

THE CONSTRUCTION OF EFFECTIVE LEARNING ECOSYSTEMS IN OPEN AND DISTANCE LEARNING (ODL) UNIVERSITIES: TECHNOLOGIES, INSTITUTIONAL PREPAREDNESS, AND CHANGE

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Abstract

A critical analysis of digital learning ecosystems in ODL universities reveals increasing adoption and innovation of technologies in the process of delivering education across the world. Though proponents of traditional-based education argue that students experiencing learning through ODL systems are disengaged from the learning process and that teachers are equally disconnected from the learning process, with insufficient value placed on face-face teaching, pressures to assign overinflated grades, and incentives to teach content only, and not critical thinking skills, however, technology has the potential to alleviate many of the challenges. Moreover, some of the challenges are peculiar to some of the ODL education systems, especially universities in the developing world. Emerging digital resources and technologies hold promise to enrich and revitalize ODL university systems, give students a deserved learning experience, and better prepare students and teachers to face the 21st century. Every aspect of learning, such as grading, assessment, access to reading materials, learning platforms and environments/classrooms, simulations, etc. is covered by emerging connected workplace technologies. The paper discusses the underlining determinant factors, namely institutional-management preparedness, employee attitudes, institutional research and technological innovations, stakeholder engagement, power supply, bandwidth/broadband issues, funding, digital policy frameworks, and the overall responsiveness to change that global ODL competitiveness imposes. It concludes that institutional preparedness and national priorities drive the effective direction of the change that meets the requirements of ODL learning systems.

Keywords: Digital learning ecosystems; Open and distance learning; Employee attitude; Connected workplace.

1 INTRODUCTION

The increasing deployment and application of digital technologies in learning, assessment, quality assurance, monitoring and evaluation, attendance, and examinations overshadow the critique from the proponents of conventional, traditional-based learning against open and distance learning (ODL) question the critique that students and teachers are disconnected from the learning process and skewed determination of learning outcomes. It is no longer an option for forward-looking and thinking universities to simply broadcast pre-recorded lectures in the

face of available technologies. As a matter of fact, some universities have moved virtually all of their assessments and examinations online.

It is imperative for institutional analysis to position ODL universities to surpass the traditional universities adopting the dual mode of education. It has been reported (Anchaal, 2022) that during the coronavirus (covid-19) pandemic, over 72% of university institutions turned to some form of online examination and over 78% of institutions plan to adopt online as well as hybrid examination models in 2022. The world's leading universities remained unimpacted by such a disruption only because they shifted online. Others successfully continued to conduct examinations with the same quality as in physical classrooms with their robust online platform and Artificial Intelligence (AI)-based remote proctoring technology.

Considering the challenges and problems of traditional classroom-based teaching and learning in most developing countries, ODL is a practical strategy to address those challenges by widening access and increasing participation in university education. To achieve successful learning, open-distance learners require the desired learning experience and outcomes. In this article, the author focuses on the theory of change, analysis of the ODL learning ecosystems, and institutional preparedness, among others and argues that the learning ecosystem (broadly defined as a socio-cultural environment in which the process of personalized teaching of learners is based on the analysis of their identified, felt needs in the interaction of all participants in the educational relations using variable, adaptive digital contents) must be in constant focus of changemakers, especially management and managers of the system.

2 METHODOLOGY

A documentary review was undertaken to identify and critically evaluate the literature, establish trends in emerging technologies and their uses, and define the components and uses of the theory of change, among others, set within the boundaries of ODL-technologically mediated university education. Relevant material information for the study was examined through content analysis.

3 A THEORY OF CHANGE

To situate, analyze and comprehend the requirements, implementation processes and sustainability of ODL university education, a theory of change (TOC) has been adopted for this work. It defines the level of institutional preparedness and the direction of change in the university. It views change as a constant for the ODL institution driven by constant research. According to Wolfe (2018), TOC is an institutional policy used to design, plan for and evaluate

change impact. Anticipated pathways of change are made explicit as assumptions and tested using indicators (see figures 1-2).

