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CONSTRUCTIVISM-BASED BLENDED TEACHING LEARNING FOR TRANSFORMING INDIAN HIGHER EDUCATION

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CONSTRUCTIVISM-BASED BLENDED TEACHING LEARNING FOR TRANSFORMING INDIAN HIGHER EDUCATION

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Higher education has experienced significant changes as a result of the advancement and use of Information and Communication Technology (ICT). Online learning is facilitating teaching and learning experiences with the development in communication channels and technologies. In India, it is also dealing with constraints of diversity, gender, cultural and personality differences of learners and their needs, time availability, flexibility of the course content and innovative use of ICT. Blended learning is a mixed educational paradigm and offers promise for addressing these challenges through online learning parallelly to traditional learning by introducing a constructivism-based blended learning approach in higher education. It is an innovative concept that embraces the advantages of both traditional teaching in the classroom and ICT supported learning. By shifting the information transfer paradigm from teaching to learning, constructivism-based blended learning makes learners responsible for discovering, constructing, practising and validating the acquired knowledge in social collaboration with their peer group and teachers. As a result, the focus of the classroom shifts from a presentational format (i.e., lecturing and information dissemination) to one of active learning (i.e., discussion and debate). In this paper, an attempt has been made to discuss how constructivism-based blended learning can improve teaching and benefits the learning process in higher education. An attempt has also been made to highlight the implementation of blended learning in the Indian higher education scenario.

PRELUDE

For centuries, traditional face-to-face (F2F) learning or lectures were the most commonly used teaching approach in higher education. Though traditional learning facilitates exchange of ideas in a socially interactive environment, it allows very limited room for self-directed

and collaborative learning, limiting the possibilities for customising the course content to reflect learners' skills. Similarly, online learning brings with it the possibility to learn anytime from anywhere, with faster learning delivery and servicing unlimited number of learners. Yet, it is constrained with factors such as low motivation to course completion, lower learner satisfaction and lack of interaction with teachers and peers (Mackay and Stockport, 2006). A single mode of delivery seems unable to offer sufficient engagement, choices, relevance, social contact and context to facilitate effective and successful learning (Mohamed-Amin et al., 2014). Besides, having a mixture of students with different learning preferences and styles necessitates using multiple modalities for learning in order to deliver the right content in the right form (Singh, 2003).

21st century higher education is going through rapid socio-economic and technological changes. These changes have brought a clear call for higher education institutions to carefully examine their educational practices from a new perspective and face challenges that lie ahead in knowledge-based societies (Pittinsky, 2003). These challenges include a large population of learners from varied backgrounds, needs, motivations, abilities, learning preferences, time availability and course content requirements (Phillips, 2005); a demand for more learner responsive and flexible courses; and the drive to use ICT in teaching and learning (Challis et al., 2005). The widespread use of digital technology has changed the face of education; therefore, it is time that higher education complies with the growing expectations to help students survive effectively in such a technology-based world. Integrating technology with F2F instruction can reinforce both an interactive as well as a communicative learning environment and provide meaningful learning outcomes (Rooney, 2003; Garrison and Kanuka, 2004). One of the innovative solutions for this issue is the introduction of blended learning mode, in which various types of delivery modes are combined (Allen et al., 2007).

Over the last decade, blended learning has been growing in demand with growing popularity in higher education and has become a widespread teaching phenomenon. It becomes increasingly evident that blended learning can overcome various limitations related to online learning and F2F instruction (Alammery, et al., 2014). Blended learning provides learners with an opportunity to engage their teachers and peers in critical and creative reflection and discourse the conventional ideals of higher education. It helps to revisit and regain the ideals of higher education with the adoption of

approaches that value dialogue and debate. However, blended learning is more than enhancing lectures; it represents the transformation of how we approach teaching and learning. It is a complete rethinking and redesign of the educational environment and overall learning experience. Blended learning is a coherent design approach that openly assesses and integrates the strengths of F2F and online learning to address worthwhile educational goals (Garrison and Vaughan, 2008).

