The impact of educational technology in mitigating learning loss due to students' irregular attendance

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Abstract

The paper examined the impact of technology in mitigating learning loss from irregular attendance of students in their classes. It also examined the relationship of irregularity to the student's academic performance in Uganda's tertiary institutions and Universities. This study followed a descriptive study based on quantitative and qualitative data. Quantitative data was obtained from students selected by non-proportional stratified sampling. Qualitative data was obtained from the campus Academic Registrars, lecturers, Heads of Departments, ICT' personnel, and students selected purposively. Separate mixed questionnaires were employed for quantitative data and open-ended questionnaires to collect qualitative data. The study indicated the portion of the irregularity of students in their classes and the main reasons for their irregular attendance. The study indicated a positive significant relationship between the class attendance of students and their academic performance. The study indicated how educational technology mitigates learning loss.

Keywords: Educational technology, Irregular Attendance, mitigation, Academic performance.

Background

Students' irregular attendance is either the act of missing classes deliberately or any intended and illegal absence from compulsory classes. It also includes the practice of those students who report to campus but do not go to the classes. Hence, irregular attendance of students is one of the challenging and emerging problems in most departments and faculties of higher institutes of learning and Universities. The irregularity of the students in Universities and Higher institutions of learning has been a recurrent issue. The problem of students' irregular attendance in their classes is also spreading around the country at different levels of education. The cause of irregularity of University students around the country is categorized and linked to student, tertiary, university, economic, and family factors. Higher education institutions sometimes follow different attendance policies and practices; some make it compulsory and many institutions believe in its positive effect on academic performance. Students who attend regularly achieve better results than those with irregular attendance. Those with irregular attendance miss valuable information and do not clarify their concepts resulting in inadequate learning and compromised academic performance. Habitual absences lead students to miss class activities, and quizzes, and the worst case is to drop out of school.
For effective teaching and learning to take place lecturers and students have to attend the school on a regular basis. This helps students to prepare for the examination through class discussion. Therefore, there is a positive correlation between attendance and academic performance.

In this context, our research aimed at examining the situation of irregular attendance of students in class and its relation to their academic performance in Universities and Higher Institutions of Learning in Uganda. According to our observation at YCI, lecturers are more regular than their students. However, the reasons for this have not been studied properly by YCI management in both semester and quarter systems.

STATEMENT OF THE PROBLEM

The irregularity of the students in their class is a problem that either directly or indirectly affects all educational stakeholders. Irregular attendance is not only immoral to students but is a great educational issue to be addressed at the current time. It is both an educational and social problem. Students' non-attendance to class is a problem that spreads much in Universities and Higher Institutions of learning. This affects the students, the family, and society on very high levels. Hence, it should be taken as the most powerful predictor of misbehavior and disruptiveness among students. It determines the student's performance and potential. This leads to an increase in poor academic performance that will cause students to drop out of their studies. Irregular students have fewer opportunities to study well and their academic potential is hindered. Students who do not attend classes regularly should not be allowed to write examinations. There should be a requirement of at least 80% attendance of the students in a semester or quarter to sit for the final examinations. However, instead of this, the students who attend irregularly are allowed to sit for their final examinations. In most cases, students come late, miss some days and others do not complete the days attended. They leave class before closing hours. If this problem is not addressed, it may have devastating consequences on the excellence of graduates from higher institutions of learning.

Reasons for students' irregular attendance

The cause of irregularity of students around the country is categorized and linked to a student, university, economic and social factors. Socially, the main reason for students' absence is based on students not being in the mood. Many students are more interested in their social companies than in classes. They feel like they are doing their parents favors by going to school. Another reason is based on the personal issues of students. Most personal issues are connected and related to family affairs like burials, sickness, family duties, and doing part-time jobs. Students also easily get influenced by their peers. Students' attitude is another factor. On health issues, the student's absence is related to stress and sicknesses. There are also lecture factors where students are more motivated to skip a class because they think their lecturers will not notice their absence. Some lectures do not interest students while others are boring. Another factor is the arrogance that some of our teachers show. The students are not getting the additional teacher support they need. They get bored just sitting in class and being forced to work on an assignment that seems quite irrelevant to them. Another factor that is normally ignored is the classroom structure which is not conducive to learning and class time schedule. This is common in institutions offering different courses like tailoring, engineering, tourism, and computer in the same class. Courses need different settings to be conducive to their student's learning. Institutional activities at institutions and Universities also interrupt students learning. There are times when the institutions hold guild elections, departmental celebrations, and entertainment during teaching periods. Many students take advantage of these activities to absent themselves from both the classes and the activities.

Educational technology mitigation

Technology has given birth to Digital Classrooms. Digital classrooms are defined as using electronic devices or platforms such as social media, multimedia, and mobile phones to teach students. Digital classroom instruction is becoming more participatory. Students may now learn many topics on their own by using internet resources. Curriculum can be delivered to students online through an engaging and interactive platform; the internet has enhanced the development of new communication channels which have protracted the choices for the transmission and access to educational information.

Teaching using technology fosters creativity and gives students a sense of success, encouraging additional learning by thinking outside traditional techniques. Technology facilitates the teaching of students with exceptional needs e.g. speech recognition, screen-reading tools, braille displays, and text-to-speech solutions are among the revolutionary technologies for the visually impaired; for the hearing impaired, closed-captioning applications, sound amplifiers, and video conferencing technologies facilitate sign language and lip-reading.

Technology enables teachers to improve their instruction methods and personalize learning. Schools can benefit from technology by reducing the costs of physical instructional materials, enhancing educational program efficiency, and making the best use of teacher time. Educational Technology also enables visual learning for Students. Students pay greater attention to details through interactive online presentations. There are options for a student to have control over their learning experiences e.g., tune in to live-streamed lectures at a given time, while others can watch lecture recordings independently if they cannot attend a live session.

