Mapping emerging massive open online course (MOOC) markets before and after COVID 19: A comparative perspective from Bangladesh and India

Sajid Amit¹ · Rezwana Karim¹ · Abdulla - Al Kafy²,³

Abstract
Massive open online course (MOOC) is a relatively new concept in Bangladesh during the ongoing COVID 19 pandemic. This study aims to develop a MOOC to promote a conceptual understanding of diversity, tolerance and pluralism. In addition, this study investigates the findings of MOOC exercises based on a comparative study of the MOOC markets in India and Bangladesh. Factors like education market background, current government and non-government market leaders and existing startups were considered for assessing the comparison. In addition, prior to launching this MOOC in the Bangladesh market, the MOOC markets in the Asia Pacific region have been explored through extensive literature reviews. Although the EdTech markets of India and Bangladesh show promising developments and great potential, the lack of adequate infrastructure continues to be a major drawback. The experts shared their perspectives on developing more engaging academic materials through animation, illustrations, and video descriptions. Also, NGOs should be engaged to promote the course and reach the appropriate target market.

Keywords E-Learning · EdTech markets · Education · Infrastructure · Diversity

1 Introduction
The rapid spread of COVID-19 since December 2019 has brought everything to an unprecedented lockdown. For most of 2020 and 2021, lockdowns and similar mobility restrictions continued. The result of all these restrictions has led to several difficulties. Businesses had to shut down, banks had to limit their operations, non-governmental organizations had to stop their activities, and educational institutions closed indefinitely [1, 2].

Fortunately, by 2020 several paths opened up that addressed these issues and involved safer human interaction during this pandemic [3]. One of these paths has been the use of Massive Open Online Courses (MOOC) for higher education. The global MOOC market was estimated to be worth USD 3.9 billion in 2018. With an annual growth rate of 40.1%, the predicted market size for 2023 was reported at USD 20.8 billion [4, 5]. In light of the pandemic, the actual MOOC market size of 2023 is expected to surpass this 2018 prediction[5, 6].

The Bangladesh government has proposed to allocate USD 8.3 billion of the budget to the education sector for the 2021-22 fiscal year [4, 7]. This accounts for 11.9% of the total budget and is only 2.09% of the GDP (Gross Domestic Product) whereas UNESCO (United Nations Educational, Scientific and Cultural Organization) suggests allocating 4–6% of the GDP [8]. This allocation is meant for the development of the primary, secondary, higher, technical, and
madrasa education sectors, but the pandemic has prompted the significance of online education and therefore, it has become essential to ensure access for all students [9, 10]. Due to lack of infrastructure, this has not been possible yet. On the other hand, the Indian government allocated 4.6% of its GDP to the education sector and was an early adopter of technology-based education [11]. This market is currently valued between USD 700–800 million and is expected to grow up to USD 30 billion in the next ten years, given the considerable number of market entrants [4, 12].

It is expected that a key contributory factor to the global expansion of the MOOC market is the growing market in the Asia Pacific region. The Asia Pacific MOOC market size is estimated to reach USD 13.6 billion by 2027 [6]. This paper will closely observe the MOOC market patterns and prospects of two countries in the Asia Pacific region: Bangladesh and India.

The purpose of study through the MOOC is to develop a conceptual understanding of diversity, pluralism and tolerance for the very first time. Upon completing the courses, the students are expected to acknowledge the values held in different cultures, identities, and histories. They will be able to dissect the various social impacts that different cultural and ethnic groups have when functioning under one governance. Understanding the dynamic social factors that intersect with social, political, religious, and racial diversities will help the students navigate through misinformation in a pluralist, democratically governed society.

2 Method

2.1 Research setting

This research has been performed in the context of India and Bangladesh. It considers MOOC-related events, initiatives, and decisions. This is an exploratory study with a qualitative approach. Our research focuses on capturing MOOC status during the pandemic using secondary data sources, which are commonly used for high-quality research [13, 14]. In fact, secondary data is more suitable for this study, as data on firsthand cannot provide an overall understanding of the impact of COVID-19 on MOOC activities [15, 16]. Secondary data is widely used in a variety of fields because of its several advantages in academic studies, including microfinance [17], strategic planning [18], skill development and management [19] and employer performance management [20]. It depicts real decision-makers precise decisions, which were gathered in a less obstructive manner and were not influenced by self-reporting biases. Therefore, avoiding biases associated with the key informant sampling approach is possible.

