

The role of e-commerce in the higher education: the need of value addition in the delivery of e-learning in India

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Abstract

There is a scarcity of research on the adoption and use of e-learning in Higher Educational Institutions (HEIs), as well as on the factors influencing students' use of e-learning. As a result, this study investigates factors influencing the use of e-learning in HEIs by examining various models proposed by various scholars. The study is a qualitative investigation. Secondary data is gathered by consulting related research works around the world in order to study and comprehend the factors that influence the use of e-learning and then a slightly modified theoretical model for HEIs in India is proposed.

The HEI that implements technology with ease of use, high speed and effective service delivery on the one hand and highly motivated and positive attitudes of teachers and students who fully participate in the teaching and learning process on the other, will undoubtedly lead to effective e-learning and strong e-loyalty.

Keywords: E-Commerce / e-Business, e-learning, internet, e-loyalty, reskilling.

Introduction

Because of many favorable causes, India is faced with huge market demand with domestic consumption alone rising to more than double the existing GDP by 2030. According to a

study from the World Economic Forum, increased wages, one billion different internet users and very young people would in future push the appetite of consumers.

Internet users and its penetration: The World Economic Forum reports that Indian domestic demand, which today accounts for 60 percent of GDP, is projected to increase into \$6 trillion in 2030. Income growth will transform India's economy from a low-income to a middle class economy driven by consumption.¹⁵

In figure 1, the estimated users of internet are presented. Internet users have been increasing year by year and more than 974 million people will be using internet by the year 2025.

The internet penetration explains the speed and strength of internet acceptance by people. The diffusion of the internet explains how fast and powerfully people embrace the internet. The number is seen in figure 2. This can still be seen year by year and in 2020 it reached 50% and in 2021 it fell somewhat down, but thanks to the corona virus, it will only be upside down.

These are very favorable indicators for the scope of e-learning in India as at the end of March 2020; India saw the number of internet users at a quarterly growth rate of 3.4 percent. The cumulative number of internet users in March 2020 amounted to 743.19 million as compared to 718.4 million in December 2019, according to the Telecom Regulatory Authorities of India (TRAI). There is a growing trend in Internet use in India (www.ibef.org).

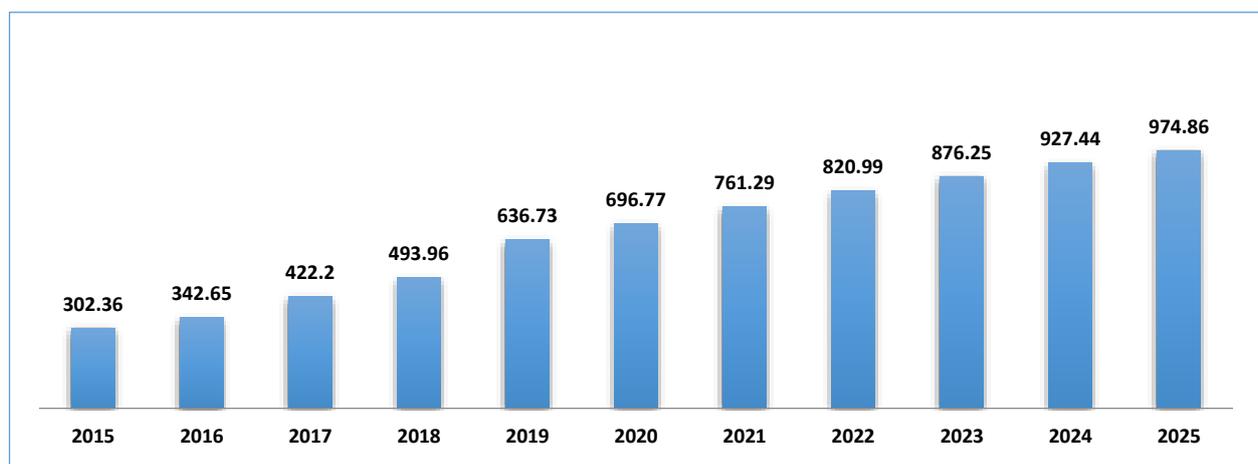


Figure 1: Internet users in millions and estimates till 2025

Source: Statista 2021

Overview of Indian education system and its structure:

The Indian education sector, which is currently valued at USD 100 billion, offers a lucrative monetization opportunity. In India, the introduction of technology has resulted in a greater acceptance of alternative learning methods. The online education can be classified into five categories as mentioned below:

1. Supplemental curriculum for students studying in primary and high school to help them learn more outside of the classroom.
2. Alternatives to conventional higher education courses are available via higher education.
3. Online test preparation programmes that assist students in preparing for competitive exams.
4. Reskilling and online certifications promote courses that help users improve their skills and earn certifications.

5. Language and informal learning in non-academic subjects such as spoken English, guitar and other musical instruments and other arts-related subjects such as dancing, drawing and so on.

The overview of the education system is depicted in figure 3 to portray the place of online education in relation to levels of education – primary, secondary and higher education, formal and informal education, users of education like regular students and working professionals, type of institutions and education infrastructure – schools, colleges or universities and training institutes and channels such as offline education and online education and content delivery – blended instructor led education, computer/web based training, text books and self-study material, video and audio recording and simulation based training.

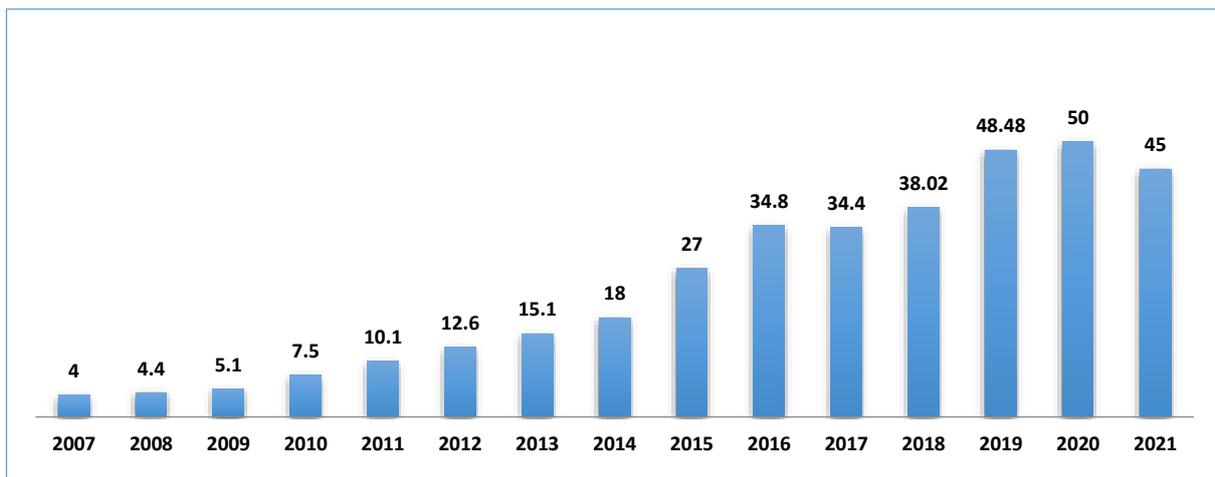


Figure 2: Internet penetration rate in India from 2007 to 2021 Internet Penetration (%)
Source: Statista 2021

