

Transformative technologies in Open University of Sudan

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Abstract

Transformative technologies are hardware and software-based tools designed to enhance human psychological well-being cognitive function and physical capabilities. Transformative technologies in education have become very important in today's world. Transformative technologies tools were introduced in education to bridge the gap that was generated from the fact that some people cannot complete their education. Accordingly, these tools provide a great opportunity to those who want to complete their education through Open and Distance Learning.

This paper is about how the Open University of Sudan introducing the ICT and transformative technologies tools to overcome the challenges in education in Sudan. Moreover to qualify and train more than 40000 students, most of them on school teacher. As we know, Sudan is a very large country with remote regions. Accordingly, by using transformative technologies tools, it can provide education for all. This paper will focus on how the Open University of Sudan uses these tools in many aspects such as E-exams software, E-assignments, Platforms, Mobile learning and apps, Registration and enrolment process and Open Educational Resources.

This paper aims to study the transformative technologies tools of Open and Distance learning, and the effective way to uses it in tuition and material delivery to help the decision-makers to put appropriate policy to achieve the ODL objectives. The analysis approach technique will be used to review the

transformative technologies tools and how it is implemented in Open University of Sudan.

The results revealed that the transformative technologies tools are useful when the high numbers of students enrolled; so the ODL has lower fixed cost than conventional education system. The study suggests that build attractive learning with higher advertisements to attract more students to the ODL especially within unique programs and online training courses. The study recommends further research on the template with the aim of theory construction for transformative technologies tools planning and implementation.

Introduction:

There is no doubt that education is one of the most important elements of economics and nation's development. For instance Adam Smith (1779) considered the education is human investment in long run, so this investment needs input produces output to meets human being's needs. According to Keegan, (1986), Distance education is a planned and systematic activity which comprises the choice, didactic preparation and presentation of teaching materials as well as the supervision and support of student learning and which is achieved by bridging the physical distance between student and teacher by means of at least one appropriate technical medium, or all transformative technologies tools.

This paper aims to study the transformative technologies tools of the Open and Distance learning, and the effective way to uses it in all educational process to help the decision-makers to put appropriate policy to achieve the Open and Distance Learning (ODL) objectives. The analysis approach technique will be used to review the transformative technologies tools and how it is implemented in Open University of Sudan.

Moreover, the important side of this study can be used to transformative technologies tools in Sudan comparing with conventional learning to put appropriate procedures and steps to help the decisions makers putting the policies to lead the ODL in best situation.

The audience of this study are academic study, whose interesting in transformative technologies tools in high education, Open and Distance Learning (ODL) and managers of educational institutes.

Theoretical Background

Here was a huge expansion in education in Sudan. Higher education institutions were provided with computers and connected to the Internet. In 2002 a set of computers were distributed to secondary schools in all states and computer material was also announced in the secondary school curriculum and university (Ministry of Education, 2004.)

The Open University of Sudan (OUS) is the Sudan's only university dedicated to open and distance learning. Which is founded 2002 with most courses previous qualifications such as high school graduate required to study, there is no upper age limit. We have around 56,000 undergraduate and more than 500 postgraduate students, some of students have disabilities. The Open University's style of teaching is called supported open learning.

The Open University of Sudan, which was established in 2002 and the University aims to adopt modern teaching techniques and to provide an outstanding education for those interested in anywhere and anytime. In 2003, E-Learning Support Unit was established in this university. This unit contains six divisions: the educational web sites, live broadcasting (videoconferencing), production of educational discs, virtual laboratories, Electronic Library, and support division that contains: research, education, training, curricula and modules (Ahmed Salah al-Din, 2010)

OUS is the largest open & distance learning institution in Sudan, recruiting 10,000-16,000 students every semester. The OUS basic philosophies of distance learning and their consequences for development of a learning environment supporting distance learners.

Mission: Expanding opportunities for higher education through open education and rehabilitation of students.

The university has the following department:

- Center for Human Resources Management.
- Department of Public Relations.
- Educational Broadcasting.
- Educational satellite channel.
- Secretariat of the Libraries.
- Center for Human Resources Management.
- Education Development Center.
- Center for Arabic Language for Speakers of other Languages.
- Continuing Education Project.
- Technical Education Project.
- E-learning project.

Many students are studying part-time. About 50 per cent of undergraduate students are in full-time employment. Most OUS Academic Programs are available throughout Sudan.

