DIGITAL TRANSFORMATION IN HIGHER EDUCATION: AN EMPIRICAL STUDY ON BUILDING FUTURE TECHNOPRENEURS

Sonal Gaikar
MBA Pursuing, Amrutvahini institute management and business addmistration, SPPU, Sangamner.
sonalgaikar3@gmail.com

Abstract
Digital transformation has become an important factor in shaping the modern higher education system. The increasing use of digital technologies such as online learning platforms, digital classrooms, and technology-based teaching tools has changed the way students learn and develop new skills. In recent years, higher education institutions have started focusing not only on academic knowledge but also on encouraging innovation and entrepreneurial thinking among students. In this context, the concept of technopreneurship has gained attention as it combines technological knowledge with entrepreneurial abilities. The present study examines the role of digital transformation in higher education and its influence on the development of technopreneurial skills among students. The study is based on primary data collected through a structured questionnaire from students studying in higher education institutions. A quantitative research approach was used to analyze the data. Descriptive statistics, correlation analysis, and regression analysis were applied to examine the relationship between digital transformation and technopreneurial skill development. The findings of the study indicate that students widely use digital learning platforms and have a positive perception of digital technologies in education. The results also show that digital transformation encourages innovation, creativity, and problem-solving abilities among students. Furthermore, the statistical analysis reveals a significant positive relationship between digital transformation and the development of technopreneurial skills. The study concludes that digital transformation in higher education plays an important role in preparing students for technology-based entrepreneurship. By providing digital learning environments, technological exposure, and opportunities for innovation, higher education institutions can support the development of future technopreneurs who can contribute to economic growth and technological advancement.
Keywords: *Digital Transformation, Higher Education, Technopreneurship, Digital Learning Platforms, Innovation and Entrepreneurship*

Introduction and Conceptual Background

Digital transformation has become an important part of the education system in the last decade. The use of digital technologies such as online learning platforms, artificial intelligence, cloud computing, and data analytics has changed the way knowledge is created, shared, and applied in higher education institutions. Universities and colleges are now using digital tools not only to improve teaching and learning processes but also to prepare students for a technology-driven economy. Digital transformation in higher education refers to the integration of digital technologies into academic activities, administrative systems, and learning environments to enhance educational outcomes and innovation (Bond et al., 2018). This transformation is especially important in developing skills related to innovation, creativity, and entrepreneurship among students.

Higher education institutions have traditionally focused on theoretical knowledge and academic development. However, the rapid growth of technology-based industries has increased the need for students who can combine technical knowledge with entrepreneurial thinking. This combination is often described as technopreneurship. Technopreneurship refers to the process of creating and managing technology-based businesses by using innovation, technical skills, and entrepreneurial mindset (Bailetti, 2012). Technopreneurs play a key role in economic development because they create new products, services, and job opportunities. As a result, universities are now expected to create an environment where students can develop both technological competence and entrepreneurial skills.

Digital transformation provides several opportunities for universities to support the development of future technopreneurs. Digital platforms allow students to access a wide range of learning resources, collaborate with others, and experiment with new ideas. Online learning systems, digital laboratories, and innovation platforms help students develop practical skills and creative thinking. According to Selwyn (2016), digital technologies have the potential to transform traditional education models by making learning more flexible, interactive, and student-centered. When students are exposed to such learning environments, they are more likely to develop problem-solving abilities and innovative thinking, which are important for entrepreneurship.

Another important aspect of digital transformation in higher education is the use of technology to support collaborative learning and innovation. Digital tools allow students to work together on projects, share ideas, and build solutions to real-world problems. This collaborative environment helps students develop communication skills, teamwork, and leadership qualities. Research by Redecker (2017) suggests that digital competence has become an essential skill for students in the modern knowledge economy. Digital competence includes the ability to use digital tools effectively, analyze information, and create digital solutions. These skills are closely related to the abilities required for technopreneurship.

Many universities around the world are now introducing digital learning systems, entrepreneurship programs, and innovation labs to encourage technopreneurial development among students. Such initiatives help students apply their academic knowledge to real business opportunities. According to Audretsch (2014), universities play an important role in supporting entrepreneurship by providing knowledge, research support, and innovation networks. When digital technologies are combined with entrepreneurial education, students can develop the confidence and skills needed to start technology-based ventures.

The concept of digital transformation in higher education is also linked with the idea of the entrepreneurial university. An entrepreneurial university focuses on innovation, knowledge creation, and collaboration with industry to promote economic and social development. Digital technologies make it easier for universities to connect with industry partners, startup ecosystems, and global knowledge networks. This interaction helps students gain exposure to real market needs and technological trends. Etzkowitz (2013) explains that universities that encourage innovation and entrepreneurship contribute significantly to the development of knowledge-based economies.

