



Application of Python Programming to Convert Tanzanian Schools Textbooks into Audiobooks to Maximize the Learning Time of Students of the Day Schools

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Abstract

Most of the day students in Tanzanian schools consume their time by traveling from home to school and back home from school every day a week in the morning and evening. This situation results in a loss of students learning enthusiasm and students' dropout. These factors contribute to the high number of candidates who score divisions three, four, and zero in national examinations results. According to the national education system, those students who got division four and zero lose the illegibility of joining formal higher education. Yearly, this situation contributes to the presence of a high number of unemployed people on the streets. The presence of a high number of unemployed people on the streets leads to the existence of street hooligans and petty thieves in street villages. This study investigated the problem by collecting data from teachers and students using structured interviews and questionnaires to examine the factors of poor academic performance of students to implement a digital solution of enhancing learning enthusiasm and maximizing the learning time of students of day schools. The study concluded by recommending schools to integrate ICT technologies in teaching and learning practices to improve teaching methods of teachers, to facilitate the easy access of academic materials in multimedia format file format. However, despite the high effort made by the Ministry of Education Science and Technology (MoEST) of ICT integration in education, the study contributed scientific knowledge to the educational policymakers to use ICT experts available in Tanzania to implement computer-based academic systems of converting textbooks into audiobooks using Python Objected Oriented Programming language to improve the learning enthusiasm of students and maximize learning time of students of day schools who consume most of their time on traveling from home to school and back home from school to home at the morning and evening.

Keywords: Using Audiobooks to Enhance Students; Learning Enthusiasm; Maximize Learning Time of Students of Day Schools

Introduction

Towards the 2030 agenda of the united nations Sustainable development goal of delivering quality education. Delivery of quality education for students' academic achievement remains a knowledge gap in developing countries [1]. However, enhancing effective learning for the students to facilitate delivery of quality of education is the fourth agenda of 2030 of the United Nations Sustainable development goals [2]. Despite the tremendous change of science, technology, and innovation in the sectors of education, the application of digital technology in developing countries has not effectively transformed teaching strategies and learning processes

for improving students' academic performance [3]. Most schools in Tanzania still rely on the traditional approach and methods of imparting knowledge to the students [4]. The traditional approach and methods used by teachers in imparting knowledge to the students guide students to learn through cramming and memorization with limited means of developing them in making critical thinking and creativity [5].

Towards SDGs 2030 agenda, provision of academic education in secondary schools should prepare students to develop comprehension skills and strategic approach in making critical thinking in solving socio-economic problems and decision-making. The use of

video and audiobooks and video tutorials in learning has proved to be an effective method of imparting competent knowledge to learners and a critical method of preparing students for making critical thinking and being creative in solving critical problems rather than in cramming and memorization [6,7]. Improving the academic performance of secondary schools students in national examination results remains a challenge [8].

The moral erosion of students' discipline in this era of digital age and technology accompanied by the use of smartphones contributes to the poor academic performance of students [9]. Various study shows that day schools whereby their students consume most time in traveling from home to school and back home contributes to factor of poor academic performance CITE. Long-distance traveling of day school students results in a loss of students learning enthusiasm and student dropout in Tanzanian secondary schools [10,11].

This study aimed to ensure the delivery of quality education in Tanzanian secondary schools to improve the academic performance of students by implementing audiobooks to help learners enthusiasm in Tanzanian secondary schools. Delivery of quality education is one of the SDGs of the 2030 agenda of combating poverty in developing countries.

Moreover, the study contributes scientific knowledge to the education policymaker on the significance of the application of digital technology in converting textbooks into audiobooks using object-oriented programming language to increase learning day school students who use most of their time in traveling from school to home and from home to school. Students can use the smartphone in the learning lessons through audiobooks while traveling to school or from school to home.

Materials and Methods

Research design

A research methodology is a systematic procedure, techniques, and methods used for conducting a scientific investigation [12]. This study used structured interviews and questionnaires to investigate the main cause of the poor academic performance of form four and form six-in-nation examination results. All research ethical issues were taken into consideration for the dignity of the participants involved in this study. In Research design, ethical considerations are the philosophical issues that involve various practices which include an exercise of the protection of the privacy of research

participants, reporting and publishing faith information, and ensuring adequate confidentiality of the data collected from the respondents [13].

