Enhancing the academic performance of students through an online learning system: A case study of Makurumla Secondary School, Tanzania

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ABSTRACT

This study intended to investigate the possibility of using online learning as the solution for improving students' academic performance at Makurumla Secondary School. The Unified Theory of Acceptance and Use of Technology (UTAUT) are used to lead this study. A mixed methods approach is employed because it allowed for a comprehensive understanding of the role of online learning in improving students' academic performance. The quantitative data provided measurable evidence on patterns, trends, and the effectiveness of online learning tools, while the qualitative data offered deeper insights into teachers' and parents' experiences, perceptions, and challenges. Therefore, using both methods together ensured that the research captured not only statistical relationships but also the contextual realities behind them. The stratified random sampling technique was used. The study was conducted at Makurumla Secondary School in Ubungo Municipality. The target population for this study included teachers, students, and parents, from which a sample of 321 respondents was selected to provide data for the study. Data collection methods include questionnaires, interviews, and focus group discussions. Quantitative data are processed by using SPSS and analyzed using descriptive data analysis and multiple regression analysis. While in Qualitative data from interviews and focus group discussions are analyzed through content analysis and MAXQDA software, which is a qualitative and mixed-methods data analysis software used by the researchers to organize, code, analyze, and visualize data. The findings reveal that the majority of the students at Makurumla Secondary School are interested in and have access to an online learning system at their home, but the school infrastructure does not support implementing the online learning system. The study concluded that for the implementation of online learning in secondary schools, there should be sufficient and supportive infrastructure, such as computers, computer laboratories, stable electricity, and strong internet connectivity. The study recommended that the school should ensure that students and teachers have access to digital devices and a strong and stable internet connection, and that teachers receive proper training to use the online learning system effectively.

Keywords: Academic performance, Learning, Online Learning System, Students, Tanzania

1. INTRODUCTION

In the beginning of the twentieth century, there have been numerous efforts to transform advanced education to online learning for the purpose of improving academic performance of the students (Baum & McPherson, 2019). An instant implementation of online learning has forced by the COVID-19 pandemic. The initiatives to control the spread of COVID-19 pandemic were to implement lockdown, social distancing measures and stay home. Suddenly pedagogy in education change, the online classes became an important part of upholding educational continuousness to improve academic performance of the students (Wangdi et al., 2021). Online learning refer to the uses of the Internet to interact with the content, instructor, access learning materials, and other learners so as to attain knowledge (Ally, 2004). Academic performance is the outcome which is given out by the students after measured through test scores, grades and overall classroom performance (Crisp, 2002).

Makurumla Secondary School is a public secondary school located in Dar es Salaam, Tanzania. It is a co-educational institution, meaning it educates both boys and girls. The school offers a range of facilities, including dedicated science laboratories, classrooms, an outdoor football field, and library. It follows the curriculum set by the National Examinations Council of Tanzania (NECTA) and administers exam such as the Certificate of Secondary Education Examination (CSEE) with center number S.4506 (Shulewiki, 2023). Since the Makurumla secondary school was facing with the problem of poor academic performance of the students due to poor students attendance at school (Shulewiki, 2023). Therefore, this study has focused with improving the student's academic performance through Online Learning at Makurumla secondary school, since it used as alternative way to attend class lessons. Independent variable of this study is Online Learning, since it represents the mediation introduced at Makurumla

Secondary School. And students' academic performance is the dependent variable, which point the outcomes influenced by the adoption of Online Learning strategies.

The discourse close to Online Learning has pulled importantly attention. Other scholarly person assist its potentials to improve flexibility, accessibility, and student engagement, and others high spot challenges for implementation of Online Learning System in schools. Online learning enhances the academic performance of the students who since the online learners attain better results than those who studied traditional approach (Elfaki & Abdelrahim, 2021). Also according to Ododo (2022) show that e-learning tools are important for improving learners' academic performance in data structure since it encourages students' interest in the learning content. But according to Wangdi et al (2021) the implementation of Online Learning in students of Secondary schools faces considerable obstacles including lack of internet facilities, inconstant internet connection, inadequate internet data and low income to satisfy the internet data cost. Earnest challenges on adoption of online leaning in Tanzania higher learning institutions include poor infrastructural, especially in terms of power supply, bandwidth capacity, computer laboratories (Kisanga & Ireson, 2015). Also according to Ndume (2008) reveal that IT infrastructure, power interruption, resource accessibility and availability is a problem for implementing e-Learning.

However the present literatures high spot the importance of Online learning in enhancing academic performance of the students, but there was an important deficiency of study direct specifically on how online learning enhancing academic performance at Makurumla secondary school. This study attempted to close this gap of examining on improving academic performance through online learning at Makurumla secondary school.