As a result of improvements in educational technologies, education has become more flexible and accessible. Online degrees and mobile learning have become the new normal, physical boundaries are no longer a challenge, and technologies can help employees pursue their education. Teachers have learned to prepare for lectures and simplify their tasks right from the start. In addition to giving students access to information, modern technology has the potential to excite and empower them.

Integrating technology into education provides students with an engaging learning experience, allowing them to remain more interested in the subject without being distracted. The application of projectors, computers, and other cutting-edge technical gear in the classroom may make studying fascinating and entertaining for students. Student learning can become more dynamic and engaging by establishing tasks in class that incorporate technology resources, oral presentations, and group participation. Participation can extend beyond verbal communication as well.

Technology is a powerful ally for teachers, especially in measuring student learning. With the use of digital formative assessments, teachers can expedite their ability to provide student feedback in real time. Also, students are interacting with their assignments, receive teacher input, and invested and motivated in their learning (Timmis et al., 2016). However, this is more appropriate and desirable to open book examinations or be carried out in gazette examination centers in order to avoid external support.

Objectives of the study

The specific objectives of the study were to:

1. To examine how technology has played a significant role in mitigating learning loss from irregular attendance of students in their classes.
2. To assess the relation of irregularity to the student's academic achievement in Uganda's tertiary institutions and Universities.
3. Analyze the extent to which lecturers have utilised technology for learning purposes.
4. Establish the extent to which technology has improved students' understanding of subjects, despite missing classes in Uganda.
5. Assess how technology has affected students' motivation to learn.

Research questions

The study was guided by the following questions:

1. Has technology played a significant role in mitigating learning loss from irregular attendance of students in their classes?
2. Is there any relation between irregularities of the student's attendance and their academic achievement?
3. To what extent have lecturers utilised technology for learning purposes?
4. To what extent has technology improved students' understanding of subjects, despite missing classes in Uganda?
5. How has technology affected students' motivation to learn?

Purpose of the Study

The study is aimed at determining the impact of technology on the academic performance of students in Tertiary Institutions and Universities in Uganda.

Research Objective

The objective of this study was to determine the magnitude of class attendance on the academic performance of students.

Significance of the Study

The study is expected to contribute to Uganda's education sector in regard to attendance in various ways. The study will help to understand the impotence of class attendance on the academic performance of school-going children. The findings will provide insight to effectively establish and tighten the policy of imperative attendance in the school. It has investigated students' reasons for irregular attendance in Tertiary Institutions and Universities. It has also looked into the concept of technology from many angles. The findings of the study are expected to be of benefit in planning for use of technology to mitigate irregularity in Universities and Higher Institutions of learning in Uganda.

The hypothesis of the study

The students who have more class attendance have better academic performance than those students who have less class attendance.

Scope of study

The study was restricted to the use of technology to mitigate the loss of learning from irregular attendance of students in their classes. The study focused on developing policies and measures to curb irregular attendance of students in Universities and other institutions of Higher learning in Uganda.

LITERATURE REVIEW

2.1 Introduction

The literature section focuses on the review of relevant literature to the study. It is divided into two sections. The first section is devoted to the review of definitions of absenteeism, irregular attendance and educational technology. The second is on review of scholarly writings and works relevant to the study.

2.2 Review of educational technology and irregular attendance definitions

The concepts of technology and absenteeism are differently defined. This implies that any attempt to integrate technology into education must provide an understanding of the concept on which the plan is based. Indeed, planning for something that is not clearly defined is no different from engaging in an exercise that will not yield the desired results (Burns, 1990).

2.3 Educational technology

Educational technology can be defined as the systematic application of scientific and other organized knowledge to the design, development, implementation, and evaluation of instruction. It involves the use of various media and methods, including electronic media and computer technology, to facilitate and enhance learning and teaching processes. Educational technology also encompasses the use of instructional design principles, learning theories, and assessment methods to create effective learning experiences for students. The goal of educational technology is to improve the quality of education by making learning more engaging, effective, and accessible to a wider range of learners.

The 2008 AECT defines "Educational Technology as the study and ethical practice of facilitating learning and improving performance by creating, using and managing appropriate technological processes and resources" (Januszewski & Molenda, 2008, p. 1)

According to Richey, R. C., Silber, K. H., & Ely, D. P. (2008). Educational technology is the study and ethical practice of facilitating learning and improving performance by creating, using, and managing appropriate technological processes and resources.

Computing devices connected to the internet to provide education services

2.4 Irregular attendance

National Center for Education Statistics. (2018), defines School attendance to a situation whether a person attended, either full-time or part-time, any accredited educational institution or program during

all or part of a specified reference period. The person may have attended more than one educational institution or have been enrolled in more than one program.

According to Lloyd, K., & Smith, P. (2018), Irregular attendance is a term used in education to describe a pattern of inconsistent or sporadic attendance by a student. It refers to a situation where a student is absent from school or class on an unpredictable basis, without any apparent reason or justification, and without adhering to the established schedule or routine. Irregular attendance can have a negative impact on a student's academic performance, social development, and overall well-being, as well as on the learning environment for the other students. The exact threshold for what constitutes irregular attendance may vary depending on the context, but it generally refers to a significant deviation from the expected pattern of attendance.

The issue of irregular attendance among students in universities has been a persistent problem. Many students tend to arrive late in the morning, leave classes before the official closing hours, or engage in unofficial activities during class time (DeKalb 1999). This problem is not limited to a particular region or level of education but is spreading globally. The causes of this vary from social, political, and economic challenges.

The consequences of this problem are far-reaching and could potentially impact the quality of graduates produced by universities. If left unaddressed, it could lead to a decline in the excellence of graduates, which could have devastating consequences for the workforce and society as a whole.