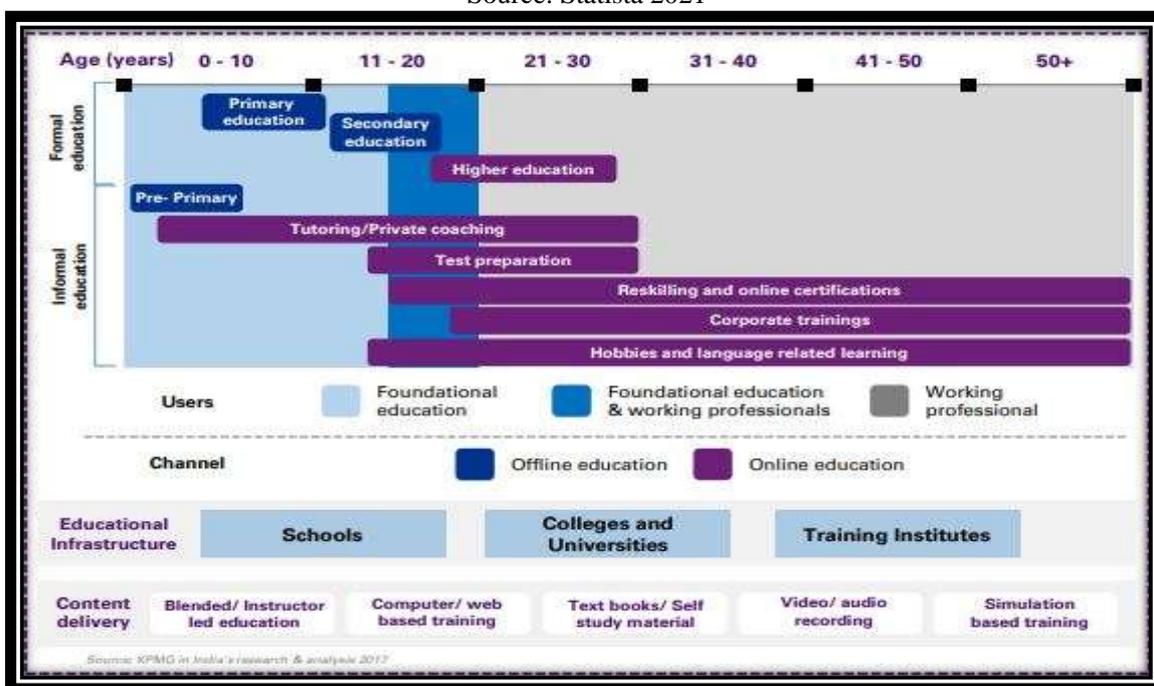


Figure 3: Overview of Indian education system - Possibilities of online education;
Source: KPMG in India's research and analysis 2017

E-learning Market and it’s growth in India: In the global education sector, India occupies a significant position. India has one of the world’s biggest higher education networks. However, the education sector still has a lot of room for further growth. Furthermore, by 2020 a government goal would also fuel the growth in distance education in India to increase its existing gross enrollment rate to 30 percent.

India has the highest population of about 500 million in the 5-24 year age group worldwide, which gives the education sector a great opportunity. India’s education sector was valued at 91.7 billion US dollars in 2018 FY and is projected to cross 101.1 billion US dollars in 2019 FY. In India, there were 39,931 and 993 colleges and universities in FY 2019 respectively. Indeed, India had an enrolment in FY 2019 of 37.4 million students. In year 2019, the higher learning gross enrolment ratio hit 26.3%.

After the United States, India has become the second largest market for e-learning. By 2021, the industry is estimated to be worth \$1.96 billion, with 9.5 million subscribers. By 2026, the online education market in India is expected to cross US\$ 8.6 billion (www.ibef.org). Furthermore, KPMG’s research showed positive results for the market size of online education in 2016 based on the five categories as shown in table 1.

According to table 1, the size of the online or e-learning market in 2016 was USD 247 million with 15.70 lac paying subscribers. Reskilling and online certifications ranked first in terms of dollars and users with 37.65 percent and 31.78 percent respectively and were accompanied by supplementary instruction for primary and secondary school students. Both of these segments account for more than 60% of the industry in terms of both dollars and subscribers.

Growth drivers of e-learning: The following are the major drivers of e-learning growth:

1. Education at a low cost compared to other modes of education.

2. Education of high quality in terms of latest knowledge and practicality is possible under e-learning mode.
3. Reskilling programmes to up-skill and increase employability are in high demand.
4. Government initiatives and a proactive attitude toward e-learning are also major causes for its well acceptance and adoption.
5. The number of people who use the internet is growing; as is the percentage of people (internet penetration) who use it.
6. The rapid growth of smart phone users has aided in the widespread adoption of e-learning.
7. People’s disposable income has significantly increased.
8. Youth aged 15 to 40 make up a significant portion of the population and they demand high-quality education and training in order to improve their knowledge and skills and obtain high-paying jobs.

Government policy support: In the education sector of India, 100 percent FDI (automatic route) is permitted. The Indian government has taken steps such as the National Accreditation Regulatory Authority Bill for Higher Education and the Foreign Educational Institutions Bill. IIT Madras under the flagship of Digital Skills Academy (DSA) started training courses in the banking, financial services and insurance industry in November 2020.

The All India Council of Technical Education (AICTE) had inaugurated 46 online AICTE Training And Learning (ATAL) academy to organize Faculty Development Programmes (FDPs) on ‘molecular manufacturing’ in November 2020 in a drive to develop and train its faculty worldwide. Around 46 on-line AICTE academic faculty development programmes (FDPs) on "molecular manufacturing" were opened to enhance and educate its faculty worldwide.

The Indian government broadcaster, Prasar Bharati, joined the MOU of 51 direct-to-home television education channels in collaboration with the Ministry of Electronics and Information Technology on November 4, 2020.

Table 1
Category-wise online education market in India 2016

Category	USD in Million		Paid users in thousands	
	USD in Million	Percentage	Number	Percentage
Primary and Secondary supplemental education	73	29.55	467	29.75
Test Preparation	43	17.41	196	12.48
Reskilling and online certifications	93	37.65	499	31.78
Higher education	33	13.36	55	3.50
Language and casual learning	5	2.02	353	22.48
Online education market (Total)	247	100	1570	100

Source: KPMG in India’s research and analysis 2017 and percentages computed by the author

The Union Budget 2020-21 allocated the Ministry of School Education and Literacy Rs. 59,845 Crores (USD \$8.56 billion) and Rs. 3,000 crore (US\$429.55 million) allocated to Revitalizing Infrastructure and Systems in Education (RISE) by 2022. The government planned embedded degree / diploma training in approximately 150 higher education institutions by March 2021 under the Union Budget 2020-21.

Investments are on Rise: EDTECH is projected to reach 3.5 trillion dollars by 2022 in India. It is estimated that investment by 2020 will top \$1.1 billion. The news, though, is that Indian edtech startups got \$2.22 billion in funding in 2020, up from \$553 million in 2019.

Impact of Covid 19: Schools, colleges and other educational institutions are shifting to online learning as a result of the pandemic Corona virus (Covid-19). While India was under martial law, e-learning changed the way people thought about education. Even when schools reopen, they will have to work with reduced classroom sizes to ensure social distancing, so the digital/online education (e-learning) market has a bright future ahead of times.

E-learning future prospects: By 2030, higher education in India is expected achieve the following:

1. Combine online learning and gaming preparation methods and is expected to rise 38% in the next two to four years. Adopt creative and transformational higher education practices.
2. Attain 50% in the Gross Enrolment Ratio (GER) from the current GER 26.3%.
3. Reduce GER to 5% on a state, gender and social basis. In other words giving more scope for females and other socially backward students in the GER, hence the disparity in GER is reduced by 5 percent.
4. One out of four graduates is an asset worldwide in order to make India the largest supplier of international talent on the Indian higher education market.
5. To attain rank among the top five countries worldwide with annual \$140 billion in research findings for R and D spending.
6. To make a spot in the best 200 universities in the world in the top 20 ranking (QS ranking).

Review of Literature

The review of literature is presented as follows by covering briefly the concepts of e-commerce, e-business, benefits and perceived demerits of e-commerce and e-business and the e-learning; concept, its types and importance of it in higher educational institutions:

E-Commerce: According to Chanana and Goele¹⁰, the use of electronic communications and modern information processing technologies in business transactions is to establish, turn and redefine relationships for value development between or among organisations, as well as between organisations and individuals. E-commerce, in

layman's words, is the technological extension of conventional company activities. As the most exciting use of information technology, it has allowed companies to improve internal productivity and extend their activities internationally, while overcoming regional barriers. There is a lack of a generally agreed description of e-commerce that offers a concise explanation. It is most commonly understood as the exchange of goods and services using an electronic medium. The utility of e-commerce, however, extends beyond the distribution and purchasing of goods and services over computer networks to include "the whole online method of creating, distributing, selling, shipping, servicing and paying for products and services."

E-business: E-business is defined by John Mitchell¹⁹ as conducting business electronically, while online learning is defined as accessing learning materials, events and support through computer networks. E-learning and open learning are subsets of online learning. In the developing and transitional worlds, e-commerce is still in its infancy and creating exceptional value through e-commerce for competitiveness has become critical for organisations that use e-commerce. Brahm Canzer⁸ defined e-business as 'the planned and organized effort of individuals and corporate to produce and sell products and services to meet the needs of society through the facilities available on the internet with an aim of making profit.