2.2 Datasets

Articles in journals, newspapers and popular press, blog posts, and video clips are the primary data sources collected through a comprehensive search to assemble as much information as possible related to MOOCs. Keywords shown in Table 1 were used when searching for relevant articles. Only documents in English that clearly explain the MOOC and education-related information during COVID-19 and e-learning were included. During January and February 2022, the searches were carried out. When an appropriate and relevant document was found, its title and a web link were added to the spreadsheet. Collected documents listed in the spreadsheet were sorted after the collection process to see if any had been recorded twice. Several documents were found with duplicate information and removed from the list. The authors do not claim to have covered all of the relevant documents on the internet. However, the authors believe that the list is comprehensive enough to provide an insightful academic contribution to MOOC activities. The final set of documents included 205 written documents and 29 videos. The latter section of this article carefully examined all the collected documents, and the main points from the documents were written down.

2.3 Data analysis

All documents were downloaded as PDFs and saved in a temporary folder. Subsequently, these were combined into a single PDF document that was 762 pages long. Content analysis (CA) was performed to organise the diverse data, including coding information, into different categories [21, 22]. CA can contribute a new depth of understanding for a phenomenon that has received limited attention [23]. The combined document was uploaded to Qualitative Data Analysis (QDA) Miner Lite, an effective qualitative data analysis program. A free basic version was used, which is sufficient for coding and data analysis purposes. Various preselected and additional codes were used to obtain information through open coding. The preselected codes were among E-learning, pandemic, COVID-19, MOOC, and

| Table 1 Data sources used for the study |
|----------------------------------------|
| **Data Source** | **No. of documents** | **Collection sites** | **Searching Keyword** |
| Journal Articles | 67 | Google Scholar | Online course, E-learning, and COVID-19 |
| Newspaper articles | 109 | Google Search | MOOC, Online learning in Bangladesh and India during pandemic |
| Reports | 12 | Google Search | |
| Blogs | 17 | Google Search | |
| Video clips | 29 | Facebook and Youtube | |
online education. Each document was read line by line and coded accordingly. After completing this iterative coding process, several codes were merged into one to diminish the number of coding groups to a more manageable level. After completing the coding process, the coded texts were extracted into Excel files for synthesizing the data. In the following section, the results of this study are thematically described.

3 Results and discussion

3.1 Bangladesh MOOC market analysis

Education institutions in Bangladesh reached a government-mandated shut down back in March 2020 and resumed partially in September 2021. The whole sector faced a temporary disruption because of the lack of infrastructure in many universities, including the public. As a result, it took some time until private and public universities alike could resort to online classes using video calling platforms like Zoom and Google Meet. Course materials are shared with students using online drives and clouds. Teachers collect submissions and provide feedback electronically as well; under such circumstances, a structured MOOC system will not only make access to education more efficient in the country but also put in place the required infrastructure to strengthen the education industry making it more resilient to future unforeseeable disruptions.

Students in Bangladesh are familiar with online platforms like the Khan Academy and 10 min School and have been using them to supplement their learning way before the pandemic struck (Table 2). Therefore, a market was already there for MOOC in Bangladesh, the pandemic only heightened its demand. In an interview conducted by the University of Liberal Arts Bangladesh (ULAB), Center for Enterprise and Society, (CES) as part of a market assessment on July 14, 2021, Mr. Ruhul Kader, Founder of Future Startup, stated that “Bangladesh will see an increasing rise in the demand for online skills sharing platforms and education platforms for the K-12 bracket.” In the past few years, there has been an increase in consumer EdTech (education technology) companies targeting K-12 or kindergarten to 12th-grade education and life-long verticals. This area offers a lot of opportunities for companies to diversify into other relevant verticals once the K-12 segment is established, considering Bangladesh’s median age demographic is about 26 years [24].

According to UNESCO, the net enrollment rate in secondary education in Bangladesh was 67.6%, and only 22.8% in tertiary education in 2020 [8, 9, 25]. In the proposed budget for the 2021-22 fiscal year, the government has allocated USD 8.3 billion for the education sector, which is only 2.09% of the GDP [9]. About 51% of this budget is allocated to the secondary and higher education sector, which amounts to 1.06% of the GDP [8, 10]. Experts advise that this budget should be adequately implemented under a unique framework to address the loss suffered during the pandemic. They have emphasized training for teachers and students and internet connectivity for conducting online classes, among others, to ensure all access to education.

Bangladesh has seen an average growth rate of 13.5% in internet penetration over the last 5 years [26]. About 67% of the country’s total population now uses the internet. Even though Bangladesh takes the backseat regarding smartphone usage among the Asia Pacific countries, 41% of its total mobile phone users have smartphones. The Bangladesh Telecommunication Regulatory Commission posted on their website that the total internet penetration as of October 2021 stood at 74.64% [27]. At this rate, as part of online education, it will be easier to reach out to the target MOOC market in the country.

