The Relationship Between Hybrid Learning and Students' Achievement During Pre and Post Covid-19 in Sheema Municipality

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Abstract

This study was about the impact of hybrid learning on student achievement in secondary schools in Sheema Municipality, Uganda, before and after the COVID-19 pandemic. It sought to determine the extent of hybrid learning adoption, evaluate student achievement levels, and examine the relationship between the two. Employing a descriptive cross-sectional survey design, data was collected from 399 respondents (head teachers, teachers, and students) using questionnaires and interview guides. Findings revealed the widespread adoption of blended learning approaches utilizing online platforms like Google Classroom and Zoom alongside traditional classroom sessions. These approaches often included recorded lessons, online platforms, and face-to-face interactions. It was revealed that there was a positive perception of student achievement within a hybrid learning environment, as evidenced by survey results highlighting improved attendance, participation, and performance in assessments (mean score of 3.61). Furthermore, a strong positive correlation (Pearson Correlation 0.971, $p < 0.001$) was found between hybrid learning implementation and student achievement. In conclusion the study demonstrates that hybrid learning models, incorporating online platforms and in-person sessions, can ensure continuous learning and foster positive student achievement. It was recommended that teachers should actively explore engaging online instructional strategies that promote collaboration and active learning.

Key words: Hybrid Learning, Student Achievement, Pre and Post Covid-19 Pandemic,Secondary Schools.

Introduction

Uganda has experienced growth in its hybrid learning sector over the past decade as the result of the liberalization of the acquisition, use, and application of ICT in 1996. A range of technologies adopted include cellular and mobile telephone networks, mobile radio communication, paging services, and courier services. The coronavirus COVID-19 outbreak disrupted life around the globe in 2020. As in any other sector, the COVID-19 pandemic affected education in many ways (Tumwesige, 2020). Government actions have followed a common goal of reducing the spread of coronavirus by introducing measures limiting social contact. Ugandan government suspended face-to-face teaching and exams as well as placing restrictions on immigration affecting Erasmus students (Dwivedi et al., 2020). Where possible, traditional classes are being replaced with books and materials taken from school. Various platforms of hybrid learning enable interaction between teachers and students, and, in some cases, national television shows or social media platforms are being used for education (Protsiv et al., 2016). Some education systems announced exceptional holidays to

better prepare for this distance-learning scenario. Fortunately, there is a range of modern tools available to face the challenge of distance learning imposed by the COVID-19 pandemic.

Hybrid learning, which combines traditional face-to-face instruction with online learning, has become increasingly popular in Uganda and around the world. However, there is a lack of research on the relationship between hybrid learning and student achievement in Uganda. This presents a problem as it is unclear whether hybrid learning is effective in improving student achievement in Uganda, which could have significant implications for the country's education system and the future success of its students (MoES, 2021).

Students' academic achievement is important as far as development of a nation is concerned. Students' achievement leads to positive outcomes after finishing studies (Essays, 2018). Recognizing the importance of students' achievement, the government of Uganda put in efforts to improve performance of students by introducing / implementing Hybrid learning. Hybrid learning is a learning approach that combines both remote learning and in-person learning to improve student experience and ensure learning continuity.

Despite of government efforts through implementation of hybrid learning, academic achievement of the students has remained poor in secondary schools of Sheema Municipality (Sheema Municipal education Officer's Report, 2021). Which is characterized by low academic performance (in test Scores, homework and assignment completion, low / poor mastery of subject content, low class attendance), In addition, there is a lack of research on the relationship between hybrid learning and student achievement, which presents a problem in determining the hybrid learning in improving student achievement in Uganda. In addition, most teaching staff have not been exposed to use of a learning management system. However, if the problem of academic achievement is not addressed, the development of the nation will go down. However, these studies were done outside the context of Sheema District Uganda. This created a contextual gap making it necessary for this study to seek to determine whether student achievement in the post COVID-19 is related to Hybrid Learning in secondary schools in the context of Sheema Municipality, western Uganda.

Purpose of the Study

The purpose of the study was to assess the influence of hybrid learning on student achievement in secondary schools Pre and Post COVID-19 Pandemic among O' Level students in secondary Schools of Sheema Municipality, Sheema District.