Scott²⁵ described e-business as 'a dynamic fusion of business processes, enterprise applications and organizational structure required to construct a high-performance business model'. Telephone banking, mobile banking, credit cards, ATMs and direct deposit are only a few of the familiar and comparatively advanced electronically focused offerings that banks are planning to use an e-business solution in emerging markets. This suggests that most banks have acknowledged the need to adapt their business processes to changing business patterns in order to compete.²³

Difference between e-commerce and e-business: Kalakota and Robinson proposed a distinction between e-business and e-commerce. They believe that "e-business is not just about e-commerce transactions or buying and selling over the Internet; it is the overall strategy of redefining old business models with the aid of technology to maximize customer value and profits." However, the terms are used as synonyms to each other in many contexts.

Benefits of e-business: Companies will benefit from e-Business in two ways according to Basu and Muylle⁷. These are known as:

1. Value Creation or Value Enhancement for one or more of a company's stakeholder groups; and lower cost of selling products and services to the consumer. Improving internal and external collaboration through successful e-marketing, increasing revenue through an e-commerce platform combined with back office processes and improving supplier

ties and efficiency through shared workspaces are all examples of value creation.

2. Lower costs include: reduced contact and transport costs through the use of online meeting tools, collaborative workspaces; and the value of license-free open source alternatives to proprietary applications.⁷

Online banking, as a part of e-business helps customers to check their balance or pay a bill at any time of day or night in banks. Online banks usually have¹³ online accounts and up-to-date statements. The statement can be used to confirm that a certain debit or credit has been processed; credit transactions can be used to pay bills electronically. There is also the option to set up a transaction now to pay the bill later. Upkeep of standing orders and clear debits. Businesses also see enormous potential for cost savings, sales generation, expanded market share, marketing and market entry and enhancing customer experience through direct links that allow for quick enquiry and reviews. Similarly, shoppers can enter the world market through the internet's virtual economy, choose from a broader variety of items and shop from the comfort of their own homes. Globalization and particularly the liberalization of communication networks, have all enabled this breakthrough, which would provide a significant boost to international trade.⁴

The economic benefits of e-business were classified into five groups according to Windrum and Berranger³⁴:

1. First, businesses should begin by broadening their global reach.
2. Second, higher efficiency in packaging, manufacturing and logistics processes will result in considerable cost savings.
3. Third, there is much to be learned by developing customer relations and management.
4. Fourth, the internet reduces the barriers to entry for prospective market participants and enables local companies to reorient their supply chain relationships in order to form new competitive partnerships.
5. Finally, e-commerce technology makes it possible to develop new products and business models.

Perceived demerits of e-business: Many e-business and e-commerce authors explored the vast promise and possibilities that e-Business and e-Commerce offer for customers and companies worldwide. However, there are certain pitfalls and the gains are also exaggerated. Many managers and analysts are under intense pressure to address the question of whether and how e-business investments generate business value, since it is unclear to them how this value is generated, what factors form that value and which of them are most important.³

There are a host of barriers that are unique to doing e-Business in developing economies like Africa¹. These include: low economic growth and low per capita incomes; an inadequate capacity base from which to create e-

commerce services; the number of internet users needed to build a critical mass of online consumers and a lack of experience with even conventional modes of electronic commerce, such as telephone purchases and credit card use. One of the most significant barriers to the use of e-Business as a way of increasing efficiencies is a systemic inability to interact with customers and suppliers online.

Further the author revealed that the cost of deployment, security issues, the perceived preparedness of customers, the absence of IT and e-business experience, the comparatively high cost of investment in ICTs, a lack of technological or administrative expertise, company inability to network with other businesses and questions on technology reliability are some of the challenges being faced by the business houses.

Irrespective of the perceived limitations, technology is growing and spreading across all the sectors and domains including education sector. In the beginning of the implementation of the technology, there could be hiccups but with adequate training to the employees, proper education and awareness on the part of the citizens and upgraded technology infrastructure with proper security system definitely make the e-commerce or e-business platforms well acceptable to do all types of transactions including reaching higher education products to the door steps of the people.

E- Learning: Weggen and Urdan³³ opines on e-learning as 'the delivery of content via all electronic media including the internet, intranets, extranets, satellite broadcast, audio/video tape, interactive TV and CD-ROM'. E-learning is a novel approach to teaching and learning that involves the use of the internet and other technological tools for information sharing, though it is still in its infancy in developing-country institutions as opposed to established counterparts.³¹ According to Pellet²², e-learning is a method of constructing a knowledge society through the development of knowledge management systems in which learning and learners are facilitated by electronic media as a result of the convergence of information, technology and communication.

Therefore e-learning is the development and application of information that is largely communicated and encouraged by electronic means. This type of learning is primarily reliant on networks and computers, but it will most likely expand into platforms that use a combination of media (e.g. wireless, satellite) and technology (e.g. cellular phones, PDAs) as they are developed and implemented. Courses, modules and smaller learning objects are all examples of e-learning. E-learning may provide synchronous or asynchronous connectivity and can be spread globally with varying time constraints.

Scope for e-learning: According to a UNESCO policy paper on reform and growth for higher education institutions, developing nations' institutions should make better use of information and communication technology

(ICT) to enjoy the benefits of open and distance learning as well as to encourage more prospective learning practices in life aimed at capacity enhancement for everyone, which is lifelong learning¹⁴. With the advancement of technology, the idea of the learning enterprise³² has evolved exponentially.

Technology is one of the main forces in the structuring and knowledge of society. The technological influence has brought in numerous progressive social reforms. It has led to improvements in the way students practice and in the education system.⁶ The 21st century is an age of globalization, where new norms for social life like higher education are laid down. E-learning is an important medium for centralized student learning. Furthermore, they have new and more versatile learning opportunities in higher education.

E-learning education is recognized as an added advantage in the education field observed by Zenaida.³⁷ India plays an important role in the e-learning industry as young people make up their largest demographic and no other technology-based learning is available at present. According to Brown⁹, e-learning is the educational method which in most developing countries is commonly used but is still used in higher education. In developing countries, adoption and use of e-learning are in the preliminary phase.

Problem statement/Research questions

The research by KPMG shows that gross enrollment is expected to be 19,64 lacs for all category, which is very low compared with the age group 15-64, which represents 877 million (67% of 1,31 billion www.statista.com) and therefore below one per cent (0.2239 percent). This implies that there is huge scope for the penetration of e-learning and the development of ICT infrastructure to effectuate the e-learning system of education system in India. Therefore, the following research questions are raised:

1. What role does e-commerce/e-business plays in bringing knowledge and skills to the desks of aspirants?
2. What level of ICT infrastructure is to be constructed to facilitate the creation and delivery of higher education products to aspirants?
3. What types of value addition and creation should be implemented to make e-learning more appealing to students?
4. What would be the most comprehensive theoretical model to address the aforementioned research questions?

Significance of the study

The proposed research is significant because it provides numerous benefits to e-learners in terms of lower costs, higher quality educational programmes, use of cutting-edge technology, more information (knowledge and skills) in less time, anytime, anywhere learning scope, no physical travel, access to globally high-rated courses and access to top global university programmes, all at the students' convenience. During the Corona virus, e-learning is a very convenient and safe option for students in primary, secondary, college and

university. All service providers such as e-commerce platform developers and educational service providers namely all types of educational institutions and training institutes, will be aware of their role in the delivery of knowledge and skills, as well as the opportunities for value additions for the benefit of e-learners in order to penetrate the market and meet the enormous latent demand.

Objectives of the research

The following are the objectives of research study:

1. To study and understand the concepts like e-commerce, e-business, e-learning.
2. To study the online education/e-learning market size and its growth in India.
3. To study and understand the merits and perceived demerits of e-commerce/e-business platforms.
4. To study the role of e-commerce in the creation and delivery of educational programs to the aspirants.
5. To study opportunities for value additions for the benefit of e-learners to attract encouraging enrollment in different courses.
6. To develop the most comprehensive theoretical model to address the aforementioned research objectives.

Research design

The qualitative approach has been chosen because qualitative methods help explain more extensively studied phenomena and contribute to emphasize the discovery and explanation of research experience.²⁸ This method differs from a quantitative method which focuses on testing variables and confirming results using a confirmatory statistical technique.²⁸ Most of studies in this area have relied heavily on experimentation, case studies and survey methods and there has been little use of a qualitative approach.¹¹ This qualitative approach is to bridge this gap and investigate the determining factors of use of e-learning facilities in Higher Educational Institutions (HEIs).

The research methodology to carry out the research work is described as follows:

1. Type of research: This is a qualitative research whereby the researcher reviews previous studies made at the global level to understand the fundamental concepts and theoretical models used in order to develop a comprehensive theoretical model to meet the objective of achieving e-learning market growth enormously.

