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Alternative Learning and Assessment Module for Educational Institutions Subsequent COVID-19 Pandemic

DAVID BOOHENE

DAVID BOOHENE holds a PhD in Development Economics from Sam Higginbottom University of Agriculture, Technology and Sciences (SHUATS), India. He is a Chartered Economist and a Member of Inter-Science Research Network Mentorship Board, India. He is also a member of the Research Catalyst Group, Mumbai. He is currently an Economics Lecturer at the All Nations University, Ghana.

AMITA MAXWELL

AMITA MAXWELL holds a PhD in Commerce from the University of Allahabad, Prayagraj, India. She is currently an Assistant Professor in the department of Business Studies, Joseph school of Business Studies & Commerce (JSBS&C), Sam Higginbottom University of Agriculture, Technology and Sciences (SHUATS), Prayagraj (U.P) India.

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Abstract

The study proposes an alternative guide for conducting Application Based Exams (ABE) for end of term exams in institutions of higher learning subsequent COVID-19 pandemic and its ripple effect. The objective of ABE is to endorse unceasing convenient learning and assessment as well as surety of inflow of capital for the day to day operation of educational institutions. The IT revolution and steady advancement in telecommunications have brought about sweeping and multifaceted changes; leading to automation and digitization of learning. Further the proliferation of web-based technology and the internet have made online learning possible in the recent years. This has also led to booming of technology entrepreneurs in recent years. The study aims at proposing the ABE as an alternative learning and assessment module for institutions subsequent COVID-19 pandemic and its execution or implementation using modern technological tools like Learning Management Systems. The study identifies that there has been a big shift in learning in the wake of COVID-19 pandemic which makes technological collaborations and IT an inevitable tool in the entire process of delivering and enhancing the pace of learning. Again, the ABE module has been designed to serve as a medium for educational institutions to continue its operations in the event of pandemics. By way of recommendation, the applicability of the module for conducting end of term assessments in educational institutions has to be strengthened through various trials in order to improve its performance.

Keywords: COVID-19, Technology Entrepreneurs, E-Learning, Education, Learning Management System.

Introduction

According to **UNDP Report, 2020**, COVID-19 pandemic has created the largest disruption of education systems in history affecting nearly 1.6 billion learners in more than 190 countries and all continents. This has led to closure of schools and other learning spaces and thus far have

impacted 94% of the world's student population, up to 99% in low and lower middle income countries. As a consequence, in the wake of COVID-19 pandemic an immediate alternative guide for assessing students while a lasting medium to long-term mechanism is finalized on by management of higher learning institutions is essential following directives by various state authority's across the world for teaching and learning to be online based as a measure for reducing the community based infection of the novel corona virus. The use of ABE in a time as this has both suitability and economic implications. On suitability, with the current indefinite shut down of tertiary institutions across the globe, the ABE will allow students to demonstrate their practical understanding of the courses or topics taught in their respective semesters while working from their various homes. On the other hand, for economic implications, ABE will serve as a medium for educational institutions to continue its operations without having to prolong the academic calendar while maintaining standards. Further, in the case of private tertiary institutions, it will ensure continuous inflow and outflow of receipts as fee payment is the mainstay driving operations. The ABE will be in three forms, namely:

1. Case-based exam (i.e. Courses which are not quantitative in nature)
2. Problem-solving based exam (i.e. Courses which are quantitative in nature)
3. Activity-based exam (i.e. Courses that are both quantitative and non-quantitative in nature)

Components of Application Based Exams

Figure No. 1: Components of Application based exams

Case-based exam

Case-based exam present students with real life scenario's that requires applying knowledge from the course material taught for the current semester. Here students will be expected to apply concepts and theories learnt and present a detailed time bound suggested solution for the case. Case-based exams can be used mainly for non-quantitative subjects. *[English, Management, Environmental science, Leadership etc.]*

Problem-solving based exam

Problem-solving based exams involves giving students a question usually in one paragraph with/without tables; diagrams which requires student to provide feasible solution to the problem in the question by applying generally accepted formulas, principles or rules taught in class.