Literature Review

Hybrid learning has experienced significant change due to the exponential growth of the internet and information technology (Dangwal, 2017). New e-learning platforms are being developed for teachers to facilitate assessments and for learners to participate in lectures. Both assessment processes and selfevaluation have been proven to benefit from technological advancement. Even courses that solely offer online contents such as Massive Open Online Courses (MOOCs) have also become popular. The inclusion of e-Learning tools in higher education implies that a greater amount of information can be analyzed, improving teaching quality. Within few days, the COVID-19 pandemic enhanced the role of remote working, e-learning, video streaming, etc. on a broad scale (Favale et al., 2020). The most popular remote collaboration tools are private chat messages, followed by two-participant-calls, multi-person-meetings, and team chat messages. In addition, several recommendations to help teachers in the process of online instruction have appeared.

Furthermore, mobile learning has become an alternative suitable for some students with fewer technological resources.

Several studies have found that the COVID-19 pandemic has had a negative impact on student achievement. A study by Kuhfeld et al. (2020) found that students experienced significant learning loss in reading and math

as a result of school closures and the transition to remote learning. The pandemic has also widened achievement gaps between students from different socioeconomic backgrounds. A study by McKinsey & Company (2020) found that students from low-income families and students of color experienced greater learning loss than their peers.

The impact of COVID-19 on student achievement has varied widely depending on a variety of factors, including students' access to technology and resources, the quality of remote instruction, and the level of family support. A study by Engzell et al. (2021) found that the impact of school closures on student achievement was mitigated in countries where students had greater access to technology and where remote learning was of higher quality.

The pandemic resulted in widespread school closures, which had a significant impact on student learning. Hybrid learning has been suggested as a potential solution to mitigate the impact of school closures by providing students with access to remote instruction and online resources. A study by Huang et al. (2020) found that schools that adopted hybrid learning during the pandemic were able to maintain student engagement and improve student achievement compared to schools that relied solely on traditional face-toface instruction or fully online learning.

While hybrid learning has the potential to improve student achievement, the quality of the hybrid model is important. A study by Engzell et al. (2021) found that the impact of school closures on student achievement was mitigated in countries where remote learning was of higher quality. Schools that are able to provide high-quality remote instruction and support for students are more likely to see positive outcomes from hybrid learning. There are also challenges and limitations to the implementation of hybrid learning. For example, some students may not have access to reliable internet or technology, which can limit their ability to participate in online learning. Additionally, hybrid learning may require additional resources and training for teachers, which can be difficult for some schools to acquire.

Methodology

In this study, the descriptive cross-sectional survey design was employed to collect data from head teachers, teachers, and students. A cross-sectional design enabled researcher to collected data and make interpretations about a population of interest at one point in time. The population included head teachers, teachers, and students, both males and females.

Head teachers participated in the study because they were implementers of hybrid learning and contributors to student achievement. The target population included head teachers, teachers, and students. These categories of people enabled the researcher to obtain reliable and valid data for the study.The study targeted 399 people out of 5000, comprising 6 head teachers, 351 students, and 42 teachers from 6 secondary schools.

Both closed and open-ended questionnaires were administered to teachers and students due to their ease of reading and interpretation. Interview guides were used to collect data from head teachers because they provided detailed information concerning hybrid learning and student achievement in the post-COVID-19 period in secondary schools of Sheema Municipality. The documentary checklist served as a data collection method used to gather information from documents, including reports, articles, books, and other written materials.

In the qualitative data analysis for objectives one and two, the researcher focused on the responses obtained from the respondents. In quantitative data analysis for objective three, the focus was on numerical data, involving statistical procedures to quantify relationships and patterns. **Results**

The extent to which hybrid learning has been adopted in secondary schools Pre and Post COVID-19 Pandemic in secondary Schools of Sheema Municipality, Sheema District

The findings are presented in tabular form to facilitate easy analysis and interpretation. Utilizing a five-point Likert scale, where 5=strongly agree, 4=agree, 3=undecided, 2=disagree, and 1=strongly disagree, mean scores were calculated by summing total responses and dividing by the total number of respondents. Mean scores above 3 indicate agreement with the statement, while mean scores below 3 indicate disagreement with the statement.

