RESEARCH ARTICLE

EFFECT OF ONLINE LEARNING PLATFORMS ONTHE STUDENT'S ACADEMIC PERFORMANCE IN GEOGRAPHY IN HIGHER INSTITUTIONS IN RWANDA,A CASE GASABO DISTRICT

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Manuscript Info	*Abstract*
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Background: The purpose of this study was to examine the effects of online learning platforms on academic performance in geography at higher institutions in Rwanda. The specific objectives are to determine the effect of online learning resource availability on the student's academic performance in geography in Gasabo District's higher institutions, Rwanda, to examine the effect of online learning resource accessibility on students' academic performance in geography in Gasabo District's higher institutions, Rwanda, and to evaluate the effect of usage of online resources on students' academic performance in geography in Gasabo District's higher institutions, Rwanda and to establish the relationship between the effect of online learning platforms and the student's academic performance in geography in higher institutions in Rwanda. The targeted population was the University of Kigali (UK), with 100 students located in the Kimihurura sector; the University of Rwanda; and the College of Education, located in the Remera sector, with 120 students' administrators from UR 15 and 9 administrators from the UK. This study selected respondents and key informants purposefully and randomly. A study sample was obtained by using Taro Yamane's 1967 formula.

Materials and Methods: Information was analyzed using statistical product and service solution version 21.0 for descriptive statistics in terms of frequency, percentage, and mean and standard deviation. Moreover, inferential statistics were produced in terms of correlation and regression coefficients to determine the size of the effect between variables.

Results: Results on the effect of online learning resource availability indicated that 93.8% either strongly agreed or agreed that the online learning platform resources are well organized and effectively engage students within the geography studies, and 78.1% either strongly agreed or agreed that the resources are available to support the effective use of online learning platforms in geography. 82.6% either strongly agreed or agreed that the teaching staff in our institution is highly trained and prepared to use the available online learning platform resources. Results on the effect of online learning resource accessibility indicated that 94.4% either strongly agreed or agreed that the academic performance of students in the institution has improved because of the

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accessibility of online learning resources. 93.5% strongly agreed or agreed that the accessibility of online learning platform resources has positively affected students' performance in the classroom in geography, and 89.7% either strongly agreed or agreed that the accessibility of online learning resources on platforms has increased students' enrollment rates in higher learning institutions in geography. The result on the usage of online resources indicated that 91.4% either strongly agreed or agreed that resources accessed by students; 87.6% either strongly agreed or agreed that participation in online collaborative activities; 91.5% either strongly agreed or agreed that increased time spent on online resources; 87.0% either strongly agreed or agreed that digital library usage increases the number of students; and finally, 96.1% either strongly agreed or agreed that students increased time spent on online resources affects geography performance. The results of the correlation between participation in online collaborative activities, increased time spent on online resources, and digital library usage also contribute to this effect. The completion of assignments was also positively correlated with increased academic performance, with a p-value of less than 0.05.

Conclusion: Overall, the study suggests that online learning resources, time spent on online resources, and academic performance are all positively related factors. It was proposed that The text emphasizes the need for affordable internet access, engaging online geography courses, comprehensive instructor training, and blended learning approaches to ensure equitable access to online learning. Therefore, there is a need to carry out research on the impact of e-learning strategies on students' academic performance at universities in Rwanda.

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Introduction:-

Online learning has been in use since 1999, and many universities consider it as viable alternative to traditional lecturers for continuing education. According to McReady (2017), An online class is less demanding compared to face to face class. Students can unwind at home after their sessions, unlike traditional classes where they must remain on the campus for the subsequent classes leading to increased fatigues. Learning online allows for flexibility in pacing, resulting in reduced pressure and intensity.

Online learning has both positive both positive and negative effects on student's academic performance. Northerner (2020) argues that the negative effects outweigh the positive ones, contrasting with Kokemuller's (2017) assertion in "Negative effects of online course that online classes reduce direct contact, reinforcing this perspective.

According to Northenor (2020), not all individuals possess high-speed internet at their residences; some encounter sporadic interruptions, while others travel far from universities to access free internet. The expansion of online education in the Western educational system has become increasingly prevalent, northwistanding concerns surrounding its adoption. these concerns encompass privacy, user experience, legal considerations, and infrastructure challenges, especially relating to internet access and necessary devices.

In developing nations, e-learning is quite restricted with the minimal backing or endorsement from ministries of education. The COVID 19 pandemic has emerged as a critical global crisis leading to the closure of schools in numerous countries. As a result, the educational process either stagnated or, more often, come to a complete standstill. consequently, some countries began adopting e-learning or online education to address this issue or at least its severe impacts (Bao, 20220).

