

# Embedding Technology in Curriculum Design and Development

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*Abstract: At the wake of the new millennium, technology has become omnipresent in all walks of our life. The generation “Y” (or also known as Digital Natives) learners are exposed to versatile language learning opportunities transformed by the use of technology mediated resources, materials, tasks and learning environment. These learners seem to be captivated by technology and anything which deprives of them technology has no meaning for them. Thus there is an indispensable need to evolve a curriculum and materials through/with technology that would facilitate, stimulate and augment the learning process. The present day curriculum designing should ensure the space for technology in order to enhance the performance and achievements of the students. In fact the need based curriculum and outcome based education are gaining grounds in our country and almost all the stake holders(learners, teachers and employers) anticipate a curriculum which could embed technology in order to ensure and sustain quality in higher education. Hence this paper purports to study the viability of a curriculum design & development and material production with enough prominence to technology.*

**Keywords:** Curriculum Design and Development, Material Production, Embedding Technology in Curriculum.

The theoretical underpinning of this paper is based on the cognitive interest theory developed by Jorgen Habermas (1966). He opines that human knowledge is shaped by cognitive interests such as the technical, the practical and the emancipatory. Each of them implies significant ways of learning. Gaining an understanding of Habermas'(1971) ideas on how knowledge is shaped and the underlying principle that every learner has his/her own cognitive interests are crucial for curriculum designers, teachers, and learners. Bernstein (1985) justified his standpoint as to how prominent these cognitive interests are to every individual while analyzing the cognitive interests and observed that these cognitive interests are basic and unavoidable and they cannot be neglected as contingent.

Escudero (1999) and Kelly (2009) said that curriculum is what we construct and the social contexts of influence eventually make it a reality. There are some macro contextual influences on curriculum. These contexts exert a lot of pressure on the design and development of curriculum. Though majority of these contexts operate extraneously on the educational system, they become indispensable for the curriculum. At the macro-level, these contexts include: the philosophical and political factors, the economical aspects, the social and cultural aspects, the epistemological foundations, ethical factors, historical, psychological, and technological aspects among others. These contexts exert an influence on the curriculum, and

both functional and structural elements form the basis of the curriculum framework in which the curriculum is designed and developed. This framework stays ahead unaffected by the actions, attitudes, skills or hopes of the curriculum participants. Teachers and students act as the curriculum participants and they condition the curriculum and are crucially conditioned by it.

In the present day context, curriculum is the sum total of courses of specific programs, course objectives, teaching/learning methods & evaluative procedures and their effective implementation in/through educational institutions or online mode. Chris Dede of Harvard University is of the opinion that Twenty-first century pedagogy is based on factors like the objectives of the individual courses in the curriculum, assessment parameters, the integration of ICT elements, and to what extent administrative support is helpful in the attaining educational goals.

Curriculum decides the quality of education and any reputed institution for that matter aims at developing a unique-cum-world class curriculum for its students. Thus the hallmark of curriculum is not only to aim at imparting knowledge but also ought to be in perfect tune with the specific time and place so as to cater to the needs/interests of the learners in the three domains viz., cognitive, affective and psychomotor (Bloom, 1956). Developing a curriculum and its relevant course materials with a view to ensuring a significant development among the learners in the aforesaid three domains is a great challenge at higher education level.

There has been a common interest, almost fossilized among the present day young learners that they often rely on mobile phone or educational tablet for their learning pursuits. This specific reliance on mobile phone seems to be a functional example of emancipatory part of cognitive interest among the learners and this could be utilized for facilitating their learning English.

Hence this paper aims at addressing the following research questions: 1.What is the need for embedding technology in curriculum design and development in the present context? 2. What are the foundations for embedding technology in curriculum framing and implementing? 3. How to design and develop a framework of mobile pedagogy to teach the English language? 4. What are the opportunities and challenges in Embedding Technology in Curriculum Design?

