

Research Application Summary

The use of digitalization as an alternative mechanism to increase enrolment in higher education institutions: a case study of public universities in Botswana

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Abstract

The purpose of this study was to assess factors perceived to influence students' enrolment in public higher education institutions in Botswana so as to recommend alternative mechanisms and strategies to increase enrolment. Primary and secondary data were obtained from the four public institutions through administration of a questionnaire to support and academic staff in the institutions. The first category of participants was purposively selected comprising of academic professors and academic support in leadership to respond to four open-ended questions. The four-open-ended questions provided qualitative data gathered through face-to-face interviews and the SMS texts revealed four thematic areas '*funding*', '*university menu as programs of study*', '*ill-preparedness*' and '*failure rates*' as contributing to low enrolment. The findings revealed that '*partnership*,' '*collaboration*,' '*open dialoguing*' and '*online learning*' provide opportunity for engagement of university with the community as mechanisms for improvement. The second set of data were collected from a sample of participants surveyed using close-ended items prepared based on the open-ended responses. The software called Statistical Package for Social Scientists (SPSS) was used to analyse quantitative data.

Key words: Botswana, digitization, declining enrolment, enrolment alternative mechanism, higher education, qualitative data, online learning, student enrolment

Résumé

Le but de cette étude était d'évaluer les facteurs perçus comme influençant les inscriptions des étudiants dans les établissements publics d'enseignement supérieur au Botswana afin de recommander des mécanismes et des stratégies alternatives pour augmenter les inscriptions. Des données primaires et secondaires ont été obtenues auprès des quatre établissements publics par l'administration d'un questionnaire au personnel de soutien et au personnel académique des institutions. La première catégorie de participants a été sélectionnée de manière raisonnée, comprenant des professeurs et des responsables académiques pour répondre à quatre questions ouvertes. Les quatre questions ouvertes ont fourni des données qualitatives recueillies lors d'entretiens en face-à-face et les SMS ont révélé quatre domaines thématiques : le financement, le programme universitaire, le manque de préparation et les taux d'échec comme contribuant à la faible inscription. Les résultats ont révélé que le partenariat, la collaboration, le dialogue ouvert et l'apprentissage en ligne offrent des opportunités d'engagement entre l'université et la communauté comme mécanismes d'amélioration. Le deuxième ensemble de données a été

collecté auprès d'un échantillon de participants sondés à l'aide d'items fermés préparés sur la base des réponses ouvertes. Le logiciel appelé Statistical Package for Social Scientists (SPSS) a été utilisé pour analyser les données quantitatives.

Mots-clés: Botswana, digitalisation, baisse des inscriptions, mécanisme alternatif d'inscription, enseignement supérieur, données qualitatives, apprentissage en ligne, inscription des étudiants

Background

Enrolment in higher education institutions globally have become an issue of concern in education systems as numbers of students are declining due to both demographic factors and financial crisis which slide cause enrolment ratios to shrink in tertiary education sectors (Gregory, 2022). Alternative mechanisms are essential to address the issue of declining enrolment in higher education institutions. The current scenario as alluded to by Karen MacGregor (2022) threatens the viability of universities, colleges, and tertiary education in all regions of the world and public universities including in the African continent. In Sub-Saharan Africa as alluded to by Patrick Swancy (2018) the growing pressure to increase enrolment in higher education institutions is vital for the rapid growth in young populations in African universities as well as improved access and success at school levels. Professor Goolam Mohamedbhai (2018) in his lecture in South Africa some five years ago, suggested several strategies for African higher institutions of learning to increase enrolment in existing public higher education including the creation of new institutions, the use of open and distance learning, facilitating the creation of local private higher education institutions (since public funding is insufficient) to meet the growing pressure for access. He further encouraged cross-border higher education strategies.

The fact that enrolment is declining in higher institutions of learning worldwide is attributed to varied reasons that include students drop-out rates, progression rates, low graduation rates (UNESCO, 2020). However, some regions experienced moderate increases in participation, but sub-Saharan Africa experienced the slowest increase in participation (Figure 1). Students' enrolments vary from one university to the other depending on factors that include socio-economics factors like poverty, employment opportunities, gender and income level.