In England, UNICEF (2021) estimates that COVID-19 lockdowns forced at least 168 million students throughout the world to miss school for nearly a full year. The danger that these school closures have expanded the socioeconomic skills gap is significant (Haeck& Lefebvre, 2020). Distance learning, which happens when courses

are tailored to students and teachers being separated by place and/or time, did offer a solution, but the lack of access to digital technologies for some populations proved to be a serious counterbalancing effect(Moore et al., 2011).

In Zimbabwe, the pandemic led to the closure of global institutions in mid-April 2020, impacting over 1.3 billion students globally (Alhamad et al.,2023). As a result, educators had to adjust to new teaching methods, embracing web-based education or e-learning as a standard approach. Globally, educators now frequently incorporate e-learning into their instruction (Ahmad et.,2023). eLearning has become a favored method from institutions for institutions to continue providing essential educational materials to the students (Shams et al., 2022). E-learning has become a popular way for institutions to continue educating and supplying students with essential learning materials (Shams et al., 2022).

During the worldwide epidemic, millions of educational institutions were forced to close their windows and doors, while faced with varieties of obstacles during lesson delivery in class, such as inexperience with ICT gadgets in geography instruction. In developing nations, KellsVitanen (2023) argued that ICT significantly impacts every aspect of the national, political, economic, social, and cultural by rapidly changing the way people conduct business and access services and information (Bal, 2018). According to the Merriam Webster online Dictionary (2020), a pandemic is an outbreak of a disease that occurs over wide geographical areas and affects an exceptionally high proportion of the population. Social distancing involves intentionally increasing the physical space between people to prevent the businesses, sports, and schools, compelling all organizations to move to online platforms. UNESCO (2020) reported that numerous countries have turned to television and radio-based programs for distance learning. Africa appears to be the most active in utilizing either TV or radio (70%), whereas Europe and North America are using radio less than other regions but are very active in implementing TV-based distance education programs.

The Rwanda government was dedicated to promoting information and communication technology (ICT) in formal education. The 2019 Rwanda education statistics indicate some progress between 2016 and 2019, which is in line with the primary goal of the ICT in Education policy, which is to encourage the use of open distance and e-learning. At the elementary level, the proportion of schools having computers went from 65.8% to 84.4%, while schools with internet access increased from 9.8% to 34.8%. At the secondary level, the percentage of schools having computers went from 77.3% to 85.4%, while the percentage of schools with internet access increased from 35.4% to 61.1%.

In March 2020, MINEDUC released two online platforms: e-learning.reb.rw for pre-primary, primary, and secondary learners, and learning.rp.ac.rw for vocational students of all levels. The platforms were developed in collaboration with telecommunications providers MTN Rwanda and Airtel Rwanda, and as a result of this agreement, internet fees for the e-learning platforms were eliminated, allowing learners to access them for free.The main objective of this study was to examine the effects of online learning platforms on academic performance in geography in higher institutions, Rwanda. It was guided by the following specific objectives:
1. To determine the effect of online learning resources availability on the student's academic performance in geography in Gasabo District's higher institutions, in Rwanda.
2. TO examine the effect of online learning resource accessibility on students 'academic performance in geography in Gasabo District's higher institutions, in Rwanda.
3. To evaluate the effect of the usage of online resources on the student's academic performance in geography in Gasabo District in higher institutions, in Rwanda
4. To establish the relationship between the effect of online learning platforms and the academic performance of students in geography in Higher Institutions in Rwanda.

Theoretical Framework
Social Cognitive Theory
The theory of social learning is a well-established theoretical model that suggests that people learn by observing and imitating the behavior of others and that social context and interactions can influence learning and behavior (Albert Bandura, 1977). This theory, proposed by Albert Bandura, posits that learning occurs through observing others (social learning), experiencing the consequences of behaviors (operant conditioning), and self-regulation. In the context of online learning platforms, students observe and interact with content, peers, and instructors, shaping their learning experiences. The theory suggests that students' academic performance in geography is influenced by their interactions with online platforms, including observing how peers engage with materials, receiving feedback from instructors, and regulating their learning strategies.

Online Collaborative Learning Theory (OCL)
Linda Harasim established the concept of online collaborative learning (OCL), which focuses on the internet 's ability to provide learning settings that stimulate cooperation and knowledge acquisition.

