Impact of digitization on language teaching and learning

Meenal V. Dalvi

SPPU, Maharashtra, India

meenalvd567@yahoo.co.in

Abstract

The impact of digitization on two main entities of education, the teachers and the students and the change digital technology has brought in their learning environment needs investigation.. The study focuses mainly on the ways in which teachers and students make use of digital gadgets and the effect of such technology on classroom learning. A survey undertaken to examine the current scenario indicated positive attitude and welcoming approach of teachers towards digital classrooms and increase in students' interest in learning in such environment. Moreover, the study conducted showed maximum positive effect of on teachers' role of providing feedback on students' errors, and for students, the benefit is seen on their skill of reading. Evidence is also found of challenges that digital environment puts forth like the teachers' inability to monitor each student using a tablet or computer in a populous classroom and lack of spontaneous reply while providing online feedback when students need guidance. It is concluded that to improve the coordination between teachers and students and for smoother functioning of digital classrooms, better understanding and awareness of digital environment amongst students is needed. Further, more communication channels and direct interaction between teachers and students can help achieve optimum benefits.

Keywords: Digitization, Digital classroom, Asynchronous feedback, Metalinguistic feedback, Language laboratory.

Introduction

Prime Minister Narendra Modi's vision of Digital India is fast catching up with youth and old alike. It is imperative that each sector or field will have some altercations. One such area to undergo a major change is the field of education. The process of digitization in education may have begun prior to the campaign, but due to the national level campaign, this process has gained momentum. This is also apparent as a number of schools, irrespective of urban or rural background, have started providing tablets, computers and other digital gadgets to students to facilitate learning. It is therefore necessary to examine the way teachers and students use the digital sources and the effect the technology has on the teaching-learning process.

The vision of Digital India campaign includes, as quoted in "Digital India- The Vision and the Mission," according to the U*nion Cabinet Minister for Communications and Information Technology, Mr.* Ravi Shankar Prasad, "leveraging technology for quality education," along with three key areas – Digital Infrastructure as a Utility to Every Citizen, Governance and Services on Demand and Digital Empowerment of Citizens[1]. As a part of digitalization, schools are provided with smart class technologies, separate audio-visual classrooms, access to web and students are provided with tablets and computers. Thereby, the digital media that consists of Computer, Internet, Social networking sites, its functioning as a tool for displaying literature and reaching maximum readers in India and abroad. However, Digital sources at present is underutilized, but its

optimum usage could help teachers to facilitate learning, to speed up providing feedback to populous classroom, and students to enhance their reading and writing skills to enrich the teaching-learning experience.

The proposed study seeks to focus on the impact of digitization on the teacher, the student and the learning process, namely, language learning. The scope is confined the role of digital technology in the lives of these two sections only. Moreover, under the framework of language learning, it is to find out the effect of digitization on students' language skills namely reading and writing but not overall competency.

The study is undertaken with the following aims: i. To explore the use of digital resources currently in schools. ii. To find out the perspective of the teachers as well as the students towards different forms digital tools and the impact it has made on their teaching-learning. iii. To examine the benefits as well as the challenges, if any, faced by the teachers and students.

On examining these factors, it would be give a clearer idea of the current situation, the role digitization has played and its impact on the teaching-learning process.

Digitization: Encyclopedic Dictionary of Multimedia defines Digitalization as: Process of converting video or audio signals, normally in waveform into 1's and 0's is digitalization. This digital format (actually patterns of ons/ high voltage (1s) and offs/ low voltage (0s) can be processed by a computer[2].

In the 21st century, with overload of information, digitization is important because it helps to process, preserve and transmit all types of data in all available formats. With new technology and fast-paced gadgets available, digitization is now an inevitable part of our lives. Like in economic sectors, banks, ATMs, shopping, or tourism sector, where everything is planned and available at a click, digitization has entered the field of education too. According to Atul Kulshrestha, chairman and managing director, Extramarks, "Digital education today is no longer limited to the four walls of a classroom. It has paved way for virtual classrooms, making learning attainable and providing easy access everywhere and every time. This has allowed students to use digital learning as a 'flipped classroom' adding considerable value to the manner in which education is imparted. The latest trends in digital education space also include adaptive and collaborative learning where a student is engaged by practicing, experiencing, sharing things and gaining knowledge in a collaborative environment. The fourth generation of communication technology is speculated to revolutionize the digital education space by providing cutting-edge user experience[3]."