3.1.1 Public Sector Initiatives in Bangladesh for MOOC market developments

The government of Bangladesh announced its vision for a “Digital Bangladesh” in December 2008, which included universal access to education to develop skilled and creative human resources. Since then, the government has taken various initiatives to meet SDG 4 – Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all. The pandemic has only made it more urgent to adopt more measures toward access to education. The government has negotiated with various internet service providers to provide internet services to students at low prices; Bangladesh Telecommunications Company Limited (BTCL) has been offering the same through the student sim card. In August 2020, the Minister for Education, Dr. Dipu Moni, MP mentioned at a forum that the long-term effects of the COVID 19 “can only be limited by digitalizing education, comprehensively and quickly.” Virtual classrooms for universities, multimedia classrooms for primary and secondary students, teachers’ portal have been implemented. Considering limited access to the internet, television-based learning has been introduced.

1. Bangladesh Awami League. (2021, February 2). Digital Bangladesh - Vision 2021: The Secret of Bangladesh’s Transformation. https://www.albd.org/articles/news/35867/Digital-Bangladesh---Vision-2021-%0D%0AThe-Secret-of-Bangladesh%E2%80%99s-Transformation.

2. Moni, D. (2020, August 17). Digital education is both a necessity and an advantage for the Global South. Here’s why. World Economic Forum. https://www.weforum.org/agenda/2020/08/bangladesh-digital-education-pandemic/.
Under the Access to Information (a2i) project, supported by the United Nations Development Program (UNDP), the government has developed platforms like Muktopath, the largest Bangla-based e-learning platform, with over a million registered students (including government employees) having access to 180 courses\(^3\); Kishore Batayan, a platform for teenage Bangla speaking students who can access online classes, read and download books, watch movies, etc.; Shikhkh Batayan, provides training and learning opportunities to teachers at their convenience and have access to offline contents\(^3\); multimedia talking books ensure access to education to the visually impaired [28, 29].

Bangladesh Open University was the first public university to promote distance education, established in 1992. Classes were conducted using national television, radio, and regional centres. Subsequently, the government launched Bangabandhu Sheikh Mujibur Rahman Digital University (BDU) with permission from the University Grants Commission (UGC) Bangladesh, which will provide MOOCs with certificates to students with access to the internet at a low price.\(^4\)

3.1.2 Private Sector Initiatives in Bangladesh for MOOC market developments

Public sector engagement in any field is often met with proportional private sector interest. Private sector advances are unavoidable with the public sector investing in online education platforms. Bangladesh’s privately-run MOOC, 10 min School, which started operations in mid-2014, is said to be the pioneer in the Bangladesh EdTech landscape and has 1.79 million subscribers today [7, 30, 31]. It is a platform dedicated to teaching the K-12 student bracket with comprehensive syllabi for different courses. It offers preparation for university admission and standardized test preparation for SATs, GRE, and GMAT. In 2015, The Daily Star reported another privately owned online education platform in Bangladesh, MOOCxchange, which had 800 subscribers [30].

The local EdTech startups offer government-recognized degrees and certificates, a learning management system, enterprise planning resources, tuition and test preparation resources, and training for job placements, among others. Target consumers include pre-school, K12, university, job seekers, and individuals seeking to develop their skills. Being private sector initiatives, they target generating revenue through monetising their content and increasing the number of subscribers. Many such startups have successfully raised funds for development and expansion. There are about 90 startups currently operating in the Bangladesh EdTech market. Along with 10 min School, Interactive Cares, Bohurbrihi, Thrive EdTech, Shikho, and Upskill are among the popular ones. Coursera, an American MOOC provider founded in 2012, now has over 482,000 subscribers in Bangladesh, accounting for a staggering 196% year-on-year increment.

3.1.3 Recent developments in the competitive Landscape

In Bangladesh, the coaching centre culture has been around for over two decades and continues to dominate the education industry, especially after obtaining government approval in 2020. Out of the combined annual public and private investment of approximately USD 15 billion in the education sector, coaching centres alone control USD 6 billion worth of the market. EdTech companies are chasing after this lucrative market, and some have been successful. Shikho aims to make education accessible and affordable in the country. It has secured USD 1.3 million funding in seed money this year, making it the most significant round of financing by a local EdTech startup. In 2021, Bangladesh startups generated about USD 36.2 million till July, of which USD 2 million accounts for EdTech startups. Pre-pandemic EdTechs controlled about 5% of the education market, which is expected to rise to 10% post-pandemic. Experts suggest that Bangladesh EdTech startups have the potential to secure USD 700 million worth of market by 2025 [25, 32].

3.1.4 Opportunities for growth

COVID 19 was an unforeseen event, and as much as we all hoped it would go away ever since the vaccination

\(^3\) Hassan, M. M. (2021, August 27). Digital services in Bangladesh and progress of education. The Independent. https://m.theindependentbd.com/post/267325.