Harasim 92012) defines OLC as a new learning theory that emphasizes collaborative learning, knowledge development, and internet use to alter formal, non-formal, and informal education for the knowledge Age. (P,81). OCL, or Online Collaborative Learning, is rooted in social constructivism .it encourages students to engage in collaborative problem-solving through discussions, where the teacher acts as not only as a facilitator but also as an active member of the learning community.

Conceptual Framework
The conceptual framework is used in this research to outline possible courses of action or to present a preferred approach to an idea or thought. It's a framework consisting of dependent variables and independent variables. The following (figure 2.1) is a conceptual framework for this study showing the relationship between dependent and independent variables
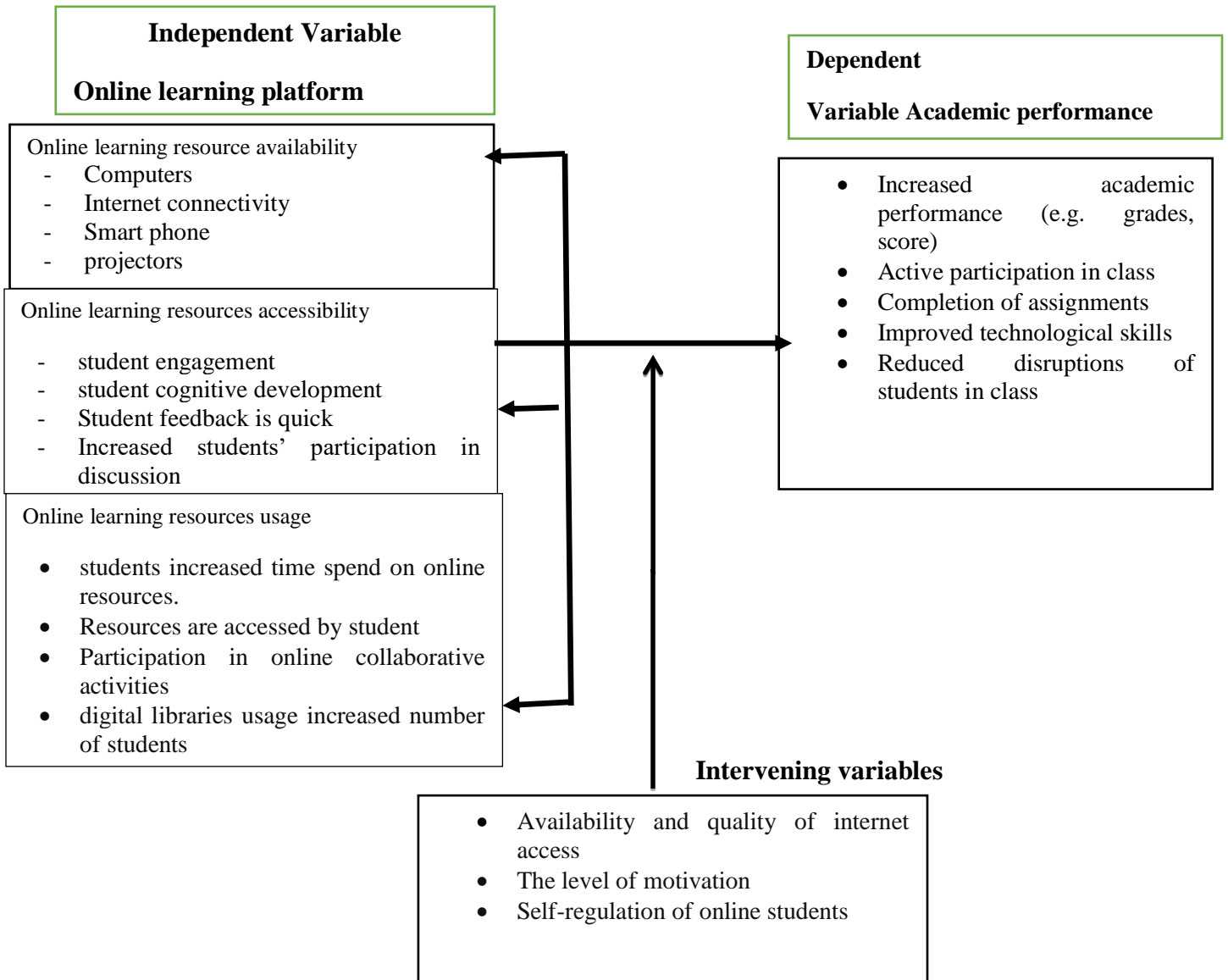

Figure 1:- Conceptual Framework.
Source: Researcher (2024)

The conceptual framework summarized the relationship between the variable in this research. The figure above shows how the online learning platform affected student academic performance in geography. The independent variable is the online learning platform, and its indicators are time spent on online learning, device availability, and telephone. The dependent variable is student academic performance in geography, and its indicators are increased attendance of students, reduced fatigue for lecturers, a reduced teacher-student ratio, and reduced disruptions of students. To link all these two variables, there are intervening variables, as shown in the figure above.