Table 1: Frequencies, percentages, and mean scores for the extent to which hybrid learning has been adopted in secondary schools

Statements	Strongly agree	Agree	Undecided	Disagree	Strongly disagree	Mean scores
The use of Zoom enhances students' engagement and participation in hybrid learning.	105 (30.0%)	182 (52.0%)	25 (7.1%)	21 (6.0%)	17 (4.9%)	3.96
Zoom effectively facilitates communication between teachers and students in the hybrid learning environment.	53 (15.1%)	252 (72.0%)	21 (6.0%)	14 (4.0%)	10 (2.9%)	3.93
Zoom provides a reliable platform for efficient and effective content delivery.	77 (22.0%)	231 (66.0%)	21 (6.0%)	14 (4.0%)	7 (2.0%)	4.02
Newspapers contribute to students' ability to retrieve relevant information for their studies in a hybrid learning setup.	63 (18.0%)	256 (73.1%)	18 (5.1%)	11 (3.1%)	2 (0.6%)	4.05
TV-based learning aids visual learners in better understanding and retaining educational content.	81 (23.1%)	224 (64.0%)	21 (6.0%)	14 (4.0%)	10 (2.9%)	4.01
TV-based lessons effectively capture students' attention and keep them engaged during hybrid learning sessions.	88 (25.1%)	185 (52.9%)	35 (10.0%)	28 (8.0%)	14 (4.0%)	3.87
Radio-based learning supports auditory learners in comprehending and retaining subject matter.	98 (28.0%)	200 (57.1%)	25 (7.1%)	18 (5.1%)	9 (2.6%)	4.03
Students' listening skills are enhanced when educational content is delivered through radio broadcasts.	94 (26.9%)	214 (61.1%)	21 (6.0%)	14 (4.0%)	7 (2.0%)	4.07
The hybrid learning approach, which includes Zoom, newspapers, TVs, and radios, enhances students' overall learning experience.	67 (19.1%)	256 (73.1%)	14 (4.0%)	11 (3.1%)	2 (0.6%)	4.07
The integration of various media platforms, such as Zoom, newspapers, TVs, and radios, contributes to effective hybrid learning in our government-aided secondary schools.	77 (22.0%)	224 (64.0%)	28 (8.0%)	14 (4.0%)	7 (2.0%)	4.00
Overall mean-score						**4.00**

The study findings found that Zoom is a valuable tool in hybrid learning, with strong agreement on its positive impact on student engagement (mean score of 3.96) and communication (mean score of 3.93). It's also seen

as a reliable platform for content delivery (mean score of 4.02).Traditional media also plays a role. Newspapers are viewed as helpful for information retrieval (mean score of 4.05), while TV is seen as effective for visual learners (mean score of 4.01) and capturing attention (mean score of 3.87). Radio is viewed as beneficial for auditory learners (mean score of 4.03) and improving listening skills (mean score of 4.07). Overall, there's strong agreement (mean score of 4.00) on the effectiveness of using various media platforms in hybrid learning approaches for secondary schools. This suggests support for incorporating radio and diverse media into secondary education.

The levels of Student Achievement in the Post Covid-19 in Sheema Municipality
The findings are presented in tabular form to facilitate easy analysis and interpretation. Utilizing a five-point Likert scale, where 5=strongly agree, 4=agree, 3=undecided, 2=disagree, and 1=strongly disagree, mean scores were calculated by summing total responses and dividing by the total number of respondents. Mean scores above 3 indicate agreement with the statement, while mean scores below 3 indicate disagreement with the statement.

Table 2: Frequencies, percentages, and mean scores for level of students' achievement