\(^4\) Islam, M. D. (2019, May 25). Bangladesh Platforms for Online and Distance Learning. Bangladesh Education Article. https://bbeduarticle.com/distance-learning/.
campaigns began, not much has changed. On the contrary, new variants of the virus keep us guessing about its duration of stay. Under such circumstances, another lockdown might be inevitable, and education institutions will be forced to return to online classes. Considerable time has passed since the first lockdown and institutions are expected to be equipped with the technology and expertise to continue both on and offline classes as needed. According to a 2015 report by the Bangladesh Bureau of Statistics, 90% of the 15 to 24-year-old population in Bangladesh has access to the Internet using either computer or mobile-phones [33]. On top of that, the concentration of universities in Dhaka and Chittagong alone is 70%, which limits the access of the young population to higher education [34]. Therefore, a structured and comprehensive MOOC system will provide a much-needed solution to the problem. In recent times the K-12 market and professional skill-sharing market have experienced an increase in interest from investors. This may add multiple avenues of growth in the EdTech space [24].

3.1.5 Barriers

Although the future of MOOCs in Bangladesh is promising, it can only be scalable once the country shows improvement in its digital literacy level and an increase in internet penetration in rural areas along with access to smartphones among individuals. Only 37% of the rural population of Bangladesh have internet connectivity, and 49% have access to smartphones, while only 8% have computer skills [35].

A common challenge faced by EdTech startups is the perception of the effectiveness of online education. People often consider online education ineffective due to its lack of interactive features [6]. However, innovation and creativity among the startups can resolve this problem. For instance, Shikho has found gamification of its learning process to be successful.

Bangladesh only uses 2.03% of its GDP for the education sector. Experts believe that at least 6% of the GDP needs to be utilized to establish a proper digital education platform. It has been observed that investment from the public sector in a particular field is reciprocated, in many cases proportionately, by private sector investment. This implies that private sector investment is directly proportional to public sector investment. Lack of government investment can be interpreted as a lack of confidence in the market, thus decreasing the chances of private sector investments.

3.2 India MOOC Market Analysis

India has already sustained two waves of the COVID 19 pandemic, which has exhausted all its medical resources and significantly impacted the economy as a whole. Currently, 60% of the population is below the poverty line which accounts for about 812 million people [4]. This number is expected to rise by 104 million in the worst-case scenario [36]. In an attempt to control the situation, the government had to impose a nationwide lockdown. Since March 2020, education institutions had remained closed with the exception of a few days when the infection rates were under control. Nonetheless, the future of educational institutions is uncertain. Fortunately, the country is already familiar with the concept of online education and has the required platforms both from the private and public sectors to support the education system under such a situation. MOOCs are also common in India and formed part of the required infrastructure to combat the loss sustained due to the pandemic.

India’s current EdTech market size is estimated to be between USD 700–800 million. Reports claim that the EdTech market is expected to grow to USD 30 billion in the next ten years [12, 37]. Online education offerings for classes 1 to 12 are projected to increase 6.3 times by 2022 from the base year of 2019. The post-K-12 market is expected to grow 3 times to touch USD 1.8 billion [37, 38].

3.2.1 Current conditions

India launched its own public MOOC in 2016 with 2000 courses and over USD 30 million paid to instructors. It has 50,000 subscribers as of 2020. The country also holds the position for second-highest Coursera subscriptions after the United States. SWAYAM (Study Webs of Active-Learning for Young Aspiring Minds) is an initiative of the Ministry of Education of India which may be a relatively new addition to India’s MOOC systems. India’s MOOC history dates back to 2003 with NPTEL (National Programme on Technology Enhanced Learning). MookIT and IITBX came into the picture in the early 2010s.

There are millions of Indian users according to each MOOC platform such as NPTEL (1.5 million), mooKIT (0.1 million), IITBX (1.25 million), Swayam (10 million) and Coursera (4.8 million) [38, 39].

3.2.2 Recent developments in the competitive landscape

Considering the current follower base of the Indian MOOCs, India has seen an influx of private sector interest in the EdTech market. Given a large number of the young population becoming more technologically adaptive, they have entered the EdTech learning market very early, compared to Bangladesh. They have developed over 25 EdTech startups in the last 7 years. Some of the most promising startups are mentioned in Table 3.