Therefore, it is essential for universities to take proactive measures to address this issue. These measures could include implementing stricter attendance policies, providing academic and emotional support for struggling students, and encouraging student engagement through interactive and stimulating teaching methods.

By taking these measures, universities can ensure that their students are receiving the best education possible, which will ultimately contribute to their success and the success of society as a whole.

2.5 The significant role of technology in mitigating learning loss from irregular attendance of students in their classes

Technology has the potential to mitigate learning loss by providing various tools and resources that can help students continue learning, even when they are not physically in the classroom. Here are some ways in which technology can be used to mitigate learning loss:

1. Online Learning Platforms: Online learning platforms such as Khan Academy, Coursera, Udemy, and edX offer a variety of courses and resources to learners of all ages. These platforms provide a way for students to continue learning and stay engaged with their studies even when they are not in school.
2. Educational Apps: Educational apps like Duolingo, Quizlet, and Kahoot! can be used to reinforce learning and provide students with a fun and interactive way to learn. These apps offer gamified learning experiences that can help students stay motivated and engaged.
3. Virtual Tutoring: Virtual tutoring services like Chegg and TutorMe provide one-on-one support to students who need additional help with their studies. These services offer a way for students to receive personalized attention and support from experienced tutors.

4. Learning Management Systems: Learning Management Systems (LMS) like Canvas and Blackboard provide a way for teachers to create and manage online classrooms. These systems allow teachers to post assignments, provide feedback, and track student progress.
5. Video Conferencing: Video conferencing platforms like Zoom and Google Meet have become essential tools for remote learning. These platforms allow teachers to conduct live classes, hold virtual office hours, and provide support to students.

Overall, technology can be a powerful tool in mitigating learning loss by providing students with access to resources, support, and personalized learning experiences. However, it is important to ensure that technology is used in a way that complements and enhances traditional teaching methods, rather than replacing them entirely. Hence this is one of the major challenges that teachers in Uganda are scared of as many think technology will spoil the learning culture of their students which will eventually affect the quality of student's performance.

While, the aim of ICT integration is to improve and increase the quality, accessibility, and cost-efficiency of the delivery of instruction to students, it also refers to the benefits from networking the learning communities to face the challenges of current globalization (Albirini, 2006, p.6).

In addition, Computers and technology does not act as a replacement tool for quality teachers instead, they are considered as an add-on supplement needed for better teaching and learning. ICT provides help and complementary support for both teachers and students where it involves effective learning with the help of computers to serve the purpose of learning aids (Jorge et al., 2003).

This use of technology has also been an essential tool for ensuring access to education during times of crisis over the last decade. (Dreesen et al., 2020; Dhawan, 2020). The Covid-19 pandemic slowed the progress in increasing girls' access to education, despite previous improvements. However, many countries have employed technology as a crucial means of continuing educational provision during school closures, ranging from radio and television broadcasts to dedicated online platforms.

2.6 The Relation of Irregularity to the Student's academic achievement in Uganda's tertiary institutions and Universities

Irregularity or absenteeism from classes can have a significant negative impact on a student's academic achievement in Uganda's tertiary institutions and universities. When a student is absent from classes, they miss out on important lectures, discussions, and learning activities, which can make it difficult for them to keep up with the course content and perform well on exams.
In Uganda, students are required to attend a minimum number of classes in order to be eligible to take their final exams. If a student fails to meet this requirement, they may be barred from taking the exam or may be required to retake the course.

Furthermore, many courses in Ugandan tertiary institutions and universities rely heavily on class participation and group work. When a student is absent, they may miss out on opportunities to contribute to class discussions and work collaboratively with their peers, which can also impact their academic performance.

Additionally, irregularity can lead to poor time management and study habits, as students who are absent from classes may struggle to keep up with assignments and deadlines.
Overall, regular attendance and participation in classes are critical for academic success in Ugandan tertiary institutions and universities. It is important for students to prioritize their studies and attend classes consistently in order to maximize their learning opportunities and achieve their academic goals.

According to the NCHE quality assurance guidelines, all higher education institutions in Uganda are required to have a clear policy on student attendance. This policy should specify the minimum attendance requirement for students in each course or program, and the consequences for students who fail to meet this requirement.

The guidelines recommend that attendance should be taken and recorded for each class, and that this information should be used to monitor student attendance and identify students who are at risk of falling behind. In addition, institutions are encouraged to provide students with feedback on their attendance and to offer support and guidance to students who are struggling to attend classes regularly.

The guidelines also emphasize the importance of creating a positive learning environment that encourages regular attendance. Institutions are encouraged to provide students with engaging and interactive classes, opportunities for peer-to-peer learning and collaboration, and support services to help students overcome any barriers to attendance.

Overall, the NCHE quality assurance guidelines on student attendance aim to ensure that students are given the best possible opportunities to succeed academically, by emphasizing the importance of regular attendance, providing support and guidance to students, and creating a positive and engaging learning environment.

In Malaysia, the Integration of Information, Communication, and Technology (ICT) is considered as one of the main elements in transforming the country for future development. The Ministry of Education, through the latest Education Blueprint (2013-2025), has insights into the importance of technology-based teaching and learning in the schools' national curriculum.

While, the aim of ICT integration is to improve and increase the quality, accessibility, and cost-efficiency of the delivery of instruction to students, it also refers to the benefit of networking the learning communities to face the challenges of current globalization (Albirini, 2006, p.6). The process of adoption of ICT is not a single step, but it is an ongoing and continuous step that fully supports teaching and learning and information resources (Young, 2003).