The Objectives of Open University of Sudan:

1. To expand higher education opportunities in response to the increasing social demand, through the diversification of academic programs and provision of easy access to them.
2. To offer alternative opportunities for those who missed higher education due to social, cultural, economic or geographical barriers.
3. To offer in-service training and continuous education for different groups in the labor market to meet the needs of vocational development to improve proficiency, performance, and production.
4. To offer education to learners and students at their residences.

5. To extend the participation of the different sectors of the community in local development.
6. To strengthen of cooperation between the traditional campus university education and the ODL to facilitate the movement of learners across the different educational institutions.
7. To create suitable environment for graduate studies and scientific research relating to the needs of the various communities.
8. To adapt and appropriately use modern technology to insure effective delivery of academic programs.
9. To strengthen links with public and private educational institutions to help in addressing their needs in planning courses and curricula and to offer academic and technical advice as needed.
10. To create cultural orientation of disciplines and affirmation of the primacy of Arabic and English and inculcate the importance of other languages and translation.
11. To involve the documentation of cultural, spiritual and environmental heritage.

To achieving this entire objective, Open University of Sudan (OUS) will face many types of costs, so by using transformative technology tools OUS has overcome these challenges. So this study will focus on how the Open University of Sudan introducing the ICT and transformative technologies tools to overcome the challenges in education in Sudan.

Research Objectives

1. Offers some background information about transformative technologies tools in Sudan.

2. Encourage all Sudanese universities to be aware about the roles transformative technologies tools.
3. Provides a case study of transformative technologies tools uses in Sudan, as an example to demonstrate of how using these tools in education (e.g. E-exams software, E-assignments, Platforms, Mobile learning and apps, Registration and enrolment process and Open Educational Resources) can helps student to be aware about the new method of learning appears in the 21st decade. And learn new skills to work and live better.

Methodology of the study:

The data was collected by data collection methods, namely participant observation log, data collected from seminars question and answer session, visits (The deanship of learning in OUS) and documents analysis which is known as induction approach analysis.

Results:

Technological change is also a significant megatrend in its own right, constantly reshaping education, economies and societies, often in radical ways. The scope of technology – in terms of its form, knowledge bases and application areas – is broad and varied, and the ways it interacts with economies and societies are complex and co-evolutionary. Open University of Sudan has introducing transformative technologies tools in education system by using main six types of it, which are implemented in all branches of OUS:

1. Registration and enrolment process

The first step in the education process in the Open University of Sudan is registration process, the students uses the academic portal for their all academic

activities(from first step until graduating), also they are choosing their courses through this portal.

The advantage of this technology tool ensure the quality and avoid the human mistakes which is will be happed through the registration process. Moreover, the academic portal enable all students in all regions of Sudan to register, because the OUS has 18 branches in all states of Sudan, this step helps the OUS to gain time and travel costs appearing when all student want to register in one place in the headquarter of OUS.

2. E-assignments

E-assignments is a set of tasks assigned to students by their teachers to be completed outside the class in every week during the semester. And online submissions (i.e. short essay or short answer, etc.) in the OUS the E-assignments page shows students all of the Assignments that will be expected of them and how many points each is worth.

3. E-exams software

Ten years ago, it was hard to manage data of tens or even hundreds of thousands of students on paper. So by using transformative technology tools, we can use Big Data for better Data Management, analysis, and usage. Big Data in education is mostly information about the performance and abilities of each individual student which can improve their learning experience by personalizing it. Moreover, it is used for better program analysis and is a base for machine learning.

Open University of Sudan has changing the traditional and paper based exams and overcome challenges and obstacles for the integration of technology by

using transformative technology tool; it was developed software in Sudan to achieve the online exams in all courses.

4. Mobile learning and apps,

Mobile or m-learning involves the use of broadband connected devices – smart phones, tablet devices, e-readers, and laptop computers – so that students can connect to learning opportunities either synchronously or asynchronously from anywhere in the world. The mobility has two dimensions - the students are not restricted to a classroom or any other physical location, and the devices are easily portable and usable for communication and collaboration, as well as information delivery. OUS has developed more than 8 Mobile learning Apps to contact with student to ensure the delivery of the material to all students in all Sudan's regions.

5. Open Educational Resources in the Open University of Sudan:

Open Educational Resources (OER) are teaching, learning and research materials in any medium – digital or otherwise – that reside in the public domain or have been released under an open license that permits no-cost access, use, adaptation and redistribution by others with no or limited restrictions,(UNISCO definition of OER)

Since 2002, when the term Open Educational Resources (OER) first emerged, to today, OER has increasingly been recognized by the international community as an innovative tool for meeting the challenges of providing lifelong learning opportunities for learners from diverse levels and modes of education worldwide’.