Springer
Interesting Facts

| New Companies | Target Customers | Interesting Facts |
|---------------|------------------|-------------------|
| Byju’s        | K-12             | A net worth of USD 16 billion (Chandrasekaran, 2021). |
| UpGrad        | Higher education seekers | Valued at USD 102 million |
| Masai School  | Beginners and experienced professionals in software development | Masai School follows an Income-sharing Agreement model |
| Testbook      | Government job seekers | Startup claims to improve exam scores by 53% |
| LEAD school   | K-12             | Recently secured funding of USD 30 million (Chandrasekaran, 2021). |

### 3.2.3 Opportunities for Growth

A report by the Central Statistics Office of India in 2017, projected that 34% of the country’s population would be between the ages of 15 and 24 years by the year 2020. This age group also shows the highest digital mobile consumption. It is estimated that by 2023, India will be home to 760 million smartphone users. It currently hosts 560 million internet subscribers (Kaka et al., 2020). 75% of the districts in India lack higher education institutes because most universities are either located in or around urban areas (Varghese et al., 2020). Hence the students from rural areas face difficulties in accessing higher education. In this scenario, MOOCs can provide a cheaper solution to this problem. With the number of Coursera users showing a 505% annual increment rate in India, it is safe to say that India has reasonable prospects of expanding its MOOC market [11, 40].

### 3.2.4 Barriers

The two most significant impediments to reach India’s desired MOOC market expansion are its digital literacy level and internet access. Although the number of internet users in India is higher than that of the United States, two-thirds of the Indian population does not have access to the internet, and only 29% of the women in India are internet users [35]. With 60% of the Indian population living below the poverty line, it will be complicated for many users to bear the secondary costs (cost of a smartphone, internet bills) of access [11, 36, 40].

### 3.3 Challenges for MOOC markets in developing countries

For the purposes of this market assessment, 30 industry leaders from the EdTech community in Bangladesh and India were interviewed. During these interviews, they shared a number of challenges they had faced and made recommendations on how to resolve them. Discussions were also held with faculties, EdTech startup owners, and business analysts to generate awareness about various market strategies and associated drawbacks.

#### 3.3.1 COVID-19

Due to the pandemic, coordination and communication were limited between all guest lecturers, vendors, and staff involved in the process. The lecturers could not participate in all the meetings to further discuss the topics in depth. Since MOOC is a relatively new concept in the field of education in Bangladesh, in-person meetings and discussions would have been very helpful for all parties involved. Vendors faced difficulty in maintaining the quality of production while designing the 14 lectures. Considering the health and well-being of all parties involved, only one in-person meeting was held during the pandemic. It was not possible to record all the lectures in person. The independent consultants, staff, and the MDC (MOOC Development Coordinator) coordinated via online calls and zoom meetings. This provided very little opportunity for a briefing on the lecture preparation.

#### 3.3.2 Material development

The concept of courses promoting pluralism, diversity, and tolerance is relatively new in Bangladesh. It was challenging to find data in the context of Bangladesh on the topics provided by the experts. Little published work on the date contained inconsistencies during the review. Since the experts could not communicate with the students they were teaching, they could not assess the level of understanding of the students who were registering for the course. In a discussion with Professor Abantee Harun of ULAB, she mentioned that the “lack of interaction among the students and teachers posed a communication barrier”. As a result, preparing the materials was also difficult. Materials are crucial because the entire process heavily depends on the students’ critical thinking abilities. One of the major disadvantages of a MOOC is that it takes the interactive element away from education. Where conceptual development is concerned, the students must have an opportunity to communicate with the teachers.

#### 3.3.3 Marketing

To make this project a success, it is crucial to market it on a large scale. This is also the most challenging aspect of this project. Although Bangladesh developed an emerging MOOC scene during the pandemic, this market is still in
its nascent phase to be judged and/or predicted accurately. There is still some risk involved with the outreach of this MOOC. Lack of awareness of the importance of courses promoting pluralism, tolerance, and diversity is an issue. Most students do not know that such a program is available and its significance in understanding the ways of a multicultural society. Reaching out to the students who actually need such programs is going to be an issue since such students cannot comprehend the value of completing this program. Only 40% of undergraduate students have access to stable internet connections. While educational institutions remain closed during the pandemic, access to the MOOC is likely to be minimum.

3.4 Recommendations for MOOC markets in developing countries

3.4.1 Development

Since the experts don’t have the opportunity to communicate with the students, it is difficult to understand their pre-existing concepts and level of study in the given topics. It is suggested that the lectures can be designed so that anyone can develop a general conceptual understanding of the provided course material. The videos should be easy to understand and have a clear summarization process. The course should not require any pre-requisite knowledge of the topics. Since there is insufficient data available in the context of Bangladesh on some of the lecture topics, the experts can use statistical reading or secondary data from different countries with similar multicultural backgrounds. Comparing reports and studies from different countries can allow the students to intake information on a much more conceptual level. It will allow them to comprehend social conflicts in Bangladesh from an unbiased perspective. These courses may need more visual aids to hold the attention of students. The online feature of this platform takes away the interactive aspect of such courses. A portal can be designed on the website that promotes constructive debate and healthy interaction with the lecturers.