1.1 Statement of the Problem

In recent years, advancements in technology have made Online Learning an attractive option to traditional education, particularly in secondary schools. However, the adoption of Online Learning in students of Secondary schools faces considerable obstacles which are lack of internet facilities, inconstant internet connection, inadequate internet data and low income to satisfy the internet data cost (Wangdi et al., 2021).

According to Komakech (2015) the effects of poor school attendance to students include poor academic performance, students drop out, graduating half-baked students, poor curriculum coverage and loss of interest in learning . Since the performance of the students is affected by the class lesson attendance, there is the need of enabling the Online Learning to secondary Schools because students are equipped with teaching and learning experiences that are not limited to the classroom education (Odunaike et al., 2025).

Based on Shulewiki (2023) reported the Annually Percentage Average of the students school attendance in 2022 was 69.8% and 2023 was 67.3%. This report further indicates that the poor class attendance adversely affects the students' performance. The Shulewiki (2023) report highlighted several reasons for poor student's attendance including lack of bus fare, sickness, taking care of their sick parents and poor road infrastructure especially when it heavily rain. The poor students' school attendance resulted into poor academic performance to students.

Therefore, this study intended to investigate the possibility of using Online Learning as the solution for improving students' academic performance at Makurumla secondary school because the Online Learners experiences new learning style that are not limited to the classroom attendance thus providing opportunity to those students who failed to attend class lesson for various reasons.

1.2 Research Objective

i. To identifying the requirements for introducing an Online Learning System, the study establishes the necessary conditions such as infrastructural, technological and pedagogical conditions for effective adoptions.
ii. To evaluating the effectiveness of different Online Learning teaching strategies and tools, the study finds out the approaches that most positively influence students' learning outcomes.
iii. To recommending a practicable approach for implementing Online Learning, the study provides actionable strategies that schools can adopt to enhance teaching and learning.

II. LITERATURE REVIEW

2.1 Theoretical Review

2.1.1 The Unified Theory of Acceptance and Use of Technology (UTAUT)

According to Alkhuwaylidee (2019) Unified Theory of Acceptance and Use of Technology (UTAUT), is an extensive model established to clarify user intentions and behaviors regarding technology acceptance. Also Alkhuwaylidee (2019) said that Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. in 2003 developed this theory in order to explore the aspects that inspire user intentions to accept and use technology. The theory providing a comprehensive framework with four key constructs as it synthesizes elements from eight previous models of technology acceptance. Those constructs are:

Performance Expectancy (PE): Performance Expectancy is the degree in which the improvement of job performance is perceived by applying a technology. The significant predictor of behavioral intention between others constructs of UTAUT is Performance Expectancy. The Performance Expectancy suggesting that if users believe that the present technology will advance their productivity then they will accept to use the technology**.** Basing on this study, performance Expectancy fostered those students and teacher might accept online learning if they expect it to improve academic outcomes or teaching efficiency.

Effort Expectancy (EE): Effort Expectancy play a vital role of measuring the perceived ease of using associated with the technology. A lower effort expectancy usually leads to a higher intention to apply the technology, this showing that users select systems that are easy to understand and operate**.**

The application of Effort Expectancy to this study was to enable the creation of user-friendly online platform which can increase the likelihood of acceptance by both students and staff.

Social Influence (SI): Social Influence is the degree in which individuals perceive that important other (such as peers or supervisors) believe that they should use the new system. Social influence, especially in organizational contexts, peer pressure can impact behavioral intention. The use of this construct for this study was that teachers and students might feel compelled to use online tools if they see their peers or school leadership endorsing them..

Facilitating Conditions (FC): This includes the resources and support obtainable to users which ease their ability to use the technology effectively. It contains aspects such as technical infrastructure and organizational support, which directly affect user behavior.

The application of Facilitating Condition construct to this study was to access computers, internet connectivity and technical support which will be vital for successful implementation.

2.2. Conceptual Review

In this study Performance expectancy, Effort expectancy, Facilitating conditions and Social influence are considered as Independent variables. These factors are expected to influence the manner in which Online Learning is adopted and used in Secondary schools. While the improved students' academic performance used as the Dependent variable, which represents the final results of effective implementation and utilize of Online Learning. In addition, Supportive political will is considered as a Co-factor, as it acts as a moderating role by making an enabling environment through policies, regulations, and government support that facilitate the successful integration of Online Learning in schools.