Research Methodology: -
Research Design
Research design is the outline or plan used to find answers to the problem under study (Kambo&Tromp,2016), defined, It is the plan to find answers to the problems under study and deal with some challenges that were met during the study process (Beck 20015). Research design seeks to determine the effects of online learning platforms on students' academic performance in higher learning institutions. This research adopted a descriptive study design. A descriptive study design is an analytically that is adopted and attempts to explain conditions through ideas and experience related to the research areas and study conceptualization (Omari, 2017).

Target Population
The targeted population of this research is higher education students enrolled in higher learning institutions at levels 1, 2, and 3. Respondents who share all related information in research are called targeted populations (Ogula, 2015). The participants were students from the UK, university students from colleges of education, and administrators from universities. Due to the online learning platform, they were purposefully selected to participate in our study: the University of Kigali (UK) with 100 students located in the Kimihurura sector, the University of Rwanda, College of Education located at Remera sector, with 120 students' administrators from UR 15 and 9 administrators from the UK.

Sample Size
The Yamane formula, also known as Yamane's method, is a statistical formula that is used to determine the appropriate size of the sample given the population size in a research study. The formula was developed by a Japanese statistician (K. Yamane, 1967). The formula is as follows: $o = \frac{N}{1+N(e^2)}$,w here: no is the sample size is the population size e is the level of precision desired (expressed as a proportion or percentage) 1 is a constant value that represents the total variance of populations with our student's numbers from targeted schools, the following will be the sample size to consider: $\mathbf{no = \frac{255}{1+255(0.05*0.05)}} = \mathbf{156}$ **students** were chosen using stratification techniques as illustrated in the table below.

Table 1:- Target population Summary.

Respondents	Target Population	Sample Population
Students from **the** University of Kigali	100	61
Students from the University of Rwandan college of education	195	75
Administrators from UR	15	9
Administrators from UK	20	12
Total	**255**	**156**

Source: Gasabo District Office, 2024

As the table above shows, 120 students were selected from the UK, 100 students from University of Rwanda, College of education, Administrators from UR 20 and administrators from UR 15 to make sample size of 255

Instruments for Data Collections
According to Abawi (2015), the collection of data is to collect data in order to address the questions that the researcher identified earlier. Collecting information describes the method used to obtain the required evidence and facts for each selected unit in the survey (Rubin &Babbie, 2016). The methods of collecting data in this research

were two, including quantitative and qualitative data collection. They allow researchers to collect all information related to the research objectives.

Sampling Techniques
Random sampling techniques and stratified were adopted to select the participants for this study. Class levels were our strata, and all university students in the selected school who were willing to participate in the study were included until the sample size was reached. Class levels had an equal proportion of respondents, and gender balance was ensured.

Data Collection Instruments
The researcher needed to obtain primary information from the target population; therefore, there was a need for data collection instruments like questionnaires and interviews, which are paramount, especially when the researcher wants to obtain reliable data and examines himself/herself to understand what is happening in the minds of participants (Merriam, 2018). The instruments of Data collection in this research were a questionnaire and an interview guide.

Procedures of Data Collection
The researcher employed a stratified sampling strategy to choose an accurate representation of students from both colleges. The number of students to be selected from each was proportional to its population size. A total of 255 respondents were selected. The researchers approached the selected respondents during their break time at their respective universities. The purpose and objectives of the study were made known to the respondents, and they were invited to participate voluntarily. The participants received the structured questionnaire from the researchers. The questionnaire was made to gather data on the student's engagement in online learning and academic performance as determined by university records. The researchers ensured that all questions were clear and understandable to the participants. They made sure that the participants were comfortable and at ease while completing the questionnaire.

Research Findings and Discussions:
Characteristics of Demographic Respondents
This study sought to gather data on gender profile, age group, education level, and teaching experience in Geography subjects in Higher Institutions in Rwanda.

Gender of Respondents
The respondent's gender profile was very important in assessing the effect of Online Learning Platforms on The Students' Academic Performance in Geography in Higher Institutions in Rwanda.

Table 2:- Gender Profile of Respondents.