3.4.2 Marketing

The pandemic is the most opportune time to launch this project. The students are learning to adapt to online courses and taking short courses on platforms like Coursera, Udemy, etc. To fully use this situation, potential students must be made aware of such courses with the help of social media marketing. Online teaser trailers should be provided to promote what the course has to offer. Testimonials should be prepared and shared in university groups to focus on the benefits of such courses. CES can seek permission from the University Grants Commission (UGC) to help market this course. The necessity of such courses cannot be overlooked in multicultural societies such as Bangladesh. Getting approval from UGC to market the course in other universities (both private and public) will increase the project outreach significantly. CES can collaborate with NGOs and INGOs to utilize its network to make it accessible to the right audience. The NGOs can direct this course to the audience who need a change in perspective. This will allow the project to reach out to students from all backgrounds and disciplines. Student discussions and workshops can be hosted by CES on different student platforms, highlighting the importance of such certificates in today’s culture. Graduate students from the MOOC can be contacted to share their experiences and provide a perspective on the value of learning about pluralism, tolerance and diversity. The course should provide benefits to the graduates. The course can be marketed as a resume-building point. This would add employee value. It can also be marketed with the help of extra credit points for undergraduate students.

3.5 Bangladesh Student Reviews

An initial pool of fifteen registered students was surveyed to understand the MOOC from the users’ perspective comprehensively. This review group was primarily composed of undergraduate students, with only four graduate members. They were asked to share their views and experience of completing the course on an online Google form. Their comments and course ratings have been analyzed for further improvements in the course.

A positive start to the review session occurred when all 15 students claimed a change in perspective after completing the course. Their experience with the course matched the desired outcome of the course. Some of them even claimed that it positively affirmed their empathy towards minority groups in the country and made them aware of the struggles these groups face daily. Shuvashish Ray Dip, a registered graduate student, stated that this course shed light on various practical scenarios around us and helped him conceptualize diversity on multiple layers. Tabassum Propa said she can now look at a multicultural society from different perspectives of different ethnicities and racial groups.

When asked to rate the MOOC on a scale of 1 to 5 in terms of intellectual engagement (5 being the highest level of intellectual engagement), nine of the fifteen students gave it a 4/5 rating, making it the majority opinion on the table. This credits the course to its academic involvement, comprehensive research, and reliable information sources. Janmatul Ferdous, a registered course taker, said she now has a deeper understanding and a broader picture of the different
dynamics in a multicultural society because of the comprehensive nature of the course.

The students shared their opinions on the course material as well. 14 of the 15 students stated that the material was sufficient to create a change in perspective. At the same time, only 1 student faced difficulty agreeing with the majority opinion.

The majority of the students gave the course a positive review. They shared a unanimous view on the importance and benefits of such an online course. Arefin Kabir, an undergraduate student, expressed that such courses are essential to people’s mental development and cultural progress in a multicultural society. His opinions were reinforced by that of other students taking the survey. For example, Nisa Khayer evaluated her own thinking process about certain social dynamics. She said that she found the course to be enlightening and can play an integral part in developing social awareness among students.

Upon reviewing the initial stats sent by the MOOC vendor in Bangladesh, we can conclude that the course is more prevalent among university-going students. The data states that 65% of the student demographic falls between the age bracket of 18–24 years and 35% between 25 and 34 years. Therefore, most of the registrants for such courses are expected to be young professionals.

The first batch of registrations showed a 1% gap between male and female registrations, with the larger share going to the number of females signing up for the course. The student pool is not yet big enough to make a conclusive analytical statement on the gap in registrations. However, a larger share of registration is likely to form among the highly urbanized areas with better access to the internet. As predicted, 59% of registrations were recorded from Dhaka, while the rest were undetected or outside Dhaka.