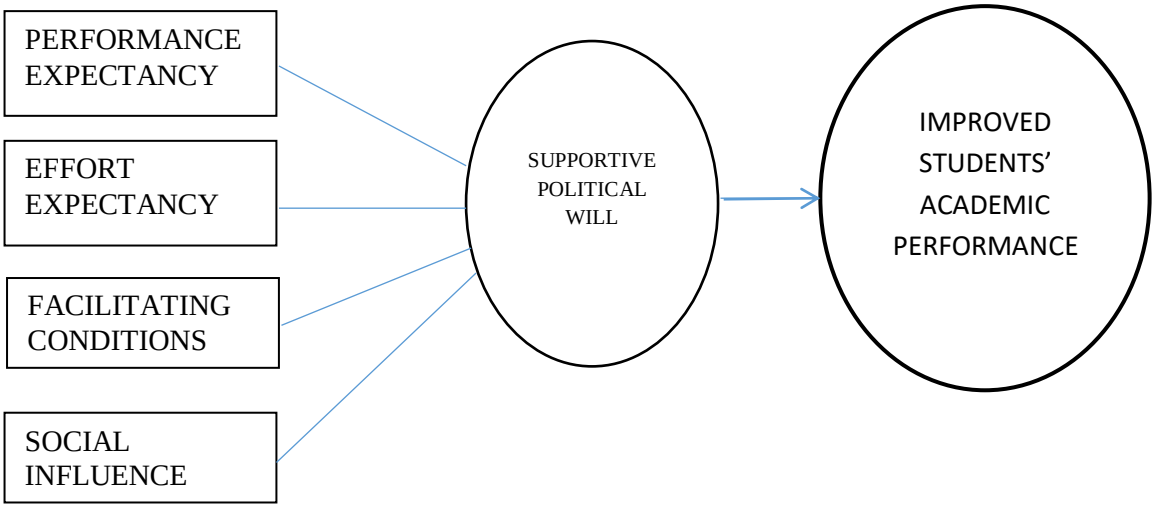

Figure 1
Conceptual frame work

2.3 Empirical Review

According to Lakkala (2020) discovered that online learning improves the academic performance of the upper secondary students in Finland Country since courses were organized by both the private company and the teachers, the private company provide the basic structure of the digital course platform for the teachers but the teachers organized their course areas and the lessons based on the affordances of the platform. Online learning improves the academic performance of the students who since the online learners attain better results than those who studied traditional approach (Elfaki & Abdelrahim, 2021). According to Ododo (2022) reveal that e-learning tools are crucial for enhancing learners' academic performance in data structure since it promotes students' interest in the learning content.

According to Charles et al (2022) found that low level of investment discourage the effective performance of e-learning to improve the students' academic performance. Therefore Charles et al (2022) recommended that, the Open University of Tanzania management and other educational stakeholder should modify the total investment of e-learning at university level.

Serious problems on implementation of online leaning in Tanzania higher learning institutions include poor infrastructural, especially in terms of power supply, bandwidth capacity, computer laboratories (Kisanga & Ireson, 2015). Also according to Ndume (2008) reveal that IT infrastructure, power interruption, resource accessibility and availability is a problem for implementing e-Learning.

According to Nambambi (2022) reveal that online learning stimulate students of Namibia Business School to achieve better in their formative and summative assessments. Nambambi (2022) suggested that online lecturers must continue to develop valuable instructional and teaching materials that dynamically connect students and motivate them to perform better. Chacha and Kitula (2022) suggested that as it has been discovered that accessibility of ICT has a great inspiration on academic performance of the students in secondary schools, therefore, the government should deliver ICT tools in secondary schools so as to advance the academic performance of the students.

III. METHODOLOGY

3.1 Research Design

The mixed method approach was the research design for this study because it allowed for a comprehensive understanding of the role of Online Learning in improving students' academic performance, the quantitative data provided measurable evidence on patterns, trends and the effectiveness of online learning tools while the qualitative data offered deeper insights into teachers' and parents' experiences, perceptions and challenges . Therefore, using both methods together ensured that the research captured not only statistical relationships but also the contextual realities behind them. Quantitative methods permit for the gathering of numerical data while Qualitative methods offer detailed understandings into contestants' experiences, perceptions, and attitudes, which are vital for understanding the context-specific challenges of online learning (Almeida, 2018).

3.2 Population of the Study

The population intended for this study involved Students, teachers, and parents of the students at Makurumla secondary schools.

3.3 Sample Size

The sample size refer to the number of members needed to notice a clinically relevant treatment effect (Charles & Giraudeau, 2006). The sample size for this study was 321 respondents.

