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RESEARCH PAPER

Covid-19 is A Catalyst for the Emergence of Information Technology in Education Institutes

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ABSTRACT

The education sector without information technology is like a man with no eyes. It plays a vital role in the development of the education sector. This study examines how the covid 19 has positively expanded information technology in the education sector, especially in higher education institutes, and the primary usage of information technology in the higher education institutes. A qualitative based on conceptual analysis was used to address the said issue based on the secondary data in the literature. This study found that due to the emergence of the covid 19, information technology usage in higher education institutes has increased rapidly. There are three main domains for higher education institutes to use information technology: teacher-to-student real-time interaction for the classes, teacher-to-student transfer of educational materials, and students-to-administration contacts.

Introduction

Covid 19 was considered a severe pandemic that has brought several changes globally in the overall aspects of life (Irshad, Hussain, & Qureshi, 2021; Yaseen, Jathol, & Muzaffar, 2020). The dimensions and the business models of several industries have been shifted completely. No sector in the world was safe from the effects of the covid-19 (Seetharaman, 2020). Among all the other sectors, education was one of the most important sectors which this pandemic has affected (Jung, Horta, & Postiglione, 2021). If we consider the primary beneficiary of this pandemic, then we cannot forget the information technology industry (Rahmat et al, 2021). This pandemic has provided a clean and green platform for the information technology industry to expand every aspect of human life (Mhlanga, 2022). According to the researcher, if we compare the usage of information technology in daily work life, it has increased by 50% after this pandemic (Zhong & Moon, 2022). We can say that this pandemic was no less than a blessing for the people of the information technology industry (Irshad, Arif, & Hussain, 2021). Due to this, the industry has penetrated many sectors, among which the most common are the education, food, hospitality industry, healthcare, and shopping industries (Rabbani, Subhan, Hussain, Ahmed, & Ibrahim, 2015). The education sector is among them, which was affected majorly by this pandemic (Mesmar & Badran, 2022). Especially in education, higher education was the topmost affected as compared to the lower level of education (Khan et al., 2022). Due to this, especially in higher education institutes, the concept of distance learning has increased rapidly (Prasad & Bara, 2022).

According to the researcher, more than 90% of the universities during this dynamic have shifted to distance learning by using different information technology-based applications (Ahmad et al., 2022). All the efforts were impossible without expanding information technology in higher education institutes (Asif, Khan, & Habib, 2022). This pandemic has created several doors for other information technology-based applications to

be introduced and sued in the education sector, which was used in various sectors (Liu et al., 2022). This study shows how the pandemic has affected Pakistan's education sector, especially higher education. Secondly, this study will also enlist the list of dominant technologies during this pandemic in the higher education institutes of Pakistan. Thirdly this study will also explain how these technologies were implanted in higher education institutes. Fourth and last, this study will also elaborate on which technologies are still being used successfully in the higher education institutes of Pakistan after the pandemic.

Literature Review

Covid 19 pandemic has provided a clean platform for the information technology industry to expand in the overall industries globally; education is one among them (Saraih et al, 2023). In the education system, information technology will be used at three levels. First, it will be used for online classes (Mittal, Mahendra, Sanap, & Churi, 2022). Second, it will be used for assignments and classwork (Sayed, Shahid, & Ahmad, 2020). Thirdly it will be used for the students to university administration communication. Before the pandemic of covid 19, the last platform of student-to-university administration communication was already being used (Okagbue et al., 2023). But with the advent of covid 19, the first two dimensions of information technology usage have rapidly increased (Irshad & Abro, 2022). The first dimension of the usage is for online classes. Different application types have been introduced to tackle this issue for these dimensions (Mgammal, Mohammed Al-Matari, & Bardai, 2022). These applications are named zoom, google meet, TeamViewer, Microsoft team, skype, cisco Webex, blackboard collaborate, adobe connect, etc. (Ahmad, 2011). These applications will provide the student and teachers a platform to take their classes virtually at a distance (Svatos, Holub, Fischer, & Sobotka, 2022). So during the covid-19, all the educational institutes were shut down (Akramy, 2022). Due to the pandemic, teachers and students could not come to the universities, so universities have used different applications, as mentioned above (M. Irshad, Hussain, Fahim, & Ghias, 2022). After the shutdown of the institutes, they used various applications for their classes to be conducted (Tlili et al., 2022). Still, their next problem was evaluating students' papers and transferring the educational materials to students (Awais & Ahmad, 2021). How to conduct papers, assignments, and quizzes. So to address the said issue, they have introduced different information technology-based platforms to support these activities (Zarcone & Saverino, 2022). The platform includes LMS, Blackboard, google class, and module (Irshad, 2022). These platforms will provide a better space for the students and teachers to communicate appropriately about their academic activities (Pringle et al., 2022). They can also better conduct online tests like quizzes, assignments, and term papers (Hassan, Devi, & Ray, 2022). After solving all the students and faculty-related problems, the next problem was the gap between the administration and the students (Siyal et al., 2021). This gap created several problems, such as students' registration for the subsequent courses, student fee payments, and other related issues (Singh, Singh, & Matthees, 2022). To address the problem, several applications like LMS, web portals, and campus management systems which several institutes had already used, started to be used rapidly (Khan et al., 2022). With the advent of this technology-based application, these matters were tackled even better than those tackled primarily manually by physical interaction (Alkabaa, 2022).