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## THE CONTEXT FOR EMBEDDING TECHNOLOGY IN CURRICULUM DESIGN

Technology has eased the access to educational resources and has widened the educational boundaries. While we are taking into account of the omnipresence of technology, it is better to rethink about embedding technology in order to augment the teaching-learning process. Embedding means 'planting' as well as 'nurturing' and 'augmenting' technology here. This endorses the view that technology has become indispensable in a learning situation and an important aid for teachers. As such teachers worldwide make use of two types of instructional media; Non-projected media and projected media. The first type includes Models, Field trips, Kits, Real objects, Printed materials (books, worksheets), Visuals (drawings, photographs, graphs, charts, and posters), Visual boards (chalkboard, white board, flannel board) and Audio materials. The second type includes OHPs, Slides, Films, DVD, Computer/multimedia presentations, Mobile phones and Educational Tablets. This paper supports the effective use of projected media and lays its emphasis on mobile pedagogy.

The embedding of technology should aim at guiding, expanding and enhancing the learning objectives. Therefore, embedding technology should start with the curriculum. The teacher should strive to embed technology in alignment with the curriculum by not emphasizing on the computer alone. Technology has enabled students to learn in ways which were not in vogue. Students ought not only be facilitated to utilize suitable technology to access required information quickly, but also to analyze and synthesize the accessed information for their professional presentation. Computers are no longer considered an add on device.

The generation "Y" (or also known as Digital Natives) learners are exposed to versatile language learning opportunities transformed by the use of technology mediated resources, materials, tasks and learning environment. These learners seem to be captivated by technology and anything which deprives of them technology has no meaning for them. Thus there is an indispensable need to evolve a curriculum and materials through/with technology that would facilitate, stimulate and augment the learning process. The present day curriculum designing should ensure the space for technology in order to enhance the motivation, performance and achievements of the students. In fact the need based curriculum and outcome based education are gaining grounds in our country and almost all the stake holders(learners, teachers and employers) anticipate a curriculum which could embed technology in order to ensure and sustain quality in higher education.

The advancements in technology have redefined not only how we communicate, but how we need to educate our students. Rote learning is on the verge of extinction. As a consequence of the readily available information, some new challenges have popped up with regard to effective searching and the development of an ability to evaluate the validity of information. Hence there is a dire need to develop higher order thinking and the analytical skills among the students. This scenario leads us to a call to action that all the stakeholders such as teachers, colleges and college councils, government authorities, industry and

students themselves should put their mind together to bring an effective reform in curriculum design and development. The needs of the learners vary with the time & place and producing learning materials ideally suitable for all purposes is not at all possible.

The intrinsic aspect of curriculum designing includes the construction of representations on how to facilitate learning in specific instances. Hence the word 'framing' would be understood as the activity of negotiating the approach/method in which teaching and learning will be performed. The anticipations made while designing the curriculum are crucial. While embedding technology in curriculum design and development, one has to keep in mind of factors like cost of technology, practicality, appropriateness, activity/suitability, mapping of objectives and outcomes and training educators. Teachers need to be trained to address some basic issues and the competency of the teachers' should match with the digitally competent students.

Learning English in English as a Second Language situation has always been a textbook-bound process and people relied on standard books for mastering grammar and other skills/components of the English language. But mere rote learning will not help in language acquisition. Majority of ESL classrooms in India is still a teacher-controlled place where students are passive listeners and observers. ESL classroom encourages students to have limited or no exposure to the English language. ESL curriculum is ought be designed to develop the linguistic proficiency of the students and help them work competently through the four skills of the English language. Developing the LSRW skills is the focus of an ESL classroom and with the exploitation of right kind of technology; the materials can be produced, experimented, revised, utilized, and retrieved for the benefit of the learners across the globe.

## FOUNDATIONS FOR EMBEDDING TECHNOLOGY IN FRAMING LANGUAGE CURRICULUM

Anna Sabramowicz, E-learning scenario design consultant, says that the present day internet age students do not search for more information. Actually they intend to know how effectively they could access/use/manipulate the massive amount of information readily available on the web. While the students' primary concern is to ascertain the credibility and relevance of the information and the secondary concern is to determine the utility of it. Teachers should make assumptions about students' ability and help students by guiding them to accomplish a complex task or comprehend a complex idea with the use of appropriate technology. They should encourage students to reflect on their own experience and the social environment they live in and how they could bring about changes. Students could collaborate with other major students and help each other in learning and sharing their experiences.

Educational theories throw light on how does learning take place and how do the students make meaning through communication. Vygotsky (1978), a socio-cultural theorist



argues that higher-order thinking/functions could be developed by providing adequate exposure in cultural contexts. A positive social environment fosters learning among the students when they communicate with others. In this context, instruction seems to be vital as it has got connected to the learner appropriately. Similarly Bandura(1986), a socio-learning theorist emphasizes on the need for modeling framework in order to focus on interaction and communication. He reiterates that knowledge, skills and behavior could be developed through such modeling framework.