2.8 The extent to which technology has improved students' understanding of subjects, despite missing classes in Uganda

A study in Germany by Muller, L., & Rieger, B. (2020) shows that the use of technology has been shown to have a positive impact on students' understanding of subjects in developed countries, particularly during times when they may miss classes due to various reasons such as lockdowns, school closures, or personal circumstances. This was not the case with most third-world countries like Uganda. Many institutions and students were experiencing this practice for the last time with

a lot of challenges. However, it was evident in Germany that. online classes and digital learning resources had a positive impact on students' academic performance during the pandemic.

One of the most significant benefits of technology is that it allows students to access educational materials and resources remotely. For example, students can access online learning platforms, such as Moodle, Coursera, and Khan Academy, to learn new concepts, review materials they missed in class, and complete assignments. Moreover, they can use various multimedia tools, including videos, animations, and simulations, to enhance their understanding of complex topics.

Additionally, technology has enabled students to interact with their teachers and peers, despite not being physically present in the classroom. Through video conferencing and messaging platforms such as Zoom, Microsoft Teams, and WhatsApp, students can participate in virtual classrooms, ask questions, receive feedback, and collaborate with their peers on group projects.

However, it is important to note that the effectiveness of technology in improving students' understanding of subjects also depends on how it is used. For example, simply providing students with access to online resources may not be enough. Teachers must also be trained to use technology effectively and integrate it into their teaching methods to ensure that students receive the support they need to learn effectively.

In conclusion, the use of technology has undoubtedly improved students' understanding of subjects in Uganda, despite missing classes. However, to maximize its benefits, teachers must ensure that technology is used effectively and integrated into their teaching methods to provide students with the necessary support they need to succeed.

2.9 The effect of technology on students' motivation to learn

Technology has been shown to have a significant impact on student's motivation to learn. The use of technology in the classroom can provide a more engaging and interactive learning experience, which can help to increase students' motivation to learn (Kay, R. H. (2012).

One of the most significant benefits of technology is that it allows for a more personalized learning experience. Students can access educational materials and resources that are tailored to their individual learning styles and interests, which can help to increase their motivation to learn. For example, students can use interactive simulations, games, and multimedia tools to learn complex concepts in a more engaging and stimulating way.

Moreover, technology can also provide students with immediate feedback on their progress, which can help to increase their motivation to learn. For example, online quizzes and assessments can provide students with instant feedback on their performance, which can help them to identify areas where they need to improve and adjust their learning strategies accordingly.

According to Gabbert, A., Barr, A., & Kostelnik, K. (2018). Sites like Quizlet are excellent for practicing vocabulary and getting immediate feedback. The Learn mode is especially good for long-term retention and learning from mistakes — for example, if students mix up one term with another, the app will let them know Websites such as Quia give teachers the opportunity to create activities,

games, and quizzes that students can complete online. Students then get immediate feedback, and the teacher gets a list of each student's results and statistics.

Students can also tutor classmates with the use of technology. They can collaborate and ask questions in real-time, both at home and at school through online discussion forums or Slack channels set up by their instructors. Technology allows students to Support each other and work together to better understand the material. In that sense, they can sometimes serve as the (supervised) teachers — and learning through instruction is known to be highly effective for mastering a topic and solving problems. This is true most especially in the developed countries but still lacking in third world countries like Uganda.

In addition, technology can also help to increase students' collaboration and communication skills, which can contribute to their motivation to learn. For example, online discussion forums, group projects, and collaborative writing tools can encourage students to work together and share their ideas, which can enhance their understanding of complex concepts and increase their motivation to learn Kim, H., & Bonk, C. J. (2006).

However, it is important to note that the effectiveness of technology in increasing students' motivation to learn also depends on how it is used. Teachers must ensure that technology is used in a meaningful and purposeful way to support student learning and engage them in the learning process.

In conclusion, technology can have a positive impact on student's motivation to learn. By providing a more personalized, interactive, and engaging learning experience, technology can help to increase students' motivation to learn and enhance their overall academic performance.

METHODS

Our research adopted a descriptive research design to gather information about the existing condition. The study was guided by this descriptive method, which allowed us to explore the problem of irregular attendance in a comprehensive manner. To broaden our understanding of the study, we used basic research that employed both inductive and deductive approaches.

The research was also categorized into applied research, which aimed to address a particular problem of irregular attendance. We further employed a cross-sectional approach to undertake the research during a single time period.

In terms of research techniques, we employed both qualitative and quantitative primary research methods, including surveys; focus groups, the Delphi technique, observations, and content analysis. For surveys, we utilized various techniques such as face-to-face interviews, telephone interviews, and mail-out surveys. We conducted focus groups with students, universities, and other institutions of higher learning, and used the Delphi technique, which involved a panel of experts. We also observed YMCA campuses and used content analysis techniques to systematically examine and measure the meaning of irregular attendance by classifying and evaluating selected words, themes, and images.

Additionally, we used secondary research sources such as academic journals, academic books, the internet, and newspapers such as New Vision, and Monitor for current news. Data analysis was done continuously, and field notes were written, taken, and revised at the end of every interview to ensure accuracy and completeness.

RESULTS

4.1 Introduction

The results contain findings which are presented following the research questions formulated to guide the study. Where necessary, the findings are presented according to the categories of respondents from whom the data were collected. The results are presented in six sections. Section one is devoted to results obtained on the relevant sample characteristics. Each of the remaining five sections corresponds to each of the five research objectives of the study as stated in the background of the study.

4.2 Sample Population

The characteristics of the sample that were considered relevant for the study included those regarding respondents selected from the education service sector and those about respondents drawn from the education service consumption (students). As shown in Table 1, for the … respondents selected from the education service provision, the considered characteristics were category of the respondent's Institution, position held by the respondent, and period spent in Uganda's education sector. The characteristics of the 33 students were Institution and education programme.