According to Mwiinde (2024) the Slovin formula is as follows:

$$n = \frac{N}{1+N(e^2)}$$

Table 1

Sample Size

Strata	Population	Sample Size
Teachers	45	9
Students	1558	307
Parents	25	5
Total	**1628**	**321**

3.4 Sampling Technique

To obtain participants for the sample size, this study employed Stratified random sampling technique. For in-depth exploration of each stratum's unique experiences and perspectives, stratified random sampling conducted Semi-structured interviews to school teachers' strata and focus group discussion to parents' strata from each stratum to gather detailed insights into their experiences with online learning. Again, stratified random sampling enabled collection of numerical data by distributing of structured questionnaires to sampled participants students to quantify their experiences with online learning.

3.5 Data and Data Collection Methods

The study used Semi-structured interview, focus group discussion and structured questionnaires to gather primary data. Structured questionnaires were distributed to students to collect the numerical data direct from the field while Semi-structured interview were conducted to teachers to collect detailed insights into their experiences with

online learning and also the focus group discussion were conducted to parents to collect detailed experiences on online learning.

3.6 Data Analysis

Data analysis in mixed research includes integrating both quantitative and qualitative data to provide an extensive understanding of the research problem. In quantitative research, data has been processed by using SPSS and analyzed using descriptive statistics and multiple regression analysis. While in qualitative data from interview and focus group discussion were analyzed through the Content analysis and MAXQDA.

IV. FINDINGS & DISCUSSION

4.1 Demographic Information of the Respondents

This part shows the demographic characteristics of the respondents. The researcher asked questions about gender, secondary level, age, and programs. The results are shown in Table 2.

Table 2

Demographic Information

Demographic	Category	Frequency	Percentages (%)
Gender	Male	139	45.3
	Female	168	54.7
	Total	**307**	**100**
Secondary Level	Form One	-	-
	Form Two	-	-
	Form Three	123	40.1
	Form Four	184	59.9
	Total	**307**	**100**
	12-16 years	131	42.7
Age	17-19 years	170	55.3
	20-22 years	6	2.0
	Total	**307**	**100**
Programs	Science	108	35.2
	Arts	69	22.5
	Business	130	42.3
	Total	**307**	**100**

The demographic data presented in Table 2 provides a detailed overview of the participants (n=307) involved in the study. The table categorizes the demographic characteristics of the respondents based on gender, educational level (referred to as secondary level), age and academic programs. This interpretation examines each demographic factor in detail, exploring the implications and patterns that emerge from the distribution of the data.

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4.2 Requirements for Introducing Online Learning System to Secondary Schools

The implementation of Online Learning system in secondary schools needs some necessary requirements discussed in this first specific objective of the study. This part centered on understanding the technological devices required, the level of digital literacy among students, and the necessary training and support mechanisms.

4.2.1 Access to Online Learning

The study wanted to know the accessibility of online learning by students. Respondents were asked questions and findings are indicated in Table 3.

Table 3

Access to Online Learning

Response	Frequency	Percent (%)
Yes	289	94.1
No	18	5.9
Total	**307**	**100**

The outcomes from the Table 3 above show large number of the students 289(94.1%) out of 307 had access to online learning system, while only 18 students (5.9%) reported of not having such access. Also according to Ododo (2022) reveal that e-learning tools are important for improving students' academic performance in data structure since it encourages learners' interest in the learning content. Hence this confirm that most of the learners had the opportunity to engage with analogue platforms and resources which show that the facilitating conditions as independent variable is full-filled to now days students, which could influence their learning experiences and performance which is dependent variable in this study. The small number of students with no access to Online Learning System may be due to lack of devices, poor internet connectivity, or socioeconomic constraints, which may affect their academic engagement and performance. The outcomes are backed up by the responses obtained after the conduction of a focus group discussion from the parents;

> *"I make sure my child has a reliable smartphone and a tablet, and I provide a stable Wi-Fi connection at home. I often help her set up the devices and troubleshoot any connectivity issues. Additionally, I monitor her usage to ensure she stays focused on her studies and has access to the educational resources she needs." (Parent 1:10/04/2025).*
>
> *"I have a shared laptop that our son uses for his online classes and homework. To ensure he always has internet access, we keep the Wi-Fi router in a central location and sometimes use a mobile hotspot when the main connection is slow or unavailable." (Parent 2:10/04/2025).*

Therefore equal opportunities to all students to access online learning system should be ensured by the school by conducting parents meeting in school for the purpose of educating and involve the parents to support their children with the access to online learning to improve their academic performance.

4.2.2 Technological Resources at Home to Access and Support Online Learning

The study aimed to identify technological resources that currently students have at home to access and support online learning. Findings are shown in Table 4.