The theories of Vygotsky's and Bandura's justifies different ways in which technology could be used in teaching and learning. Technology could be embedded in the curriculum itself to foster social interaction among learners in a class, within a college, between colleges and in social contexts. This is how the Massive Open Online Courses got into emergence in the late twentieth century. While MOOCs remain the starting point, there is a series of innovations/applications/resources/approaches which provide the scope for embedding technology in curriculum design and some of them are: (i) Blended learning: It is combining the digital media with more traditional forms of teaching and the course materials. It emphasizes the interaction between teachers and learners. (ii) Gamification: It is used for enriching the word power of the learners through training sessions, games and fun activities for young learners. In addition to this learners' awareness on phonology gets developed through the use of chants and songs. Further the learners in Gamification involve themselves in honing their interpersonal skills. (iii) Embodied learning: It emphasizes the idea that learning is not just about remembering but about using the mind and the body to collaborate, discuss and explore new things. Learners have to be engaged intellectually, emotionally, physically and socially through the effective utilization of visual, audio and hands-on activities. (iv) Inquiry-based learning: It makes use of multimedia/AV content to present real world experiences. Practices in soft skills and communication skills are imparted to become part of the global community. The TED talks presented here serve as a catalyst and the learners get motivated to do critical and creative thinking. (v) Mobile Pedagogy: It uses a set of activities which could model upon the learners' language in a technology-enriched environment. The distinctive capabilities of learners as well as teachers have also been cultivated. Undoubtedly mobile pedagogy could facilitate self-directed learning and learner autonomy. (vi) Creating and sharing content: In addition to the plenty of online resources, there are some programs and apps which allow the learners to produce their own content and share it with others. The sites like *Quizizz* and *Socrative* have features for creating online games and play games online. *Canva* is a site which allows teachers and learners to express their creativity through creation of posters, social media memes and tit-bits. Learners could make use of mindmapping sites, comic-strip creation sites and the sites for movie making/editing. Constant use of such sites and tools empower the learners to use language creatively as well as for engaging activity.

## FRAMEWORK OF MOBILE PEDAGOGY IN ENGLISH LANGUAGE TEACHING

Recent studies have revealed the fact that today's students have been born into a technologically rich world but they seem to be less avid and skilful users of technology. Further, mere access to technology will not serve the purpose. Meaningful utilization of technology and technological skills could lead to minimize the second-level digital divide. Language learning is not same as learning any other subject. Language is functional and requires purposeful usage. An ESL classroom generally aims at engaging learners in the language acquisition process. This task is challenging because the language is composed of components/skills like listening, speaking, reading and writing. In the present context, it is important to take cognizance of teacher training policies, examinations, the basic tenets of curriculum design and the array of digital tools that have become indispensable in our life. Employing mobile pedagogy for language learning does not imply a simple transmission of teaching and learning resources and practices but it entails a complete reframing. The presently available mobile applications are yet to be upgraded with this idea as they are often used for transmitting content and the scope for exploiting opportunities for communication and collaboration purposes to be explored seriously.

Mobile pedagogy is a term synonymous with mobile learning. The use of mobile devices focuses on learners and their experiences. It could be accompanied by learner mobility across diverse contexts and settings. Learning activities could be carried out beyond the classroom is a major advantage in mobile pedagogy. In ESL situation, the learners are responsible for their own learning and the teachers become learning enablers. This has been the basic philosophy of English language teaching from time immemorial and mobile pedagogy could pave way for implementing this philosophy. Learners evince a great enthusiasm to take part actively in making and shaping language learning activities. Though language learning implies the development of interpersonal communication, language remains here as the primary resource. Language resources consist of components like phonology, lexis, grammar and discourse as part of the language system and various meaningful functions of language in different contexts.