	University Students		University Administrators	
	N	**%**	**N**	**%**
Male	82	59.9	10	52.4
Female	55	40.1	11	47.6
Total	**137**	**100.0**	**21**	**100.0**

Source: Primary Data (2024)

As reflected in Table 2, 82 (59.9%) of University Students who participated in this study are male while 55 (40.1%) are female while 52.4 % of University Administrators are male while only 47.6% are women. As a result, as mandated by the constitution of the Republic of Rwanda, there is a gender balance but also female emancipation in higher schools, with more female students currently attending classes.

Presentation of Findings
This section analyzes the data obtained from the field in relation to the research objectives considering both dependent variable and independent. The study gathered qualitative and quantitative data from 157 respondents, to determine the effect of online learning resources availability on the students' academic performance in geography in Gasabo District's higher institutions, Rwanda, To examine the effect of online learning resources accessibility on students' academic performance in geography in Gasabo District's higher institutions, Rwanda and evaluate the

effect of usage of online resources on academic achievement of students in geography in Gasabo District's higher, Rwanda.

The Effects Of Online Learning Resources Availability On The Student's Performance In Geography In Gasabo District's Higher Institutions, In Rwanda

Objective one of the studies identified the effects of online resources availability on the students' academic achievement in geography in Gasabo District's higher institutions, Rwanda Most common online learning resources availability that affect students' performance included: The online learning platform resources are well organized and effectively engaging students within the geography studies, The resources are available to support the effective use of online learning platform in geography and The teaching staff in our institution is highly trained and prepared for use available online learning platform resources.

Table 3:- Perception of the Students towards the Effect of Online Learning Resources Availability On The Students' Academic Achievement.

Factors	Strongly Disagree		Disagree		Neutral		Agree		Strongly Disagree		Total		
	N	%	N	%	N	%	N	%	N	%	N	Mean	Sd
The online learning platform resources are well organized and effectively engaging students within the geography studies	0	0.0	9	6.6	2	1.5	11	8.1	114	83.8	137	4.47	.547
The resources are available to support the effective use of online learning platform in geography	0	0.0	1	0.7	2	1.5	15	11.0	118	86.8	137	4.45	.761
The teaching staff in our institution is highly trained and prepared for use available online learning platform resources	0	0.0	0	0.0	1	0.7	43	31.6	92	67.6	137	4.41	.700

Source: Primary Data (2024)

The results of findings in Table 3 are evidence of students' responses and perceptions towards the effect of online resource availability on the student's academic performance in geography. Accordingly, 114 (83.8%) students strongly agreed and 11(8.1) agreed that the online learning platform resources are well organized and effectively engage students within the geography studies, 15 (11.0%) agreed with the statements, 136 (56.0%) students strongly agreed the resources are available to support the effective use of the online learning platform in geography, 43 (31.6%) agreed with the statements, and 92 (67.6%) students strongly agreed that the teaching staff in our institution is highly trained and prepared to use the available online learning platform resources. Mandie, (2013) examines the issues of e-learning at the University of Rwanda, with an emphasis on the adoption of ICT technologies.

A cross-sectional quantitative technique was adopted, with 119 individuals completing a standardized questionnaire. The results revealed a 41.9% deficit in e-learning infrastructure, with the majority (86.8%) possessing the necessary capabilities to develop solutions. The primary problems were course delivery, context, and technology. The report emphasizes the importance of continuous government funding for e-learning infrastructure as well as teaching and learning in least developed nations. The study by Elia (2019) Machine Learning-based framework for early detection of students at risk of poor performance in Rwandan higher education institutions. The framework uses a balanced dataset of secondary school leavers and higher institutions data, with the Decision Tree model chosen for its accuracy of 63.18%.

The study found that the High School Program is the best predictor of poor performance, followed by the Senior 6 aggregate. The findings can help educational policymakers and practitioners monitor high-risk students and consider mentorship.According to Ritter and Lenke (2020), seeking internet knowledge beyond course contents fosters active learning activities or assignments that involve using online information in a world geography course, such as searching for information about a specific country or using online news to find a local case example demonstrating a global issue, can promote student-centered learning (Sherman -Morris, 2022) and support the construction of meaningful knowledge (Klein,2023).

TheEffect Of Online Learning Resources Accessibility On The Student Academic Performane In Geography
Objective one of the studies was to examine the effect of online learning resources accessibility on students' academic performance in geography in Gasabo District's higher institutions, Rwanda. Most commonly online learning resources accessibility that affect students' performance included: The academic performance of students in our institution has improved because of accessibility of the online learning resources, Accessibility of online learning platform resources has positively affected students' performance in classroom in geography and Accessibility of online learning resources on platform has increased students' enrollment rate in higher learning institutions in geography.