Table 4

Technological Resources at Home to Access and Support Online Learning

Technological resources	Frequency	Percent
Computer	30	9.8
Smartphone	251	81.8
Tablet	20	6.5
Never	6	2.0
Total	**307**	**100.0**

Table 4 findings show the kind of technological devices accessible to students at home that can support online learning. Large number of the students(81.8%) has access to smartphones while (9.8%) students have access to computers. Only 6.5% of the students reported access to tablets. A small percentage(2.0%) of the students reported that they never have access to any of these devices. From the findings above reveal that facilitating conditions, performance expectancy, effort expectancy and also social influence as independent variables are full-filled since large number of the students have access to online learning at home with different devices, this will be able to meet the independent variable which is improved students' academic performance easily. Also the findings from the focus group discussion conducted to parents supports the findings where one of the parents said that;

> *"As a parent, I strongly believe that providing students with access to technological resources is essential for their success in online learning. My child has a reliable laptop and high-speed internet at home, which has allowed them to participate fully in virtual classes, complete assignments, and access educational materials without frustration. I appreciate the school's efforts to ensure all students have the necessary tools, as it helps bridge gaps and supports a more equitable learning environment." (Parent 1:10/04/2025).*

Data indicate that most of the students trust on smartphones for online learning engagement, which can be effective but may also airs boundaries such as small screen size or limited functionality for certain educational activities. Therefore this study advises parents should make effort to provide computer to their children although it is expensive since access to computers is more suitable for comprehensive tasks such as writing essays, completing assignments and engaging with educational software. Having access to a computer can enhance the quality of online learning by providing better screen size, keyboard use and multitasking capabilities.

4.2.3 Ownership of the Technological Resources at Home

The findings in Table 5 show data which represents the ownership and access of students on different technological devices at home, which are essential for involved in online learning. The table classifies resources into computers, smartphones, tablets, and those with no access (Never).

Table 5

Ownership of the Technological Resources at Home

Category		The technological resource you select, does it belong to you?	
		Yes	No
Technological resources do student currently have access to at home	Computer	11.7%	8.2%
	Smartphone	78.1%	84.7%
	Tablet	10.2%	7%
	Never	0%	0%

This study tried to observe the technological resources do students currently have access at home and their ownership status compared to other studies most of them rely on improvement of school technological infrastructures for online learning implementation, example study conducted by Chacha and Kitula (2022) recognized that in Karatu district ICT had an important and positive effect on academic performance of the students in secondary schools because it is utilized to achieve various tasks such as making assignments, classroom activities and planning their lessons more efficiently. Therefore suggested that, the government should deliver ICT tools in secondary schools so as to advance the academic performance of the students. Table 5 outcomes indicate that only 11.7% of the students owning a personal computer, while 8.2% do not have access to one at home.78.1% of the students have access to smartphones but 84.7% show that they do not own the devices themselves. This verify that many students access smartphones owned by family members including mother, father, sister and uncle, which highlighting the importance of mobile devices for online learning. Also 10.2% of students have access to tablets while only 7% do not, which suggesting that tablets are less common but still available to some students .Here the dependent variable which is Improved students' academic performance through Online learning system will be achieved since large number of students have resources to access online learning system which act as independent variable in this study. These results are backed up by one of the teachers in interview who said that;

> *"I recognize that internet access is crucial for effective online learning. To address this, we as school are exploring options such as distributing portable Wi-Fi devices to students in need." (Teacher 3:15/04/2025)*

Although, restricted possession of computers could limit the ability of some students to fully participate in more online learning activities. Since the percentage of students with no access at all indicate 0%,this show that large number of students have some kind of technological resource at home, but also disparities in device ownership can affect learning experiences and performance. After realizing these challenges, teachers should find the solutions such as distributing portable Wi-Fi devices to improve internet access, and also to educate the parents to buy computer or smartphone for their children, aiming to ensure all students can participate effectively in online learning.

4.2.4 Frequency of the Use Technological Resources among the Students

Table 6 reflects findings of how frequently students use technological resources including computer, smartphone, tablet, they have at home that support online learning. It categorizes the data by how often students utilize these resources daily, weekly, occasionally, rarely, or never.