Thus the role of a teacher is not just to impart knowledge but to act as a facilitator for the students and channelize their exploration of knowledge, which is available in huge chunks due to digitization.

With the help of computers and the Internet, the students are given access to the world of knowledge sitting in the confines of the classroom, irrespective of the geographical distance. The process of digitization has helped showcase huge data in a small, easy to carry devices. Yet, only digital gadgets and the students do not make a learning classroom. The role of teacher is equally important, as students do not know how to make use of the information from the sea of knowledge that they are exposed to. Here, the role of teachers becomes significant. It has undergone change since the advent of technology and scientific development. A teacher is not the only source of information, but a facilitator, a guide to students who require assistance while learning in a digital environment. Moreover, a teacher has to play a role of mentor.

Current scenario: Due to the Digital India campaign undertaken by the Government of India, some path breaking and important decisions are taken in the field of education. According to the plan set up by the government, Digital Literacy mission will cover six crore rural households, and it has impelled companies like Gmail and rediffmail to provide e-mail in regional languages. This is an important step, as language will not be a hurdle for learning and applying technology.

Shantanu Prakash of Educomp, a leading educational technology provider, states in the article, empowering young India with digital education, "The need for digital education for India is so strong that school boards too are taking concrete steps to increase the adoption of digital education in schools. For instance, the Central Board of Secondary Education (CBSE) has instructed affiliated schools to set up digital classrooms from primary to secondary level for every subject. The board issued instructions to all the school principals stating that after CCE evaluation system, the schools should now have digital classrooms[4]."

In accordance, till 2012, he reports that Educomp had already established digital classrooms in over 12,000 schools spread across 560 districts in the country and the number is growing at almost 20 schools a day. This has led urban classrooms, especially of English medium schools, to be well equipped with desired infrastructure for setting up digital classrooms. Many classes now have interactive white boards, computer and Over Head Projectors (OHPs). Nevertheless, considering the student population and the number of emerging schools, a lot needs to be done to make overall learning in the country digital. Even today, not all classrooms are digitally equipped, but schools today have at least a computer room as well as a separate audio-visual room, and students get an access to the resources at least for some hours of the day. Today, use of technology is so apparent that not exposing students to digitization would be keeping them in the dark and doing wrong.

In that essence, it is necessary to understand what a Digital Classroom is. The digital classroom refers to the "technology-enabled" classroom where student learning and interaction with the instructor and peers is fully supported through strategic use of information and communication technologies (ICTs). It includes text book as one of the aids and not the central focus[5]. The presence of teacher as an instructor is necessary in a digital classroom, without whom the students may lose the direction or focus of learning.

Digitization and language learning: Language is an important link to communicate as well as learn and gather information about developments and happenings around the globe. Students are expected to not just learn from the books but update themselves to strive in the competitive world. In particular, English being a global language, it has become even more essential for children to acquire it in order to become competent and fluent 21st century citizen. As digital technology has entered education, the teaching-learning process has seen a significant paradigm shift. From the conventional classroom outlook, where the teacher was the sole resource and students were passive listeners, digitalization has enabled students to peep into the world from the four walls of classroom and think, observe, explore and most importantly, participate in the learning.

For language learning, it is observed that equipments such as computers, Internet, language laboratories, OHPs have helped the teachers to give their students additional exposure to native speakers' speech, abundant resources at one time, vocabulary building games and has helped students by making the text interesting, more appealing as well as by giving them

opportunity to learn at their own time and space. The internet is already changing how kids learn, according to Weinberger. The way in which learning, and homework, is increasingly becoming a collective activity, will spread. "Our students in the developed world are frequently doing their homework on computers that are attached to the internet", Weinberger states, "which also means they're also on instant messaging (IM) sessions with their friends. This means they're doing their homework together[6]."

Yet, it is necessary to dig deep and gather how students use these equipments and whether digital classrooms have helped in enhancing linguistic skill of reading.

