



The role of gender-based factors on the levels of student participation in eLearning in select universities in Nairobi City County, Kenya

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Abstract

eLearning is an attractive mode of learning that provides easy access to education to students who would otherwise be disadvantaged by social, economic and geographic impediments to educational advancement. There is limited information on the role of the digital gender divide and gender-based factors in participation in eLearning in universities. The study aimed to assess the gender disparities in learner participation whose indicators were defined as login frequency, breaks within a session, study location, and student-instructor interaction. This was a descriptive study using multistage sampling with a sample size of 395 students and 32 KII. A questionnaire, key informant interview guide and content analysis were used as the data collection tools. Data was quantitatively and qualitatively analysed. The study found that men's frequency of login to LMS was higher than women's. Women (71.7%) were observed to have fewer breaks than men (65.9%). The reasons for the breaks were poor or unstable internet, caregiving, and work-related engagement. Women spent more time per session (119.06 minutes) compared to men (109.74 minutes). Based on the findings, strategies were proposed to mitigate these factors. The importance of this study is it provides baseline data that can be used to formulate policies that are gender responsive and will contribute to the promotion, enhancement, and stenance of eLearning for educational advancement. This study was carried out during the COVID-19 pandemic which required most data to be accessed virtually. There was reluctance to fully disclose information by universities which treated the information as confidential.

Introduction

eLearning is an indispensable tool for education delivery for students with diverse needs worldwide. According to UNESCO (Chatelier & Voicu, 2018), eLearning has been recognised as a valuable approach to enhancing access to education by computers and the internet, employing interactive tools for collaboration. It is an attractive mode of learning that provides easy access to educational advancement to students who would otherwise be disadvantaged because of social, economic and geographic impediments. Public and private universities in Kenya have implemented eLearning (Kibuku, Ochieng, & Wausi, 2020). This learning mode has grown over the years, attracting mainly working-class students with limited physical access to the university due to distance (Rapanta et al., 2020). The uptake of eLearning for educational advancement in Kenya has been low, as previously reported by Njihia et al., 2020. The plausible reasons include,



among others, the credibility of the programs, the perception of their quality, and inadequate infrastructure due to inadequate funding (Nyerere 2016; Smith 2022). Previous studies have shown that perceived ease of use influences the uptake of e-learning. How a student navigates through the eLearning process determines the use of the program. The fewer challenges the program poses, the more people will likely use it (Njuguna and Nzuve, 2016). The fundamental characteristics of eLearning are the learner-content, learner-instructor, learner-learner, and learner-interface interaction that occurs anywhere and at any time (López-Belmonte et al., 2022). These interactions are made easy for the end users and e-instructors through numerous modern digital platforms (Sunday, Adesope, & Maarhuis, 2021), hence the importance of exploring the factors that contribute to the levels of participation in eLearning. The role of gender-based factors in participation in eLearning is not clear in institutions of higher learning. Insights into their roles would provide baseline data on using eLearning to manage, improve, and sustain equitable gender-based participation in educational advancement. The study aimed to assess the gender disparities in learner participation, whose indicators were defined as login frequency, breaks within a session, study location, student-instructor interaction and learner engagement with Learning Management Systems (LMS) folders. Demographic data about the students was also collected to understand the learners' entry points.

Theoretical Framework

The study was guided by two theories: Gender Schema Theory- GST (Bem, 1981; Perle & Waguespack, 2011) and Feminist Theory, FT (Acker, 1987). GST focuses on the development and maintenance of gender roles and identities. The gender schemas are sets of beliefs and expectations about men and women. They develop early in life through socialisation, cultural influences, and observations of gender roles and identities. Men and women engrain gender schemas that guide how they perceive, construe, and remember information in terms of gender. The study used the GST to cross-examine the contributions of gender-based factors on levels of student participation in eLearning. However, GST's failure to challenge inequalities caused the adoption of FT. Feminist Theory focuses on disrupting systems of power and oppression for equitable changes. The study used FT to explain the existence of systems of power and structure in various institutions which oppress and work against individuals. Recognition and identification of systems of inequality are paramount in advocacy for change to achieve an equitable eLearning process.