Researchers have suggested that constructivist strategies exploit technologies for the greatest impact on learning (Duffy and Cunningham, 1996). A complementary relationship appears to exist between technology and constructivism—the implementation of each one benefiting the other. Constructivism is a doctrine stating that learning takes place in contexts, while technology refers to the designs and environments that engage learners. To understand the potential of blended learning in enhancing the teaching-learning process, attempts to integrate technology in the classroom needs to be studied within the context of a constructivist framework. Constructivist strategies include collaborative and co-operative learning methods, engaging in critical and reflective thinking (Nanjappa and Grant, 2003).

The higher education system in India holds enormous potential to build a knowledge-based information society that can enjoy the fruits of technological know-how in the 21st century (Bansal, 2014). Blended learning has been found to be a viable and effective approach to deliver high-quality, up-to-date, on-demand learning solutions in the face of diminishing education budgets in higher education (Thorne, 2003; Valk et al., 2001). Again, constructivism provides an opportunity to learn through participation and co-operation in a collaborative environment, which is consistent with Indian culture and ethos and embedded in its social context. Hence, in a developing country like India, blended learning appears to be an acceptable approach to enhance the teaching-learning process in higher education, within the limits of diminishing budget allocation and inadequate infrastructure support (Bansal, 2014).

BLENDED LEARNING IN HIGHER EDUCATION

Blended learning is a concept that includes framing teaching learning process, incorporating both F2F teaching and teaching supported by ICT. It incorporates direct instruction, indirect instruction, collaborative teaching and individualised technology assisted learning (Lalima and Dangwal, 2017). “The basic principle is that F2F oral

communication and online written communication are optimally integrated such that the strengths of each are blended into a unique learning experience congruent with the context and intended educational purpose” (Larkin, 2010). The integration should be done in such a manner that blended learning should not appear as a heterogeneous mixture of isolated practices but rather it should be a fruitful blend as ‘the best of both worlds’. A major requirement is that both the methods should complement each other in the best possible way, both in educational and technical terms (Bansal, 2014).

The goal of blended learning is to provide the most efficient and effective instruction experience by combining delivery modalities (Kumar, 2012). Learners and teachers work together to improve the quality of learning and teaching; the ultimate aim of blended learning being to provide realistic practical opportunities for learners and teachers to make learning independent, useful, sustainable and ever growing (Graham, 2005).

According to Garrison and Kanuka (2004), what makes blended learning particularly effective is its ability to facilitate a community of inquiry. Community provides the stabilising, cohesive influence that balances the open communication and limitless access to information on the internet. Communities also provide the condition for free and open dialogue, critical debate, negotiation and agreement—the hallmark of higher education. Blended learning has the capability to facilitate these conditions and adds an important reflective element with multiple forms of communication to meet specific learning requirements. It provides a platform for collaborative activities among the teachers and learners through interactive sessions, which help to improve the learners’ level of satisfaction and improved academic performance (Khan et al., 2012).

Assessment is one of the major tools in teaching and learning process. Blended learning techniques enable teachers to deliver the lecture as well as assess students’ learning using creative and innovative methods through digital assessments, mobile-based examinations, and online assessment exercises. Assessments determine how the teacher taught the course and how the students understood (Khan et al., 2012). Graham et al. (2005) highlighted the advantages of blended learning assessments, such as high student motivation due to availability of feedback on short duration (unlike traditional assessments), regular course upgradation by faculties through assessment of learners’ feedback, and creation of an environment of

collective learning excellence with the availability of authentic results for both learners and teachers.