3.1 Institutional Preparedness

Applied to the university institution/system delivering ODL education, the TOC (Fig.1) helps the university system to promote students' best learning experiences using the evolving technologies as well as engendering equity, inclusiveness, and improved access to education by the wider segments of the public seeking university education. University policy and management decisions are influenced by the institutional and national levels and as well as considered contemporary global priorities and contexts, especially in developing countries. Embraced by the institution, universities must begin the backward processing of goals, outcomes, plans, and activities. The ODL university must adopt education technologies (EdTech) to enhance the learning experience, enrolment trends, employee attitude, and graduation rates, especially considering the competitive nature of the ecosystem driven by ever-changing technologies. ODL universities apparently have no options but to create the enabling systems that foster the continuous digitalization of the learning processes that improve sustainable outcomes.

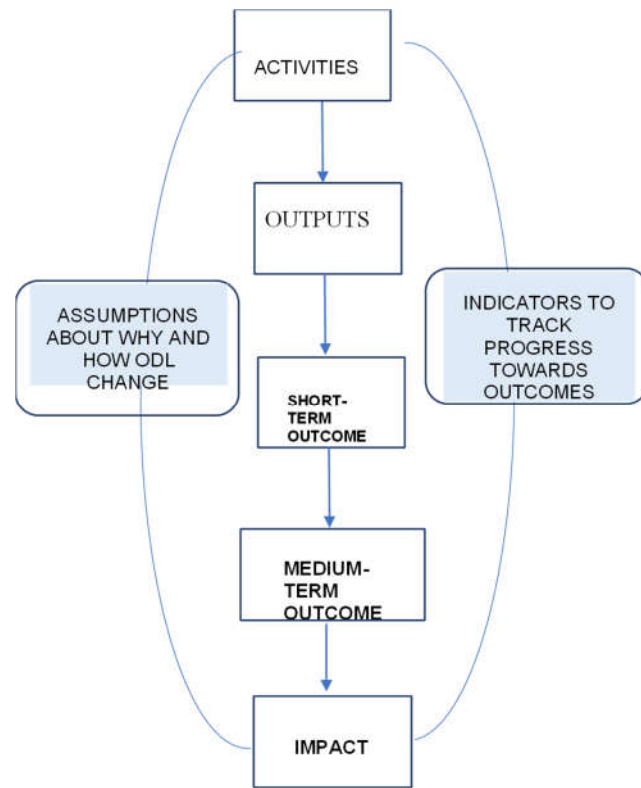
Wolfe (2017) argues that TOC applies to stakeholders in different institutional contexts but maximise its prospects for impact. Furthermore, French, Bachour & Mohtar (2020) opined that the TOC is a methodology that was developed to assist in understanding and explaining how change takes place and how the interventions lead to desired outcomes and goals. The TOC should be based on the demonstrated hypothesis of interventions leading to specific changes (Reinholz & Andrews, 2020). The TOC is generally carried out during the project planning process. It identifies the changes or outcomes that are necessary during different stages to achieve the change goals. Take a look at my figures 1-2 with a clock-wise journey until you come to "adapting". Thus, yearly planning stipulates the activities and time that activities will be carried out and what are the expected outputs of the activity will be. These outputs are key to achieving the specific outcomes along the change pathway.

Education is the greatest tool for the advancement of individuals and societies. Committed universities and employees must prepare graduates capable of acting as agents of change, focused on solving sustainability challenges in ODL learning. French, Bachour & Mohtar (2020) argue that universities have done an excellent job in advancing science and the adoption of knowledge, which is so important for humanity for hundreds of years, inclusive of advanced

science and technological innovation for the well-being of communities and nations all over the universe. ODL then becomes a veritable tool to achieving that goal with ever greater pressure on leaders to transform the university culture through change processes and values.