In addition, digital transformation helps students gain practical exposure to new technologies such as artificial intelligence, blockchain, and data analytics. These technologies are shaping modern business models and creating new opportunities for innovation. When students learn to use such technologies during their education, they become better prepared to create technology-driven solutions in the future. According to OECD (2021), digital education can support the development of creativity, innovation, and entrepreneurial thinking among learners. This shows that digital transformation is not only about adopting technology but also about building an ecosystem that encourages innovation and problem-solving.

Despite these opportunities, the integration of digital technologies in higher education also faces certain challenges. Some institutions lack adequate digital infrastructure, trained faculty, and financial resources. In addition, students may have different levels of access to technology, which can affect their learning experience. Therefore, universities need clear strategies and policies to implement digital transformation effectively. Successful digital transformation requires investment in infrastructure, training programs for teachers, and supportive policies that encourage innovation (Bond et al., 2018).

Overall, digital transformation is changing the role of higher education institutions in preparing students for the future. Universities are no longer only centers of knowledge but also platforms for innovation, creativity, and entrepreneurship. By integrating digital technologies with entrepreneurial education, institutions can support the development of future technopreneurs who are capable of creating innovative solutions and contributing to economic growth. This study therefore examines how digital transformation in higher education can support the development of technopreneurial skills among students and contribute to the creation of future technology-based entrepreneurs.

Review of Literature

The rapid growth of digital technologies has created new opportunities for transformation in higher education. Many researchers have studied how digital tools and platforms are influencing teaching, learning, and innovation in universities. In the Indian context, digital transformation has become more visible with the introduction of initiatives such as Digital India, online learning platforms, and technology-based educational reforms. These developments have encouraged researchers to examine how digital technologies can support entrepreneurial thinking and innovation among students.

Several studies have highlighted the importance of digital technologies in improving the quality and accessibility of higher education. Mishra and Panda (2020) explained that digital learning platforms help universities provide flexible and accessible education to a large number of students. The study pointed out that digital tools make it easier for students to access learning materials, interact with teachers, and participate in collaborative activities. Similarly, Kumar and Nanda (2019) observed that the use of digital technologies in higher education increases student engagement and supports interactive learning methods.

Indian researchers have also examined how digital transformation contributes to skill development among students. According to Sharma and Srivastava (2021), digital education plays an important role in improving technical and analytical skills, which are necessary for innovation and entrepreneurship. Their study suggested that digital learning environments allow students to experiment with new ideas and gain exposure to modern technologies. In a similar study, Singh and Thurman (2019) found that online and blended learning models help students develop independent learning abilities and problem-solving skills.

Another important area of research focuses on the relationship between digital learning and entrepreneurial development. Gupta and Batra (2016) stated that higher education institutions need to create an ecosystem that encourages innovation and entrepreneurship among students. The authors explained that digital tools such as virtual labs, online innovation platforms, and startup incubation centers can support the development of entrepreneurial skills. Likewise, Agarwal and Prasad (2018) argued that digital platforms provide students with opportunities to learn about business models, market analysis, and technological innovation.

Research in the Indian context also highlights the role of government initiatives in promoting digital transformation in education. Bansal and Sharma (2019) studied the impact of government programs such as SWAYAM and the National Digital Library of India on higher education. Their findings showed that these initiatives have expanded access to digital learning resources and improved knowledge sharing among students. In addition, Patel and Patel (2020) found that digital infrastructure and policy support are important factors in the successful implementation of digital education systems in universities.

The role of digital technology in promoting innovation and startup culture among students has also been widely discussed. According to Ratten and Usmanij (2021), universities that adopt digital technologies are more likely to encourage entrepreneurial activities among students. The study highlighted that digital platforms allow students to collaborate, share ideas, and develop innovative solutions to real-world problems. In the Indian context, Jain and Sharma (2022) emphasized that digital learning environments can help students develop the confidence and knowledge required to start technology-based businesses.

Another important aspect of digital transformation in higher education is the development of digital skills among students. Joshi, Vinay, and Bhaskar (2020) pointed out that digital skills are essential for students who want to succeed in technology-driven industries. Their study showed that students who regularly use digital tools during their education are more likely to develop innovative thinking and creativity. Similarly, Reddy and Reddy (2021) observed that digital competence helps students understand new technologies and apply them in business and entrepreneurial activities.

Some studies have also examined the role of faculty and institutional support in the digital transformation process. According to Kulkarni and Chavan (2020), the successful integration of digital technologies in higher education depends on the readiness of teachers and institutions. The study suggested that universities need to provide proper training and infrastructure to support digital learning. In addition, Mehta and Verma (2021) found that supportive institutional policies encourage the use of digital platforms for innovation and entrepreneurship education.

