A Qualitative Study of Blended Learning in Indian Medical Education System Conducted in Lucknow.

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Abstract

Background: Blended education methodology is currently being used by several academic medical institutions to improve education. To execute blended learning seamlessly and fulfil its goals, we identified its strengths, weaknesses, opportunities, and threats (SWOT) from key users' perspectives.

Methods: Integral University, IIMSR, Lucknow, India did a qualitative study in 2021 with 23 medical educator interviews and document analysis. SWOT analysis was applied.

Results: The encouragement of educator-student interactions, students' learning needs and self-learning, and problem-solving skills were the greatest strengths. University administrator' cooperation, congruence with the national health education reform strategy, and access to the university's common infrastructure helped implement it. However, culture readiness and technical, institutional and infrastructure limitations hampered this effort. Its maintenance was threatened by the paucity of an autonomous e-learning centre for improved planning techniques and services providing support- technical and in person, the lack of effective evaluation and surveillance of virtual activities and the absence of user privileges.

Conclusions: This study suggests that blended learning can sometimes be a double-edged sword, requiring a thorough examination. Such interventions should acknowledge weaknesses and risks while retaining strengths and opportunities. Thus, actively considering SWOT components might assist apply the proper techniques to maximize benefits.

Keywords: E-learning, Blended Education, Virtual Education, Qualitative Study, SWOT Analysis, Evaluation, Information Technology.

Introduction

Medical education is facing formidable obstacles in current times. We have an ever-expanding medical knowledge database, novel methods in delivery of health services and also varied students' interests in learning about the 'health and medical sciences' [1]. In this context, our traditional medical education methods are unable to meet the demands of medical students at present; and, therefore, cannot maintain continually active learning [2, 3]. Novel methods of teaching-learning, often

innovative ones, are hence required to improve skills in creating critical-analytical thinking and academic accolades of students in medical education.

With the advancement of 'Information and Communication Technologies (ICTs)', medical science education has embraced e-learning with open arms. Many medical academies have invested their time and money in e-learning and new teaching-learning methods to help students succeed [2, 4, 5]. Thus, one approach to e-learning is blended (hybrid) learning, which is a setting with a combination of virtual education with traditional classroom-based education [6–8]. Blended education might be a remarkably coherent and productive method of computer-assisted learning provided there is interactive educational content along with adequate monitoring and management of this learning processes [4]. It eliminates time and space constraints and explores educational opportunities beyond classrooms [5, 9, 10]. It promotes independent, proactive, self-directed, and learner-centred education. It efficiently optimizes methods for teaching and evaluation. Despite its many benefits, blended education also faces obstacles for students, teachers, as well as institutions [11].

Recognizing and tackling blended education's problems (particularly its online field) and using the correct implementation strategies will ensure its success [11, 12]. To assess the readiness of implementing blended education, an organization should evaluate its 'strengths and weaknesses', facilitators, and likely impediments and constraints. An organization's human, along with, technological resource infrastructures must be assessed [9, 10, 12, 13]. 'Strengths',' weakness', 'opportunities', and 'threats' (SWOT) analysis can help in assessing such concerns during intervention[13,14]. SWOT analysis can evaluate e-learning implementation based on stakeholders' opinions and experiences, especially

lecturers and college and university students [15]. The SWOT analysis in blended education evaluation found that- its strengths and its opportunities- include catering the students' demands in this ever developing era, promoting self-learning and self-enhancing skills, aiding access to modified and improved e-contents, enabling inter-university collaboration, and its versatility in teaching and assessing methods[13–18]. These very studies also found that not sufficient motivation or even resilience of a few of the teachers and educators to actively involve is a constraints in ICT foundations and network infrastructures along with improper training or proper support and services, and disrespecting and violating the copyright protection laws along with 'intellectual property rights' are the biggest vulnerabilities and concerns [19].