2. Type of data: Secondary data is used from the studies of KPMG consultancy, different research fellows' works and other authenticated published sources such as journals, master level theses and bulletins if any.

3. Assumptions: The terms e-commerce, e-business, online business are used interchangeably. Similarly, the terms e-learning and online education are also used synonymously.

Observations

The following are the observations made out of the review of previous studies:

Value creation and e-commerce/e-business: In comparison to the field of e-business, value creation research is still rarely applied in e-Learning. Some of the selected models are discussed briefly in the following pages:

Four factor model of Amit and Zott⁵: For many years, e-business researchers have investigated various factors for value creation. Amit and Zott⁵ proposed the theoretical foundations of e-business value creation which refers to four factors: efficiency, lock-in, complementarities and novelty as portrayed in figure 4.

Efficiency is one of the main drivers of e-business value by lowering costs. New value for e-business is like new products and services, new transaction content, new transaction mechanisms etc. New value factor can be created. In order to contribute to the lock-in of the e-business value creation, the buyer - seller's confidence and trust can create a competitive advantage. In order to exceed customer expectations, complementarities (or complementarities) can be used in the industry to supplement products, services, technologies and activities.²⁷

In the similar lines Zeborek et al³⁶, Alawneh and Younis² and Christensen and Leif¹² also had proposed their models

based on the influencing factors such as Efficiency, Innovation or Novelty, Lock In and Complementarities.

Value creation model of Pedro and Angel²¹: Their model has three relations between internet and the e-business, internet and e-business resources and e-business and e-business capabilities. A sample of 1010 Spanish companies is employed to test hypotheses. The results show that the internet resources, as hypothesized, are by themselves not positively linked to e-business value. In addition, while internet resources are not positively linked to e-business value, they play a critical role in developing e-business capabilities. Moreover, the results confirm that e-company capabilities are key drivers for e-business as shown in figure 5.

Value Creation Model by Alawneh and Hattab³: The authors have tested their theoretical model by surveying data from 140 employees in seven leading banks in Jordan. The results show certain key findings based on simple and multiple linear regressions. The findings are

1. Technological readiness has been found to influence the value of e-business in banks most significantly.
2. The size of the bank, alignment of IT/business strategies and the accessible online income have considerable impact on the e-business value of banks while the commitment of financial resources and the adequacy of IT professionals do not.

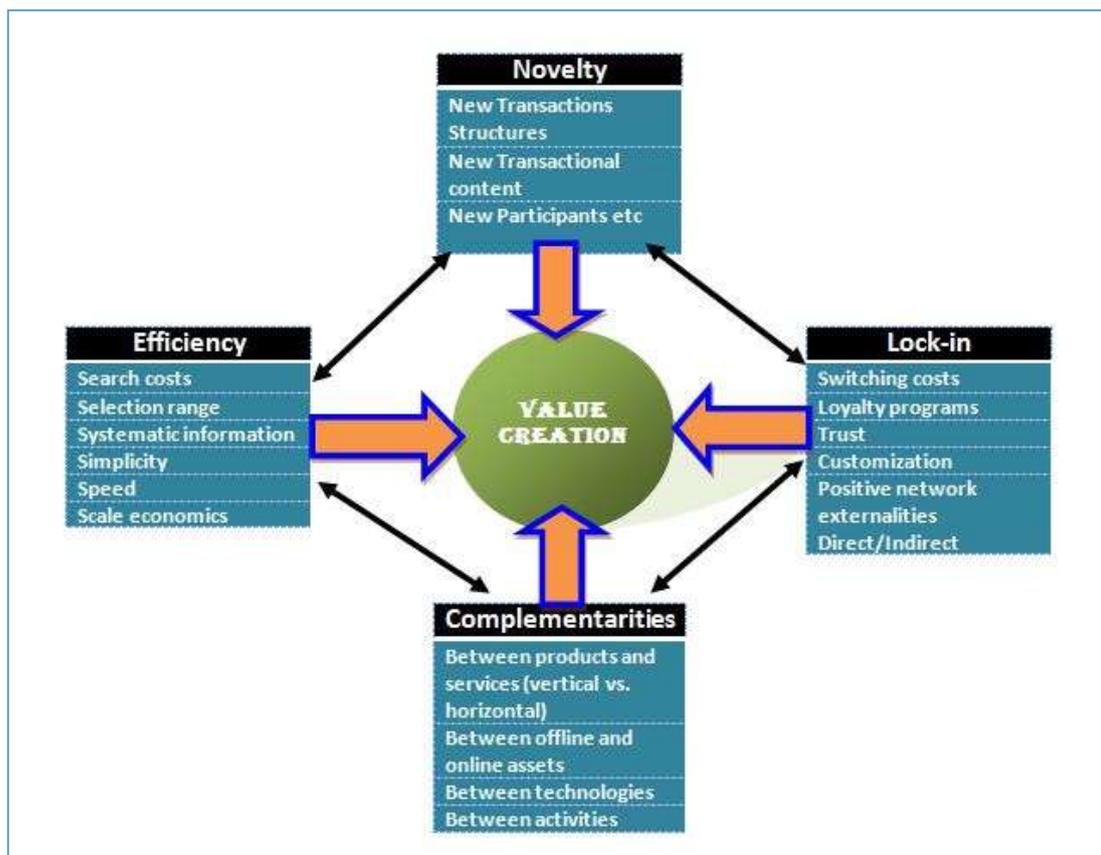


Figure 4: Factors of value creation in e-business (Amit and Zott⁵)

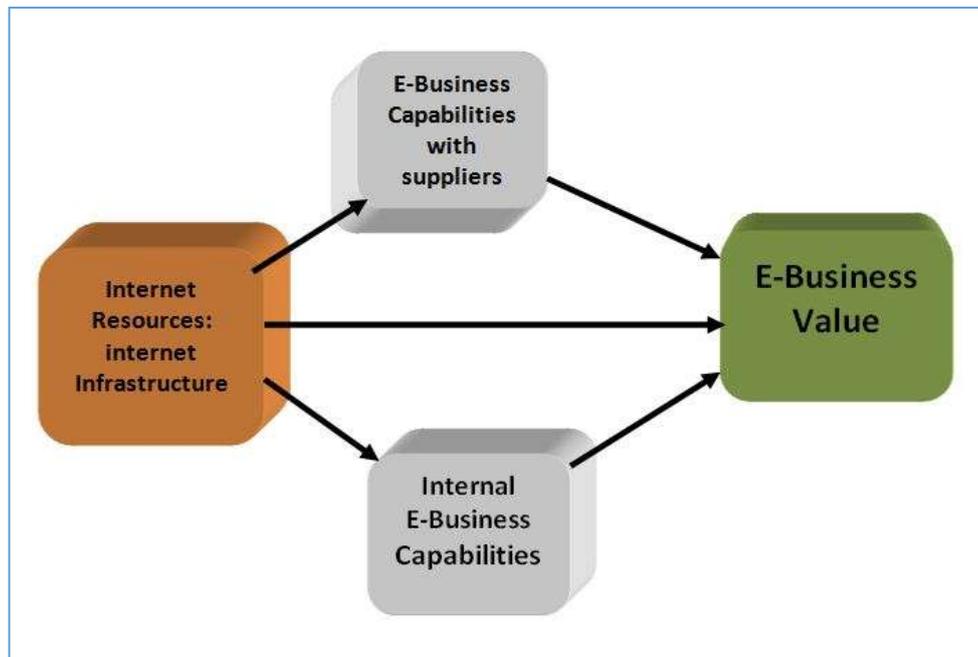


Figure 5: Value Creation Model by Pedro and Angel²¹

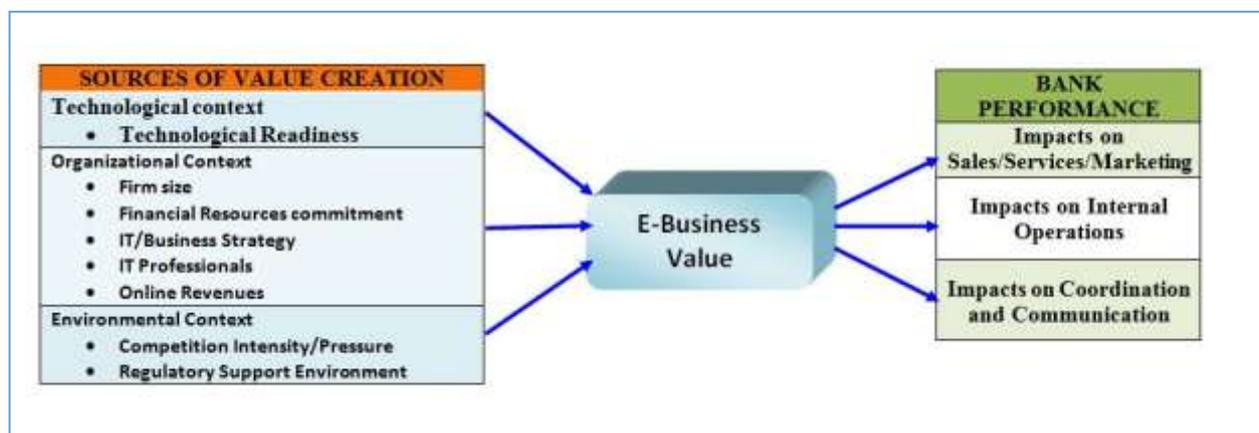


Figure 6: An extended framework for e-business value creation by Alawneh et al³

3. The intensity of competition and the regulatory support environment both contribute significantly to the value creation of e-business in banks. These findings show the usefulness of the research model proposed for the analysis of banks' e-business value. They offer insights to managers as well as policymakers. The relevant diagram is portrayed in figure 6.