Method

This was a descriptive study, with multistage sampling employing purposive, stratified, random and convenience sampling used at different stages to select universities, schools, departments, male and female e-learning students, and Key Informant Interviewees. The Yamane formula was employed.

$$n = \frac{N}{1 + N(e)^2}$$
$$\frac{31354}{1+31354 (0.05)^2}$$
$$31,353 \times 0.0025 = 78.3825$$
$$1 + 78.3825 = 79.3825$$
$$\frac{31353}{793825} = 394.91$$
$$\approx 395$$



A sample size of 395 students and 32 university staff respondents from two public and two private universities in Nairobi City County was used. Guided questionnaires and interview guides were virtually administered to the sampled e-learning students and KII after pre-testing 32 respondents. Data quality was assured by consistently administering the same tool to similar categories of respondents, interviewing individuals separately, triangulation data from different sources and relying on actual quotations. All primary data was anonymised. Quantitative data was analysed using Statistical Package for Social Sciences (SPSS), and findings were presented in tables and graphs. Qualitative data was analysed and narrated based on study objectives.

Results and Discussion

The study documentation of the learners’ demographic characteristics focused on: age, employment, marital status, and the computer literacy skills of the respondents by gender as presented on table 1.

Table 1: Students Demographic Data

	Item	Male		Female		General	
		F	%	F	%	F	%
Age group of the Respondent	18-25	84	47.7	78	49.1	162	48.4
	26-30	42	23.9	40	25.2	82	24.5
	31-35	24	13.6	20	12.6	44	13.1
	36-40	12	6.8	12	7.5	24	7.2
	41-45	8	4.5	6	3.8	14	4.2
	46-50	2	1.1	3	1.9	5	1.5
	51-55	3	1.7	0	0	3	0.9
	Above 55	1	0.6	0	0	1	0.3
	TOTAL	176	100	159	100	335	100
Employment Status	Employed	59	33.5	51	32.1	110	32.8
	Unemployed	64	36.4	41	25.8	105	31.3
	Self-employed	53	30.1	67	42.1	120	35.8
	TOTAL	176	100	159	100	335	100
Marital Status	Single	113	64.2	116	73	229	68.4
	Married	59	33.5	33	20.8	92	27.5
	Divorced	3	1.7	7	4.4	10	3.0
	Separated	1	0.6	3	1.9	4	1.2
	TOTAL	176	100	159	100	335	100
Prior Computer Literacy Skills	Yes	27	24.3	25	22.9	52	23.6
	No	84	75.7	84	77.1	168	76.4
	TOTAL	111	100	109	100	220	100

As shown in Table 1, the study found men (63.1%) and women (71.7%) had prior computer literacy skills. Interestingly, the study found more female respondents aged 18-25, employed in the informal sector, of single marital status and had prior computer literacy skills than their male counterparts.

Learners’ Frequency of Participation, Online Breaks and Location of Study

The study sought to understand the role of learners’ frequency of participation in LMS, breaks within a session, and the location of the study in determining the levels of participation in eLearning by gender. The results are presented in Table 2.



Table 2: Frequency, Offline Breaks and Venue of Learner Participation in E-learning

	Item	Male		Female		General	
		F	%	F	%	F	%
Frequency of use Learning Management System (LMS) by the student	Once a day	63	37.5	40	25.6	103	31.8
	Once in two days	8	4.8	9	5.8	17	5.2
	Twice a week	51	30.4	45	28.8	96	29.6
	Once in a fortnight	29	17.3	46	29.5	75	23.1
	Once a month	5	3.0	7	4.5	12	3.7
	More than once a day	3	1.8	5	3.2	8	2.5
	Not at all	9	5.4	4	2.6	13	4.0
	TOTAL	168	100	156	100	324	100
Breaking during sessions	Yes	60	34.1	45	28.3	105	31.3
	No	116	65.9	114	71.7	230	68.7
	TOTAL	176	100	159	100	335	100
Location of online engagement	Home	147	84	139	88	286	85.9
	Office	15	8.6	10	6.3	25	7.5
	Social spaces like cyber café	12	6.9	5	3.2	17	5.1
	Home and office	1	0.6	4	2.5	5	1.5
	TOTAL	175	100	158	100	333	100