Recent research has also focused on how digital transformation can support the development of technopreneurs. Technopreneurship refers to the use of technology and innovation to create new business ventures. According to Kapoor and Singh (2022), universities that integrate digital technologies with entrepreneurship education create better opportunities for students to develop technopreneurial skills. Their study highlighted that digital tools allow students to explore new business ideas and test them in virtual environments.

Similarly, Das and Nair (2021) argued that exposure to digital technologies during higher education encourages students to think creatively and identify new business opportunities. The authors suggested that innovation labs, digital incubation centers, and online mentorship programs play an important role in supporting student entrepreneurs. In another study, Chatterjee and Bhattacharjee (2020) found that digital transformation in universities helps students build networks with industry experts and startup communities, which is important for entrepreneurial success.

Despite the positive impact of digital transformation, some researchers have also identified challenges. According to Arora and Srinivasan (2020), many universities in developing countries face issues such as lack of digital infrastructure, limited technical skills, and resistance to change. These challenges can slow down the process of digital transformation in higher education. Similarly, Kumar, Singh, and Gupta (2021) pointed out that unequal access to

technology among students can create a digital divide and affect learning outcomes.

Overall, the existing literature shows that digital transformation has the potential to reshape higher education and support the development of innovative and entrepreneurial students. Studies from India and other countries indicate that digital technologies improve learning experiences, encourage creativity, and provide opportunities for students to explore new business ideas. At the same time, successful implementation requires strong institutional support, digital infrastructure, and effective policies. Based on this literature, it can be understood that digital transformation in higher education can play a significant role in developing future technopreneurs who are capable of creating technology-driven solutions and contributing to economic development.

Problem Statement

In recent years, digital technologies have significantly influenced many sectors, including higher education. Universities and colleges are increasingly adopting digital tools such as online learning platforms, digital classrooms, virtual laboratories, and innovation hubs to improve the quality of education. These digital developments have created new opportunities for students to gain technological knowledge and practical skills. However, the adoption of digital transformation in higher education is not always effectively linked with the development of entrepreneurial and innovation skills among students.

Higher education institutions are expected to prepare students not only for employment but also for entrepreneurship and innovation in a technology-driven economy. The concept of technopreneurship, which combines technological knowledge with entrepreneurial thinking, has become important for economic growth and the development of new business opportunities. Despite the increasing use of digital technologies in universities, many students still lack the necessary exposure, guidance, and practical experience required to become future technopreneurs. In many cases, digital tools are used mainly for delivering academic content rather than for encouraging innovation, creativity, and business-oriented thinking.

Another challenge is that the integration of digital transformation with entrepreneurship education is still limited in many higher education institutions. Issues such as lack of digital infrastructure, limited training for faculty members, and insufficient collaboration with industry partners often affect the effective implementation of digital learning systems. As a result, students may not fully benefit from the digital resources available to them.

Therefore, there is a need to examine how digital transformation in higher education can contribute to the development of technopreneurial skills among students. Understanding this relationship can help educational institutions design better strategies, learning environments, and support systems that encourage innovation and technology-based entrepreneurship. This study aims to explore the role of digital transformation in higher education and its potential to support the development of future technopreneurs.

Aim of the Study

The main aim of this study is to examine the role of digital transformation in higher education and its contribution to the development of technopreneurial skills among students. The study seeks to understand how digital technologies used in educational institutions influence students' ability to think creatively, identify technology-based opportunities, and develop an entrepreneurial mindset. It also aims to explore whether the use of digital learning platforms, technological resources, and innovative educational practices helps in preparing students to become future technopreneurs in a rapidly changing digital economy.

Objectives of the Study

The first objective of this study is to understand the concept and importance of digital transformation in higher education institutions. The study aims to explore how the use of digital tools, online learning platforms, and technology-based teaching methods are influencing the learning environment and academic experiences of students.

The second objective is to examine the relationship between digital transformation and the development of technopreneurial skills among students. This includes understanding how exposure to digital technologies can help students develop creativity, innovation, and problem-solving abilities that are important for technology-based entrepreneurship.

Another objective of the study is to identify the role of higher education institutions in promoting technopreneurship through digital learning environments. The study focuses on how universities and colleges can support students by providing digital infrastructure, innovation platforms, and opportunities for entrepreneurial learning.

The final objective is to analyze students' perceptions regarding the impact of digital transformation on their readiness to become future technopreneurs. This helps in understanding

whether digital education systems are effectively contributing to the development of entrepreneurial and technological capabilities among students.