4 Conclusion

This study aims to promote and develop MOOC conceptual understanding in the context of diversity, tolerance and pluralism. In addition, a comparative study of the MOOC markets in India and Bangladesh has been discussed effectively through this study. The government of India has proposed a significant amount of budget to access online education. The Bangladesh government has proposed to allocate USD 8.3 billion of the budget to the education sector for the 2021-22 fiscal year, which is 11.9% of the total budget and is only 2.09% of the GDP. In contrast, UNESCO suggests allocating 4–6% of the GDP. On the other hand, the Indian government allocated 4.6% of its GDP to the education sector and was an early adopter of technology-based education. This market is currently valued between USD 700–800 million and is expected to grow up to USD 30 billion in the next 10 years, given the considerable number of market entrants. Bangladesh is witnessing an increase in investment and funding generated from national and international sources in the EdTech market. Companies like Shikho, secured USD 1.3 million in seed money, the most significant round of financing by a local EdTech startup to date. With one of the largest populations at 1.4 billion, India has reported very high investments in the EdTech market in recent years. Although the EdTech markets of India and Bangladesh show promising developments and great potential, the lack of adequate infrastructure continues to be a major drawback. Although India entered the EdTech market much earlier than Bangladesh, the common problem for both developing countries is low internet penetration, which hinders access for all. The common challenges faced while developing a MOOC during the pandemic need to be overcome, such as active vendor management, production-issues due to hindrance in collaboration with experts. Since the MOOC is a relatively novel concept, the lecturers faced problems gathering academic material for students, and the lack of instructions at times made it difficult to understand the course. Developing an internal website platform that will promote interaction among the course stakeholders can be an effective solution. In addition, developing more engaging academic materials through animation, illustrations, and video descriptions will act as a solution strategy.

Acknowledgements We want to express our heartiest gratitude to the experts of Dynamic Institution of Geospatial Observation Network – DIGON (http://digonresearch.org/), a research consultancy firm for proofreading and assistance to publish the manuscript.

Conflict of interest The authors declare no conflict of interest. Author contributions: Contributions from three authors are equivalent in the following areas: conception, research methods, tools, affirmation, detailed study, enquiry, assets, information collection, composing (initial draft preparatory work, evaluation and annotating), visual analytics (including supervision), project administration, and project administration.

Funding: N/A.

Data Availability N/A.

References

1. Senan, A., Tarek, M. O. R., Amit, S., Rahman, I., & Kafy, A. A. (2022). “Re-opening the Bangladesh economy: search for a framework using a riskimportance space,” Spatial Information Research, pp.1–11.
2. Amit, S., & Kafy, A. A. (2022). “A content-based analysis to identify the influence of COVID-19 on sharing economy activities,” Spatial Information Research, 30, 321–333
3. Tarek, M. O. R., Amit, S., & Kafy, A. A. (2022). “Sharing Economy: Conceptualization, Motivators and Barriers, and Avenues
for Research in Bangladesh,". Redefining Global Economic Thinking for the Welfare of Society (pp. 57–74). ed: IGI Global

4. Dhruba, Z. A., Amit, S., & Mehta, S. (2022). "EMERGING MOOC MARKETS: Perspectives from India and Bangladesh."

5. Markets, M. (2018). “MOOC Market by Component (Platforms (XMOOC and CMOOC), Services), Course (Humanities, Computer Science and Programming, and Business Management), User Type (High School, Undergraduate, Postgraduate, and Corporate) and Region - Global Forecast to 2023," https://www.marketsandmarkets.com/Market-Reports/massive-open-online-course-market-237288995.html

6. Research, D. B. M. (2020). “Asia-Pacific Massive Open Online Courses (MOOCs) Market – Industry Trends and Forecast to 2027;" https://https://www.databridgemarketresearch.com/reports/asia-pacific-mooc-market

7. Yasmin, L. (2022). “Bangladesh at 50: The Rise of a Bangladesh That Can Say No," Security Nexus, vol. 23.

8. UNESCO (2022). UNESCO Institute for Statistics

9. Abdullah, M., & Shovon, F. R. (2021). “Experts for proper planning as education budget up," in Dhaka Tribune, ed. https://www.dhakatribune.com/bangladesh/education/2021/06/03/experts-for-proper-planning-as-education-budget-up,

10. Clark-Wilson, A., Bushir, A., & Kaye, T., "A Theory of Change for a Technology-Enhanced Education System in Bangladesh," Working Paper 2021

11. Khaitan, S., & "Explainer (2021). : Why Budget 2021 Is Crucial for Public School Education in India," Scroll, In.

12. Sridhar, V., & Sririvasan, J. (2021). "Data-centric living: An introduction." Data-Centric Living (pp. 1–14). ed: Routledge India

13. Johnston, M. P. (2017). “Secondary data analysis: A method of which the time has come," Qualitative and quantitative methods in libraries, vol. 3, pp. 619–626.