Recent studies have prompted academia to explore and analyse e-learning prospects and emphasize the problems in low to middle-income countries focussing on concerns and features outside individual learner perception to inform and steer a viable e-learning system [19, 20]. Medical universities are promoting e-learning as part of blended learning [21]. Research is needed to seamlessly integrate the blended education's virtual component and achieve goals [22–24]. Thus, we employed SWOT analysis to analyze blended medical education's virtual component from key users' perspectives to understand the organization's inner and outer workings.

Methods

This study was a qualitative research study which was conducted at Integral University (IIMSR), Lucknow in 2021 using interviews with semi-structured formats and the affiches associated with the developmental formulations and enactment of the blended or hybrid form of learning realisable at the university. The entrants in our interviews incorporated of 23 faculty members at IIMSR that had effectively

utilised blended education in tandem with five or more university courses and curricula during minimum of two educational semester terms in 2021–2022. These participators were carefully and purposively chosen because they had exorbitant information and garnered ample expertise and experience on this topic by the time of our study.

Our teacher educators used a corporate learning management system (LMS) that was imparted by the University to support the contrivance of its education transformation and innovation plan.

During the time period of this study, face-to-face classroom instruction was the most prevalent mode of university teaching. During a term, professors having interest in blended learning could possibly give a maximum of five online contact hours per university credit. These virtual teaching colloquiums supplemented classroom instruction by either elaborating on previously taught topics or introducing new topics. However, they were only able to deliver theoretical and procedural trainings; practical skills required face-to-face instruction.

Appointments were arranged at a suitable time and appropriate location most convenient for the participators after participant selection. Enrolment in the study was entirely voluntary, and all individuals provided us with signed informed consent. The interviews were conducted one-on-one and in-person. The interviews lasted between 20 and 30 minutes. The interviews were conducted with the participators after obtaining their consent and guaranteeing that the confidentiality of the material they supplied would be rigorously maintained. Each interview began with an explanation of the study's objectives, significance, and necessity.

Then, four primary topics were posed, followed by extra questions for each to invigorate further conversation regarding the participants' perspectives, insights and apprehensions on the topic. It is important to note that the four primary questions were: 1) What are the plausibilities of the virtual constituents used in your blended learning methodology? 2) what are the demerits of this system? 3) What opportunities do you believe this will offer for education in our context? 4) What threats do you believe this will represent for education?

Before conducting further interviews, the documented information was reviewed multiple times after every interview without exception. The qualitative data were examined using thematic analysis. In conformity with the dimensions offered by the "SWOT" contexture, a content evaluation and analysis of the interview record documents was conducted. In this procedure, following a thorough review of the interview scripts of the participants by the investigators, the primary codes pertaining to the 'strengths', 'weaknesses', 'opportunities', and 'threats'(SWOT)" were identified, and the themes were then systematically assessed. To increase the legitimacy of our research data and its analysis, we distributed interview transcripts to interviewees for their review. Any text corrections made at this step by participants were incorporated into the final appraisement.

Results

23 (10 females and 13 males) pedagogues with an average 5.6 years of working proficiency were involved in our study. They came from different departments of the faculties of- medicine, dentistry, and allied health sciences. They contributed in the teaching various subjects including anatomy, physiology, histology, radiology, internal medicine, dentistry, pharmacology, pathology, and community medicine. Content dissection and analysis to evaluate and gauge the blended education format in our context from the medical academia's viewpoints based on the 'SWOT

framework' revealed 28 initial codes in four
major themes (Table1) as followings

Table 1: Findings according to the SWOT framework

Strengths
- emphasises on student-centric learning
- complements students' interests in digitalisation
- Flexibility
- Convenience
- Diverse instructional and evaluative techniques
- Enhanced instructor-student interactions
- Improvising on self-learning and problem-solving skills
- Boosting competence in self-learning and problem-solving skills