This sample population included 33 students from seven universities who responded to our email questionnaires. In addition, observations were conducted in each of the seven universities to gain further insights into how educational technology is being used to mitigate time loss among students. By gathering data from a diverse range of institutions and student perspectives, this study aims to provide a comprehensive understanding of the benefits and limitations of educational technology in optimizing students' time and enhancing their learning experiences

Thirty-three (33) respondents were selected to participate in the study and their categorical Distribution is shown in Table 1.

Table 1
Sample size Distribution

Category of institution/university	Number of Respondents	% of Total
Lecturers, teachers, academic registrars	7	17.5
YMCA	20	50
Uganda Management Institute	1	2.5
Equator University of Science and Technology	7	17.5
Mutesa II Royal University	4	10
Nkumba University	1	2.5
Total	40	100.0

Table 1 indicates that 20 students (50.6%) were selected from YMCA to participate in the study. One student (2.5%) was also purposively selected from Uganda Management Institute and Nkumba University. Seven students (17.5%) were from Equator University of Science and Technology while four students (10%) were selected from Mutesa II University. These students were selected using purposive sampling because they were considered as key central educational respondents in providing data required to answer the research questions. The other 7 (17.5%) respondents were lecturers, teachers and Academic registrars from YMCA and Universities in Table 1.

4.3 The significant role of technology in mitigating learning loss from irregular attendance of students in their classes

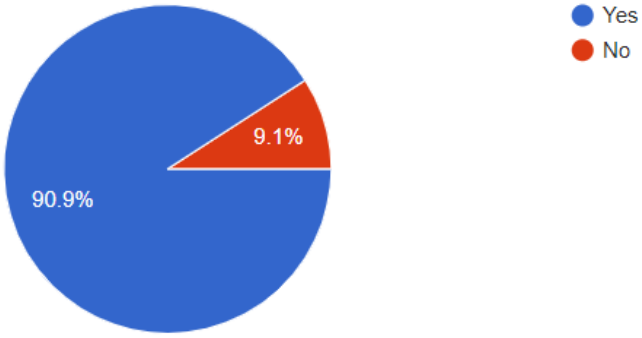

Figure 1. Attendance in classes.

Figure 1, indicates that out of the 33 respondents, 90.9% confirmed that there is a high improvement in the regular attendance of students. This implies that technology plays a significant role in mitigating learning loss from irregular attendance of students in their classes

Figure 2 below also emphasizes the high extent to which technology impacts to student attendance, where 36.4% and 27.3 % of respondents rated 4 and 5

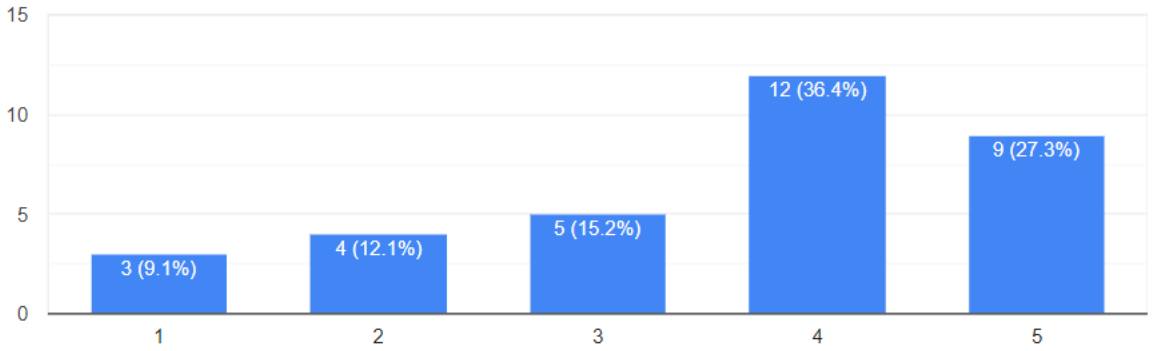

Figure 2. Extent technology impacts on attendance in school or college.

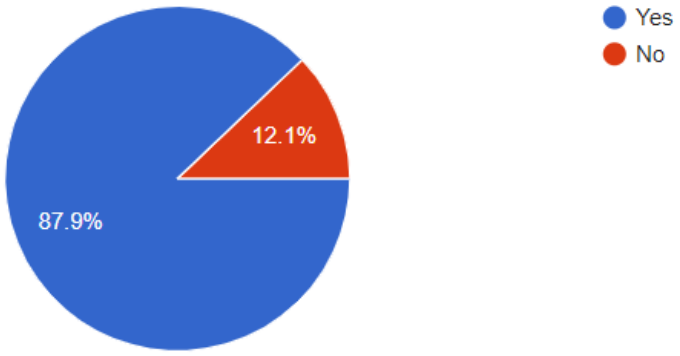

Figure 3 reveals that the majority of respondents (87.9%) attended online classes during the time of difficulty of going for physical classes. The results help the administrators of the learning institutions to put technology in place for use in difficult times like lockdowns during epidemics.

Figure 3. Attendance to Online Classes

4.4 The relation between irregularities of students' attendance and their academic performance

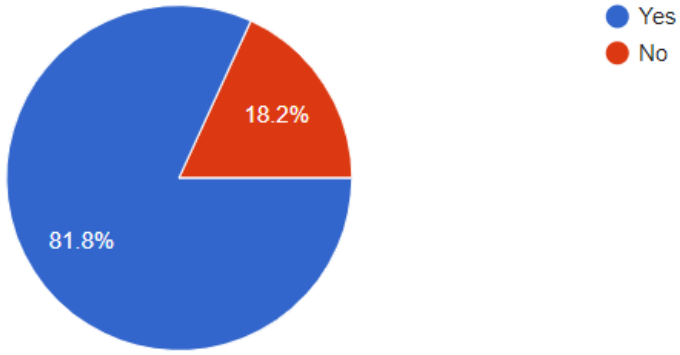

Figure 4 indicates the importance of technology in mitigating learning loss because they receive instructions from teachers, and complete assignments on time. This is deduced from the response of the majority (81.8%) to question 15 on how educational technology has helped to mitigate learning loss due to irregular attendance.