Table 4:- University Students' Perception Towards on line learning resources Accessibility on Student's Academic Performance in Geography.

Factors	Strongly Disagree		Disagree		Neutral		Agree		Strongly Agree		Total		
	N	%	N	%	N	%	N	%	N	%	N	Mean	SdV
The academic performance of students in our institution has improved because of accessibility of the online learning resources	0	0.0	2	1.5	9	6.6	13	9.6	112	82.4	136	4.47	.547
Accessibility of online learning platform resources has positively affected students' performance in classroom in geography	0	0.0	0	0.0	2	1.5	15	11.0	119	87.5	136	4.45	.761
Accessibility of online learning resources on platform has increased students' enrollment rate in higher learning institutions in geography	0	0	0	0.0	3	2.2	45	31.1	88	64.7	136	4.36	.611

Source: Primary Data (2024)

Information presented Table 4, 112 (82.4%) university students strongly agreed with 9.6% Agreed The academic performance of students in our institution has improved because of the accessibility of the online learning resources, and 13 (9.6%) agreed with the statements. 119 (87.5%) students strongly agreed that the accessibility of online learning platform resources has positively affected students' performance in the classroom in geography, while 15 (11.0%) agreed with the statements. 88 (64.7%) universities strongly agreed that the accessibility of online learning resources on platforms has increased students' enrollment rates in higher learning institutions in geography, while 45 (31.1%) agreed with the statements. This research concurs with the observations of Bagambe (2015). The study looks at the influence of online education on higher education, focusing on both the positives and the concerns. It was discovered that online education is accessible, flexible, and convenient, allowing students to access information at their own speed. However, problems such as a lack of social connection, technological limitations, and self-discipline limit its usefulness. The study emphasizes the need for online courses that encourage engagement and cooperation, as well as proper support and training for educators. The results were significant as were not inconsistent with the work of Mwiseneza (2015), who investigated the effect of online classes on academic performance during the epidemic.

TheEffect of Usage of Online Resources on the Student Academic Performance in Geography in Gasabo District's Higher, Rwanda

Objective one of the studies examines the effect of usage of online resources on students' academic performance in geography in Gasabo District's higher institutions, Rwanda. Most commonly of usage of online resources that affect students' performance included: Resources are accessed by student affect geography performance, Participation in online collaborative activities affect geography performance, students increased time spend on online resources affect geography performance, digital libraries usage increased number of students and students increased time spend on online resources affect geography performance

Table 5:- UniversityStudents' Perception OnUsage Of Online Resources On Students' Academic Performance In Geography

Factors	Strongly Disagree		Disagree		Neutral		Agree		Strongly Disagree		Total	Mean sdv	
	N	%	N	%	N	%	N	%	N	%	N		
Resources are accessed by student affect geography performance	0	0.0	9	6.6	6	4.4	13	9.6	108	79.4	136	4.50	1.143
Participation in online collaborative activities affect geography performance	0	0.0	2	1.5	4	2.9	15	11.0	115	84.6	136	2.42	.673
students increased time spend on online resources affect geography performance	0	0.0	0	0.0	6	4.4	45	33.1	85	62.5	136	1.42	.578
digital libraries usage increased number of students	0	0.0	2	1.5	2	1.5	45	33.1	87	64.0	136	1.40	.984
students increased time spend on online resources affect geography performance	2	1.5	3	2.2	6	4.4	29	21.2	96	70.1	136	1.38	.853

Source: Primary Data (2024)

Information indicated in Table 5,108 (79.4%) universities strongly agreed Resources are accessed by students affect geography performance with 9.6% who agreed with the statement, 115 (84.6%) students strongly agreed and 11.0% agreed that Participation in online collaborative activities affect geography performance, 85 (62.5%) university strongly agreed that students increased time spent on online resources affect geography performance while 33.1% agreed with the statement; 87 (64.0%) students strongly agreed that digital library usage increased the number of students also 33.1 Agreed with the statements, 96 (70.1%) university students strongly agreed with 21.0. I agree that students increased time spent on online resources affects their geography performance. Hong, (2017) Online resources can augment traditional course materials, such as textbooks, by providing current knowledge and varied views. This article examines the sources students use for course assignments and their criteria for determining the relevance of internet material. In a fall 2015 world geography course,65 undergraduate students ranked 20 internet sources on the oil rice variations on their usefulness for comprehending the issue. These findings will help instructors guide students 'usage of material for academic work and lifetime learning.

TheRelationship between the Effect of Online Learning Platforms and Academic Performance in Geography in Higher Institutions

This association between effects of usage of resources online on academic achievement of students in Gasabo District higher institutions, Rwanda.