Frequency of Participation in LMS by gender

Table 2 indicates that most students log into the LMS system either once a week or twice a fortnight. Very few students log into the LMS more than once a day. These findings suggest that barriers such as work-related activities, caregiving, and domestic work hamper students' ability to log into the system more than once daily. The findings concur with the GST's argument that men and women selectively interpret, remember and conform to gender roles as society expects (Bem, 1981). This is further corroborated by a KII who stated that “Women students do not participate in eLearning on an equal basis as men. Despite work commitment, women go further in their caregiving roles. However, what is important is reading, doing assessments, and passing examinations”. The respondents attributed the low participation in LMS to the availability of modern virtual meeting platforms and applications such as WhatsApp and other social media accessible to students for further interaction and communication with their fellow students. Women's extra roles, such as caregiving and household chores, lead to less login frequency than men. These results indicate a gender differential in LMS usage among the study respondents and concur with previous studies by Wallace et al. (2018) and the Economic Co-operation and Development (OECD) report of 2023, which found that care work disadvantages women’s frequency of participation in eLearning. Further, the Feminist theory recognises the existence of social institutions responsible for gender inequalities. It is plausible that the low progression and completion rates observed for women compared to men in their programs of study (See section on completion rate) may partly be attributed to the low frequency of login by the women students.

Online Breaks Taken Within a Session

The study found that 68.7% of the respondents consistently took their online interaction per session without breaks. Further, more women (71.7%) than men (65.9%) did not take breaks during the online sessions. The causes of breaks were coded, and three themes emerged as follows: i) poor internet connectivity, which affected (23.2%) men and (23.8%) women participation in eLearning; ii) work engagement, which interfered with (16.4%) men and (6.9%) women participation in eLearning; and iii) family responsibilities affecting (3.9%) men and (25.2%) women. Poor internet connectivity is a distractor that automatically makes both genders take a break from learning. These findings suggest that work engagement and family responsibilities are major contributors to gender inequalities in participation in eLearning. This coheres with information processing, a



GST principle that explains how schemas organise and guide the understanding of gender roles across genders. A KII further corroborates this, stating that “work, financial, family-based factors and poor internet play a role in students’ participation though the impact differs for males and females. The findings are aligned with previous studies by Qurotul Aini et al. (2020) and Herwin et al. (2021), which found that challenges such as poor internet connectivity threaten learner participation in eLearning. Staff Writers of Best Colleges (2022) studies further support that women's caregiving roles necessitate breaks within learning sessions. These observations support the Gender Shema Theory on sex typing.

Location of Study

Most (85.9%) of the respondents (85.9%) studied from home. This finding supports the hallmarks of eLearning, which are accessibility and flexibility of learning at any place and time. 88% of the respondents who studied from home were women students compared to 84% of men. The preference for studying from home women is mainly because a home may provide a more conducive learning environment, personal safety and an opportunity to handle academics and non-academic duties simultaneously. Furthermore, the student is accessible to requisite academic infrastructure such as the library, as corroborated by a KII: “The university supports students away from campus. Library services like e-library and e-content are accessible any time and place”. These observations concur with previous findings by Wallace et al. (2018), who showed that safety, flexibility of eLearning and care-work are reasons why women adopt eLearning. Further, the choice of study location among online students advancing their education is based on work commitments. A higher percentage of men studied in offices (8.6%) and social spaces like cybercafé (6.9%) than women. This finding is not unexpected as men patronise public spaces more than women in society, as accentuated in GST, where individuals develop a sense of identity in a society that guides their practices.

Student Duration of Interaction per Session and with Instructor

The study also sought to establish the student duration per session with an instructor. The findings are shown in Table 3.

Table 3: Duration of time spent online

	Male				Female			
	Max	Min	Mode	Mean	Max	Min	Mode	Mean
Minutes spent online per session	360	5	120	109.74	300	10	120	119.06
Real time interaction in a month	30	1	1	3.44	30	1	1	3.47

The table showed that male and female students spent the same time (120 mins) online per session, translating to two hours per week. Women, however, spent more time (119.06 minutes per session) on average compared to their male counterparts, who spent (109.75 minutes per session) in the selected universities. Both genders spent, on average, one hour a month in real-time interaction. The longer time women students spend per session is partly attributed to them logging into the LMS a few times compared to men (see Table 1), suggesting they spent more time catching up with the session. Secondly, because of the several tasks or activities undertaken concurrently with learning, women students require more time to complete the sessions. This reflects the GST argument that men and women conform to behaviours, traits, and roles appropriate for gender-sex typing. Finally, there is a tendency by students to form online discussion groups to assist them in better understanding the learning content (See Table 3 on discussion for and interaction chat). These discussions influence the length of time spent by female students. This was posited by a KII who stated that “female students form groups to facilitate discussion. These groups help in understanding the



course. This seems to be much more prevalent amongst the females than the males. Although these groups are not exclusively female, there seems to be a tendency for the females to use this collaborative approach to learning. Our results mirror Kibuku, Orwa, and Wausi (2020), who state that there were different experiences in Kenya universities, and where the experience is common, the magnitude is not uniform. The findings are also consistent with Morante et al. (2017), who noted that gender and individual traits can result in different learning styles, hence the different levels of participation.

