Technology Based Self-learning—Case of Zucate

Pradnya Chitrao, Pravin Kumar Bhoyar and Rajiv Divekar

Abstract

Background Profound technological, economic and social transformations have marked the very beginning of the twenty first century. IT progress will greatly enrich possibilities in production, transportation, energy, commerce, education and health. Progress in information and communication technology has increased new opportunities for learning. Many colleges, schools, universities and organizations use the online-learning concept for enhancing in an effective and interactive manner the knowledge, abilities and skills of learners. Technology can expand what children learn by helping them to understand core concepts in subjects like math, science, and literacy.

Use of Technology by Enterprises for Improving Learning in India Today with both parents working, there is a profound need felt by both students as well as parents for resources that will take care of the learning needs. The 21st C has made available a lot of technology involving computers and internet that is being used in the learning aids being devised for students. One such enterprise is Zucate founded by Ms. Roli Pandey and Dr. Moitreyee Goswami.

Objective The paper studies Zucate, an enterprise that strives to create "a teacher-student-parent ecosystem with student at the center" (https://www.f6s.com/zucate). The objective is to examine how technology can be employed in a cost effective manner to enable students, especially school children to learn on their own post school hours.

Research Methodology The researchers have used the primary research technique of personal interview of the founders of the enterprise. They have also referred to secondary data.

P. Chitrao (✉)
Symbiosis Institute of Management Studies (SIMS), Constituent of Symbiosis International University, Pune, India
e-mail: pradnyac@sims.edu

P. K. Bhoyar · R. Divekar
SIMS, Pune, India

S. Fong et al. (eds.), *ICT Analysis and Applications*, Lecture Notes in Networks and Systems 93, https://doi.org/10.1007/978-981-15-0630-7_13

Significance of the Study The study is important as it gives insights into how technology can be used to create teaching and learning resources that will enable children and students to grasp concepts and do self-learning without taking recourse to costly, time bound tuitions or even tech savvy, expensive learning resources being offered by regular enterprises.

Keywords Technology · E-learning · Cost effective · Teacher-student-parent ecosystem

1 Introduction

Technology has been changing classroom practices and learning processes. Researchers have shown on the basis of the Second Information Technology in Education Study [5] that covered 28 countries in Africa, Asia, Europe, North America and South America, that technology is modifying classroom practices and learning processes. Gone are the days of mere chalk and talk by teachers. Curricula of schools has become very demanding going beyond reciting famous texts, recounting simple scientific facts, and solving basic arithmetic problems. In other words, students today are expected to learn a lot more complex concepts.

Today, more and more families are nuclear with both father and mother working. This leaves very little time for any of the parents to sit with the child and monitor studies after school hours. This has an adverse effect on the child's studies.

Technology can improve children's learning capability by supporting four fundamental characteristics of learning:

(a) Active engagement,
(b) Participation in groups,
(c) Frequent interaction and feedback, and
(d) Connections to real-world contexts

Johannessen [3] observes that we are increasingly using technology in all facets of our lives and we need to look at the question of whether the use of technology improves students' performance. Technology-mediated learning environments help students to search and analyze information, solve problems, communicate and collaborate; it equips them with a set of competencies that help them compete in the 21st century marketplace. Today, on account of technology, the role of the teacher has shifted from being the sole source of information to a more complex role of providing a varying degree of support for different students, monitoring students' progress, and encouraging reflection on classroom activities. Students also can, with the help of technology, are more engaged, and can make better connections between their previous learning experiences and the new concepts or principles being taught [4]. Tamim et al. [6], for example, found that learning aided by technology can have positive effects.

2 Literature Review

One of the biggest challenges of higher education reformation in developing solutions is facilitation and delivery of the right information and skills to the right learners at the right time. Virtual learning becomes a sub section of e-learning which describe internet based learning systems in an economical model rather than other conventional educational models.

E-learning is defined as "… any use of web and internet technologies to create learning experiences" [2]. It has also affected the education industry creating a paradigm shift in the way things are taught and learnt.

With the advent of mobile technologies, a new paradigm of teaching and learning with technology aid has emerged, that is mobile learning (M-Learning). Mobile technologies purvey opportunities to hold new and interesting methods of teaching and learning, both beyond and inside the classroom. The technological features of M-Learning are portability, immediacy, connectivity, ubiquity and adaptability [7]. It facilitates access to learning anytime and anywhere by enabling connectivity and the employ of multiple apps for educational purposes [1].

3 Objective

The research seeks to find out how some enterprises are using technology to bring about more effective self-learning among school children in a cost effective manner.

4 Research Methodology

The researchers focused on one case study of an enterprise called Zucate started by two women entrepreneurs for self-learning resources for school children. They conducted structured interviews of the founders. They also carried out secondary research.