Table 6

Frequency of the Use Technological Resources among the Students

Category		How often do you use technological resources you select?				
		Daily	Weekly	Occasionally	Rarely	Never
What technological resources do you currently have access to at home that could support online learning	Computer	12.4%	7.4%	7.1%	0.0%	0.0%
	Smartphone	80.1%	92.6%	78.6%	100.0%	0.0%
	Tablet	7.5%	0.0%	14.3%	0.0%	0.0%
	Never	0.0%	0.0%	0.0%	0.0%	100.0%

From the table above show that large number of the learners(80.1%) reported using smartphones daily, and an even higher percentage (92.6%) use them weekly, this show that smartphones are the most accessible and frequently used device for online learning among the students. Occasional use was 78.6% of students participating with their smartphones on an irregular basis, while no student reported, rarely or never, using these devices. In opposition, access to computers was less prevalent, only 12.4% of students reported daily use of computers, and 7.4% used them

weekly. A smaller percentage, 7.1%, used computers occasionally, and none indicated that they rarely or never use them. This advises that while some learners have access to computers, they are less frequently used compared to smartphones, possibly due to restricted availability or affordability. Access to tablets was even more limited. Just 7.5% of learners use tablets daily, with no learners reporting weekly use. Some learners (14.3%) used tablets occasionally, but the many of them did not have access or did not use tablets at all. Notably, no learners reported never using tablets, which show that at least some students have access to these resources. Overall, these outcomes high spot that smartphones are the primary technological devices used often for online learning among students.

This research advice that although smartphone utilized more than other resources outlined by the respondents but it is better for parents to get a computer for their children because access to a computer can improve the quality of online learning by providing better screen size, keyboard use, and multitasking capabilities.

4.2.5 Status of Online Infrastructure Exist at School to Implement Online Learning System

The study sought to know whether infrastructure exist at school satisfy to implement online learning system. The findings presented in Table 7 reveal a significant insight into the state of technological infrastructure at a particular school concerning the implementation of an Online Learning System.

Table 7

Status of Online Infrastructure

Response	Frequency	Percent
Yes	10	3.3
No	297	96.7
Total	**307**	**100**

The table above shows that many of the respondents respond that the infrastructure exist at their school is deficient to support the adoption of an online learning system. 3.3% of the responders answered "Yes" which indicate that the available infrastructure meets the essential requirements for online learning system. But, 96.7% of responders replied "No," which show that the exist infrastructure is deficient. In this situation, imply that independent variables in this study which are Performance expectancy, effort expectancy, facilitating conditions, social influence are not full-filled in this school to meet the dependent variable which is improved students' academic performance through online learning system. Also according to Ally (2004) reveal that one of the serious problem in implementation of Online learning systems in Tanzania higher learning institutions is existence of poor infrastructure .Then compared to our findings in this study show that the problem also exist to secondary schools. During the interview session one of the teacher supports the response of the students by saying that;

> *"Our school lacks the necessary infrastructure such as reliable internet connectivity and adequate computer facilities, which are critical for implementing an effective online learning system." (Teacher 1:13/04/2025)*

Existence of required infrastructure is important for implementation of online learning system which can be accessible, effective, and equitable for all students. Without that, the crucial benefits of online learning system can remain unsuccessful, and students may proceed to face obstacles that restrict their academic development

4.2.6 Preference to any Specific Training When Transitioning to an Online Learning System

The study sought to know whether students prefer any specific training when transitioning to an Online Learning System. The findings are presented in Table 8.

Table 8

Preference to Specific Training

Response	Frequency	Percent
Yes	295	96.1
No	12	3.9
Total	307	100

From the table above show that many of the respondents about 96.1% prefer to receive some form of specific training when transitioning to an Online Learning System. Then this high percentage indicate that majority realize the importance of training for effectively adapt to the new mode of learning. Conversely, a small proportion of respondents, 3.9%, expressed no interest in receiving specific training during this transition. The findings of this study is supported by the study conducted by scholar known as Lakkala (2020) who discovered that Online learning system improve the academic performance of the students in Finland country because courses are organized well by both

private company and teachers, teachers organized their course areas and the lessons based on the concordances of the platform. This show that for the teachers to organize their courses well to win the goal of improving the academic performance of the students specific training is needed .. Overall, the high preference for training emphasizes the importance of providing targeted orientation and skill development programs to facilitate a smooth transition to online learning. Implementing such training can enhance students' confidence, improve their ability to utilize online platforms effectively, and ultimately contribute to better academic outcomes. These results imply that educational institutions should prioritize developing comprehensive training modules, ensuring accessibility for all students, and addressing any technological gaps to support a successful shift to online education.

In addition, one of the teachers said that;

> *"I would prefer comprehensive training focused on the effective use of digital tools and Learning Management Systems (LMS) like Moodle or Google Classroom. Understanding how to design engaging online lessons, manage virtual classrooms, and assess student performance digitally is essential for me to deliver quality education in an online setting." (Teacher 2:14/04/2025)*

Another respondent said that;

> *"Hands-on, practical training sessions where I can directly practice using various online platforms and tools would be my preference. Having guided workshops or tutorials that allow me to troubleshoot common issues and explore features firsthand would boost my confidence and preparedness for transitioning smoothly." (Teacher 4:17/04/2025)*

4.3 Multiple Regression Analysis: Model Summary Result

Introduce the table

This table below show the key statistical indicators connected to the analysis done on enhancing students' academic performance through Online Learning System.