Statements	strongly agree	agree	undecided	disagree	strongly disagree	Mean scores
Students demonstrate satisfactory test scores in their assessments.	55 (15.7%)	200 (57.1%)	53 (15.1%)	28 (8.0%)	14 (4.0%)	3.73
Students consistently complete their homework and assignments.	73 (20.9%)	144 (41.1%)	70 (20.0%)	35 (10.0%)	28 (8.0%)	3.57
Students actively participate and engage in classroom activities.	66 (18.9%)	154 (44.0%)	63 (18.0%)	35 (10.0%)	32 (9.1%)	3.53
Students exhibit a strong mastery of the subject content.	80 (22.9%)	112 (32.0%)	77 (22.0%)	42 (12.0%)	39 (11.1%)	3.43
Students demonstrate commendable critical thinking skills in their learning.	73 (20.9%)	119 (34.0%)	70 (20.0%)	46 (13.1%)	42 (12.0%)	3.39
Students' performance on tests reflects a good understanding of the material.	52 (14.9%)	196 (56.0%)	49 (14.0%)	32 (9.1%)	21 (6.0%)	3.65
Students' assessments show positive growth and improvement over time.	62 (17.7%)	165 (47.1%)	60 (17.1%)	35 (10.0%)	28 (8.0%)	3.57
Students consistently attend classes and learning sessions.	65 (18.6%)	183 (52.3%)	63 (18.0%)	21 (6.0%)	18 (5.1%)	3.73
Students are actively involved and participate in class discussions and activities.	58 (16.6%)	203 (58.0%)	53 (15.1%)	21 (6.0%)	15 (4.3%)	3.77
Students in the post-COVID-19 era in Sheema Municipality have achieved commendable levels of academic success.	61 (17.4%)	193 (55.1%)	53 (15.1%)	25 (7.1%)	18 (5.1%)	3.73
Overall mean-score						**3.61**

Results in Table 2 indicated a positive perception of students' achievement levels across various criteria. In assessments, 15.7% strongly agree and 57.1% agree with satisfactory test scores, reflecting an overall mean score of 3.73. Consistent completion of homework is affirmed by 20.9% strongly agreeing and 41.1% agreeing, with a mean score of 3.57. Active participation in classroom activities receives 18.9% strongly agreeing and 44.0% agreeing, with a mean score of 3.53. Mastery of subject content is acknowledged by 22.9% strongly agreeing and 32.0% agreeing, yielding a mean score of 3.43. Commendable critical thinking skills are perceived positively by 20.9% strongly agreeing and 34.0% agreeing, with a mean score of 3.39. Understanding of material through test performance is recognized by 14.9% strongly agreeing and 56.0% agreeing, with a mean score of 3.65. Assessments showing growth over time are supported by 17.7% strongly agreeing and 47.1% agreeing, with a mean score of 3.57. Consistent attendance is noted by 18.6% strongly agreeing and 52.3% agreeing, with a mean score of 3.73. Active involvement in class discussions and activities is affirmed by 16.6% strongly agreeing and 58.0% agreeing, with a mean score of 3.77. Lastly, post-COVID-19 academic success is recognized by 17.4% strongly agreeing and 55.1% agreeing, with a mean score of 3.73. Overall, the survey's mean score of 3.61 across all criteria underscores a generally positive perception of students' achievement levels, highlighting attendance, participation, and assessment performance as key strengths.

The relationship between hybrid learning and student achievement in the post Covid-19 in Sheema Municipality

To determine the correlation between hybrid learning and student achievement in the post-COVID-19 period in Sheema Municipality, the researcher conducted a Pearson coefficient correlation analysis. Mean scores from hybrid learning were then correlated with student achievement.

Table 3: Pearson coefficient correlation between hybrid learning and students' achievement pre and post Covid-19 pandemic in Sheema Municipality

		Hybrid learning	Student achievement
Hybrid learning	Pearson Correlation	1	0.971**
	Sig. (2-tailed)		0.000
	N	350	350
Student achievement	Pearson Correlation	0.971**	1
	Sig. (2-tailed)	0.000	
	N	350	350
**. Correlation is significant at the 0.01 level (2-tailed).			

In the Sheema Municipality study, the Pearson Correlation between hybrid learning and student achievement was found to be 0.971 (sig. 2-tailed, $p < 0.001$). These correlation values indicate a significant positive relationship between hybrid learning and student achievement, suggesting that higher levels of hybrid learning are associated with students' achievement. Therefore the null hypothesis which stated that "There is no statistically significant relationship between hybrid learning and students' achievement during pre and post Covid-19 in Sheema Municipality." was reject.