Furthermore, Eckel, Green & Hill (2001) in their study of 28 universities embarking on transformative change define change within the university as being on a scale that ranges from adjustments on one end to transformation on the other, involving alteration of a university culture that is deep and pervasive to modify existing practices, institutional behaviors, processes and structures that are intentional and occurs over time, that underlie the usual way of doing business. The changes taking place, resulting in transforming universities must be dynamic, interconnected, reinforcing and synergistic (Eckel, Green & Hill, 2001). As it can be seen, Figures 1 and 2 visualize the TOC that is cardinal to the continuous progress and relevance of ODL learning ecosystems.

In this context, Brightspot (2018) argues that in the face of shifting landscapes, the status quo cannot be a viable option, noting that institutions should be striving for greater accessibility, diversity, sustainability, and accountability. Learning, research, student services, and operations are all changing both on-campus and online; therefore, ODL universities must understand how this change works, think of change as an experience, run routine diagnostics and design change programmes and should make the process participatory for all stakeholders and service end users.



ACTIVITIES	OUTPUTS	SHORT-TERM OUTCOMES	MEDIUM-TERM OUTCOMES	IMPACT
<ul style="list-style-type: none"> • Development & Maintenance of a wellfunded University ICT Committee groups • Ensures that ICT plans & questions are aligned to national priorities • Collaborative key stakeholders' policy makers engagement to develop plans & strategies • Rigorous & highquality knowledge synthesis and primary research activities • Mapping of quality processes & communication controls • Research uptake, capacity building, Measurement & Evaluation Strategies developed & implemented 	<ul style="list-style-type: none"> □ A well-functioning research group □ High quality and innovative research, policy, and recommendations □ Multi-Study synthesis for international stakeholders □ Strengthened capacity for highquality research □ Research outputs are available and accessible to different stakeholder groups □ Strengthened capacity for research dissemination and engagement with key stakeholders □ Regular reviews of strategies & activities 	<ul style="list-style-type: none"> • Key Stakeholders are aware of ICT/Digital Committee and Research Produced by Members • ICT Committee members are viewed as a trusted and highquality evidence on relevant topics by academics & policy makers • New or strengthened relationships with key stakeholders at local, national & international levels • Research users (software developers, academics etc.) are able to understand & analyse evidence 	<ul style="list-style-type: none"> • Research by ICT Committee / group members informs policy and management decisions at the institutional & international level 	<ul style="list-style-type: none"> • Research from institution contributes to Policy and Management changes that enhance the resilience and responsiveness of the University Systems, Units and Departments

Fig.1: The Theory of Change (TOC)



ACTIVITIES	OUTPUTS	SHORT-TERM OUTCOMES	MEDIUM-TERM OUTCOMES	IMPACT
<p>Assumptions</p> <p>University is willing to participate and contribute to successful functioning of all output areas</p> <p>Research areas continue to reflect national priorities 3. Universities / Institutions has sufficient human resources to participate in activities</p> <p>Policy makers are willing to take part in consultative processes about research</p> <p>Staff turnover among policy makers and research users is not excessively high</p> <p>External resources are available for formal training for junior staff</p>	<p>Indicators</p> <p>a) Number of research products produced including research reports, briefs, and working papers.</p> <p>b) Number of papers published (disaggregated into leading author, open access, gender of leading authors, etc)</p> <p>c) Number of capacity developed events / opportunities funded or facilitated by the university</p> <p>d) Number of interactions where knowledge outputs are disseminated e.g policy maker meetings, workshop, conference presentations disaggregated into in-country and international levels</p>	<p>Assumption</p> <ul style="list-style-type: none"> Staff turnover among research users and policymakers does not interfere with research uptake <p>Indicators</p> <ol style="list-style-type: none"> Number of citations of university-based work Number of innovative research-approaches developed. New research consultancy or advise requested from staff members by policymakers at national and international levels. Number of unique users / visitors to the ICT-Based website and downloads of research outputs from the website 	<p>Assumptions</p> <ol style="list-style-type: none"> Political and resource environment remains conducive to policymakers using evidence Global policy agenda is aligned with institution's agenda <p>Indicators</p> <ol style="list-style-type: none"> Number of policy decisions or management practice changes that draw on institutions ICTbased research or software applications Number of policy debates, discussions, discourses influenced by staff members, research, or software applications. 	<p>Assumptions</p> <p>Global and national contexts are favourable to enrolments and graduation improvements, including factors relating to economic and financial situations, governance, environment, stakeholder participation and staffing quality and turnover in ODL universities.</p>