Table 6:- Correlation between usages of online resources on the student's academic performance in geography in Gasabo District's higher institution, Rwanda.

		Online learning resource availability	Online learning resources accessibility	Online learning resources usage	Students increased time spend on online resources	Increased academic performance	Active participation in class	Completion of assignments	Reduced disruptions of students in class
Students' usage of English in learning process	Pearson Correlation	1							
	Sig.(2-tailed)								
	N	154							
Online learning resources accessibility	Pearson Correlation	.803**	1						
	Sig.(2-tailed)	.000							
	N	154	154						
Online learning resources usage	Pearson Correlation	-.310**	.088	1					
	Sig.(2-tailed)	.000	.174						
	N	154	154	154					
Students increased time spend on online resources	Pearson Correlation	.881**	.870**	-.280**	1				
	Sig.(2-tailed)	.000	.000	.000					
	N	154	154	154	154				
Increased academic performance	Pearson Correlation	.867**	.882**	.088	.766**	1			
	Sig.(2-tailed)	.000	.000	.174	.000				
	N	154	154	154	154	154			
Active participation in class	Pearson Correlation	.154**	.228**	-.110	.274**	.184**	1		
	Sig.(2-tailed)	.000	.000	.086	.000	.004			
	N	154	154	154	154	154	154		
Completion of assignments	Pearson Correlation	.643**	.772**	.128*	.607**	.820**	.011	1	
	Sig.(2-tailed)	.000	.000	.046	.000	.000	.870		
	N	154	154	154	154	154	154	154	
Reduced disruptions	Pearson Correlation	.173**	.277**	.136*	.217**	.351**	.320**	.473**	1

| of students in class | Sig.(2-tailed) | .007 | .000 | .034 | .001 | .000 | .000 | .000 | |
| | N | 154 | 154 | 154 | 154 | 154 | 154 | 154 | 154 |

**. Correlation is significant at the
0.01 level (2-tailed)

*Correlation is significant at 0.05
level (2-tailed)

Source: Primary data (2024)

Findings from Table 6 indicated A strong relationship was established Increased academic performance and the following statements as follows, with Online learning resource availability (r=.867[**], p-value=.000), Online learning resources accessibility (r=.882[**] p-value=0.000), with Students increased time spend on online resources (r=.088, p-value =0.174) Students increased time spend on online resources (r=.766[**], p-value=.000. (r=.496**, p-value=0.000). The association is positively related because the p-value was less than 0.05, explaining that Increased academic performance affects Online learning resource availability, Online learning resources accessibility, Students increased time spend on online resources, Students increased time spend on online resources, Increased academic performance and vice versa.

For Active participation in class A strong relationship was established with A strong relationship was established Increased academic performance and the following statements as follows, with Online learning resource availability (r=.643[**], p-value=.000), Online learning resources accessibility (r=.228[**] p-value=0.000), with Students increased time spend on online resources (r=.-.110p-value =0.086) Students increased time spend on online resources (r=-..274[**], p-value=.000. (r=.184[**], p-value=0.000). The association is positively related because the p-value was less than 0.05, explaining that Active participation in class affect Online learning resource availability, Online learning resources accessibility, Students increased time spend on online resources, Students increased time spend on online resources, Increased academic performance and vice versa.

For Completion of assignments A strong relationship was established with A strong relationship was established Increased academic performance and the following statements as follows, with Online learning resource availability (r=.249**, p-value=.000), Online learning resources accessibility (r=.173*, p-value=0.015), with Students increased time spend on online resources (r=.407**, p-value =0.000) Students increased time spend on online resources (r=.265**, p-value=.000). (r=.173*, p-value=0.015). The association is positively related because the p-value was less than 0.05, explaining that Completion of assignments affect Online learning resource availability, Online learning resources accessibility, Students increased time spend on online resources, Students increased time spend on online resources. Increased academic performance and vice versa.