Weaknesses
- Shortage of training courses
- Inadequate IT networking groundwork including HR support
- Suboptimal institutional culture for virtual education
- Dearth of a unique LMS
- Complex and demanding endeavour of virtual education
- Insufficiency of appropriate feedback
- Absence of information and recall
- Lack of essential infrastructure and skilled human resources

Opportunities
- Revolutionary transformation in health education transformation
- Innovation in health education
- Establishment of a virtual e-university and a virtual library for health sciences
- User-friendly, intelligible and uncomplicated LMS to be better acquainted
- Access to the updated, refined and standard-approved electronic contents
- Advancement of regional and international collaboration

Threats
- Burgeoning of virtual education dependent on the national education reform programme.
- Resilience of educators to use the virtual platform
- Inadequate assessment of virtual learning
- Non-compliance with copyright and intellectual property standards
- Insufficient acknowledgement in the university for educators adopting virtual education
- Lack of an autonomous virtual education centre at the educational organization

Discussion

According to the findings of our study, the most significant benefits of blended education were the advancement of educator-pupil interplay, its versatility and emphasis on students' learning preferences, its impact on enhancing self-learning and problem-solving skills, and its compatibility with students' interests in digital media. The endorsement of our study by the university administration greatly facilitated the implementation of blended education methods by the educators.

However, this initiative had certain weaknesses the likes of which include: deficient infrastructural frameworks – be it technical, organizational or human resource- at the university for pupils and pedagogues, and scarcity of institutionalization of blended-learning culture.

Moreover, it has been threatened by its dependence on the new health education transformation plan, paucity of an independent e-learning education centre for a better and effective planning and assistance, absence of proper supervision and evaluation of activities in the virtual component, and inadequate advantages and privileges considered for the individuals who use blended education. This partly explains the resilience to start using it, especially by teacher-educators.

Blended education can on the whole, change the ways teaching, learning, and interactions between educators and disciples occur. Similar to others [25], our study participants affirmed that this genre of education approximates the learning needs of students and can capacitate productive variation in teaching-evaluation approaches. It can also empower educator-student interactions and enabling students to assimilate learner-centred education conforming to their capacities and backgrounds. Blended learning also entails benefits including the realm of learning, its variability, its fervency on a learner-centric approach rather than being a teacher-centric system, and exploring contemporary novice virtual methods [7].

Productive interactions between students and educators and the formation of training working groups. Meanwhile, the availability of affordable and sustainable framework including substructures for blended education can be inordinately an asset to promote the shift from the traditional didactic model to an up-to-date progressive model in any educational enterprise.

According to the findings of a study conducted by Kenan et al in the year 2013 [26] using the SWOT framework, one of the strengths of higher education institutions is the accessibility of electronic content for professors and students to facilitate e-learning. Accessibility to the LMS was also highlighted as a strength in our investigation. Others have reported additional benefits, such as matching the characteristics of 3rd generation students, such as their interest in digital tools and media, providing the opportunity for group learning and interaction between students, time savings and cost-effectiveness by not traveling to a college, and the benefits of studying and working concurrently, particularly for post-graduate students.

The shortcomings of educational intercedings can jeopardize their efficacy and consistency despite their strengths. Technical encumbrances, administrative concerns, socio-cultural and personal issues were identified as barriers to e-learning implementation. Also were the lack of adequate ICT infrastructures and internet connectivity-typical obstacles [11, 26, 27]. Another significant shortcoming is the administration of e-learning initiatives and the underdevelopment of centres in remote locations, where they are desperately needed [26].

Inadequate congruence of the technical configuration of services and the cognitive and psychical principles of the learning modus operandi, inadequate surveillance of learner-activities and their superfluous pedagogics and a decreased discourse between pedagogues and pupils were one of the major drawbacks of e-learning. Student's feedback if appropriately timed and consistently addressed, can serve as a powerful motivator for students to engage in blended learning [27].