E-Business Intensity-Readiness-Impact model by Zhu et al³⁸: A broad e-business impact model has been introduced by the authors. Their framework combines adoption measurement with an impact measurement approach that includes gains in growth and efficiency as well as quality improvements in stakeholder relationships. Their model connects the widely used universal TOE framework with the level of ICT use and the ICT value induced by e-business applications, emphasizing technological, organizational and environmental (TOE) determinants of ICT adoption (Figure 7). Value creation is defined as positive company effects on both internal and external procurement processes (i.e.

efficiency driven) and sales processes (i.e. growth or improved stakeholder quality driven).

E-business determine factors – Customer satisfaction: Algarni et al¹⁶ revealed that the factors determine e-business customer satisfaction and are grouped into five as follows:

1. Security including Threat, Vulnerability, Impact and Trustworthiness.
2. Strong Infrastructure including Business/ICT Strategy, Business/ICT Structure, Business/ICT Culture/Ease of Use, E-readiness and Simplicity.
3. Complimentary Services including Addition Services, Customer Support, Effective Technology, Usability, Staff Training and Technical Support.
4. Reliability including Service Deployment, Error-free Services, User-friendly Services, Content in Regional Language, Connectivity, System Effectiveness and Service Quality.

5. Regulatory Requirements including E-Market Place Policies, Rules and Regulations and Internet Speed.

In addition, the study¹⁸ has shown that the service quality and quality of the information in the form of e-services have a significant effect on customer satisfaction and in turn, on e-loyalty.

Representation Models of E-Business Models (Collection) from the Perspective of Value Creation: Guo¹⁷ had presented the summary of different e-business models and the factors that were considered by the authors

in representing the models and the same is depicted in table 2. The components or in other words factors were listed while proposing a e-business model. The number of components ranges from three to seven. The model of Gordijin et al is based on seven components namely: actor, value object, value offering, value activity, value port, value interface and value exchange. The model of 2013 proposed by Abdelkafi and Makhotin was based on five factors namely: Value proposition, Value creation, Value delivery, Value capture and Value communication. All models were proposed to create and offer value to the customer.

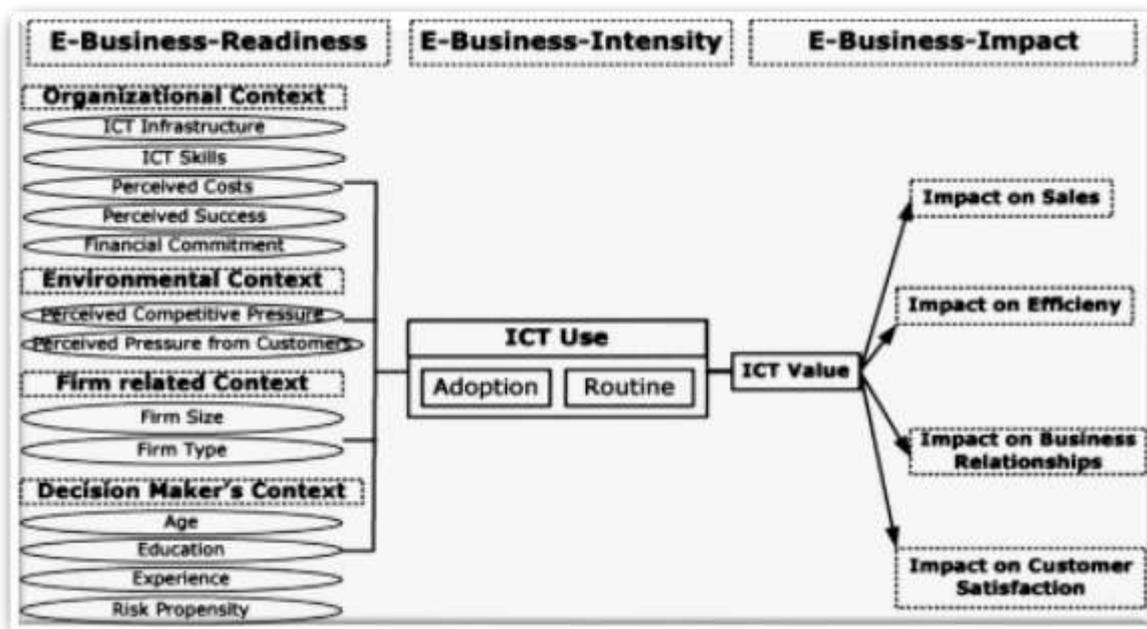


Figure 7: E-Business Intensity-Readiness-Impact model by Zhu et al³⁸

Table 2
Representation Models of E-Business Models – Factors

Author(s) (Year)	Components	Numbers
Gordijin et al (2012)	Actor, Value Object, Value Offering, Value Activity, Value Port, Value Interface, Value Exchange	7
Dubosson-Torbay et al (2001)	Product Innovation, Customer Relationship, Infrastructure Management, Financial Aspect	4
Afuah et al (2001)	Scope, Price, Connected Activities, Implementation Capabilities, Sustainability	5
Alt Zimmermann (2000)	Mission, Structure, Processes, Revenues, Legal Issues, Technology	6
Wendy L. Currie (2004)	Strategic Positioning , Product/Service Portfolios, Value Proposition, Value Capture	4
Linder and Cantrell S (2001)	Pricing Model, Revenue Model, Commerce Process Model, Internet Enabled Commerce Relationship, Organizational Form, Value Proposition	6
Mahadevan (2000)	Value Stream, Revenue Stream, Logistical Stream	3
Van Der Vost et al (2002)	Value Proposition, Roles Of Participants, Processes, Functionalities , Applications	5
Osterwalder (2005)	Relationship, Value Configuration, Capability, Cost Structure	4
Bhavini Desai and Wendy Currie (2008)	Market Positioning, Customer Expectation, Value Proposition, Products & Services, Revenue, Delivery Model	6
Abdelkafi N. et al (2013)	Value Proposition, Value Creation, Value Delivery, Value Capture, Value Communication	5

Source: Guo¹⁷

E- Learning Value Creation by Sfenrianto²⁷: There has been little work done to create value for e-learning on e-business platforms. Sfenrianto model's core components are: Learning Style, Motivation and Knowledge Ability. These are called triple-factor. The learning style factor is divided into three categories: will, discipline and diligence.

Similarly, the motivation factor is divided into three categories: low, moderate and high whereas the knowledge ability factor is divided into four categories: fail, sufficient, good and very good and model diagram is shown in figure 8. This model helps to quantify the e-learning value based on the integrated effect of learning style variables, knowledge ability level and the motivation level of the learner. For example, if the learner is operating at learning style (X_1) with low motivation (X_4) and with knowledge ability (either X_7 or X_8), he will have low learning value. This helps the teachers, parents and school and college administrators to focus on slow and low e-learning values based students to improve their learning ability by bringing

corresponding changes in the components of the three factors to maximize the e-learning value.

Value development model in Online Distance Learning University(ODL): This model is developed by Malgorzata Pankowska²⁰. The author states that in comparison to purchase costs, value is a preferred combination of benefits. From the perspective of an organization, the obvious response to customer expectations is a value proposal which shows how much value the customer can get. Externally, the declaration of value is the way the organization places the offer for the target customer.

The value statement internally identifies how the value should be generated, communicated, supplied and maintained. In the internal statement, processes, responsibilities, volumes and costs are defined in order to satisfy the customer and each of the other stakeholders in the e-Learning project. The same thing is depicted in figure 9.