Problem-solving based exams can be used for subjects that are quantitative in nature. [*Calculus, Economics, Accounting, Statistics etc.*]

Activity-based exam

The activity-based exam is applied to subjects that have twin mixtures of quantitative and non-quantitative topics in Humanities, Sciences and Engineering programs i.e Software engineering, C++, Practical chemistry etc. Here students are given a question that allows them to apply steps or procedures taught. For example, subjects in computer science or engineering could involve developing an App using programming codes. Similarly, activity-based question in practical chemistry could be on how hypothesis testing of laboratory outcomes or interpretation of laboratory outcomes based on established parameters can reinforce theoretical understanding of outcomes.

Objectives of the Study

The following are the objectives of the study:

1. To propose an alternative learning and assessment module for educational institutions subsequent to the COVID -19 pandemic.
2. To propose an alternative guide for execution of Application Based Exams (ABE).
3. To explore the scope of technology entrepreneurs subsequent to the COVID-19 pandemic.

Proposed Guide for Rolling out ABE

1. Discussion among main stakeholders (University Board, Controller of Exams, Deans, Vice President- Academic office, President of University etc.) about ABE to augment collaborative input in making ABE proposal as working document.
2. Consent or review from mentor institution if any on ABE.
3. Provide faculty and student orientation on ABE.
4. Set timelines and modalities for ABE. Timelines will involve timelines for submission of ABE questions and marking scheme, review of questions, payment of school fees by students to qualify in taking end term exams, ABE subject-wise, timelines & modalities for sending hall tickets in pdf formats to those eligible for exams class wise/subject-wise etc.
5. Inform student about timelines, regulations and other modalities for ABE. Regulation and modalities will involve submission criteria for ABE suggested solution and modalities for fee payment.

Controls

All suggested solution for ABE will be submitted to designated email id's which will be manned by respective exams committee in the various departments. The exams committee will be responsible for checking plagiarism i.e. originality of work before forwarding to respective course instructors or lecturers for grading. To ensure that quality is not compromised students will be required:

- i. To pass a plagiarism test check.
- ii. To strictly adhere to respective timelines unless in genuine cases i.e. health grounds etc.
- iii. To follow standard format for submitting scripts as all scripts submitted will be printed and filed just like the traditional examination scripts.

Similarly, to ensure quality is not compromised faculty members will be required:

- i. To follow already existing protocols as applied to traditional university end of semester exams.
- ii. To submit grades to the controller of exams for auditing, approval and filing.
- iii. To key in audited grades into the College Management System.

The Growth of E-Learning

There has been a change in learning and training in recent years due to technological advances. According to **Yeung, 2001**, the shift is in terms of knowledge and learning being fixed to a certain time and place to knowledge and learning that is accessible at any pace anytime and anywhere. This flexible shift has created scope for change in the way knowledge and learning is transacted both for those who provide learning and those who receive it (**Gold, S. 2001**).

Table 1: Evolution – Network Computing

ELEMENTS	<i>Presence</i>	<i>E-commerce</i>	<i>Collaboration and Interaction</i>	<i>Integration and Services</i>
<i>Emphasis</i>	Eyeballs (human review)	Revenue, expansion	Profit	Capabilities, services
<i>Type of transaction</i>	No transaction	B2C, C2C, C2B, G2C, e- CRM	B2B, B2E, supply chain, c-commerce, G2B	Portals, e-learning, m-commerce, I-commerce
<i>Nature</i>	Publish information	Process transaction	Collaborate	Integrate, provide services
<i>Target</i>	Pages	Process transaction	Digital systems	Digital environments
<i>Concentrate on</i>	Web sites	Web-enabled existing systems, dot-coms	Business transformation consolidation	Internal and external integration
	1993-1994	1995-1999	2000-2001	2001-2005

Source: Turban Efraim, Liedner Dorthy., et.al., “Information Technology for Management, Transforming organizations in the Digital Economy”, New Delhi: Wiley India (P) Ltd., 6th edition 2008. p. 63.

According to the American Society of Training and Development (ASTD 2002), “E-learning refers to anything delivered, enabled or mediated by electronic technology for the explicit purpose of learning.”

According to Robson, R. 2002, “E- Learning is the automation of the processes of learning and training through the use of IT”. Hence E-learning (electronic learning) is facilitated by network connectivity i.e. internet, intranet or extranet and essentially leads to learning via electronic network such as satellite television and CD-ROMs, internet, intranet, extranet, audio/video tapes, etc. E-Learning therefore supports web-based transfer of learning and virtual classroom.