Although covid-19 has several negative impacts on the global perspective of different industries, we can say that the emergence of the covid-19 has provided a clean ground for the information technology-based industry to flourish rapidly (Ibrahim, Shahid, & Ahmed, 2014). Looking at the stock shares of the different IT-based companies, we notice that their share prices have increased with the covid19 emergence due to their rapid use (Heckel, 2022). This will show that although covid 19 was a pandemic that has destroyed a lot of industries we see overall, it was a blessing for the information technology-based industry (Rehman et al., 2021). The below figure shows the comparison of the information technology supporting devices used by the students in India pre and post covid. This shows a massive increase in the usage of information technology-based devices due to covid 19.

Pre and Post Covid IT usage
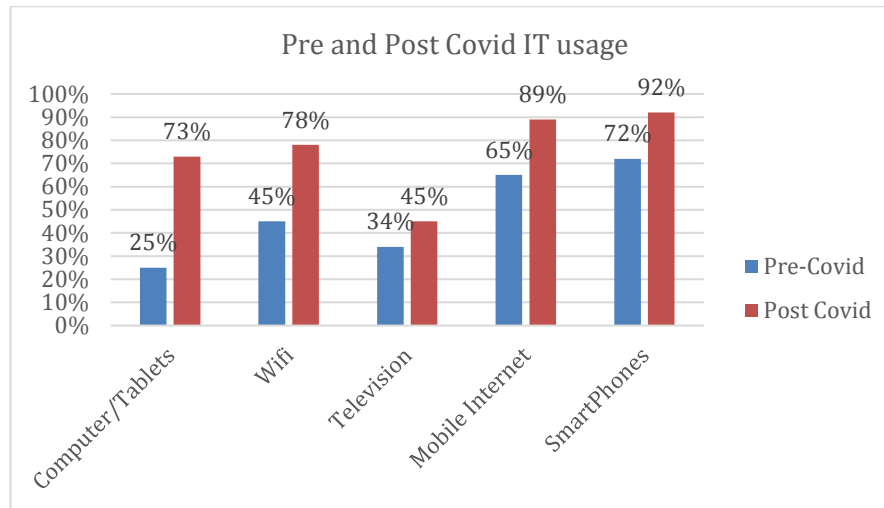
Materials and Methods

The philosophical foundation of this study is rooted in the interpretivism paradigm. So that is why a qualitative approach was used to address the issue. The reasoning approach was used inductive. Secondary data was used from the literature to analyze the findings of this study. The researcher used a conceptual analysis approach to analyze the literature-based data and conclude the results of this study.

Results and Discussion

Based on the past literature and the empirical evidence available, the covid 19 was a big pandemic created devastating consequences for different industries (Song, Zhao, Chang, Razi, & Dinca, 2022). However, it was no less than a blessing for information technology because it has provided a clean green ground for information technology to emerge into various sectors for a short time (Ibrahim et al., 2015). According to researchers, information technology applications responsible for distance communication increased by more than 50% during the covid period. If we consider the education system, we see a revolutionary change in the education sector due to implementation of information technology-based applications (Ali, 2022). This has boosted the concept of distance learning, especially in the higher education sector (Mudasser et al., 2022). However, its influence was not much dominant in schools and colleges. According to the researcher, more than 80% of universities globally started distance educational programs during the Covid. Covid has provided a platform for higher education institutes to implement information technology-based applications responsible for distance learning, especially in less-developed countries like Pakistan (Salmon, 2023). The students' usage of information technology was at three levels (Sikandar, Aleemi, Irshad, & Sundus, 2022). The first level was based on the students' real-time classes, where they contacted their teachers in real time (Qashou, 2021). The second level was based on the contact of the student and teachers with reading materials and especially the teachers' communication with the assignment and papers (Gaur et al., 2020). The third and last level was between the students and the administration regarding how the university administration will contact the student for course registration, fee deposit, and other related issues (Ahmad & Shahid, 2015, Mudasser et al., 2022).

Conclusion

The findings of this study are based on conceptual analysis basis. The findings of this study show that with the advent of covid 19, the usage of information technology-based applications has rapidly increased in the education sector, especially in higher education institutes. Covid 19 has provided clean ground for information technology to penetrate the industry, including the education sector. According to the findings of this study in the higher

education institute, information technology by the students is being used at three different levels. The first level is the online classes, where students and teachers interact in real-time. For this, various applications are used: zoom, google meet, TeamViewer, Microsoft team, skype, cisco Webex, blackboard collaborate, adobe connects, etc. Still, in the context of Pakistan, they are mainly zoom and google meet. The second level is the students' access to the teaching materials and the teachers' access to the student's assignments. Tools like LMS, Blackboard, google class, and module are being used for this said. The third level is the student's interaction with the administration. Various applications like blackboard, LMS, and web portal are used.

Recommendations

It is recommended to the higher education institutes to better use the information technology application because it will increase the learning capabilities of the students and will enhance the performance of their faculty members. In long term it one hand it will reduce the cost of the education institutes while on the other hand it will increase their efficiency.

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