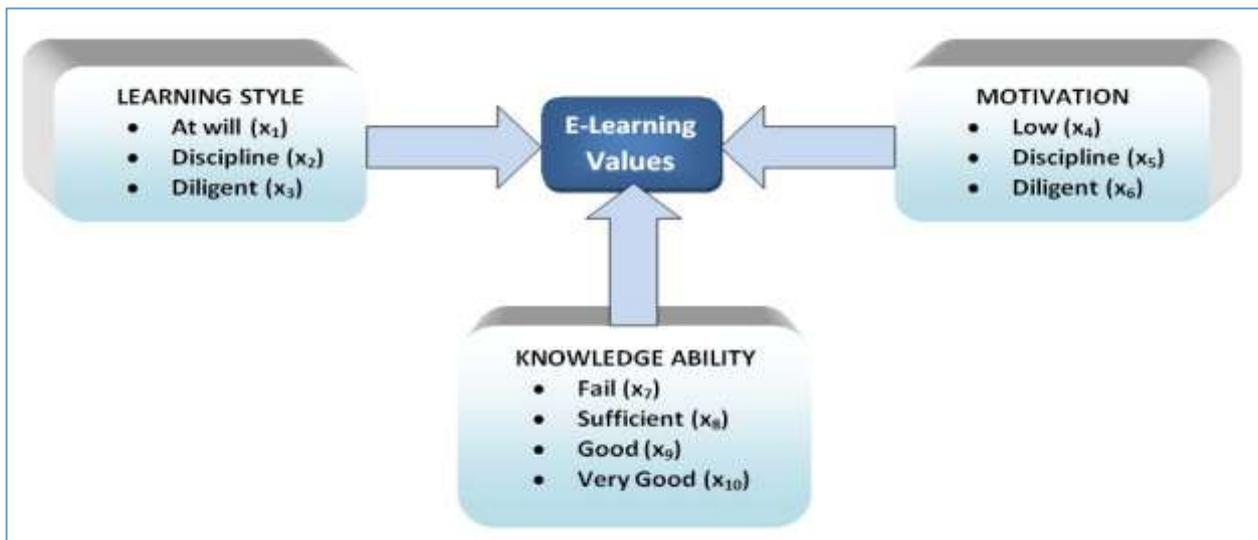


Figure 8: E-Learning value based on triple-factor by Sfenrianto²⁷

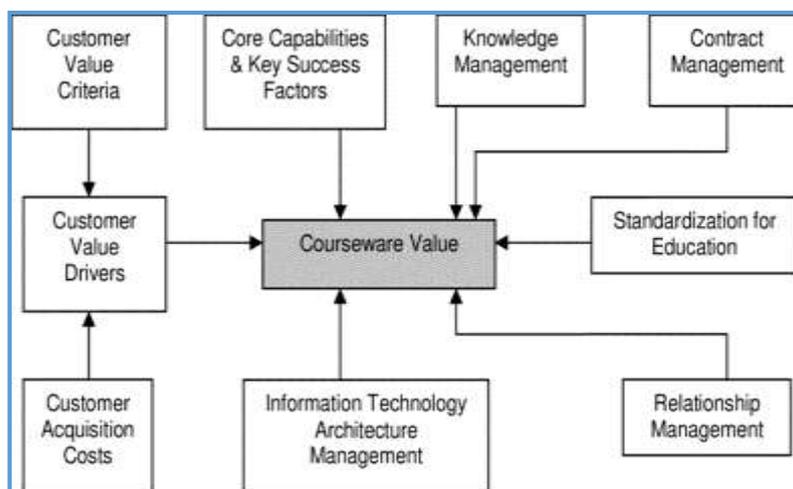


Figure 9: Value development model in Online Distance Learning University
Source: Malgorzata Pankowska²⁰

Courseware value is impacted by many factors such as customer value drivers, core capabilities and key success factors, IT architecture management, knowledge management, contract management, relationship management, standardization for education. Customer value drivers depend on customer value criteria and customer acquisition cost. More is the courseware value, more will be the customer satisfaction and in turn more e-loyalty.

E-learning widely used in industrial training: Companies are increasingly recognizing the value of e-learning over computer-based training (CBT) and instructor-led training (ILT).

This platform improves mobility and streamlines workflow, not to mention the cost savings.²⁴ Corporations can now create real-time training that is tailored to the needs of the workforce, thanks to the use of the internet. Having training materials available on demand has given businesses a competitive advantage due to their employees' increased skill sets.²⁹ Increased employee training boosts employee motivation and skill performance.

Suhasini et al²⁹ quoted the example of how Cisco systems are capable of developing monthly training modules that include videos showcasing new and upcoming technologies. As a result of the platform's ability to allow employees to participate in training from multiple locations and collaborate at the same time, performance has increased. If an employee is unable to attend the live training session, e-Learning can be used in their place.

Figure 9 depicts the same thing. The demand for more, up-to-date and current knowledge with rapid delivery, regardless of the learners' geographical distance and the

ability to learn at any time provides opportunities to innovate new technology to create and develop curriculum and deliver it to the learners' desktop/laptop. This is due to e-learning with the assistance of e-commerce/e-business platforms.

Discussion

The online education or e-learning is summarized in figure 10. The online education in both the B2C and C2C models is described in figure 10. Consumers are categorized as K12 students, university students, job seekers and professional workers. In most of our content providers, professors, schools, content publishers and freelancers are included. There are clear self-explanatory expectations of consumers and the responsibilities of content developers/writers. Online role players can participate in the B2C model in which content developers share their revenues. There are several alternatives. Furthermore, corporate partnerships can co-create content and affiliates can promote courses and provide platforms. All of this is only effective if the IT infrastructure, web service providers and others contribute to a supportive environment.

The concept of a business model was given considerable consideration by both academics and practitioners due to the rapid development of e-commerce. The e-business experience "bricks and clicks" is a little bit limited. The creation of e-business value is long-term oriented. But there is a lot of scope in the future. The research shows that the more an enterprise experiences with e-business, the greater are the advantages and the greater is the e-business value. In addition, experience allows companies to mature e-business and subsequently, take the advantages of online business. Many researchers revealed that there is a relatively strong association between value creation and e-business conduct.

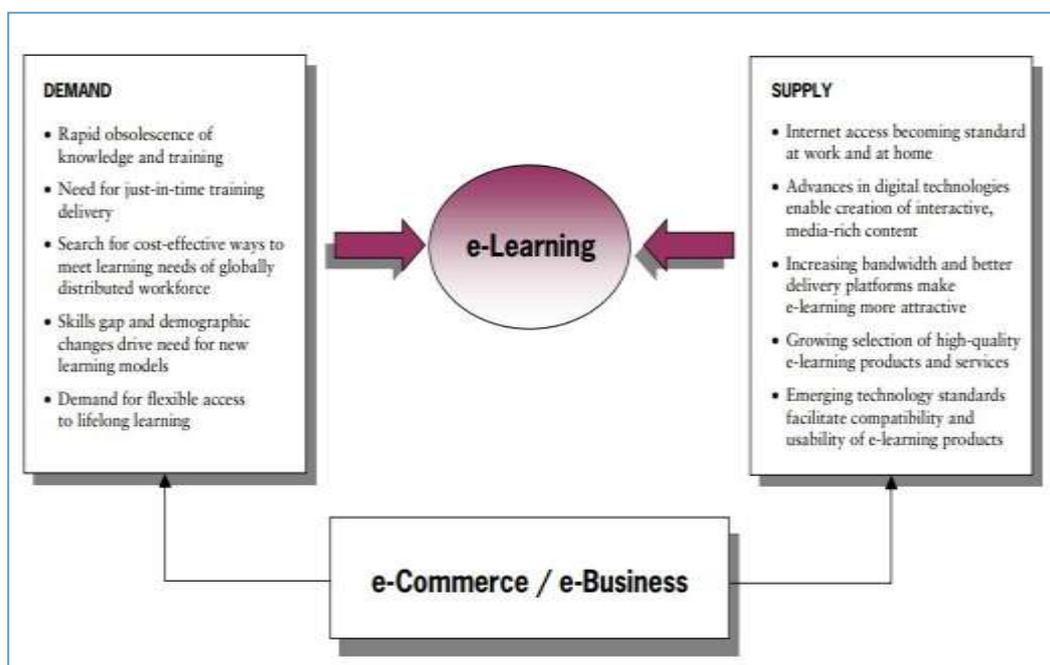


Figure 9: E-learning: Demand and Supply; Source: SRI Consulting and WR Hambrecht + Co

The researchers claim that e-business showed a general increase in economic and financial indicators particularly the profitability measures and led to increase for sales volumes, product varieties and/or geographical reach. These companies and business houses tend to participate more in online business i.e. they make high ratings for the share of the total online business.