Methodology

For the purpose of this study, a survey was undertaken where students from an e-learning school were asked for their reading preferences. The survey included two questionnaires, one for the teachers and the other for students.

Responses were gathered from the 60 participant students in this study, mainly young readers belonging to the age group 12-15. This age group is selected on the criterion that high school students of this age are very much familiar with digital classroom.

The data from the questionnaire was grouped, tallied and criteria were derived. Responses to the questions are put forth precisely as Parameters in the tabulated form followed by the discussion. The following table indicates the response derived from the questions asked.

Findings from students' questionnaire: The findings of the survey are presented in two tables as follows:

Table-1: Students' Response

	Parameters	Digital classroom	Conventional classroom
1	Difference in learning in the classroom environment	1. Abundant resources 2. Many students can access the same material at the same time. 3. Access to native speakers' speech and pronunciation 4. Quick feedback through online sources. 5. Communication in English continues even outside the class and at home.	1. Less Resources 2. Limited books and only few students can read them at a time. 3. Depend on teachers' speech and pronunciation at most times. Very less chance of hearing native speaker 4. Feedback given only in class at regular intervals when the teacher gets time. 5. Mostly, English is spoken only in school premises, once at home, may not get the chance to speak and practice.
2	Better Classroom	43 students feel digital class is better	17 students for conventional classroom
3	Reason for preferred choice of class.	1. More interesting than traditional class. 2. Get more practice and many exercises are available. 3. Access to play many language games. 4. Can make changes, revisions easily on computer than on paper.	1. Teachers' explanation is better than digitally recorded material. 2. Get to work more, and so get a better chance to be creative. 3. Doubts get cleared immediately. 4. Learning does not get disturbed due to power cuts.
4.	Problems faced in learning	1. Delayed Feedback. 2. Less audibility. 3. Communication through machines is available but real, face to face communication suffers.	1. Limited library resources; have to wait for books. 2. Get individual attention; classes are largely populated. 3. Pace of syllabus completion is slow. 4. Focus is more on textbooks. 5. Games, activities are not frequent.
5.	Improvements in classroom	1. More student-friendly devices, 2. Better equipments to suit large number of students who can hear easily. 3. Language laboratory with latest devices.	1. Digital awareness needed. 2. Plan more activities and games 3. Use more audio-visual aids. 4. Give more access to resources outside classrooms.

Results and discussion

As indicated, a lot of students willingly shared their experiences of learning in digital environment. Majority (50) students found learning in digital classroom more interesting and fun. Nevertheless, they also discussed the problems or challenges currently.

When asked about the differences in digital and conventional classroom, students responded that the main difference lies in availability of resources, which is more, in fact, "unlimited", as one student responded, in digital classroom and very limited in conventional class. Moreover, the best things are exposure to the native speech, pronunciation is very "useful," as one student said. Listening to the recorded CDs and audio cassettes is possible, which is not found in conventional classroom. One student said that initially, it was" difficult to understand the pronunciation but our teachers help us understand and listen continuously. Now, due to practice, we can easily understand".

On the problems that students face in a digital classroom, the first concern was that of feedback. Students submit their work but only when teachers are online, they can get feedback. This is mainly asynchronous. Many of the students' doubts remain unclear or students have to wait offline for the teacher. Some students explained the need for better audio speakers and more user-friendly gadgets. Some said that while listening to a visual conference or a speaker, not all is clearly heard. For this, they suggested better equipments like headphones that can help students listen clearly and without chaos.

When asked about the medium of reading that they prefer, the finding was shown in Table-2.

Discussion: As seen in the Figure-2, the majority of the students who participated in the survey voted for Digital resources when asked preferred medium for reading. This indicates that students have already got their hands on technology and find it more interesting to read on digital gadgets in comparison to printed form. This also indicates their interest and thereby, teachers could channelize their interest in reading in the language classroom to improve their vocabulary and comprehension.

Nevertheless, some students responded that despite available digital sources, they "Cannot enjoy the reading experience". "The smell of the books, emotional attachment" and the "struggle of getting these books" add on to become as a cherished experience.