Table 7:- Regression Coefficients between independent variable and increased academic performance.

| Model | | Unstandardized Coefficients | | Standardized Coefficients | | |
		B	Std.Error	Beta	t	Sig.
1	(Constant)	-2.496	.315		-7.917	.000
	Online learning resource availability	1.290	.066	.847	19.671	.000
	Online learning resources accessibility	.505	.063	.461	8.040	.000
	Online learning resources usage	.258	.034	.221	7.521	.000
	Students increased time spend on online resources	-.510	.093	-.319	-5.497	.000

a. Dependent Variable: increased academic performance
Source: Primary Data (2020)

The table presents the results of regression analysis between the dependent variables, which is the increase in student creativity and innovations, and the independent variables, which is the availability of online learning resources, Online learning resources accessibility, Online learning resources usage, Students increased time spend on online resources , According to the result from respondents, Teachers transferred to Online learning resource availability was negatively statistically significant with Increase Student creativity and innovations (B = .847, p-value =.000), Online learning resources accessibility was statistically significant with Increase Student creativity and innovations skills (B = .461, p-value =.000), Online learning resources usage were significantly affecting Increase Student creativity and innovations (B = .221, p-value =.000), and it showed the positively statistically significant with Increased academic performance (B =.090, p-value =.002)

Table 8:- Regression Coefficients between independent variable and Active participation in class.

Model		Unstandardized Coefficients		Standardized Coefficients		
		B	Std. Error	Beta	T	Sig.
1	(Constant)	2.569	1.066		2.409	.017
	Online learning resource availability	-.013	.222	-.008	-.057	.004
	Online learning resources accessibility	.017	.212	.015	.080	.003
	Online learning resources usage	-.051	.116	-.042	-.436	.000
	Students increased time spend on online resources	.419	.313	.257	1.336	.001

a. Dependent Variable: Active participation in class
Source: Primary Data (2024)

The results in table 8 from participants indicate the regression analysis between dependent variables as increased student creativity and innovations, x: independent variable as Online learning resource availability, Online learning resources accessibility, Online learning resources usage, Students increased time spent on online resources, according to the result from respondents, Teachers transferred to Online learning resource availability was negative statistically associated with active class was negative statistically associated with active class engagement (B = -.008, p-value =.004).

Online learning resources accessibility was statistically significant with Active participation in class (B = .015, p-value =.0003) Online learning resources usage were significantly affecting Increase Student creativity and innovations (B = -.042, P-value=.001), Students increased time spent on online resources was negatively statistically significant with Active class participation (B =.257, p-value =.001).

Table 9:- Regression analysis between Independent Variable and Completion of assignments.

Model		Understandirzed coefficients		Standardized coefficients		
		B	Std.Error	Beta	T	Sig.
1	(constant)	.115	.779		.147	.883
	Online learning resource availability	.602	.162	.331	3.715	.000
	Online learning resources accessibility	1.239	.155	.948	7.987	.000
	Online learning resources usage	.008	.085	.006	.099	.921
	Students increased time spend on online resources	-.967	.229	-.508	-4.220	.000

Model		Understandirzed coefficients		Standardized coefficients		
		B	Std.Error	Beta	T	Sig.
1	(constant)	.115	.779		.147	.883
	Online learning resource availability	.602	.162	.331	3.715	.000
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	Online learning resources usage	.008	.085	.006	.099	.921
	Students increased time spend on online resources	-.967	.229	-.508	-4.220	.000

a. Dependent Variable: Completion of assignments

Source Primary Data (2024)

The results from the Table 9 the participants indicate regression analysis between dependent variable as Increase Student creativity and innovations, x: independent variable as Online learning resource availability, Online learning resources accessibility, Online learning resources usage, Students increased time spend on online resources , according to the result from respondents, Teachers transferred to Online learning resource availability was negatively statistically significant with Completion of assignments (B = .331, p-value =.000), Online learning resources accessibility was statistically significant with Completion of assignments (B = .948, p-value =.003) Online learning resources usage were significantly affecting Completion of assignments (B = -.042, p-value =.000), Students higher use of online resources was statistically significantly associated with lower levels of creativity and innovations (B =-.042,p-value =.000), and active involvement in class (B=.257,P-Value=.001)

Conclusion:-

After re-evaluating the results of this study, it includes: According to the first objectives of the research, the research shows that the researcher reveals that online learning resource availability such as computers, Internet connectivity, smartphones, and projectors is affecting the students' academic performance in geography.

For the second objective, examine the impact of online learning resource accessibility on students' academic performance in geography in Gasabo District's higher institutions. The study found that online learning resource accessibility, such as student engagement, student cognitive development, quick student feedback, and increased student' participation in discussion, affected the students' academic performance in geography. The third object is the result of the usage of online resources. The study found that students spend more time on online resources. Resources are accessed by students. Participation in online collaborative activities and digital library usage increase the number of students using online resources, which affects geography performance. The findings from objective four show that there is a positive link exists between the utilization of internet resources and students' academic progress in geography, with Pearson's p-value and significance supported by p-values less than 0.05. The study also demonstrated a positive correlation between the use of online resources and students' academic performance in geography at higher education institutions in Rwanda's Gasabo District.

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