Figure 4 Relation between attendance and performance

4.5 Lecturers' Use of Technology for learning purposes

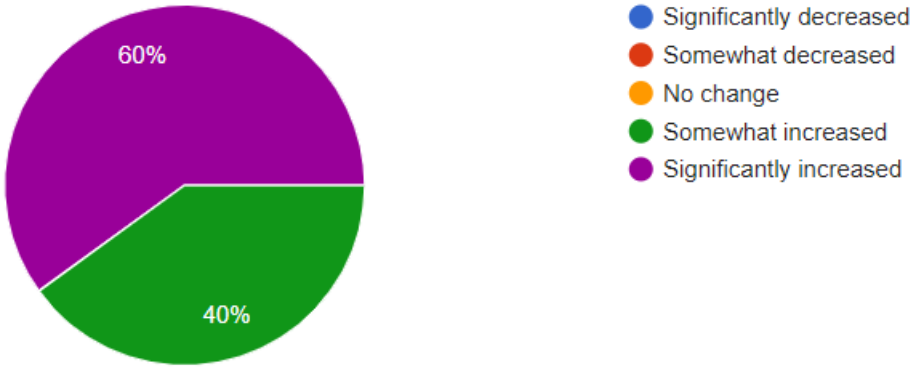

Figure 5. Technology's effect on Students' Motivation to Learn

In Figure 5 above, it is evident in reply to question 8, that majority (60%) of the teacher respondents have applied technology for learning purposes and hence increased significantly their technology motivation towards learning. This reveals the need to raise awareness of the 40% of students to the positive effect of technology towards learning.

4.6 The extent technology has improved students' understanding of subjects despite missing classes in Uganda

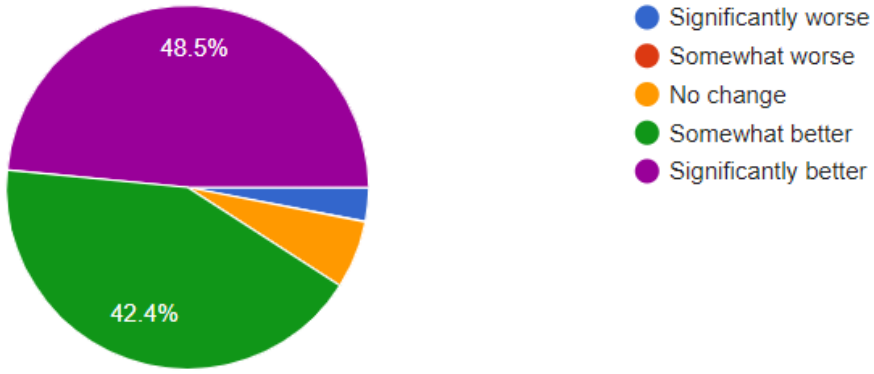

Figure 6. Effect of technology to ability to retain information

In response to Question six of the questionnaire, figure 6 above shows that 48.5 % of respondents stated that use of technology affected their ability to retain information that it was significantly better. However, 42.4% of respondents said it was somewhat better to retain information and understand subjects despite missing classes. The result in percentage is very small and calls for urgent action. The results reveal that universities and institutions need to sensitize their students on the importance of retaining information and how technology can assist them on the retention.

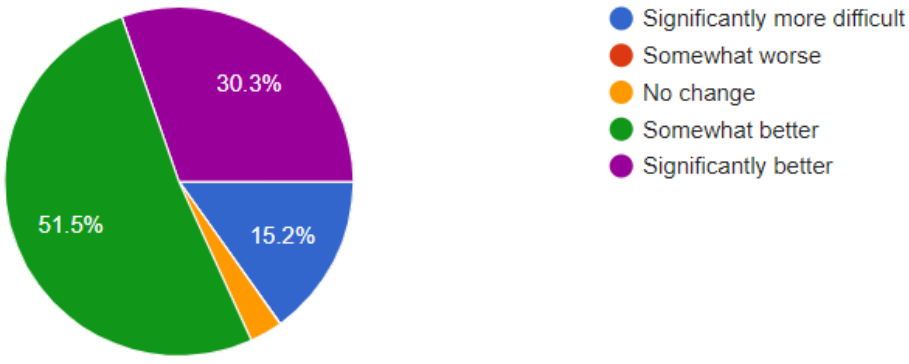

Figure 7. Technology and focus during class/studying

The results in Figure 7 indicate that the majority of the respondents (51.5 %) agreed that it was somewhat better to stay focused during class/studying while only 30.3 % of respondents indicated that it was significantly better. The results on focus are disappointing if students do not know the significance of staying focused during classes. This shows the importance of this research so as to start educating our students on the subject.

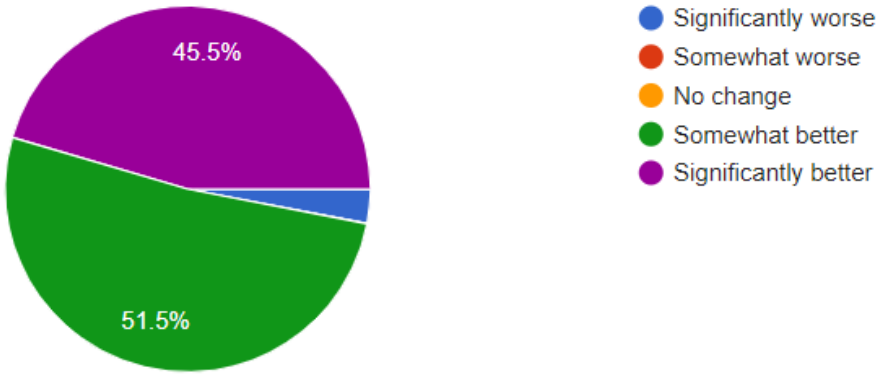

Figure 8. Changes in ability to recall information since incorporating technology into learning

In response to question 9 on student questionnaire, (51.5 %) of respondents in figure 8 agreed that it was somewhat better to recall information since incorporating technology into learning. However, only 45.5% said it was significantly better. The results imply that there is either lack of knowledge or ability to use technology to many students in regard to recalling information. If the universities and institutions of higher learning address it, the results might change.