Figure 2: Uses of TOC

S/N	Technology	Features/Uses	Remark
1	Computerized Grading	Proctoring	Atchoarena, 2020; Cody, 2014; Markoff, 2013
2	E-textbooks	Digital course materials	Greenfield 2013
3	Simulation Technology (ST)	Flexible, engaging students, in safe environments	Moore 2014; Damassa & Stiko 2010
4	Gamification	Keeping students engaged in learning using games	Ahalt & Fecho 2015, Martin, 2022
5	Flipped Classrooms	Flexibility of preparing & sharing class work and review of missed classes	Lane & Yamashiro, 2006
6	Active Learning Classrooms	Active learning in in-person classroom environments	Prince 2004
7	Collaborative Distance Learning Environments	Active learning among distant, distributed networks of students	Ahalt & Fecho, 2015
8	Massive Open Online Course (MOOC)	Accessibility, content, approach, size, and teacher credentials, with requirements, e.g., assignments, evaluations and being time-bound	Ahalt & Fecho, 2015
9	Active Learning Forums	Facilitate live breakout sessions, polls and quizzes	Ahalt & Fecho, 2015
10	Learning Management Systems (LMSs)	Support all aspects of e-learning and the needs of all stakeholders, including students, educators/employers, administrators, and Information Technology staff	Ahalt & Fecho, 2015
11	Virtual Reality and Augmented Reality	Provide exciting opportunities for learning (meta verse)	Martin, 2022
12	Big Data	Promote student engagement and personalization	Martin, 2022
13	Flexibility	Prime to the ODL ecosystem, allowing asynchronous and synchronous learning, online connection and interactive experience	Atchoarena, 2020; Cody, 2014; Markoff, 2013
14	Artificial Intelligence	Personalization in ed-tech, such as AI-powered language learning applications	Martin, 2022
15	E-Learning	Encourages diversification by educators, knowledge creators & provision of options to learners such as eBooks, online speaking engagements, personal coaching sessions, online courses and digital downloads, from suitable virtual learning environments (VLEs)	Martin, 2022
16	Internet of Things (IoT)	Assist students develop their own skills by using smart applications	
17	Cloud Computing	Stores online educational videos, record lessons, and allows access to online resources already used anytime	

Table 1: Progressive development and application of learning technologies/techniques

4 TRENDS IN OPEN AND DISTANCE LEARNING TECHNOLOGIES

Table 1 explains the trends in the philosophical basis and deployment of technologies in education and learning. The interactions in ODL are premised on (a) learner-content, and (b) learner instructor via synchronous and asynchronous communication, and synchronous interaction with the facilitator (Lane & Yamashiro, 2006). In a report by Ahalt & Fecho (2015), it is noted that the knowledge economy has shifted dramatically, requiring reforms. In many cases, this has meant school closures and mass movement to online learning (Smah, 2020), thanks to emerging technologies. The listed technologies and tools/techniques improve ODL university education and enhance the student learning experience.

5 FINDINGS AND DISCUSSION

The following sub-section presents the findings/results of the study.

5.1 Findings/Results

The covid-19 pandemic lockdowns were a major boost to ODL university institutions (Atchoarena, 2022).

EdTech companies, such as Apple, Google, Microsoft, and others midwived the processes of the transition to ODL by developing and creating access to platforms, tools, and software applications used in developing learning content management systems (LCMS), learning management systems (LMS), etc. Human, material and financial investment is vital for the purposes of sustainability.

The application of a change theory. The change theory is the explanatory mechanism that visualizes the process, understanding, application, review and adoption of new strategies to improve the qualities of ODL services.

