao, A. (2026). Acceptance of Technological Innovations in Emergency Departments: An Empirical Study Based on an Extended TAM. *Healthcare*, 14(10), p. 1273. <https://doi.org/10.3390/healthcare14101273>
- Legris, P., Ingham, J., & Colletette, P. (2003). Why do people use information technology? A critical review of the technology acceptance model. *Information & Management* 40(3). [https://doi.org/10.1016/S0378-7206\(01\)00143-4](https://doi.org/10.1016/S0378-7206(01)00143-4)
- McCoy S, Galleta D F, King W R. (2007). Applying TAM across cultures: the need for caution. *European Journal of Information Systems*, 16: pp. 81-84. <https://doi.org/10.1057/palgrave.ejis.3000659>
- Manochehr, N.-N. (2006). The influence of learning styles on learning in e-learning environments: An empirical study. *Computers in Higher Education Economics Review*, 18(1). Retrieved from https://www.researchgate.net/publication/4932172_The_Influence_of_Learning_Styles_on_Learners_in_E-Learning_Environments_An_Empirical_Study
- Obuoda. G., Dawo, J. I., Sika. J. (2020). Relationship Between ICT Usage for Internal Communication and Principals' Administrative Quality in Public Secondary Schools in Homa Bay County. *International Journal of Academic Research in Business and Social Sciences*, 10(3). <http://dx.doi.org/10.46886/IJARBS/v10-i3/7098>
- Orie, C.J., Orie, M.J., Otoboh, C.O., Nwokoma, C.E., Odika, E.M., & Orie, C.E. (2025). Impact of Unskilled Personnel on the Efficiency of Technical Digital Laboratories in Nigerian Higher Education Institutions. Faculty of Natural and Applied Sciences, *Journal of Mathematics and Science Education*, Volume 7; Issue 1; pp. 1-8. <https://doi.org/10.63561/fnas-jmse.v7i1.1056>
- Pelgrum, W. J. (2001). Obstacles to the integration of ICT in education: Results from a worldwide educational assessment. *Computers & Education*, 37, pp. 163-178. [https://doi.org/10.1016/S0360-1315\(01\)00045-8](https://doi.org/10.1016/S0360-1315(01)00045-8)
- Price, P.C. (2020). Research Methods: Core Concepts and Skills for Psychology. Retrieved from https://catalog.flatworldknowledge.com/catalog/editions/price_research-methods_2-1
- Republic of Kenya (2022). The Kenya Poverty Report: Building Brighter Futures-Data and Evidence to Tackle Poverty in Kenya. Retrieved from <https://www.knbs.or.ke/wp-content/uploads/2024/10/The-Kenya-Poverty-Report-2022.pdf>
- Roopa, S. & Rani, S.M. (2012). Questionnaire Designing for a Survey. *The Journal of Indian Orthodontic Society*, 46, pp. 273-277. <https://doi.org/10.5005/jp-journals-10021-1104>
- Salaria, N. (2012). Meaning of the Term: Descriptive Survey Research Method. *International Journal of Transformations in Business Management*, 1, 1-7. Retrieved from <https://www.ijtbm.com/abstract.php?id=46>

- Wozney, L., Venkatesh, V., & Abrami, P. (2006). Implementing computer technologies: Teachers' perceptions and practices. *Journal of Technology and Teacher Education*, 14, 173-207. Retrieved from https://www.researchgate.net/publication/255566914_Implementing_Computer_Technologies_Teachers'_Perceptions_and_Practices
- UNESCO (2002). *Information and Communication Technology in Education: A Curriculum Guide for Schools and Programs of Teacher Development*. Division of Higher Education. Retrieved from <http://unesdoc.unesco.org/images/0012/001295/129538e.pdf>