India’s Education Sector

India education industry holds an important place in the world. The country has one of the largest higher education institutions networks in the world. The Indian Government by the year 2020 aims to raise by 30% its current gross enrolment ratio and also give a boost to the growth of distance education in India as reported by the Indian Education Sector in India Industry Report (2020, August). Thus the like India, there is a great opportunity for the education sector to grow in other countries across the globe. India is reported to be the largest market for E-learning after the United States making India the second largest emerging market for E-learning in the world.

Figure No: 2 Education & Training Industry in India

Source: India brand equity foundation (<https://www.ibef.org/industry/education-sector-india.aspx>), September, 4, 2020.

Growth of Technology Entrepreneurs

In the wake of COVID-19, awareness of the challenges imposed for the business world as well as academia is well known. For the educational sector comprising of primary, secondary and higher education, delivering the service is one of the greatest challenges faced by the government and private sector. As the future of millions of students and learners cannot be compromised, there is an urgent need to find ways of delivering education. One of the greatest contributions of technology is the growth of E-Learning as discussed above which has led to the usage of web based sources for learning and emergence of a new learning format. Thus, a big shift can be seen in the area of learning in the recent past. Technological advancements have attributed towards this change and the landscape of learning has been altered. This paradigm shift has led to rethinking on new ways to keep up with rapid increase of learning.

Advancements in technology on one hand and growth of the education sector leading to proliferation in the education service have led to the growth of *Technology Entrepreneurs* in the last several years. The growth of technology entrepreneurship is still in a nascent stage in various developing countries. The pervasive influence of IT and the government initiative has also led to the growth of new class of technology entrepreneurs across the globe. Over the last many decades, technology entrepreneurship has become an increasingly important phenomenon globally. It is considered to be necessary for firms for gaining differentiation, and competitive advantage nationally and at global level.

According to **Oni, B.O. 2020**, the primary function of technology entrepreneurship is to assemble a combination of specialized individuals and heterogeneous assets in order to create and capture value for the firm through collaborative exploration and experimentation.

What seemed to be impossible five years back is already a possibility now with advancements in Artificial Intelligence (AI), online course tools, collaboration and sharing tools, web resources and Learning Management Systems (LMS). The primary uses of an LMS for delivering education are content creation and tracking the learners' progress.

Advantages of using technology

The significant advantages of using technology as an effective delivery tool for education includes:

- Combining text, images, video, and audio when creating learning materials.
- Access to the study or learning material.
- Administrators can easily modify the content, and learners can see the updated material in real-time.
- Grading the learner with automated reports that include session completion and recorded responses.
- Learners and administrator can reuse the material whenever they need it.

Conclusion

The proliferation and advancement in network technology in the last decade has witnessed an enormous growth in virtual learning. In the recent years there has been a big shift in learning and more so in the wake of COVID-19 pandemic which makes technological collaborations and IT an inevitable tool in the entire process of delivering and enhancing the pace of learning.

Looking at the market size and recent investments and developments in the area of education, the position of developing nations is expected to be strong globally. The growing market size of the education sector coupled with technological advancement creates huge market opportunity for tech entrepreneurs to invest in this sector. Therefore, the ABE module has been proposed in this study as an alternative learning and assessment module for conducting tests by educational institutions subsequent COVID-19 pandemic. The ABE module has been designed to serve as a medium for educational institutions to continue its operations and also ensure continuous inflow of capital. Thus the use of ABE module by way of reiteration has both suitability and economic implications as it will allow students to demonstrate their practical understanding of the courses or topics taught in their respective semesters or class while working from their various homes and also serve as a medium for educational institutions to continue its operations without having to prolong the academic calendar while maintaining standards.

The applicability of the module for conducting end of term exams in educational institutions has to be strengthened through trials in educational institutions in order to improve its performance. The functionality of proposed components for execution of ABE module and the controls to be applied also needs to be tested. Validating and testing the ABE module should be ensured before using it as an alternate delivery mechanism or strategy in conducting end of term exams in educational institutions subsequent to COVID-19 pandemic.

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