Sampling techniques

The study used purposely sampling and random sampling techniques to select five private secondary schools, students, and teachers to investigate factors that contribute to the poor academic performance of students in national examination results. To investigate the best methods of implementing audiobooks in schools using smartphones to enhance students' enthusiasm learning in schools. The study used purposely sampling to select five private schools with ICT infrastructure. Ethically the study considered both public schools and private schools in formulating sampling. However, private secondary schools were used as a pilot study because of their ICT infrastructures to simply an implementation of the research project of audiobooks.

Data collection methods and analysis

The study used both structured interviews and questionnaires to collect data from teachers and students in five secondary schools in Arusha region. To have a critical evaluation on the level of understating of the use of audiobooks in secondary schools, the study used a structured interview to collect data from the schools' head-teachers, academic teachers, and school discipline teachers of five private secondary schools both from Meru district and Arusha district. Questionnaires were used to collect data from sixty students of form four and forty students of form six to make a sample size of one hundred students and fifty total number of teachers who participated in this study. However, to come up with quality data with consistency to ensure the validity of the findings, data cleaning was done before data analysis. After data cleaning the study used Pandas python programming language for data analysis.

Results and Discussion

The study wanted to explore knowledge on the factors that contributes to the poor performance of students in national examination results. In this respect, the study distributed questions to the teachers to investigate factors that lead to the poor performance of students. After data analysis, findings show that poor performance of students in national form four and form six examination results contribute to the various factors which include lack of students' learning enthusiasm, lack of proper teaching materials of multimedia file contents such as video and audiobooks, and traditional

teaching methods contributes to the poor academic performance of students' national examination results. Figure 1 below illustrates findings on the factors that contribute to the poor academic performance of students.

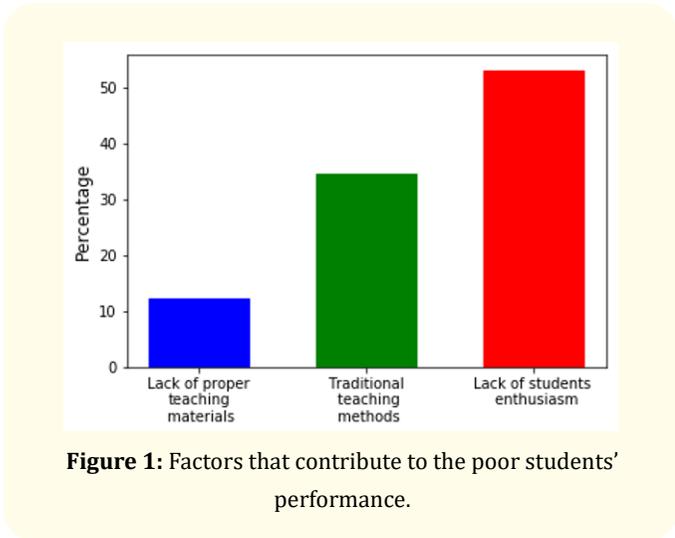


Figure 1: Factors that contribute to the poor students' performance.

The study investigated furthermore on why most students lose learning enthusiasm which leads to poor academic performance. In this regard, the study distributed the questionnaire to the students of form four and form six of five different secondary schools. After data analysis, findings revealed that most students lose learning enthusiasm due to various factors which include long-distance traveling of students of day schools from home to school which contributes them with a limited time of having the self-study. Moreover, the study discovered that English as a second language leads students to lose morally in learning new concepts, especially in science subjects due to vocabulary. Figure 2 below illustrates the respondents' from students on why they lose learning enthusiasm.

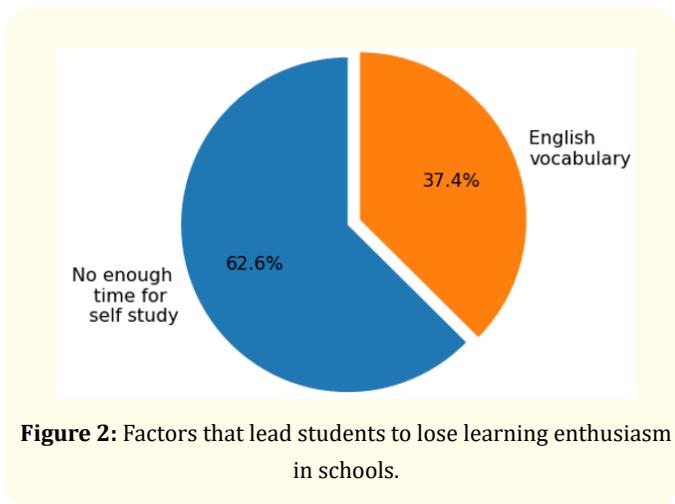


Figure 2: Factors that lead students to lose learning enthusiasm in schools.

