

A Digital Revolution in Education Using Tech Tools and Smart Devices

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***Abstract--**Technology is the beacon of light in the world of education and bewitches almost everyone towards it include learners, teachers and content creators. Education is no exception to miss the tide of technological change which navigates the learning world with a sea of innovations and ideas. In the current scenario, a kid even before joining the primary school can operate the modern gadgets with more ease than the older generations. Smart Phone is one such gadget which provides mobile telephony, entertainment, sports, news, games and numerous multi-purpose applications for the young and elderly. Today's tech-savvy generation adapts quickly to newer methods of teaching and learning modes faster than their predecessors. This paper discusses the recent innovations in education and modes of learning, tech tools and digital platforms that make learning simpler and effective for both the teaching and student fraternity.*

***Key words--**Tech tools, MOOCs, Mobile learning, MALL, Language Learning, Machine learning*

I. INTRODUCTION

Massive Open Online Courses (MOOCs)

Students can use Massive Open Online Courses (MOOCs), an online platform where anyone can enroll free online courses. MOOCs provide the cheapest and easy way to learn new subjects or skills. Through online e-learning portals like Swayam, Coursera, FutureLearn, etc. students can enroll in the courses which were run by subject experts from top institutions and get certified after passing out in the relevant exams. For learning a new language, there are online e-learning web-based applications for practicing foreign language skills with native speakers. Practicing the speaking skill in a foreign language with a native speaker will be more beneficial for the learner to grasp the language easily. Educational materials are a part of those applications along with the live audio–video feed between the participants. Some of these web portals like Duolingo, Busuu, Memrise, Babbel, Rosetta Stone also developed their mobile applications for learners where the lessons prepared by language experts were used along with the help of Machine Learning to personalize study plans and recognize speech.

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II. METHODOLOGY

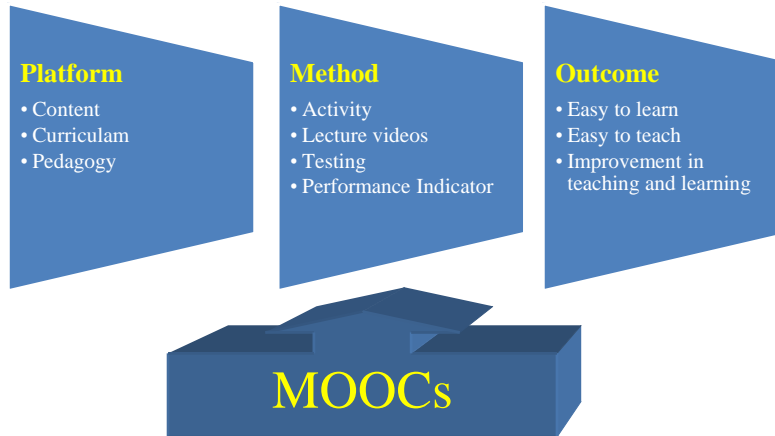


Figure 1: Process of Massive Open Online Courses

Mobile Learning

Technologies are evolving and made to assist self-learning by an individual through devices like smart phones, ebook readers, etc. In this internet era, students are being attracted to use smart phones for various purposes including learning. The Mobile Assisted Language Learning (MALL) doesn't just help the learners to acquire knowledge but also simplify the teaching methods with the aid of smart phones and its extensive range of applications in the field of education.

III. RESULTS AND DISCUSSION

Mobile apps like 'Improve English: Vocabulary, Grammar, Word Games' aims to help the learners to gain and enhance their language proficiency in English and also to work out mathematical problems in an appealing way. The app offers learning materials that includes English grammar, vocabulary, idiomatic phrases, phrasal verbs, commonly confused words, Mathematics quiz, tricks, etc. This app is specifically developed for learners of English and Mathematics to uplift their language and math skills considerably. The vocabulary builder in the app consists of easy, intermediate and advanced levels which can help the learners to achieve high scores in entrance or competitive examinations like CAT, XAT, NMAT, GRE, GMAT, IELTS and TOEFL. The app also features interesting games to improve one's English language skills like words checker, space pursuit, fly high, reader's digest, echo, jelly fizz, panda's trail, sea voyage, word maze, spell safe, polarity and words race. These games focus on improving the learners in the areas of vocabulary building, reading comprehension, spelling and grammar.

Table 1: Portals/Apps for learners

Technology Platform	Name of Portal/App	Skill to learn	Paid/Free
Web / Mobile	Coursera	Multiple subject areas	Free/paid to get certified
Web/Mobile	FutureLearn	Multiple subject areas	Free/paid to get certified
Web/Mobile	Swayam	Multiple subject areas	Free/paid to get certified
Web/Mobile	Duolingo	Language and vocabulary	Free/in-app purchases
Web/Mobile	Busuu	Language, vocabulary and grammar	Free/in-app purchases
Web/Mobile	Memrise	Language	Free/in-app purchases
Web/Mobile	Babbel	Language	Free/in-app purchases
Web/Mobile	Rosetta Stone	Language and Vocabulary	Free/in-app purchases
Mobile	Byju's	Multiple subjects and Preparation for competitive exams	Paid
Mobile	Improve English: Vocabulary, Grammar, Word Games	Vocabulary, Grammar and Mathematics	Free/in-app purchases

Machine Learning

While the Outcome Based Education is gaining momentum worldwide, usage of multimedia aids like LCD projector and Bluetooth speakers inside the classrooms are now used by teachers to conduct activities. The emerging technologies like Artificial Intelligence (AI) and Machine Learning are next in line to create changes in the field of education in the near future. AI is primarily used today in education to help improve the skills and testing systems. By merging with the best characteristics of teachers and machines, the vision for AI in the educational sector will bring out the best outcome for students. Machine Learning can be used to present personalized content for a learner

to learn at their pace. Machine Learning is a part of AI which includes software and applications to find out the patterns, to make predictions and to apply the newly found patterns in the system for improvement.

5G Technology

The data speed of 5G technology is nearly 1000 times faster than 4G internet service. Learners can download 4K videos, files, applications and images in a jiffy instead of minutes of waiting time. 5G can give better access to the internet, smart devices and e-learning digital platforms for the students and the schools that are located in remote locations. Since 5G can achieve a transfer of high-quality videos and a fast connection to the internet, it can extend the technical usage of the Augmented Reality (AR) and the Virtual Reality (VR). In the future, history, biology, science and geography classes can use AR and VR to describe and exhibit landscapes, figures, parts of human body, bring a novel method of teaching.

IV. CONCLUSION

This paper analyzes and identifies some top web and mobile based applications that can be very useful for new age learners, who are quickly adapting to technology based education worldwide. Thus, the use of tech tools and devices in education will surely enhance the knowledge of a learner and impacts a truly developed society in all disciplines. With the advent of 5G internet connectivity, it is expected that newer technology solutions will reach the learners fast and with the usage of smart devices and computers in tomorrow's real or virtual classrooms will positively promises a better future.

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