5 Significance of the Study

The study is important as it gives insights into how technology can be utilized for creating teaching and learning resources that will enable children and students to grasp concepts and do self-learning without resorting to costly, time bound tuitions or even tech savvy, expensive learning resources being offered by regular enterprises. It also has the potential of helping students from low income groups to manage their studies in a cost effective manner.

6 Findings

6.1 Genesis

Zucate founders, Ms. Roli Pandey and Dr. Moitreyee Goswami are students of the EDP (2016 batch) conducted Symbiosis Institute of Management Studies (SIMS, Pune) for women. Dr. Moitreyee, post MBA in 2013 worked for a year for a company which was into Public Health. Ms. Roli worked as Business Development Manager for a startup in Healthcare. Both did not experience work satisfaction as they perceived their jobs as not giving any scope for creativity. So they signed up with an online learning resource company called Think Vidya (branded now as UrbanPro) as teachers. The subscription fee was Rs. 100, and for every student allotted Rs. 20 would get deducted. They both opted to teach BBA students, and charged Rs. 3,500/- for a subject (Rs. 18,000/- for all subjects of a semester). The students would come home and be taught on a one on one basis. They started dropping pamphlets of their classes in Vishrantwadi. They also gave medical stores Rs. 100 per month to display their posters. Also, by now their student network was growing. They then started teaching school students all subjects (except Marathi and French) on a one-on-one basis for Rs. 3,000/- per month. This business they called Enlightening Minds. It is still functional.

Both soon realized that there was a dire need to strengthen the foundation concepts of students in all the subjects. They found that elite schools were forcing parents to withdraw from CBSC and ICSC Boards and to enroll in open school boards namely National Institute of Open School University (NIOS). St. Helena's School in Pune is the center for NIOS schooling. The academic future of children passing from such boards, according to the founders, is not bright.

Ms. Roli contacted her relatives in Raipur who were into teaching children from poor families. There, children make aero planes out of the school books. They are also sent to school only for the free mid-day meal. The children had no access to proper schooling. At that time, many online educating businesses were starting. These businesses were offering each school subject for prices between Rs. 8000/- and Rs. 25,000/-. They offered videos with lots of animation and very less content. Some of them were offering school level. The two friends decided to start an online teaching platform of their own as by now they had a lot of content. They decided that their teaching platform would be holistic namely, study, revise, doubt clearing sessions, and exam preparation through mock tests all of which would be interactive, comprehensive, and multilingual.

They decided that the pricing would be subscription based with Rs. 100 as basic subscription fee and Rs. 10–15 per chapter being deducted from the basic registration fee. Their earlier business of teaching on a one-on-one basis is still functional and is called Enlightening Minds.

6.2 Recognition and Support

Potdar International School in an Indian Entrepreneurs' Meet in Mumbai suggested that they should use their content for training Aanganwadi teachers. Government will pay the subscription fees for training them. Since Aanganwadi centers are digitalized centers, this online training can be imparted. Their business is now one of the 15,000 startups that NASSCOM agreed to support.

F6S is a platform where multiple entrepreneurial bodies put their forms wherein they submit their business plans, financials, pitch (standardized form of presentation of 10–12 slides), marketing strategy, and product demos. The founders put up their business on F6S in December 2015, and got help from NASSCOM in March 2016. NASSCOM gave the technological backing i.e. tools worth a crore rupees free of cost for one year. The tools included technology development, HR accounting, marketing, e-mailers, cloud services, payment services, and toll free numbers. Through NASSCOM, they applied for Microsoft's BizSpark Plus Program which is an initiative for cloud services in association with Government of India. They got their subscription for one year worth Rs. 60 lakhs free of cost. NASSCOM gives every week training on business aspects in Kharadi, Pune. The founders attended the training in 2017.

The founders went to IIT, Powai (SINE, IIT) in June 2016 for a mentor matching event. They cleared the interviews and got their first mentor namely, Mr. Mahindra Kapadia, an ex-President of IIT, Powai Alumni Association. He hand holds the founders free of cost and the consultation is equity based (namely 1%). He also is part of an urban-rural special interest group that is into educating poor people from urban slums and from rural areas.

The founders also got Microsoft Big Spark in April 2016.

6.3 Business Costs

The business costs are under three headings:

(1) Technological which is about 10% and which comes to around Rs. 2000/- because of NASSCOM and Microsoft support.
(2) Marketing Cost which is organic that is word of mouth and through social media and which is about 30%.
(3) Administrative Costs which is around 60% i.e. around Rs. 12,000/- per year. Government compliances like ROC (Registrar of Companies), IT (Income Tax), annual returns are the main administrative costs.
(4) Total costs for first year will be around Rs. 20,000/-. The costs will subsequently increase each year as the ladies will start drawing salaries, employ people, and hire office premises. In 2017, the company was registered from Dr. Moitreyee's home in Kolkata. The firm is now profiled in World Disrupt June 2016 edition

6.4 Launch

The founders are launching content for the 10th standard in January 2018. Over a period of time, they will launch for other standards.