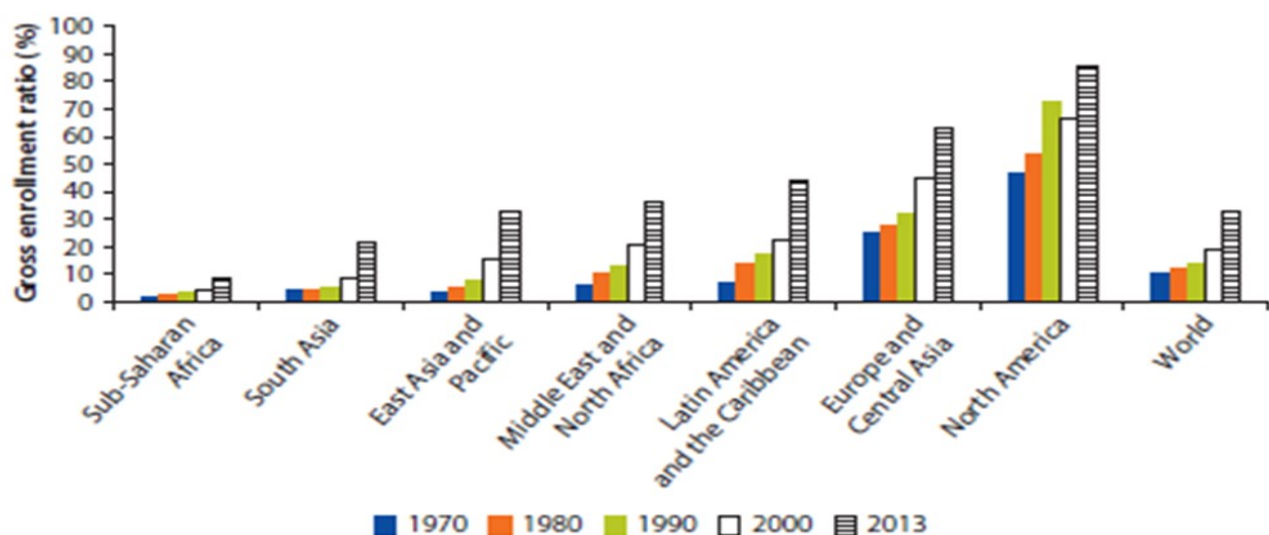
According to Statistics Botswana (2022) the country's education landscape as presented in the 2021 Tertiary Education Statistics Report, a total of 24,673 students were enrolled in public universities specifically Botswana International University of Science and Technology (BIUST), Botswana Open University (BOU), Botswana University of Agriculture and Natural Resources (BUAN) and University of Botswana (UB).

At Botswana University of Agriculture and Natural Resources (BUAN) the current enrolment has been understood to have dropped from 1300 in 2015 to an approximately 1100 students in total to date. This scenario is currently a concern more especially that BUAN is the sole national public university in the country for agriculture and natural resources. The history of Botswana University of Agriculture and Natural Resources (BUAN) shows that it was established in 2015 from the Botswana College of Agriculture (BCA) through an act of the Parliament of Botswana, Act no.9, on 31 May 1991. The Act abolished the then Botswana Agricultural College (BAC) which had existed since 1967 in Mahalapye to where the university is currently located.

The decline in the enrolment of student numbers in public institutions threaten the existence and future of many higher education institutions, but others may prosper as they adapt to serve a more diverse and graduate student base, increasingly through the adoption of digitalization as an alternative mechanism. This is also a concern that threatens the economic viability of education in public institutions in development nations. According to Fernandez-Batanero *et al.* (2022,) during the pandemic crisis Universities worldwide that solved the problem through the adoption of online learning has since shifted from the traditional face-to-face teaching and learning to online learning. This have since been found beneficial to performance of students. As indicated by the European Commission (2020) as digital change is accelerating, it is essential that education and training systems adjust accordingly. The authors further alluded to the fact that digitalization has the advantages of ensuring access to the right of education, increasing equality and inclusiveness - a core skill for all educators and training and literacy for all educators and training. Regarding increased enrolment, digitalization has the potential to attract the working class, cross-border students, learners with disability and several other categories of learners. Therefore, the study was designed to investigate the issues of using digitalization as an alternative mechanism to increase enrolment in higher education institutions:

Specifically, the study was designed:

- i). To examine factors perceived to cause or influence low and decreasing numbers of students enrolling on higher institutions of learning or universities in Botswana.
- ii) To Describe the trends of enrolment numbers in four public higher institutions in the past ten years
- iii) To describe economic strategies appropriate to be performed to improve enrolment in public higher education institutions.
- iv) To review literature on various mechanisms available to suggest for enhancement of enrolment of students in higher education and tertiary in Botswana; and,
- v) To analyse the views and perceptions of stakeholders on how enrolment can be improved through the use of digitalization (ICT) in higher education in Botswana.



Source: Calculations are based on UIS data.

Figure 1. Relative enrolment in higher education institutions in different regions

Literature reviewed. Digital transformation in education has several benefits that include improving learning outcomes for students, making education more secure by protecting against cyber threats by providing IT support to manage and deliver the requirements of a digital learning environment. According to Haleema, Javaida, Qadri, and Suman (2022) one of the major components of the United Nations' Sustainable Development 2030 agenda is quality education ensuring inclusive and equitable quality education for all through the digital technologies that have emerged as essential tools to achieve this goal.

Study description. The study utilized a mixed methodology approach applying an exploratory design that began with qualitative data collection from university leadership and professors of public universities in Botswana. The second step is to collect quantitative data from the support services and mid-level teaching staff of four public institutions, to analyse the results in order to generalize them. The qualitative data utilized four open ended questions which will help to develop hypotheses, concepts, or theories from the findings and further examined their applicability or validity in a large sample. The study identified factors believed to influence student engagement and will use them to create a questionnaire that measures the influence of factors in relation to other variables. The four principal participants interviewed for qualitative data were purposively selected to provide analysed data for preliminary results and further development of the close-ended questionnaire for further data collection. Research permit was obtained from the Office of Graduate Studies and Research of BUAN.

The participants in the second category of the study were selected randomly using a systematic random sampling from the four public universities. Data collected included demographic characteristics, views/ perceptions, benefits of digitalization, technology tools, and aspects of education management, access to library services, marketing, and academic/ professor perceptions about digitalization. Questionnaires were used in conjunction with other data collection techniques such as observations, policy documents, and informants to validate survey results. Data was analysed through computers using the SSPS software.

Findings

A thematic analysis (preliminary results) of qualitative data gathered from the participants of four public universities through face-to-face interviews and Short Message Service (SMS) yielded four major thematic areas perceived to be causes of low enrolment in higher institutions of learning. These included '*funding*', '*university menu as programs of study*', '*ill-preparedness*' and '*failure rates*'. Regarding the question of '*what needs to be done to improve on the situation?*' responses collectively analysed yielded to two key themes '*demystifying STEM subjects*', '*reduce/ remove STEM subjects*' and '*prompt response to applicants*' to enhance university enrolment. Participants were also required to respond to a question which stated '*Is there any mechanism you may think of that can bring about the solution to this challenge of low enrolment?*' Thematic concepts that emerged from the data analysis included '*partnership*', '*partnership*', '*dialogues*' and '*digitalization*' for student enrolment processes.

According to Zimba *et al.* (2021) demystifying stem subjects would require STEM subjects and topics, which are often viewed as being difficult, and yet they are taught to a number of secondary schools' level students even though the curricula rate them as compulsory and needing demystifying, learner-friendly, repeatable approaches to their teaching. The authors further reported that most teachers who handle these STEM subjects are often not adequate in numbers and qualification, particularly in community day and rural secondary schools.

Clearly, they demonstrated that greater awareness of PBS equipped recipients with an appropriate set of values, and the technical knowledge required to realize them.

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