Inadequate adaptations in the laws and culture and unsuitability of globally available contents for use in different cultural contexts and languages; even the

accent and terminology used in virtual contents can challenge their effectiveness in education [28–30] are cited as other shortcomings of blended-education methods in literature. Regardless of these obstacles, the most important factor is the support of governments, policymakers, and university administrators in addressing and resolving such obstacles as problems with technical and human resources or the provision of high-quality, culturally appropriate, and customized content.

According to a study conducted by Eke HN in the year 2011, factors such as attitudes toward e-learning, willingness to learn through e-learning, availability to facilities, its mandatory use, and its effectiveness may influence the adoption intention of users [31]. Kenan et al. [26] highlight that acquiring language and ICT literacy and skills through this innovative, time-efficient, and easy education is an evident option that e-learning affords students. Notable, the chances afforded by e-cheaper learning's costs and improved quality are more accessible to low-income individuals [14, 32]. National education systems should invest in and move resources to modernize education, which can be useful in times of public crises and catastrophes such as disease outbreaks and air pollution, in order to capitalize on such opportunities.

Blended education is a favoured style of education in many institutions, particularly in the medical sciences, where its capacity to address the diverse and multidimensional demands of university students mitigates the negative impacts of traditional education. However, numerous obstacles in educational situations can hinder the realization of these potential abilities. As the coronavirus disease-19 (COVID-19) broke out, several of these hazards became a source of irritation when the institution changed the majority of its disciplines from blended to online-only virtual education. The pandemic of COVID-19 has drastically altered the face of medical education and necessitated the implementation of effective solutions such as e-learning at all levels to assure the best possible outcomes and greater future readiness [33]. Physical separation necessitated the transition of all of our in-person classes to remote instruction via the LMS and other online videoconferencing platforms, particularly for both theoretical and procedural courses, as well as group discussions and morning rounds for residents and students in the clinical placement phase. Other risks, such as a shortage of jobs for e-learning graduates, have also been addressed in the literature [26, 28].

Furthermore, issues such as disproportionately exaggerating the positive roles of e-learning, the high cost of its implementation and maintenance, the lack of incentives to engage both educators and their students, and the lack of regulation of virtual teaching and learning activities can threaten its existence [14, 15]. To mitigate or compensate for the effects of such threats and challenges, policymakers should adopt strategies to manage it judiciously, including understanding and valuing internal and external effective factors by involving all key users in the decision and implementation of such interventions, clarifying the expectations from such educations, fully supporting e-learning initiatives, and allocating the necessary resources. It has been believed for more than a decade, particularly in higher education, that combining teaching, learning, and technology is "no longer a choice" [34, 35].

Conclusions

The identified strengths, limitations, opportunities, and threats in this study give policymakers and university administrators with insights into the management methods for a seamless transition towards blended education and its acceptance in order to reap its full benefits.

During the COVID-19 crisis, when the university had to convert from blended education to fully online virtual education,

the promotion of blended learning proved to be quite useful. One of the most significant ramifications of our findings is that numerous factors surrounding innovations such as blended learning may occasionally operate as a double-edged sword, requiring a comprehensive understanding. While maintaining an educational intervention's strengths and capitalizing on its opportunities, its shortcomings and threats must be identified and remedied. In our example, even though participants stated that the virtual component enhanced productive lecturer-student interactions, students complained that lecturers did not provide sufficient and timely feedback on their activities. This suggests that diverse sorts of contacts should still be monitored and promoted through online conversations, timely feedback, and forums to compensate for the loss of rich face-to-face interactions that occur in classroom education for clarifications or confirmations. Although the availability of the LMS of the national virtual university presented an opportunity to implement blended learning in our institution, the total reliance on an external infrastructure restricted the size and type of content that lecturers could upload or caused them to experience activity interruptions when the demand increased. Therefore, if the SWOT factors are identified and carefully analyzed in each context, they can aid in adopting the most appropriate implementation and management techniques to obtain sustained advantages.

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