The figures indicate the impact of digitization. Though books may not completely go out of place, digitalization will help preserve classic literature and continue to give easier access to majority of the readers.

Table-2: Reasons for Choice of Medium.

Preferred medium for reading	Digital Sources (38 students prefer digital devices)	Printed Hard copies (23 students prefer books)
Reasons	1. Feasible while travelling 2. Easy to carry wherever desired 3. One device or application is enough for various books, example Kindle. 4. Affordable, no need to buy the books, as that would be expensive. 5. Saves paper 6. Some sources, books available easily online but cannot be found, or cannot be accessed due to limited copies in the library.	1. Reading books, newspapers helps avoid strain on eyes. 2. Inability to concentrate on the digital screen for more time span; in comparison, reading books do not give such stress. 3. Hard copies of books or paperback give aesthetic pleasure, which they do not feel while reading digitally, which seems mechanical. 4. To save electricity. 5. Can refer to it anytime. Paperback books retain authenticity, while online stories could be tampered.

Teachers' Response: Findings and Discussion: 30 teachers teaching at an e-school participated in the questionnaire survey. Their outlook, experience and suggestions are reported as follows.

When asked of the benefits, following advantages were stated by the teachers:

Digital Classroom engages the students and makes them active: Of the 30 teacher respondents, 25 stated that students have become more active and take initiative to participate in linguistic activities and project making due to availability of digital resources. As one teacher mentioned, they like "making presentations in class with the help of available equipments like laptops and OHPs." Without the equipments, "students wouldn't be so interested," she felt.

Digitization helps making teaching-learning process dynamic, catering to the different needs of different students: As students participate actively, there is no monotonous teaching from only the teacher. Moreover, since the language material like the exercises, audio-recorded comprehension passages, audio CDs are recorded, students can learn at their own pace. Students with different learning abilities have the freedom to learn and practice in school as well as home. One teacher remarked, "in previous school, where I taught in a conventional classroom, students had to keep up with the pace of learning and some weak students were made to hurry. Here, I noticed that digital learning helps less competent students learn at their own comfortable pace and without getting stressed out."

Smart boards[5] are interactive whiteboards that use touch technology to detect input such as scrolling, right mouse-clicks or keyboard detects input. A projector is used to display a computer's video on the whiteboard, and then acts as a large touchscreen. Smart boards often come with digital pens, which use digital ink and replace traditional whiteboard markers.

Sharing, finding and responding has made teaching easier: An online instructor mentioned that when referring to a text on a tablet or PC, if some words or meanings, the option "Find" makes it easy for students to locate the words without losing time, which is difficult on paper or book. Moreover, almost all teachers agreed that while browsing, when they come across students.

Providing online feedback is less tedious and more convenient: It was noticed that 85% tutors preferred giving feedback with the help of digital sources. The feature of space present in the Word document enables a tutor to insert brief metalinguistic comments into a student's essay or written text. A teacher replied that "we can also to direct the student to an online handbook and give him a link on the particular item in which the student is weak, so the internet along with the computer facilitates provision of feedback. The text is then

returned to the student who consults the electronic and also tries to correct the error with the help of tutor's comments. Metalinguistic feedback consists of providing students with metalinguistic explanation of their errors and it calls for the teacher to possess sufficient metalinguistic knowledge to be able to write clear and accurate explanations for a variety of errors[7].

Teachers do not just give the correct answers or locate the errors like Direct and Indirect feedback but provide ways that would help students to achieve the correct forms on their own. The explicit comment can take two forms. A teacher shared an example of this type of feedback.

The beach was indeed beautiful, and the food was delicious. For all three days, we tried different dishes like lobsters, fried fishes, cheese sandwiches and salted salmons. I liked lobsters the most and ordered it for two days consecutively. [Note that the assignment wants you to describe one particular memorable day and providing details on other days can take you away from the main idea. Can you give the details of the most pleasant day of these three days?]

Teachers in conventional classroom generally avoid explaining the rules on paper due to lack of space on paper as well as time. Hence, the major advantage for students as well as teachers in digital classroom environment is the ease and convenience of providing feedback. Another teacher mentioned similar benefit that students also get to edit the text easily on Word document and make the necessary revisions instead of rewriting the entire content. On paper, students would have to rewrite, and thus, in case of feedback, digital classroom is a benefit for both-teachers and students.