These findings are consistent with responses from qualitative study. that is; the study findings showed that hybrid learning has exerted a positive and multifaceted influence on students' academic achievement. The

flexibility inherent in hybrid learning allows for personalized learning experiences, catering to individual needs and learning styles, further contributing to positive outcomes. This is supported by the following responses;-

One of the respondents mentioned that; "*Hybrid learning has positively influenced students' achievement by enhancing their engagement with course materials through interactive online platforms and in-person discussions. The flexibility offered by hybrid learning has allowed students to engage in personalized learning experiences, catering to their individual needs and learning styles, ultimately contributing to improved academic performance.*"

Another respondent noted that; "*The integration of technology in hybrid learning has equipped students with essential technological literacy skills, which are crucial for success in the digital age and have positively impacted their academic outcomes. Hybrid learning has expanded students' access to a wide range of educational resources, including online libraries, multimedia materials, and virtual simulations, leading to enriched learning experiences and improved academic achievement.*"

The above findings imply that the influence of hybrid learning on students' achievement is multilayered, encompassing aspects such as enhanced engagement, personalized learning experiences, technological literacy, improved access to resources, collaborative opportunities, flexibility and autonomy, adaptation to diverse learning styles, real-world application, continuous feedback loops, as well as challenges associated with technology integration.

Discussion of findings

The study revealed that schools incorporated online platforms such as Google Classroom and Zoom alongside traditional in-person classes. The blended approach employed recorded lessons, online platforms, and face-to-face sessions. The alternating schedule was implemented to guarantee continuity of learning for all students. These findings are in line with Dangwal, (2017) who found that Hybrid learning has experienced significant change due to the exponential growth of the internet and information technology. He further noted that new e-learning platforms are being developed for teachers to facilitate assessments and for learners to participate in lectures. Both assessment processes and self-evaluation have been proven to benefit from technological advancement. Even courses that solely offer online contents such as Massive Open Online Courses (MOOCs) have also become popular. The inclusion of e-Learning tools in higher education implies that a greater amount of information can be analyzed, improving teaching quality.

The study finding showed a general positive perception of students' achievement levels. The survey results portray a positive perception of students' achievement levels, particularly emphasizing attendance, participation, and performance in assessments with an overall mean score of 3.61. These findings differ from a study by Kuhfeld et al. (2020) who found that students experienced significant learning loss in reading and math as a result of school closures and the transition to remote learning. The pandemic has also widened achievement gaps between students from different socioeconomic backgrounds. Similarly a study by McKinsey & Company (2020) found that students from low-income families and students of color experienced greater learning loss than their peers.

The study findings revealed a significant positive relationship between hybrid learning and student achievement, with a Pearson Correlation of 0.971 (sig. 2-tailed, $p < 0.001$). This finding suggests that higher levels of hybrid learning are associated with high student achievement. This is in line with findings by Huang et al. (2020) who found that schools that adopted hybrid learning during the pandemic were able to maintain student engagement and improve student achievement compared to schools that relied solely on traditional face-to-face instruction or fully online learning.However, findings differ from Besecker and Thomas (2020) who found lower engagement among students identified as low-income, belonging to minoritized groups,

English language learners (ELL) and students receiving special education services (SPED) (Besecker and Thomas 2020). Similarly, over half of all middle school students across six Tennessee districts reported challenges with motivation during fall 2020, with students identified as ELL and SPED reporting less frequent engagement in virtual learning.

Conclusions

In relation to objective one: It was concluded that online platforms like Google Classroom and Zoom with traditional classes, using recorded lessons and alternating schedules ensured continuous learning for all students, demonstrating adaptability and a commitment to evolving education methods.

In relation to objective two: It was also concluded that there was a generally positive perception of student achievement. Respondents expressed favorable views, with an average score of 3.61, emphasizing factors like attendance, participation, and performance in assessments.

In relation to objective three: It was further concluded that hybrid learning boosts student achievement. The strong statistical connection identified (Pearson Correlation 1.971, $p < 0.001$) suggests that schools should actively explore and implement hybrid learning strategies to maximize students' achievement.

Recommendations

School administrators need to prioritize investing in technological infrastructure and resources to support hybrid learning models effectively. This includes providing devices and internet connectivity for students who lack access at home.

School Administrators invest in modern infrastructure, including high-speed internet access, computers, and other necessary equipment to support online learning. This will ensure that students can access educational resources and participate in virtual classes effectively.

The government should establish guidelines and standards for effective hybrid learning practices, ensuring equitable access to technology and addressing any potential barriers that may hinder its widespread adoption.

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