4.6 The effect of technology to students' motivation to Learn

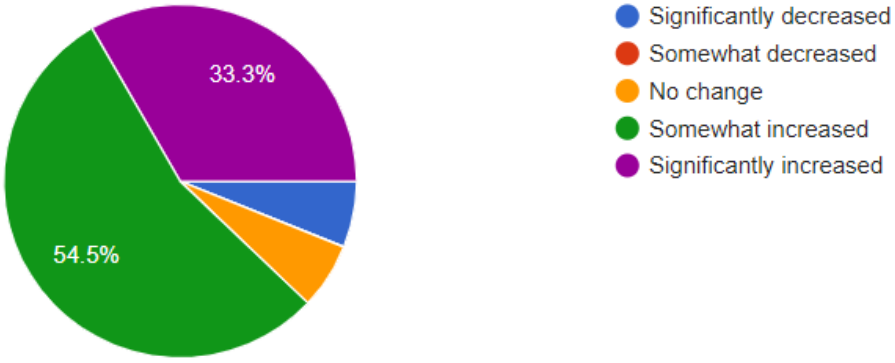

Figure 9. Effect of technology on motivation to learn

In response to question 8, the results in Figure 9 show that 54.5. % of respondents agreed that technology has somewhat affected their motivation to learn and 33.3 significantly increased their motivation to learn. Like on results in figure 8, there is a need to encourage students to use technology effectively otherwise results would be different.

DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Discussion

The discussion is organized according to the themes derived directly from the objectives and research questions of the study.

5.2 The significant role of technology in mitigating learning loss from irregular attendance of students in their classes.

Based on the results presented in Figure 1 and Figure 2, it is clear that technology plays a significant role in mitigating learning loss from irregular attendance of students in their classes.
Figure 1 indicates that out of the 33 respondents, 90.9% confirmed that there is a high improvement in the regular attendance of students. This means that technology has had a positive impact on the attendance of students, which is an important factor in mitigating learning loss. When students attend classes regularly, they are more likely to stay on track with their studies to avoid falling behind.

Figure 2 further emphasizes the high extent to which technology impacts student attendance. 36.4% and 27.3% of respondents rated 4 and 5 respectively, indicating that technology has a significant impact on student attendance. This means that the use of technology has made it easier for students to attend classes and stay engaged in their studies, even when they do not attend regularly due to various reasons such as illness, family obligations, or transportation issues.

Overall, the results presented in Figure 1 and Figure 2 demonstrate that technology has been effective in mitigating learning loss from irregular attendance of students in their classes. The use of online classes, recorded lectures, collaborative learning, personalized learning, and gamification has made it possible for students to continue learning despite irregular attendance. As a result, students are more likely to stay on track with their studies and achieve better learning outcomes, even when they do not attend regularly due to various reasons.

5.3 The Relation of Irregularity to the Student's academic achievement in Uganda's tertiary institutions and Universities

The results presented in Figure 4 suggest that irregular attendance of students in Uganda's tertiary institutions and universities can have a significant negative impact on their academic achievement. However, technology can play an important role in mitigating the learning loss that may result from irregular attendance.

According to the results, the majority of respondents (81.8%) indicated that educational technology has helped to mitigate learning loss due to irregular attendance. This suggests that the use of

technology has made it possible for students to receive instructions from teachers and complete assignments on time, even when they do not attend regularly.
When students do not attend regularly, they may miss important lectures, discussions, and assignments, which can affect their academic achievement. However, with the use of technology, students can access recorded lectures, online classes, and other learning resources that can help them stay on track with their studies. This can help to mitigate the learning loss that may result from irregular attendance.
In addition, the use of technology can also make learning more engaging and interactive, which can help to keep students motivated and interested in their studies. For example, the use of gamification in learning can make learning more fun and engaging, which can help to keep students motivated even when they do not attend regularly.

In conclusion, the results presented in Figure 4 suggest that irregular attendance of students in Uganda's tertiary institutions and universities can have a negative impact on their academic achievement. However, the use of technology can play an important role in mitigating the learning loss that may result from irregular attendance. The use of online classes, recorded lectures, collaborative learning, personalized learning, and gamification can help to keep students engaged in their studies, even when they do not attend regularly.

5.4 The extent to which lecturers have utilised technology for learning purposes

The results presented in Figure 5 suggest that a majority of lecturers in Uganda have utilized technology for learning purposes. According to the results, 60% of the teacher respondents have applied technology for learning purposes, which indicates a significant increase in their technology motivation towards learning.

This is a positive development because the use of technology can enhance the learning experience for students and help to mitigate learning loss due to irregular attendance. When lecturers utilize technology for learning purposes, they can provide students with access to a variety of learning resources, such as online lectures, videos, and interactive learning tools. This can help to keep students engaged and motivated in their studies, which can lead to better academic achievement.
However, the results also reveal that there is a need to raise awareness among the remaining 40% of teachers who have not yet utilized technology for learning purposes. This is important because the use of technology can significantly enhance the learning experience for students, especially in a context where irregular attendance is common.
There are several ways in which lecturers can be encouraged to utilize technology for learning purposes. For example, universities and educational institutions can provide training and support to teachers to help them integrate technology into their teaching practices. This can include workshops, online resources, and one-on-one coaching.