Table 9

Model Summary Result

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.675[a]	.556	.437	.37119	1.745

a. Predictors: (Constant), Performance Expectancy, Effort Expectancy, Facilitating Conditions, Social Influence, and Supportive Political Will

b. Dependent Variable: Improved Students' Academic Performance

From the table 9 above, Model 1, has an R value of 0.675. This imply an average to strong positive correlation between the predictors, namely Performance Expectancy, Effort Expectancy, Facilitating Conditions, Social Influence, and Supportive Political Will and the dependent variable, which is Improved Students' Academic Performance.

0.556 is the R square value for this model, which is approximated as 55.6% of the variability in students' academic performance which can be explained by the united effect of the chosen predictors. When attuned for the number of predictors in the model, the Adjusted R Square drops slightly to 0.437, propose that some predictors cannot contribute significantly or that the model could be refined further to modify explanatory power.

The Standard Error of the Estimate is 0.37119, this reflect the moderate distance that discovered values fall from the predicted values generated by the model. A lower standard error show a finer fit of the model to the data. Last, the Durbin-Watson statistic of 1.745 proposes that there is no powerful evidence of auto-correlation in the residuals, which assist the assumption that the residuals are independent an essential condition for the validity of many regression analyses.

Overall, these outcomes indicates that the combination of factors like performance expectancy and social influence significantly contributes to improving students' academic performance in an online learning environment, and the model provides a reasonably good fit to the data.

4.3.1 Coefficients of Regression Model

From the Table 4 below, the coefficients are there to provide key vision into the factors that significantly influence student performance in an online learning environment. The analysis provides a regression model where the dependent variable is "Improved Students' Academic Performance," and independent variables include Performance Expectancy, Effort Expectancy, Facilitating Conditions, Social Influence, and Supportive Political Will. The table indicates both unstandardized and standardized coefficients, along with t-values and significance (p-values), to evaluate the statistical outcome of each predictor.

Table 10

Factors Influence Student Performance in an Online Learning Environment

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.523	.206		2.540	.013
	Performance Expectancy	.230	.100	.238	2.307	.023
	Effort Expectancy	.261	.073	.352	3.599	.001
	Facilitating Conditions	.247	.110	.226	2.236	.028
	Social Influence	.217	.107	.213	2.131	.021
	Supportive Political Will	.067	.0210	.103	2.012	.328

Firstly, the constant (intercept) is 0.523 with a p-value of 0.013, which is statistically significant at the 5% level. This implies that even when all independent variables are held constant at zero, students' academic performance is expected to start at a positive baseline, suggesting the presence of other contributing factors outside the scope of this model.

The variable Performance Expectancy, with a standardized beta coefficient of 0.238 and a p-value of 0.023, has a statistically significant and positive effect on academic performance. This means that when students perceive online learning as useful and believe it will help them achieve better outcomes, their academic performance is likely to improve. The implication is that promoting the practical benefits of online learning systems can foster better engagement and outcomes among students.

Effort Expectancy shows the highest standardized coefficient (0.352) and is highly significant ($p = 0.001$). This indicates that students' perceptions of how easy online learning systems are to use greatly influences their academic success. When students find the systems intuitive and easy to navigate, they are more likely to interact effectively with the material, leading to better performance. This underscores the importance of user-friendly online platforms and adequate student training in maximizing the benefits of online learning.

The role of Facilitating Conditions is also notable, with a significant positive influence ($\beta = 0.226$, $p = 0.028$). This refers to the availability of the necessary infrastructure, resources, and support systems, such as internet access, technical assistance, and compatible devices. When these conditions are adequately met, students are better positioned to thrive in an online learning environment.

Social Influence also emerges as a statistically significant predictor ($\beta = 0.213$, $p = 0.021$), suggesting that peer opinions, instructor encouragement, and community attitudes towards online learning play a role in shaping students' engagement and performance. A positive social climate around online education may thus encourage more active and confident participation from learners.

However, Supportive Political Will, although having a small positive beta value (0.103), does not show statistical significance ($p = 0.328$). This suggests that while governmental or institutional backing for online learning may be important, it is not directly influencing student performance in this specific context. It may be that such support operates more indirectly, through funding infrastructure or policy development, than through immediate academic outcomes.

V.CONCLUSION & RECOMMENDATIONS

5.1 Conclusion

This study has demonstrated that the adoption of Online learning system to secondary schools can improve the academic performance of the students when supported by specific proper training, policy frameworks and with adequate and supportive infrastructures such as computers, computer laboratory, stable electricity, strong internet connectivity.