6.5 Premises

The founders have now taken premises on rent in Symbiosis Center for Entrepreneurship and Innovation (SCEI) campus at Lavale, Pune for Rs. 5000/- per month. They also pay 2% equity. The contract is for two years and began in August 2017.

6.6 Use of Technology for Self-learning Resources

The founder have prepared content that is in the form of a visually interactive video. For this they made use of artificial intelligence. This technology is handled by the founders themselves. Dr. Moitreyee is doing certification course in App Development from Cambridge University and Ms. Roli is a software engineer. The two of them have used artificial intelligence to make the learning platform a personalized one wherein it adapts to the child's pace of learning. Now the platform also includes cognitive learning. The platform takes the learner back to the previous level of learning, clears that concept, and then bring the learner back to the present level of learning. So the platform can take the student back to even the 3rd standard if he/she has forgotten some basic principle taught at that level. The platform thus utilizes a technology called Meta Cognitive Task Analysis. For example, for a compound interest problem in arithmetic, one needs to apply multiplication, division, and percentage principles. The platform identifies which task one is stuck with, and takes one back to the level where that particular concept is taught and refreshes the learning of that concept.

The founders themselves have done the coding for this App by using open source technology. They conducted two pilot studies with two hundred students of the platform from various education boards, one for the understanding of the content and the other for the ease of usability of the content. The results were 95% positive. Students performed better because of this platform. Another pilot study was done with teachers. They found that 88% teachers were willing to use Zucate as a medium of teaching.

The platform also uses Chat Bots. It also assists the students navigate smoothly without any adult supervision. It even saves the answers to the new queries and makes them available for future use by the next user who may have the same query. This reduces redundancy.

6.7 Awards and Recognition

Zucate won the Pune Pitch Fest in April 2017 organized by Spinta Global Accelerator, Silicon Valley, US. Post this, they got selected for Tech Innovation Fund by Kalaari Capital. The business also got selected on partial sponsorship to represent India in World Entrepreneurs' Investment Forum2017 organized by UNIDO namely, United Nations' Industrial Development Organization in Bahrain, Manama.

7 Conclusions and Recommendations

The findings clearly show that the enterprise facilitates self-learning at a reasonable cost. Established institutions (read schools, colleges and universities), more often than not, are resistant or reluctant to change or to adopt new paradigms of technology, stonewalling ed-tech startups. The case of Zucate shows that education sector will change forever and technology companies will bring about this change.

First and foremost artificial intelligence will personalize self-learning platforms. Education works through a nexus of Content, Coach and Community. Adaptive learning algorithms, targeted analytics and AI tools can help create the first 2 Cs, which can make education platforms connect with consumers. Gamification and social media connect can cater to the third C. This really is the future of education. We can well visualize in the near future a learning tool that can point and correct weak areas of a school kid even before the teacher or parents become aware of them. Secondly, with children today getting their first learnings from iPad and similar touch devices as also smart phones, early learning apps will soon become household phenomena and shape future generations. Established institutions will come around and realize the inevitability of technology intervention in education deliverance. The education industry will soon be massively impacted and revolutionized by technology intervention and positive disruption in the coming decade.

Government and venture capitalists should recognize similar enterprises like Zucate and support them. This will answer the problem of children's studies suffering on account of the present day trend and need of both parents working in a highly competitive corporate world and having very little energy for teaching and helping their children in their studies. Such technology driven platforms can also aid educators in teaching children concepts in a holistic manner. It will also enable low income group students access such self-learning platforms as it is cost effective.

References

1. Fundación Telefónica (2013) Mobile learning guide
2. Horton W (2003) E-learning tools and technologies: a consumer's guide for trainers, teachers, educators, and instructional designers. Wiley, Indianapolis, IN, USA, p 13

3. Johannessen O (2009) In search of evidence: the unbearable hunt for causality. Retrieved from the organization for economic co-operation and development. http://www.oecd.org/dataoecd/32/16/39458854.pdf
4. Kozma RB (2003) Technology and classroom practice: an international study. J Res Technol Educ 36(1):1–14
5. Law N, Pelgrum WJ, Plomp T (eds) (2008) Pedagogy and ICT use in schools around the world: findings from the IEA SITES 2006 study. Comparative Education Research Centre, Hong Kong
6. Tamim RM, Bernard RM, Borokhovski E, Abrami PC, Schmid RF (2011) What forty years of research says about the impact of technology on learning: a second order meta-analysis and validation study. Rev Educ Res 81(1):4–28
7. Valero CC, Redondo MR, Palacín AS (2012) Tendencias biomass in the use of devices moviles in Educación [Current trends in the use of mobile devices in education]. Educ Digit Mag 147:1–21