Bansal (2014), pointed out a number of advantages of blended learning in higher education, some of which revolve around accessibility, pedagogical effectiveness, reduction in drop-out rate, and course interaction. Many learners in higher education need to balance family, jobs, and study. Reduction in the number of required F2F interaction hours can help such learners manage other commitments. Higher education institutions and faculty are always looking for ways to reach and retain these learners. Blended courses can enable access to the course material online at any time of the day and be reviewed as needed, gaining increased flexibility. Blended learning also provides flexibility to students and enhances feedback time (Sharpe, et al., 2006; Ignacio et al., 2008; Alebaikan and Troudi, 2010; Korr et al., 2012). Sharpe et al. (2006) pointed out that blended learning designs have been implemented in higher education courses to tackle problems created by large group sizes. Studies have shown that overwhelmingly blended learning is used to improve pedagogy, increase cost-effectiveness, access and flexibility, and simplify revision (Graham et al., 2005; Osguthorpe and Graham 2003). Further research points out that blended learning has shown a considerable positive effect on the teaching and learning process (Alebaikan and Troudi, 2010). Not only had the students learned more when online sessions were added to traditional courses, student interaction and participation also improved (DeLacey and Leonard, 2002; Alebaikan and Troudi, 2010; Korr, Derwin et al., 2012). Harvard Business School faculty DeLacey and Leonard (2002) reported that students not only learned more when online sessions were added to traditional courses, but student interaction and satisfaction improved as well.

CONSTRUCTIVIST PERSPECTIVE ON LEARNING

In contrast to traditional classrooms where teachers used a linear model and one-way communication, modern learning is becoming more personalised, student-centric, non-linear and learner-directed (Cagiltay et al., 2006), wherein teachers facilitate innovative teaching strategies to not only strengthen learners' independence and autonomy in learning, but to encourage them to work co-operatively and collaboratively. Underpinning this new way of teaching-learning is a new epistemology (i.e. theory of knowing) which is constructivism, that portrays the learner as an active conceptualiser within an interactive learning environment. Constructivism describes a way

of learning, in which learners collaborate reflectively to co-construct new understandings, especially in the context of mutual inquiry grounded in their personal experience (O'Connor, 1998). Central to this collaboration is the development of communicative competence that enables learners to engage in open and critical discourse with both the teacher and peers (Taylor and Maor, 2000).

Constructivist instruction, on the one hand, gives pre-eminent value to the development of learners' personal ideas. Traditional instruction, on the other hand, values only established techniques and concepts. In constructivist instruction, learners are encouraged to use their own methods for solving problems. They are asked not to adopt someone else's thinking but encouraged to refine their own. Through interaction with peers and teachers, the learner's own intuitive thinking gradually becomes more abstract and powerful (Clements and Battista, 1990). The role of the constructivist teacher is to guide and support learners' invention of viable ideas rather than transmitting established ways of task completion. The constructivist teacher, by offering appropriate tasks and opportunities for dialogue, guides the focus of learners' attention, thus unobtrusively directing their learning (Bruner, 1986).

Constructivism is a doctrine stating that learning takes place in contexts, and that learners form or construct much of what they learn and understand as a function of their experiences in situation (Schunk, 2012) and perspectives within meaningful contexts and interactions (Oliver, 2002). Technology, according to Jonassen et al. (1999), refers to the designs and environments that engage learners. Hence, the focus of both constructivism and technology are on the creation of learning environments. These environments create engaging and content-relevant experiences by utilising ICTs and resources to support unique learning goals and knowledge construction (Young, 2003).

The moves towards constructivism in higher education have been pushed by the emergence of universal connectivity through ICTs (Wims and Lawler, 2007), which enabled the learners to globally communicate and most importantly access the world knowledge resources. Given the access to broader sources of knowledge, research suggests that collaborative learning is the most effective means of facilitating teaching and learning (Phillips et al., 2007). Constructivism is gaining foothold in higher education around the world because teaching and learning can now easily be undertaken as a community activity (Bondarouk, 2006), thereby propagating collaborative learning

along with individual learning through experiences (Klamma et al., 2007).

CONSTRUCTIVISM IN A BLENDED LEARNING ENVIRONMENT

Access to knowledge, social interaction and personal agency are identified as some of the key motives that educators have for utilising a blended learning environment (Osguthorpe and Graham, 2003). The potential for blended learning to provide access to knowledge is evident in the use of blended learning to create inquiry-based learning opportunities. The use of blended learning to create social interactions becomes prominent in the use of online discussions. Personal agency can be achieved through the creation of constructivist online learning systems that can be introduced in the blended environment (Pensinger, 2016). The rapid growth of ICT has facilitated knowledge accessibility from anywhere and at any time. Yet learners must have critical thinking skills so that they can analyse and compare information, construct arguments, respect diverse perspectives and construct new knowledge (MacKnight, 2000). Moreover, solving complex real life problems requires a variety of knowledge from different people with different experiences. Constructivism-based blended learning environment has the characteristics to improve students' critical thinking, analysing, problem solving skills, knowledge construction, and collaborative working, through its variety of learning strategies and ICT support tools. One of the main goals for designing a constructivism-based blended learning model is to encourage students to actively construct and share new knowledge (Koohang et al., 2009).