Learner Participation in LMS Folders Per Week

Learner participation in LMS folders per week was also considered in this study, whose results are shown in Table 4.

Table 4: Comparison of Learner Level of Participation in Online Folders

	Male		Female	
	Mean	Level	Mean	Level
Participation in the discussion forum	4.60	Moderate	5.06	Moderate
Checking on the assignments online	5.07	Moderate	5.97	High
Checking on the announcements online	5.30	Moderate	6.04	High
Interaction in chat	5.30	Moderate	6.18	High
Checking of study materials online	6.05	High	6.99	High
Composite mean	5.26		6.05	

Note: 1-2.6 = Very Low, 2.7-4.2= Low, 4.3-5.8= Moderate, 5.9-7.4= High and 7.5-9.0= Very High. Author’s contribution (2020)

Respondents showed diverse preferences for LMS folders/ activities, with the highest interacted folder being learning material, followed by chat, announcement, assessment and discussion forum (Table 4). The results show overall moderate use of LMS folders by male students versus high usage by female students. Further investigation revealed that students acquire information through the LMS folders and from other university channels, such as email. The KII who were interviewed accentuated the importance of learning material, the challenges that hinder the adequacy and relevance of e-resources and the presence of online learning platforms and applications that are autonomous from universities. The following excerpts from KIIs support these findings. “Quality of e-content development depends on various factors like time and resources. The work overload among e-instructors impedes the success,” another KII stated. “Using Blackboard, instructors can upload exposition for asynchronous discussion. Another KII said, “Women students are more detailed. They also access announcements earlier than men who are latecomers. They also convey accessed information through other channels like students’ WhatsApp groups”. These findings corroborate Abdous (2019) views that pedagogical standards of eLearning motivate learner interaction. The study, however, notes that “eLearning material folder” is the main determinant of learners’ participation in eLearning. It implies structures that need changes to achieve equitable participation in eLearning, as opined in feminist theory. Hence, educators should ensure that the designed e-content is available of high quality and relevant.

A comparison of completion rates of learners in public and private universities

The study computed and tabulated the completion rate of the eLearning cohort that enrolled for the Bachelor’s degree programs in 2016 and was expected to complete their four-year program in 2019. The results are presented in Table 5. The abbreviations PU1 mean public universities, while PU2 mean private universities.



Table 5: Completion rate

s/n	University	School	2016 Enrolment Males	Males Completion Rate	2016 Enrolment Females	Females Completion Rate
1.	PU2A	Business	120	67.5%	97	64.9%
2.	PU2B	Business	61	85.2%	86	83.7%
3.	PU2A	Social Sciences	60	70%	80	67.5%
4.	PU2A	Education	40	70%	41	68.2%
5.	PU2B	Communication cinematic	41	78.04%	48	75%
6.	PU2B	Psychology	9	77.7%	7	71.4%
Participating Public Universities						
1.	PU1A	Business	149	62.4%	97	50.5%
2.	PU1B	Business	77	53.2%	66	46.9%
3.	PU1A	Education	102	61.7%	77	55.8%
4.	PU1B	Education	138	58.6%	106	49.05%
5.	PU1A	Social Sciences	47	51.06%	49	42.8%
6.	PU1B	Social Sciences	55	52.7%	39	48.7%

Table 4 shows a higher number of students enrolled in public universities than in private universities. Business courses were the most preferred in both public and private universities. The results also show a lower progression rate in public universities compared to private ones. Notably, the completion rates in private universities are significantly higher than in public universities. The plausible reasons for these observations are personal and external (institutional) factors in private universities that promote an enabling and enhanced learning environment and experience compared to public universities. The completion rates between men and women were comparable, although males were slightly higher than females. This data suggests that females enrolled in private universities are not adversely affected by similar challenges faced by their counterparts in public universities.