Additionally, universities and educational institutions can provide incentives to teachers who use technology for learning purposes. This can include recognition, awards, and promotions for teachers who demonstrate excellence in integrating technology into their teaching practices.
In conclusion, the results presented in Figure 5 suggest that a majority of lecturers in Uganda have utilized technology for learning purposes, which is a positive development. However, there is a need to raise awareness among the remaining 40% of teachers who have not yet utilized technology for

learning purposes. This can be achieved through training, support, and incentives for teachers who integrate technology into their teaching practices.

5.5 The extent to which technology has improved students' understanding of subjects, despite missing classes in Uganda

The results presented in Figure 6 suggest that technology has had a positive impact on students' ability to retain information and understand subjects, even when they miss classes. According to the results, 48.5% of respondents stated that the use of technology significantly improved their ability to retain information. Additionally, 42.4% of respondents said that it somewhat improved their ability to retain information and understand subjects despite missing classes.

These results are encouraging because they suggest that technology can help to mitigate the learning loss that may result from irregular attendance. When students miss classes, they may miss important lectures, discussions, and assignments, which can affect their ability to understand and retain information. However, with the use of technology, students can access recorded lectures, online classes, and other learning resources that can help them stay on track with their studies.

However, the fact that only a small percentage of respondents said that technology had a positive impact on their ability to retain information suggests that there is a need for more education and awareness about the benefits of technology in learning. Universities and educational institutions need to sensitize their students on the importance of retaining information and how technology can assist them in doing so.

One way in which universities and educational institutions can do this is by providing training and support to students on how to use technology for learning purposes. This can include workshops, online resources, and one-on-one coaching. Additionally, universities and educational institutions can provide incentives to students who use technology for learning purposes. This can include recognition, awards, and promotions for students who demonstrate excellence in integrating technology into their learning practices.

In conclusion, the results presented in Figure 6 suggest that technology can have a positive impact on students' ability to retain information and understand subjects, even when they miss classes. However, there is a need for more education and awareness about the benefits of technology in learning. Universities and educational institutions need to sensitize their students on the importance of retaining information and how technology can assist them in doing so.

5.6 The effect of technology on Students' motivation to learn.

The results presented in Figure 9 suggest that technology can have a positive effect on students' motivation to learn. According to the results, 33.3% of respondents stated that technology significantly increased their motivation to learn, while 54.5% agreed that technology somewhat affected their motivation to learn.

This is an important finding because motivation is a key factor in academic success. When students are motivated, they are more likely to engage with the material, participate in class, and complete assignments. On the other hand, when students are not motivated, they may struggle to stay focused and may not perform as well academically.

The fact that a significant percentage of respondents reported that technology had a positive effect on their motivation to learn suggests that technology can be a powerful tool for engaging students and enhancing their learning experiences. By using technology, educators can create interactive and

engaging learning experiences that motivate students to learn and participate actively in the learning process.

However, it is also important to note that the effectiveness of technology in enhancing motivation depends on how it is used. Simply providing technology to students may not be enough to motivate them. Educators need to provide guidance and support to students on how to use technology effectively and integrate it into their learning practices.

In conclusion, the results presented in Figure 9 suggest that technology can have a positive effect on students' motivation to learn. However, it is important to encourage students to use technology effectively and provide them with the guidance and support they need to integrate technology into their learning practices.

Conclusion

The following conclusions are made according to the findings discussed in the previous section:

1. Technology plays a significant role in mitigating learning loss from irregular attendance of students in their classes. By providing online learning materials, virtual classrooms, and other digital resources, institutions can support students who miss classes and ensure they don't fall behind.
2. The use of technology by educators for learning purposes has increased significantly, but there is still a need to raise awareness among students about the positive impact of technology on learning.
3. Technology can improve students' understanding of subjects, despite missing classes. However, there is a need for institutions to sensitize their students on the importance of retaining information and how technology can assist them in doing so.
4. Technology can positively impact students' motivation to learn. By creating interactive and engaging learning experiences, educators can motivate students to learn and participate actively in the learning process.

Overall, the findings suggest that technology can be a powerful tool for supporting student learning and enhancing academic success. However, it is important to use technology effectively and provide guidance and support to students to ensure they can make the most of it.

Recommendations

The following five recommendations are made based on the research findings. They are ranked according to the 5 objectives of the study and the need for further research.

1. Educators and institutions should leverage technology to mitigate learning loss due to irregular attendance. This can be done by providing online learning materials, virtual classrooms, and other digital resources to support students who miss classes.
2. Educators should increase their use of technology for learning purposes. This can be achieved through training and professional development programs that support educators in integrating technology into their teaching practices.
3. Institutions should increase awareness among students about the positive impact of technology on learning. This can be done through targeted communications campaigns and educational programs that promote the use of technology for academic success.
4. Institutions should sensitize students on the importance of retaining information and how technology can assist them. This can be achieved through workshops and training programs that teach students how to use technology effectively to improve their retention of information.
5. Educators should ensure that technology is used effectively to enhance students' motivation to learn. This can be achieved by creating interactive and engaging learning experiences that motivate students to learn and participate actively in the learning process.

By implementing these recommendations, institutions, and educators will benefit to about 73% by leveraging technology to support student learning and academic success.

Recommendation for future research

Although the findings from this research can help a great deal in mitigating learning loss due to students' irregular attendance, they are not absolutely enough in achieving the required plan. Indeed, the results indicate that when all the proposed strategies are adopted and implemented, the students' regular attendance will improve by 73.3%. Further research is therefore needed to exhaust all factors that have not been covered under this research and other areas that need to be integrated in Education Technology so as to turn around the attendance of students by 100%. The gap by 26.7% calls for further studies in this area.

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