To create a constructivist blended learning environment, the emphasis needs to shift from an instructor driven, linear progression through a set curriculum, to a learner driven exploration of potential resources. Inquiry-based approaches use case studies, experimentation, and research and data analysis to encourage learners to solve authentic problems or develop solutions to meaningful questions (Avsec and Kocijancic, 2016). The learner-driven arrangement allows students to select resources that are appropriate to their learning needs and preferences. The final product – project or answer that is developed through inquiry – reflects the understanding that learners have developed for themselves. When learners work independently, this model tends to reflect cognitive constructivism; and when learners work together to develop their final product, they are experiencing a social constructivist environment (Pensinger, 2016).

Dalsgaard and Godsk (2007) examined the effectiveness of transitioning from a traditional lecture-based classroom experience to a constructivist blended learning experience. In this case, the teacher prepared a specific collection of resources: basic hard-copy curriculum texts, PowerPoint presentations from the lectures, and supplementary digital materials. Learners could access the resources as necessary while they worked to assimilate the course contents and solve the related exercises. A pre-test and post-test indicated that this method was effective in increasing student understanding of a concept, decreasing the amount of lecture in the course, allowing students to review materials as often as they desired, and creating some differentiation to support diverse learners in mastering difficult concepts.

In a blended learning environment, teachers use a variety of ICT tools such as synchronous (F2F) and asynchronous (text-based internet) learning technologies to facilitate and encourage collaboration, interaction, communication and knowledge construction and sharing among the students. However, one of the criticisms of blended learning is that it focuses on the teacher for creating the knowledge, rather than on the student (Carbonaro et al., 2008). To overcome this drawback, constructivism theory is applied in blended learning environment, which increases learners' interactivity and focuses on the learner to construct new knowledge based on previous experience (Al-Huneidi and Schreurs, 2012).

Characteristics of Constructivism-based Blended Learning

Gharacheh et al. (2016) highlighted the characteristics of blended learning based on constructivism, where the emphasis is on learning through cooperation, interactive learning, critical thinking, purpose-oriented learning thinking and performance in group, and multilateral interaction between the group members. Constructivism based characteristics of blended learning are presented in Table 1.

IMPLEMENTATION OF BLENDED LEARNING IN INDIAN HIGHER EDUCATION

In India, the traditional education system of F2F learning has not been able to cope with ever-increasing learners' population in terms of numbers and quality. Online learning has arisen, but in a supplementary role, and is currently struggling to carve out a niche for itself. The KPMG-Google report of May 2017 projects increased adoption of the blended mode by existing online as well as offline

TABLE 1: CHARACTERISTICS OF CONSTRUCTIVISM-BASED BLENDED LEARNING

Characteristics of Blended Learning	Constructivism
Learning	Personal discovery based on intuition, creating meaning from social experience, thinking in synchronous F2F and online learning environment and using social interactions of both methods.
Factors influencing learning	Individual, environmental factors, social factors, multilateral interactions between individuals.
Learner's role	Student-centered, learners' control over learning process and information.
Teacher's role	Director and facilitator, provider but not lecturer, cooperation of the teacher as analyser of problem solving strategies, observer, organiser of the environment for researching, and social environment to get experience and produce knowledge, organising group discussions and student interactions.
Learners' activities	Interaction with online and written content, multilateral interaction with the students' groups and professors, thinking about the subjects with respect to social context, solving real problems and doing related projects in group and through cooperation, and emphasis on group learning activities instead of only the teaching process.
Teaching strategies	Emphasis on active and student-centered teaching strategies, emphasis on cooperative and interactive teaching methods, emphasis on providing various viewpoints, emphasis on social learning environments, and on a wide variety of interaction between the students.
Group activities	Intense group activities, emphasis on learning activities through cooperation, and group discussion for providing different views to get knowledge.
Evaluation	Emphasis on self-evaluation and peer evaluation, evaluation is a part of teaching, evaluation of real outcomes of learning, evaluation based on higher levels of cognitive stages, qualitative and dynamic evaluation, the evaluation of students' group work and cooperative situations.

players in the field of higher education in India. While India is making headway in digitising the learning process the world over, higher education institutions are disrupting and innovating teaching and learning (Blended Learning, 2017).