The researchers suggest that more on-line enterprise – both completely and relatively – is associated with economies of scope, that is to say, with the efficiency gains achieved by

increasing the market size of the company's goods and services. This enhances the profitability of the company in turn. Efficiency in terms of reduced lead times, removal of intermediaries, decreased wrong or returned goods and/or costs, are also impacted and show some increase in sales income and a decline in the number of employees.

In simple terms it can be stated that efficient online business, together with broader market scope, tends to increase business competitiveness, both for pricing and the ability to satisfy customers.

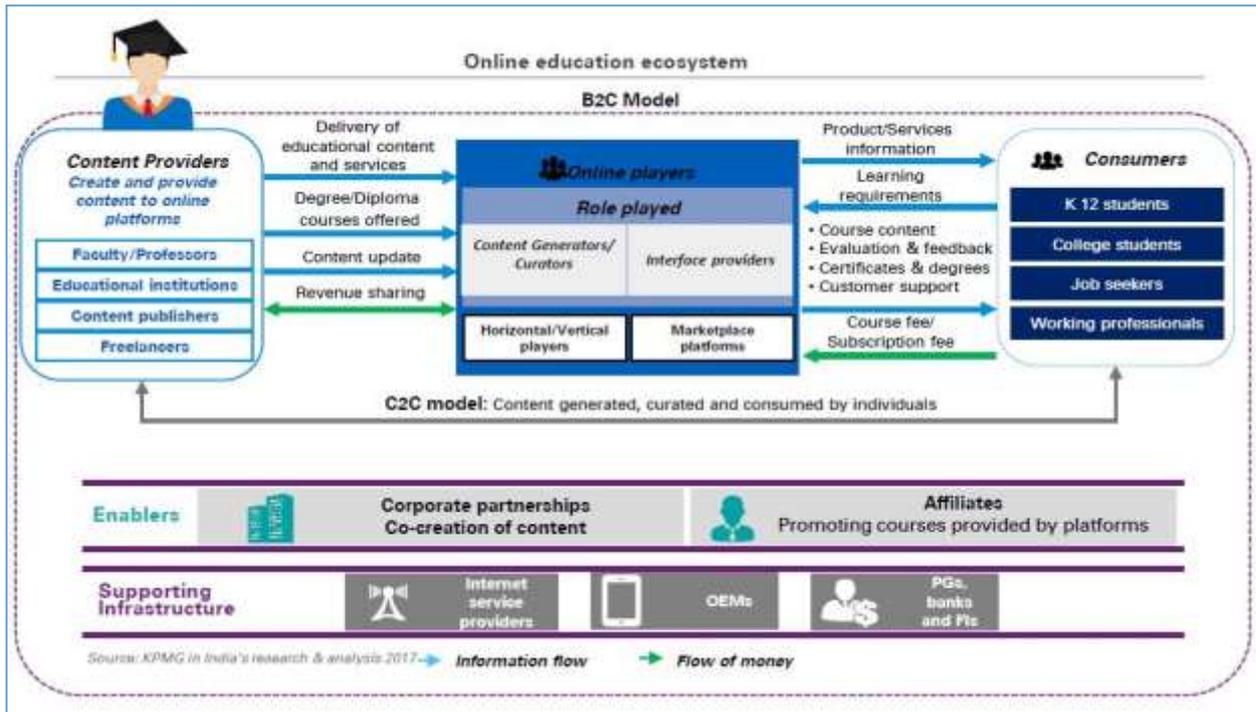


Figure 10: Online education ecosystem; Source: KPMG in India's research and analysis 2017

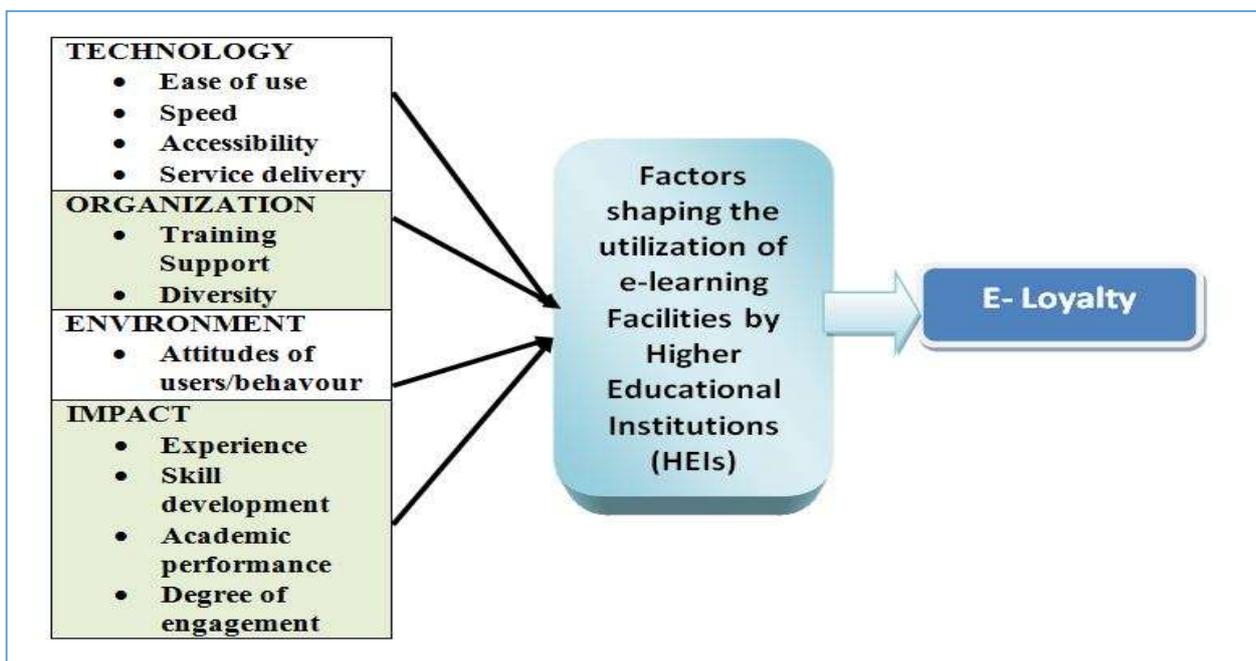


Figure 11: Proposed Model by the author based on the model of Sunday C. Eze et al³⁰

Recommendations

Based on the above discussion and observations made, a simple theoretical model (Figure 11) is prescribed to make e-learning system successful in reaching the Indian learning youth. This model is framed based on the inputs of the model developed by Sunday C. Eze et al³⁰. Basically the factors that determine e-learning in higher educational institutions are four; namely Technology, Organisation, Environment and Impact.

1. Technology includes ease of use, speed, accessibility and service delivery which are very critical in establishing the effectiveness of e-learning system in an institute or a university or even a nation.
2. Organisation includes training support meaning that institutions can use the e-learning facilities to involve teachers and students to make sure that they master use and application over time. Diversity implies here that several aspirants are of the opinion that they will engage in e-learning if such facilities allow them to engage in multiple activities while using the facilities.
3. Environment refers to attitude of the teachers and students. In other words how teachers and students interact with e-learning resources. It is a significant factor that influences how students use e-learning facilities.
4. Impact includes experience in using e-learning tools. For an experienced student there may not be a problem. For a fresher having no knowledge of using e-learning tools, will struggle in the beginning. Skill development is the ability to help students to gain new skills and improve their ability to learn. Academic performance is defined as the extent to which the e-learning facilities aid students' assessments, results, presentations and virtual interpretations. The extent to which teachers and students use the e-learning facilities available at the institution is the degree of engagement or commitment.

Conclusion

The HEIs should prioritize technology in terms of ease of use, high internet speed and free access to courseware regardless of time or place, as well as timely service delivery referring to electronic study material, clarifications for aspirants' doubts and quick responses to any other questions. Regarding training support, the institute's management must interact with both teachers and learners to ensure that both parties are involved in the teaching learning process, in addition to organizing virtual get-togethers for purposes other than academics such as meet-ups among students, teachers and students and teachers to get to know each other. Similarly, meet-ups between current students and the alumni are organized to explore opportunities for the current students.