The study wanted to investigate the types of digital technology used by schools to raise students' enthusiasm for learning. The study distributed questionnaires to collect data from teachers to investigate whether school any digital technology to improve students' enthusiasm in learning. After data analysis findings revealed that, most schools do not use or apply any kind of digital technology in teaching to raise students' enthusiasm in learning. Figure 3 below illustrates the respondents from teachers on the school application of digital technology in teaching and learning.

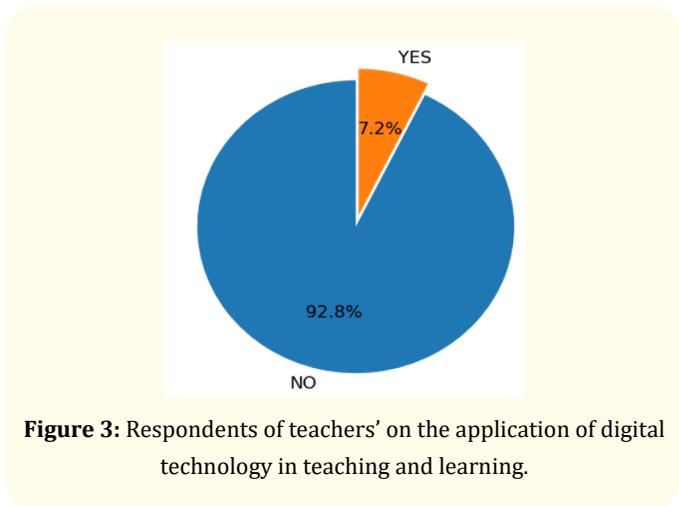


Figure 3: Respondents of teachers' on the application of digital technology in teaching and learning.

The study wanted to know whether teachers were aware of the technology of using audiobooks for enhancing students' learning enthusiasm to improve academic performance. In this respect, data was collected from school academic teachers and headteachers of five schools. After data analysis findings revealed that 99.1% of the teachers said they are not aware at all, 7.0% of the teachers said they know but they don't have any knowledge on how to apply, while 2.9% of the teachers said they are fully aware of the use of technology. Figure 4 below illustrates the respondents from teachers on the technical application of audiobooks.

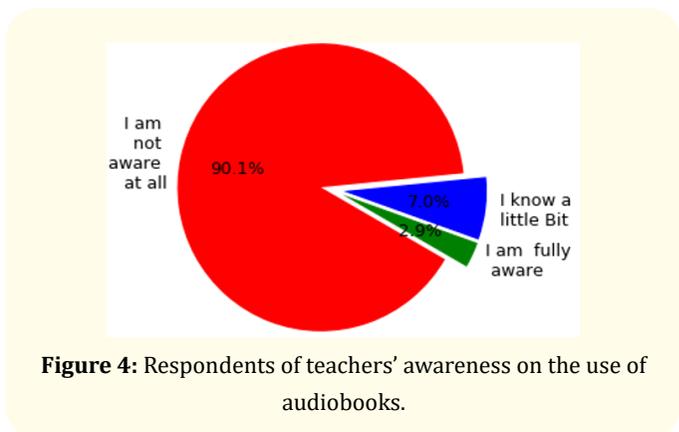


Figure 4: Respondents of teachers' awareness on the use of audiobooks.

Conclusion and Recommendation

Using audiobooks in Tanzanian secondary schools can enhance self students learning abilities and maximize the time learning of day school students. It is an educational, instructional tool that can provide entertainment for students. Audiobooks have proved to be perfect learning materials for students with a limited time of self-study [14]. Based on the above findings, the study recommends schools' educational policymakers implement audiobooks to enhance the reading accuracy of students, improve reading comprehension and the learning time of day school students who have little time of having self-study due to the distance traveling from home to school to improve academic performance.

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