Conclusion

eLearning is an effective learning mode for both men and women who aspire to advance their education. Based on this study, the levels of participation in eLearning were influenced by factors such as frequency of login to LMS, breaks within sessions, location of study, duration taken per online study session and student-instructor interactions. The study also found that poor internet connectivity, low data bundle, and electricity outage differentially influence men's and women's levels of participation in eLearning. Work engagement affects men's levels of participation more, whilst family responsibilities such as caregiving and household chores affect female students more than their male counterparts. The differential levels of participation in learning may have contributed to course progression and completion rates; more male than female students had a



higher course progression and completion rate. This was further mirrored in completion rates in private and public universities, where the former exhibited higher completion rates. The study recommends eLearning gender-responsive strategies to address gender-based factors contributing to gender disparities in eLearning participation. These disparities influence enrolment, course progression, and completion rates in eLearning and educational advancement.

References

- Abdous, M. H. (2019). Influence of satisfaction and preparedness on online students' feelings of anxiety. *The Internet and Higher Education*, 41, 34-44.
- Acker, S. (1987). Feminist theory and the study of gender and education. *Int Rev Educ* 33, 419-435.
- Bem, S. L. (1981). Gender schema theory: A cognitive account of sex typing. *Psychological Review*, 88(4), 354-364.
- Chatelier, G., & Voicu, I. (2018). Assumption University, Thailand. In *eLearning within the Framework of UNESCO The Fourteenth International Conference on eLearning for Knowledge-Based Society* (Vol. 18).
- Smith, C. (2022). Globalisation and New Education Frontiers: A Look at the Factors Affecting Virtual Learning in Kenya. *European Journal of Education and Pedagogy*, 3(6), pp.50-56
- Commission for University Education-CUE (2017, 2018): University Statistics. Commission for University Education (CUE), Kenya.
- Herwin, H., Hastomo, A., Saptono, B., Ardiansyah, A. R., & Wibowo, S. E. (2021). How Elementary School Teachers Organized Online Learning during the COVID-19 Pandemic? *World Journal on Educational Technology: Current Issues*, 13(3), 437-449.
- Kibuku, R. N., Ochieng, D. O., and Wausi, A. N., 2020. eLearning Challenges Faced by Universities in Kenya: A Literature Review. *The Electronic Journal of eLearning*, 18(2), 150-161.
- López-Belmonte, J., Pozo-Sánchez, S., Carmona-Serrano, N., & Moreno-Guerrero, A. J. (2022). Flipped Learning and ELearning as Training Models Focused on the Metaverse. *Emerging Science Journal*, 6, 188-198.
- Morante, A., Djenidi, V., Clark, H., & West, S. (2017). Gender differences in online participation: Examining a history and a mathematics open foundation online course. *Australian Journal of Adult Learning*, 57(2), 266-293.
- Njihia, M., Mwaniki, E., Ileri, A., & Chege, F. (2020). Obstacles to successful uptake of open distance and eLearning (Odel) programmes: a case of Kenyatta University, Kenya. *African Multidisciplinary Journal of Research*.
- Njuguna, G., (2013). Factors Influencing the Use of E-learning in Public Universities in Kenya. *International Education Journal*, 2(3), p. 89-95.
- OECD (2023). *Education Policy Outlook 2023: Empowering All Learners to Go Green*. OECD Publishing.
- Qurotul Aini, Q. A., Mukti Budiarto, M. B., POH Putra, P. O. H., & Untung Rahardja, U. R. (2020). Exploring eLearning challenges during the global COVID-19 pandemic: A review. *Jurnal Sistem Informasi (Journal of Information System)*, 16(2), 47-65.
- Rapanta, C., Botturi, L., Goodyear, P., Guàrdia, L., & Koole, M. (2020). Online university teaching during and after the COVID-19 crisis: Refocusing teacher presence and learning activity. *Postdigital science and education*, 2, 923-945.
- Sunday, O. J., Adesope, O. O., & Maarhuis, P. L. (2021). The effects of smartphone addiction on learning: A meta-analysis. *Computers in Human Behaviour Reports*, 4.
- Wallace, S. E., & Benson, J. D. (2018). Bringing interprofessional case-based learning into the classroom for occupational therapy and speech-language pathology students. *Occupational Therapy in Health Care*, 32(1), 79-90.