The imperatives of stakeholder engagement and management to the attainment of the ODL university delivery system (French, Bachour & Mohtar, 2020).

(e) Learners' attitudes to technologies, management-administrative dispositions, employee attitude and financial-political climate and leadership of the country are challenges (Smah, 2020; Kanwal & Rehman, 2017; Abdel-Ghany, 2014).

5.2 Discussion: The construction of an effective ODL ecosystem through change

Theoretically, change readiness has received little attention to date in research. From what is known; however, organizational change is inherently difficult to accomplish. Studies of private and public sector organizations show that about 70% of change programmes fail to be implemented as planned. The difficulties occur due to several factors, such as failure to recognize people/employees, political, social, cultural, and economic factors; and not developing a culture of change (Adeniyi & Oladele, 2019; Amis & Aissaoui, 2013; Weiner, 2009; Alolabi, Ayyup & Dwaikat, 2021; Abdel-Ghany, 2014; Emerald Insight, 2021), especially in planning and implementation of change.

Implementing organizational change is dependent on the ability to clearly identify roles, task demands, resource availability, and situational factors, including change beliefs and resistance among stakeholders in and outside of the organization to enable change leaders to respond to change quickly and more efficiently. However, primordial interests, conflict of interests as well as “political correctness” in the eyes of ‘proprietors’ (layers of political and social actors internal and external to the system) appear to intermeddle with the university’s roles effectively. The changing policy landscape in most countries affects the sustainability of educational development. As some of the technologies require huge capital investment, the need for political leadership to weigh the overall cost-effectiveness of ODL and other preferred options is veritable.

As it is clear from the TOC presented in earlier, constant research and adoption of new technologies or strategies would not only guarantee the availability of top-notch technologies but will sustain students’ graduation rates and improve enrolment over time. The ODL universities’ priorities must be gotten right, to be at the top when it comes to technology acquisition, development, or adaptation to suit their needs of delivering sustainable ODL university education.

Corruption at political, policy, and financial levels presents a huge threat to the sustainability of ODL universities. However, with transformation to digital learning, it is important for stakeholders to share the importance of moving towards digital learning with constituents, such as upper management, managers, investors, instructors/educators, and industry partners specific to the university so as to address some of the concerns that occur during the transformation. Continuous research and development for newer technologies to meet urgent learning needs are required.

The ODL ecosystems, especially in developing countries indicate greater application of Moodle and MOOCs as means of learning. However, the sustainability and viability of this require a shift in attitude toward seeing Moodle and MOOCs, not as mere repositories for innovation in teaching but as a means to an end. The ODL university environment is a connected workplace tied to the internet, which should be recognized and treated as such. As Zainuddin, Idrus & Jamal (2016) note:

Most e-learning platforms offer tools such as forums, email, blogs, walls (asynchronous communication), chat (synchronous communication), wikis, glossaries, texts, and surveys (collective construction and interactive tools). They also include educational activities, books, videos (educational tools); profiles, registration, groups, databases, frequency control, and daily classes (administrative tools) (Zainuddin, Idrus & Jamal 2016: 284).

6 CONCLUSIONS

The significance of the foregoing is that the successes of the ODL using technologies will largely be defined by the internal and external dynamics (change readiness, funding, leadership, etc.) of the university institution as to which options are available, viable, and sustainable to ensure continuous learning and education.

The future of ODL is one in which structures and available systems developed for training, evaluation, and further planning and implementation form part of a change agenda. Though the study could not, however, delve into the details of the extent of successes in the implementation of technology-enhanced learning in developing countries, the ODL mode of learning is a promising opportunity to provide the access needed to earn university degrees and other certifications.

The learning ecosystems are driven by technologies and deployment is a function of continuous research. New technologies in ODL universities will continue to drive change with upward-looking leaders infusing such changes through external factors (strong synergistic stakeholder engagement, partnership, and national priority) and internal integrative measures such as leadership quality (unit, department, faculty, upper management level), employee attitude; religiosity, cultural and political atmospheres as well as staff turnover and change resistance issues, among staff and management.

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