Learners now carry with them mobile devices (the recent one being the fourth generation device in India) with which they can: (i) create texts and share (b) communicate anytime with people anywhere (c) understand certain functions of language beyond the classroom, (d) evaluate their own linguistic competence (e) construct new concepts and share them and (f) ensure evidence of progress achieved in the process. There are innumerable numbers of resources available online and they are more accessible with a mobile app. For instance, a curriculum developed with mobile pedagogy could include an app called *Wordable* offered by Cambridge University Press. This app turns vocabulary-learning into a fun and competitive. It has got features to

play a game, repetition and recall learning techniques in order to retain the new words learnt. Oxford University Press has launched an app called by *Essential English* which provides learning resources for teachers and students. This app comprises flashcards, phrasebooks, lesson plans and activities. There is a recent addition to the apps called *Tri Pro English Website and Mobile Apps* and its features focus on giving free listening practice to the learners. It has got facility for high-quality recordings and tests for improving comprehension skill.

Here is a categorization of apps which could be embedded in English Language Curriculum Design and Development effectively: i) For developing oral skills; Big city small world, Clear speech from the start, LearnEnglish Kids: Phonics stories, Learn English with speaking pal, Onestopenglish, Sounds, Sounds Right ii) For enriching vocabulary; Babel, Duolingo, Memrise, My Workbook 2, Phrasal Verbs Machine, Premier Skills, Quiz up, 60 seconds word challenge, Wordpic and uSpeak iii) For teaching Grammar and Accuracy; Johnny Grammar's Quizmaster, LearnEnglish Grammar and iv) For preparing students for Tests/Exams; IELTS Skills, IELTS TestBank, Rosetta course, and Voxy. (Kukulska-Hulme, 2015).

#### OPPORTUNITIES AND CHALLENGES IN EMBEDDING TECHNOLOGY IN CURRICULUM DESIGN

Technology integrated curriculum will ease the pressure of the beginners who are in a need to learn content-heavy course. Offline recordings can be made with the help of resources available and they can be redone until they become satisfying. Offline recordings allow explanations as they can be paused if needed. On the other hand, virtual classroom connected with experts gives an opportunity for extended learning as it provides different perspective across specific topics and eliminates the expense of transporting teachers residing in other places. It facilitates learning as the students engage themselves with the presentation of the experts. The students develop critical thinking and the whole process enables the students to challenge and defend the perspectives they derive from the different sessions. Before engaging in such discussion, the teacher should ensure the quality of the network and other technical supports.

Tanya Byron, British psychologist, writer and the Chancellor of Edge Hill University, has stated that the technology not be transformative but the pedagogy has to be transformative in order to bring in a radical change. Using technology as a learning tool gives access to effective learning strategies and effective classroom management. Thus, it is the collective responsibility of the administrators, teachers and advisors to utilize technology in an effective way. Teachers are reluctant to use technology if they are uncomfortable or if there is any inconvenience caused by the electronic tools. They also say that they have limited time to learn and review the technology they can use in their teaching. To solve all these issues, teachers should be trained and must be assisted by technicians during their sessions, with the support of their administrators. The government and the administrators should make joint efforts in incorporating technology as a tool in teaching and learning process in educational institutions.

Though mobile pedagogy obscures the vital role of the teachers, it provides ample scope for using a dynamic language and technology-rich environment while drawing heavily on the unique capabilities of teachers and learners. Undoubtedly mobile pedagogy would dissolve the boundary between classroom and the real world. The challenges to embedding technology in curriculum design and development are manifold: (i) resource limitations, (ii) teacher's lack of knowledge and skills, and (iii) the attitudes and beliefs of teachers (Hew & Brush, 2007). The resource limitations could be managed by addition of the number of computers and updated software. But teachers get frustrated when the technology does not work and some teachers even develop an aversion to technology. Lack of specific technological skills is one of the major reasons for teachers' neglect of technology. These teachers should be provided with ample opportunities build their ICT skills through professional development activities. Eventually teachers realize that using technology effectively is the beginning and the process continues with evolving more such effective learning strategies through embedding technology. Continual teacher development along the line of ICT skills seems to be the panacea for tackling this constant challenge and there is a change of mindset and teachers would embrace technology to maximize their professional competency.

Thus embedding technology in curriculum design and development would minimize the second-level digital divide among the learners in the present day context. Such an innovative curriculum with its emphasis on technology would definitely cater to the various needs of students in a class at the micro level and students in a state/country at the macro level. Teachers should update themselves with the latest technologies that could be embedded in curriculum design and teaching and learning process. When learning is made more easy and enjoyable, the learners will excel in their performance. All we need is a rethinking and framing of a curriculum which could foster constructive collaboration with a view to ensuring holistic development.

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