The conventional system of education in India is plagued with many inherent disabilities such as of diversity, gender, cultural and personality differences of learners and their needs, time availability and flexibility in course content. Online education, on the other hand, is witnessing low completion rates and distrust due to lack of feedback and interaction with a teacher/instructor. Higher education institutes imparting online learning in India are increasingly realising the need to have multiple touch points with learners apart from online for elevated engagement levels. Even for the traditional higher educational institutes, in order to become competitive, it has become a necessity to provide some online services like counselling, student support, downloadable notes, documents, mock tests, etc. (Blended learning, 2019). The quality of higher education is also a serious issue. Indian higher education institutes are increasingly becoming non-competitive in comparison to other top institutes of the world. To survive in the competition and to enhance quality, adoption of blended learning will be a good option. When students will get experience of both types of modes, their knowledge will be enriched. Easy access to the experts and content material online will enable Indian students to gain advanced skills that will make them strong eligible candidates for the 21st century knowledge society (Lalima and Dangwal, 2017).

In higher education, some private organisations like Symbiosis International University and Sikkim Manipal University have developed an entire virtual learning system comprising of webinars, videos, text documents, e-books, and other online tools along with offline counselling sessions/practical sessions etc. India's indigenous Massive Open Online Course (MOOC) and Study Webs of Active Learning for Young Aspiring Minds (SWAYAM) are serious attempts to provide some exposure to online component in higher education. Even the re-skilling professional online course providers like Talentedge, Simplilearn, Imarticus and upGrad liaison with eminent universities for providing offline internship and work experience to the learners are doing commendable jobs. To its credit, the Government of India is formalising the online education space, ensuring regulatory recognition for online courses and encouraging higher education institutions to develop their own online curricula. The blended classroom of the future

can leverage the power of online courses and free up classrooms time for interactive collaboration and discussion, testing and problem-solving, redefining how education is administered, while at the same time retaining the ethos of India's traditional classroom system (Blended learning, 2019).

CONCLUSION

Recognising the strengths that blended learning holds, many educational settings, including higher learning institutions, have changed their delivery method to blended programs (Godambe et al., Picciano et al., 2004). Blended learning is becoming a newly emerging trend in higher education as it combines the best of synchronous and asynchronous learning approaches to meet specific educational goals (Levin et al., 2013).

There are many benefits which make teachers choose blended learning over other learning strategies, such as extending the reach, increasing flexibility, pedagogical richness, reusable patterns (reusable contents and functionality), optimised development cost, social interaction that are easy for revision and customisation. However, the blended learning system tends to focus on the teacher for creating knowledge rather than on the student (Carbonaro et al., 2008). Therefore, there is a need to improve the blended learning environment in order to apply student-centered learning methodology to increase learning outcomes, which can be achieved by applying constructivism. Constructivism tends to focus on the student to construct new knowledge based on experience, which increases and improves learning outcomes. Blended learning environments and strategies possess the characteristics to facilitate adapting and employing constructivist principles, and also elements in the learning process, which improves students' critical thinking, analysing, problem solving skills, knowledge construction, and collaborative working, through its variety of learning strategies and ICT support tools (Al-Huneidi and Schreurs, 2012).

Blended learning can prove to be a powerful strategy, if learning experiences are well designed. It has the potential to impact Indian higher education in a positive way by forming the underpinning of a transformational model that irrevocably holds expectations for teachers and learners. New pedagogies (the change in emphasis from teacher-centred to student centred paradigms), new technologies (the rapid spread of internet and World Wide Web), and new theories of

learning (constructivism) are enabling entirely new models to enrich teaching and learning (Bansal, 2014).

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