14. Hossain, M. (2021). The effect of the Covid-19 on sharing economy activities, Journal of Cleaner Production, 280, 124782

15. Amit, S., Barua, L., & Kafy, A. A. (2021). “A perception-based study to explore COVID-19 pandemic stress and its factors in Bangladesh," Diabetes & Metabolic Syndrome: Clinical Research & Reviews,

16. Amit, S., Barua, L., & Kafy, A. A. (2021). “Countering violent extremism using social media and preventing implementable strategies for Bangladesh," Helvion, vol. 7, p. e07121,

17. Zhao, E. Y., & Wry, T. (2016). Not all inequality is equal: Deconstructing the societal logic of patriarchy to understand microfinance lending to women,. Academy of Management Journal, 59, 1994–2020

18. Hagiu, A., & Wright, J. (2019). The status of workers and platforms in the sharing economy,. Journal of Economics & Management Strategy, 28, 97–108

19. Zenker, S., & Kock, F. (2020). The coronavirus pandemic–A critical discussion of a tourism research agenda. Tourism management, 81, 104164

20. Xie, K. L., Zhang, Z., & Zhang, Z. (2014). The business value of online consumer reviews and management response to hotel performance,. International Journal of Hospitality Management, 43, 1–12

21. Soldatenko, D., & Backer, E. (2019). “A content analysis of cross-cultural motivational studies in tourism relating to nationalities," Journal of Hospitality and Tourism Management, 38, 122–139

22. Neuendorf, K. A., & Kumar, A. (2015). “Content analysis,” The international encyclopedia of political communication, pp. 1–10,

23. Vaisnoradi, M., Jones, J., Turunen, H., & Snelgrove, S. (2016). “Theme development in qualitative content analysis and thematic analysis,”

24. Kader, R. (2021). Bangladesh Tech Briefing: 12 Observations about EdTech Market in Bangladesh Plus Dorik, Evaly, Shikho, and Tap. Future Startup.

25. Shohel, M. C. M., Ashrafulazzaman, M., Alam, A. S., Mahmud, A., Ahsan, M. S., & Islam, M. T. (2021). “Preparedness of Students for Future Teaching and Learning in Higher Education: A Bangladeshi Perspective," in New Student Literacies amid COVID-19: International Case Studies. ed: Emerald Publishing Limited

26. Faysal, M. A. H., Ahmed, M. R., Rahaman, M. M., & Ahmed, F. (2021). “A Review of groundbreaking changes in the poultry industry in Bangladesh using the internet of things (IoT) and computer vision Technology,” in International Conference on Automation, Control and Mechatronics for Industry 4.0 (ACMI), 2021, pp. 1–6

27. Hosan, A. (2021). “BTCL: The Foundation of Bangladesh’s Telecommunication Network,“

28. Zaman, H. (2021). “Policy design: Perspectives of innovation from Digital Bangladesh,"

29. Rahman, S. M. A. (2016). Prospects of PPP in expanding ICT services in rural Bangladesh: A case of union digital center,. International Journal of Economics and Finance, 8, 163–170

30. Star, T. D. (2022). “Coursera builds online education in Bangladesh," in The Daily Star, ed. https://www.thedailystar.net/bytes/news/coursera-builds-online-education-bangladesh-1997825,

31. Rahman, S., Amit, S., & Kafy, A. A. (2021). “Gender disparity in telehealth usage in Bangladesh during COVID-19;"SSM-Mental Health, p.100054.

32. Akther, F. (2018). “Intermediaries and intermediating tools as instruments for digital literacy in Bangladesh," Designing for Learning in a Networked World (pp. 251–272). ed: Routledge

33. Sarker, M. F. H., Al Mahmud, R., Islam, M. S., & Islam, M. K. (2019). “Use of e-learning at higher educational institutions in Bangladesh: Opportunities and challenges,"Journal of Applied Research in Higher Education,

34. Zayed, N. M., Abdelrhmn Meero, A. A. A. R., & Islam, K. A. (2021). and S. T. Shahiduzzaman Khan Shahi, "Demand and Supply-Side Analysis of Dhaka Based Online Business during the COVID-19 Pandemic: Evidence from Bangladesh," Journal of Southwest Jiaotong University, vol. 56.

35. Khokhar, A. S. (2016). Digital literacy: How prepared is India to embrace it?, International Journal of Digital Literacy and Digital Competence (IJDLDC), 7, 1–12

36. Manish, S. (2020). "Coronavirus impact: Over 100 million Indians could fall below poverty line,"Business Standard,

37. Kaka, N. (2019). Digital India: Technology to transform a connected nation,

38. Chauhan, J., & Goel, A. (2017). An overview of MOOC in India,. International Journal of Computer Trends and Technology, 49, 111–120

39. Pant, H. V ., Lohani, M. C., & Pande, J. (2021). “MOOCs in India: Technology to transform a connected nation,

40. Varghese, N., Panigrahi, J., & Rohatgi, A. (2018). “Concentration of higher education institutions in India: A regional analysis,” CPRHE Research Paper, vol. 11,

Publisher’s Note Springer Nature remains neutral with regard to jurisdictional claims in published maps and institutional affiliations.