The university collaborates internationally with OER Africa by hold awareness workshop in 2011 for Sudanese university staff. In addition to the collaboration with African Virtual University in implementation and delivering of OER in Arabic and English language. Recently OUS join Open Book project to translate, adopt and adapt MIT OER to Arabic language. OUS has good experience with teacher training using OER by running TESSA project (Teacher Education in Sub Saharan Africa). TESSA materials have been used to create a handbook for student teachers enrolled on B.Ed. programmes. This report explains how the handbook was designed to complement the existing course materials and summarizes the findings of a series of research studies aimed at evaluating the usefulness of the handbook. It concludes with some suggestions for future development of the handbook. The report has been compiled from a range of sources including surveys of use among the OUS supervisors and B.Ed. students, interviews and focus groups with supervisors, translated interviews and dialogue with the OUS TESSA staff and contributions from the Open University, UK TESSA staff who supported the design, implementation and evaluation of the handbook at OUS.

6. Digital Platforms:

The category digital platforms include the knowledge and usage of digital platforms as well as reasons for using or not using those platforms and the forms of usage, university platforms like Moodle, which is collaboration and communication platforms that are used by various open universities to organize seminars and lectures. OUS has developed TADAROUS platforms for more than 100 books in Economics, law, Accounting, Computer science, Education, Math, etc.

Discussion

In summary, recently open and distance learning acquired new dimensions with the development of the Internet. With the rapid changes happening in technology the pedagogy of open education is no longer tolerant to the traditional none 'face to face' education programmes. The new version of innovative technologies created more effective techniques to distribute learning in non-traditional ways. We are seeing more and more online massive courseware, and huge web based platforms used by universities to offer their distance education. Massive Online Open Courses (MOOCS), where students can benefit from borderless learning and global exchange of ideas, have exploded in recent years. According to Guerrierov (2015) in March 2014, more than 7 million people were taking university courses online through Courser. Also virtual learning universities are expanding, in order to respond to overcrowding for example Dakar University has 75,000 enrolled students but physical capacity only for 16,000. The African Virtual University (AVU) has now 10 Open Distance and eLearning centers, and an Open Educational Resource portal with 219 textbooks.

Many studies reveal that open education programmes in Sudan do not run technology enhanced programmes or web-based courseware (Mahdi, 2005; Shaheen, 2003; Omer 2000). Thus most of these programmes lost their effectiveness and became a replica of the 'face to face' programmes.

In a developing country like Sudan where the 'digital divide' is more the rule than the exception, delivering open and distance education through web based technologies presents a significant challenge to educators, and shelter, access to information and communication technologies (ICT).

Suggestion:

The study suggests that::

1. More research in ODL to help decision- maker makes best polices to help in booming the ODL.
2. Encourage high numbers of students enrolled in the ODL in general and especially in Open University of Sudan, which is keeping the cost of student at lower level.
3. Build attractive learning with higher advertisements to attract more students to the Open University of Sudan.
4. Offer unique programs and online training courses in ODL system.
5. Keep up with what was introduced in transformative technologies tools to promote cost reduction.
6. Many factors affect on cost effectiveness and calculate the social cost of ODL more research suggested to touching this point.
7. Invest in changing their traditional and paper based open learning programmes and overcome challenges and obstacles for the integration of technology.
8. Implement quality standards and benchmarks and this is better done through the establishment of an accrediting agency for transformative technologies tools in high education.
9. It is important for the government to adopt distance and open education as a strategic aim for future development. Open education should be pursued not only at tertiary level education but also in general education.

Conclusions:

Many universities focused in Open and Distance Learning and introduce the ITC in their education also presentation of teaching materials with the

supervision and support of student learning, that means universities must produce many curriculums by using transformative technologies tools to meet the needs of ODL student which is fill the physical distance between the teachers and student generate from ODL polices. That is means the university will face the costs generate from this mix between ICT and education. Accordingly, universities must choose the lower student's cost remain cost-effectiveness at lower level but the student gets higher degrees in exams or the level of the students will reached to desired point. As the results the ODL's universities achieve their objectives and reserve revenue that will keep them offer new academic programs and cope up the development in the world.

The study recommends further research on the template with the aim of theory construction for transformative technologies tools planning and implementation and focus on E-administration to reduce the cost of operational system ODL .Salha (2017)

Acknowledgements

First of all I would like to thank the Open University of Sudan (OUS) for supporting me and I owe my gratitude to all those people who have made this research study possible.

My gratitude is due to thanks to OUS staff and students for their support to complete this research.

I appreciate all the persons whom I could not mention due to the limit of the space, I truly appreciate your contributions to my research.

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