Based on the academic performance of the students, low performers are counseled to develop a positive attitude towards the course, instructors and technology being used. Fresher students who have never used technology before should be given at least two weeks of orientation so that they

do not feel embarrassed and can learn the skills on par with the experienced candidates. Therefore, they get engaged fully in the utilization of the facilities and learn effectively and show their excellent academic performance. This definitely creates e-loyalty for the institute.

Scope for future research

1. An analytical study of the effectiveness of e-learning in management education at selected South Indian universities.
2. A comparative study of the effectiveness of e-learning at selected public and non-public universities in Kerala.
3. A comparison of the effectiveness of e-learning for management students in rural and urban areas of Kerala.

References

1. Akoh B., Business in developing world, Africa and Ethiopia: Ethiopia in the knowledge age, Paper presented at the conference of ICT Africa Plc, Ethiopia (2001)
2. Alawneh A.A. and Younis M.B., Drivers of E-Business Value Creation in Banking Sector Jordan: A Structural Equation Modeling Application, *International Journal of Managing Information Technology*, **6(2)**, 149-164 (2014)
3. Alawneh A.A. and Hattab E., An Empirical Study of Sources Affecting E-Business Value Creation in Jordanian Banking Services Sector, *International Arab Journal of e-Technology*, **1(2)**, <https://doi.org/10.4018/jantti.2009040104> (2009)
4. Sohani A.K., Technology and Banking Sector, ICFAI University Press, 1-39 (2009)
5. Amit R. and Zott C., Value Creation in e-business, *Strategic Management Journal*, **22(6)**, 493-520 (2001)
6. Archer W., Garrison R. and Anderson T., Adopting disruptive technologies in traditional universities: Continuing education as an incubator for innovation, *CJUCE*, **25(1)**, DOI: <https://doi.org/10.21225/D5Z015> (1999)
7. Basu A. and Muylle S., How to plan E-business initiatives in - Established companies, *MIT Sloan Management Review*, **49(1)**, 28 (2007)
8. Brahm Canzer, E-Business and Commerce Strategic Thinking and Practice, Houghton Mifflin, 114-312 (2009)
9. Brown C., Thomas H., Merwe A. and Dyk L., The impact of South-Africa's ICT Infrastructure on higher Education, International Conference of ELearning, Cape Town, South Africa 69-76 (2008)
10. Chanana N. and Goele S., Future of E-Commerce in India, *International Journal of Computing & Business Research*, Proceedings of 'I-Society 2012' at GKU, Talwandi Sabo Bathinda (Punjab) (2012)
11. Choudrie J. and Dwivedi Y.K., Investigating the research approaches for examining technology adoption issues, *J Res Practice*, **1(1)**, 1-12 (2005)
12. Christensen G. and Leif M., Value Creation in eBusiness: Exploring the Impacts of Internet-Enabled Business

- Conduct, BLED Proceedings, <https://aisel.aisnet.org/bled2003/68> (2003)
13. David Whiteley, E-Commerce Strategy, Technologies and Applications, Tata McGraw Hill, 3-143 (2001)
 14. Dejan D. and Peter K., ICT and Lifelong Learning, Accessed on April 21, 2021, <http://www.eurodl.org/materials/contrib/2004/Dinevski.html> (2004)
 15. Eram Tafsir, A billion Internet users to drive demand; India staring at \$6 trillion consumption opportunity, Financial Express, April 25th 2019, <https://www.Financialexpress.Com/economy/a-billion-internet-users-to-drive-demand-india-staring-at-6-trillion-consumption-opportunity/1559007/> (2019)
 16. Fahad Algarni, Yen Cheung, Vincent Lee and Azmat Ullah, Customer Satisfaction: Moderator of e-Business Performance and e-Business Liveability, *Journal of Software*, **10(5)**, 524-537, doi: 10.17706/jsw.10.5.524-537 (2014)
 17. Guo Z.C., A Literature Review of Representation Models of E-Business Models from the Perspective of Value Creation, *American Journal of Industrial and Business Management*, **6**, 129-135, <http://dx.doi.org/10.4236/ajibm.2016.62013> (2016)
 18. Izyan Hizza Bt. Hila Ludin and Boon Liat Cheng, Factors Influencing Customer Satisfaction and E-Loyalty: Online Shopping Environment among the Young Adults, *Management Dynamics in the Knowledge Economy*, **2(3)**, 462-471 (2014)
 19. John Mitchell, E-business and online learning - Connections and opportunities for vocational education and training, Australian National Training Authority, www.flexiblelearning.net.au (2003)
 20. Malgorzata Pankowska, Value development at Online Distance Learning University, *Journal of Theoretical and Applied Electronic Commerce Research*, **1(3)**, 28-41 (2006)
 21. Pedro S. and Angel L.M., Analyzing e-business value creation from a resource-based perspective, *International Journal of Information Management: The Journal for Information Professionals*, **28(1)**, 49-60 (2008)
 22. Pelet J.E., E-Learning 2.0 Technologies and Web Applications in Higher Education, Accessed on April 21, 2021, https://www.google.co.in/books/edition/E_Learning_2_0_Technologies_and_Web_Applications/u0wXAgAAQBAJ?hl=en&gbpv=1&dq=E-Learning+2.0+Technologies+and+Web+Applications+in+Higher+Education.&printsec=frontcover (2014)
 23. Rahmath Safeena, Hema Date and Abdullah Kammani, Internet Banking Adoption in an Emerging Economy: Indian Consumer's Perspective, *International Arab Journal of e-Technology*, **2(1)**, 56 – 64 (2011)
 24. Rose M., Why Blended Learning Is Ultimately Best for Corporate Training, <https://elearningindustry.com/blended-learning-ultimately-best-corporate-training> (2014)
 25. Scott K.V., The technical writer as software process catalyst, Proceedings of IEEE Professional Communication Society International Professional Communication Conference and Proceedings of the 18th Annual ACM International Conference on Computer Documentation: Technology and Teamwork, Cambridge, Massachusetts, IEEE (2000)
 26. Sfenrianto et al, An Approach to Direct Learning Types Based on Tripple Factor in E-Learning Processes, *Journal of Next Generation Information Technology*, **5(1)**, 9-15 (2014)
 27. Sfenrianto, A Model of e-Learning Value Creation Based on Triple-Factor, 2016 IEEE International Conference on Teaching, Assessment and Learning for Engineering (TALE), 7-9 December 2016, Dusit Thani Bangkok Hotel, Bangkok, Thailand, 370-373 (2016)
 28. Silva L., Post-positivist review of technology acceptance model, *J Assoc Inform Syst.*, **8(4)**, 255–266 (2007)
 29. Suhasini R. and Suganthalakshmi T., Emerging Trends in Training and Development, *International Journal of Scientific and Research Publications*, **5(3)**, 1-10 (2015)
 30. Eze Sunday C. et al, Factors influencing the use of e-learning facilities by students in a private Higher Education Institution (HEI) in a developing economy, *Humanities and Social Sciences Communications*, <https://doi.org/10.1057/s41599-020-00624-6> (2020)
 31. Wannasiri B., Oudone X., Zo H., Jae J.R.B. and Andrew P.C., Critical success factors for e-learning in developing countries: A comparative analysis between ICT experts and faculty, *Computers & Education*, **58**, 843-855 <https://doi.org/10.1002/j.2326-1951.1965.tb00800.x> (2012)
 32. Watkins K.E. and Marsick V.J., Sculpting the learning organization: Lessons in the art and science of systemic change, San Francisco, Jossey-Bass (1993)
 33. Weggen and Urdan, Corporate E-Learning: Exploring a New Frontier, WR Hambrecht + Co, 1-95 (2000)
 34. Windrum P. and De Berranger P., The adoption of E-Business Technology by SMEs Infonomics Research Memorandum Series, Retrieved form: <http://arno.unimaas.nl/show.cgi?fid=205> (2002)
 35. Yen-Yi H., Trust Worthy Computing: Information Security and Management, IEEE International Conference on Sensor Networks, Ubiquitous and Trustworthy Computing, 5th -7th June 2006, 54-65 (2006)
 36. Zaborek P., Doligalski T. and Sysko S., e-business and financial performance: researching Polish Online Conference, St. Petersburg, Russia, 25-27 (2013)
 37. Zenaida T.D., Present-day-Profiles, Prospects and Challenges on the use of ICT for Education in South East Asia” “e-Learning”-Seventh programming cycle of APEID Activities, Japan (2004)
 38. Zhu K., Kraemer L. and Dedrick K., IT payoff in e-business environment: An international perspective on value creation, *Journal of Management Information System*, **21(1)**, 17–54 (2005).

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