5.2 Recommendation

Based on the outcomes of this study, it is recommended that the school should make sure that learners and teachers have access to analogue devices such as computers, tablets and smartphones, to enable them the access to online learning system. Also the school administration should ensure that there is strong internet connection by work with local service providers to offer free or subsidized Wi-Fi hotspots to students who do not have reliable internet at home. Furthermore there is need of prioritizing teacher and students training, involvement of parents to support smoothly the main objective for the implementation of online learning system to secondary school to be successfully. In addition, policy makers should supply supportive policies and devices that promote schools to implement and sustain technology enhanced teaching.

REFERENCES

Alkhuwaylidee, A. R. (2019). Extended unified theory acceptance and use technology (UTAUT) for e-learning. *Journal of Computational and Theoretical Nanoscience, 16*, 1–8.

Ally, M. (2004). Foundations of educational theory for online learning. In T. Anderson & F. Elloumi (Eds.), *Theory and practice of online learning* (2nd ed., pp. 15–44). Athabasca University Press. http://www.aupress.ca/books/120146/ebook/01_Anderson_2008-pp16-17

Almeida, F. (2018). Strategies to perform a mixed methods study. *European Journal of Education Studies, 8*(5), 137–151. https://doi.org/10.5281/zenodo.1406214

Baum, S., & McPherson, M. (2019). The human factor: The promise & limits of online education. *Daedalus, 148*(4), 235–254. https://doi.org/10.1162/DAED_a_01769

Chacha, C. W., & Kitula, P. R. (2022). Availability of information and communication technology and its influence on students' academic performance in Karatu District, Tanzania. *Journal of Research Innovation and Implications in Education, 6*(5), 549–559.

Charles, P., & Giraudeau, B. (2006). Reporting of sample size calculation in randomised controlled trials: Review. *BMJ*. https://doi.org/10.1136/bmj.b1732

Charles, C., Malusu, P. J. M., & Ogoti, P. E. (2022). Influence of E-Leaning on Students' Academic Performance at the Open University of Tanzania. *International Journal of Contemporary Applied Researches, 9*(7), 85-97.

Crisp, C. (2002). ENB school performance. *Dancing Times, 92*(1104), 41, 353–354.

Elfaki, N., & Abdelrahim, R. (2019). Impact of e-learning vs. traditional learning on students' performance and attitude. *International Medical Journal, 24*(3), 225-233.

Kisanga, D., & Ireson, G. (2015). Barriers and strategies on adoption of e-learning in Tanzanian higher learning institutions: Lessons for adopters. *International Journal of Education and Development Using Information and Communication Technology, 11*(2), 126–137.

Komakech, R. A. (2015). School attendance is a pre-requisite for student academic performance in universal secondary education schools. *Journal of Social Science for Policy Implications, 3*(1), 33–57. https://doi.org/10.15640/jsspi.v3n1a3

Lakkala, M. (2020). Finnish upper secondary school students' experiences with online courses. *Education in the North, 27*(2), 73–91.

Makurumla Secondary School. (2023). *Shulewiki*. https://shulewiki.co.tz/makurumla-secondary-school/trend

Mwiinde, Z. D. (2024). *An analysis of revenue management efficiency at Lusaka City* (pp. 22–23) [Unpublished master's thesis]. The University of Zambia.

Nambambi, H. I. (2022). *Assessing the impact of online learning on student performance at the Namibia Business School during COVID-19* [Master's thesis, The University of Namibia].

Ndume, V. (2008). Challenges of adaptive e-learning at higher learning institutions: A case study in Tanzania. *International Journal of Computing and ICT Research, 2*(1), 47–59. http://www.ijeir.org/volume1-number2/article6.pdf

Ododo, E. P. (2022). A publication of International Association for the Promotion of Asia-Africa Research in collaboration with Medicaps University, India. *Asia-Africa Journal of Education Research, 2*(2020), 157–177. https://doi.org/10.5281/zenodo.6370171

Odunaike, S. A., Olugbara, O. O., & Ojo, S. O. (2025). E-learning implementation critical success factors. In *Proceedings of the International MultiConference of Engineers and Computer Scientists 2013* (Vol. 1, pp. 2–3). IMECS 2013, Hong Kong.

Shulewiki. (2023). Makurumla Secondary School. https://shulewiki.co.tz/makurumla-secondary-school/trend

Wangdi, N., Dema, Y., & Chogyel, N. (2021). Evaluating the challenges in online learning during the COVID-19 pandemic in a middle secondary school. *International Journal of Didactical Studies, 1*(2), 7–8. https://doi.org/10.33902/ijods.2021269731