Nevertheless, when asked about the challenges teachers face or the disadvantages of this classroom, teachers stated:

Decrease in communication with peers: Some teachers expressed that how parents complaint of students using gadgets continuously even at home or when relatives come to meet. While students may be active with lot of other children or people online, basic social communication with classmates, parents and teachers has declined. They get answers to all their queries on the internet, so the questioning as well as consulting the teacher and interacting with knowledgeable elders has reduced. More importantly, students tend to stop their exploration immediately and consult the net, thereby losing out on taking efforts and finding, understanding on their own. For language learners, it is in fact more of a hurdle to lose out on the human, face-to-face interaction and acquire linguistic skills in natural rather than virtual environment.

Decreases creative abilities: Students get all answers on the net easily also reduces the children's own creative abilities and they may browse the net even for simple tasks that need imagination and innovation. A teacher expressed her concern that too much exposure to digital knowledge has hampered reading and

students tend to take short cuts and write or copy material from the internet sources without applying their reasoning or their understanding.

Distractions: When students are at home or even in the classroom when the teacher is unable to supervise each action, students may use the digital devices for entertainment and other purposes. Their focus from studies gets easily shifted to other sources. This makes is difficult for elders and teachers to keep a check on.

Students take fewer efforts: With information available at a click of mouse, students do not study "diligently." This may lead to poor study habits and can develop in children a lazy attitude. Digital education can also make children forget the basic way of studying. Even for simple problems and homework, they are used to seeking help from the net. Students must be made aware of "where to stop" to avoid over dependence on digital resources.

Security: In crowded Indian classrooms, where limited number of teachers fined it difficult to supervise and look after each student, the matter of security is concern. Teachers find it difficult to monitor large number of students from anti-social elements online, unauthentic websites and sources and undesirable websites that harm child psyche. A student might encounter many things which on the Internet that can misguide him/her or lure into wrongful acts. Moreover, with so many web resources available, another challenge for teachers is to train students locate authentic websites and to be aware of fake websites.

These challenges, however, may be overcome by providing more attention or reducing the number of students per teacher, so that supervision is possible. Giving students activities like role-play, drama, etc can help them interact with each other more often than just communicate online. Collaborating with parents and asking them to get involved with students at home while studying can help students focus and not get distracted as well as this can help parents supervise their children and save them from cyber insecurities.

Moreover, for better and secured environment, setting up of language laboratory with access to limited websites and only language related material can help students stay focused and gain maximum from digital classroom. The language laboratory is an audio or audio-visual installation used as an aid in modern language teaching.

The use of a modern language lab or reading lab system will allow the students to learn any language or improve their own reading and speaking skills and develop their own native language comprehension at an accelerated rate[8]. Such feature will help students learn language intensively as well as work in simulations, where real-life like situations are created for interactions.

Conclusion

It is apparent that computers and the internet will facilitate development of students learning English as a second language in India. Most urban English medium schools are well equipped with computers, the Internet; separate audio-visual rooms, and few schools also have over-head projector (OHP) to help students learn. Digital resources have now made it easier for students to explore their learning process beyond the confines of a classroom. Students have flexible environment, convenient time and can do additional tasks such as writing and getting feedback on it, honing their writing skills, listening to speeches and native speakers' talks, online and offline interactions with language experts and improving their vocabulary by language games, online worksheets, exercises etc.

Yet, only machines and technology cannot suffice. The teacher does what the teacher does best: teach and set up conditions for interaction and learning through task selection monitoring, giving feedback and so on. The technology does not 'stray' into this area, according to Pete Sharma. In his article, "Blended Learning and ELT: Face to Face and Technology," he probes into the issue of using internet and whether it should be used in isolation or linked in some way to the face-to-face classroom. He proposes Blended learning as an answer, where "the best of both worlds: the best that the teacher can offer, plus the best of technology" can be used to facilitate language learning (47).[9] Teachers too feel that digital classroom is essential to make students **actively** work and attain linguistic competence.

Acknowledgement

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