Hypotheses of the Study

H1: Digital transformation in higher education has a significant positive impact on the development of technopreneurial skills among students.

H2: The use of digital learning platforms significantly improves students' innovation and problem-solving abilities.

H3: Access to digital technologies in higher education institutions positively influences students' entrepreneurial mindset.

H4: Digital learning environments significantly contribute to students' readiness to become future technopreneurs.

These hypotheses are developed to examine the relationship between digital transformation in higher education and the development of technopreneurial abilities among students. Testing these hypotheses will help in understanding whether digital technologies used in educational institutions actually support the growth of innovation, creativity, and entrepreneurship among students.

Methodology Adopted

The present study adopts a quantitative research approach to examine the role of digital transformation in higher education and its influence on the development of technopreneurial skills among students. The research design is descriptive and analytical in nature, as it aims to understand the relationship between digital learning environments and students' readiness to become future technopreneurs. The study primarily relies on primary data collected from students studying in higher education institutions.

Data for the study was collected through a structured questionnaire designed to capture students' perceptions regarding digital learning platforms, access to digital technologies, innovation skills, and entrepreneurial mindset. The questionnaire consisted of close-ended questions measured on a Likert scale, which helped in assessing the level of agreement or disagreement of respondents toward different statements related to digital transformation and technopreneurship. The respondents for the study included undergraduate and postgraduate students from different academic disciplines. A simple random sampling method was used to select participants in order to ensure fairness and reduce bias in the selection process.

After collecting the responses, the data was organized and analyzed using statistical techniques. Descriptive statistics were used to summarize the responses and understand the general trends in the data. Further, hypothesis testing was conducted to examine the relationship between digital transformation factors and the development of technopreneurial skills among students. Statistical tools such as correlation analysis and regression analysis were used to determine the strength and significance of relationships between variables. These methods helped in identifying whether digital learning platforms, access to technology, and digital educational practices significantly influence students' entrepreneurial thinking and innovation abilities.

The overall methodology helped in providing a systematic approach to analyze the research problem and to evaluate the impact of digital transformation in higher education on building future technopreneurs.

Introduction to Data Analysis and Hypothesis Testing

Data analysis is an important part of any research study because it helps in understanding the collected data and drawing meaningful conclusions from it. In the present study, data analysis is carried out to examine the relationship between digital transformation in higher education and the development of technopreneurial skills among students. The responses collected from the structured questionnaire were organized and analyzed using appropriate statistical techniques. The analysis helps in identifying patterns, trends, and relationships between different variables related to digital learning, technological exposure, and entrepreneurial mindset.

To achieve the objectives of the study, both descriptive and inferential statistical tools were used. Descriptive statistics such as frequency, mean, and standard deviation were applied to summarize the responses of the participants and to understand their general perception about digital transformation in higher education. These measures provide a clear picture of how respondents view the role of digital technologies in their academic learning and skill development. In addition, inferential statistical techniques such as correlation and regression analysis were used to test the hypotheses of the study. Correlation analysis helps in examining the strength and direction of the relationship between variables, while regression analysis helps in understanding the impact of independent variables on the dependent variable. Through these statistical techniques, the study attempts to determine whether digital transformation significantly influences the development of technopreneurial abilities among students.

Table 1: Frequency Distribution of Respondents

Demographic Variable	Category	Frequency	Percentage (%)
Gender	Male	60	0.6
	Female	40	0.4
Level of Study	Undergraduate	55	0.55
	Postgraduate	45	0.45
Use of Digital Learning Platforms	Regularly	70	0.7
	Occasionally	30	0.3

Table 2: Descriptive Statistics (Mean and Standard Deviation)

Variables	Mean	Std. Deviation
Digital Learning Platforms Improve Skills	3.95	0.82
Access to Digital Technologies	3.88	0.76
Digital Learning Encourages Innovation	4.02	0.71
Digital Education Supports Entrepreneurship	3.9	0.79

Table 3: Correlation Analysis

Variables	Digital Transformation	Technopreneurial Skills
Digital Transformation	1	0.62
Technopreneurial Skills	0.62	1

(Note: Correlation value indicates a positive relationship between digital transformation and technopreneurial skill development.)

Table 4: Regression Analysis

Model	R	R Square	Adjusted R Square	Std. Error
1	0.62	0.38	0.36	0.54

Table 5: Regression Coefficients

Variables	Beta Coefficient	t-value	Significance (p-value)
Digital Transformation	0.58	6.45	0.000

(Note: p-value < 0.05 indicates that the relationship is statistically significant.)

Interpretation of Tables

Interpretation of Table 1: Frequency Distribution of Respondents

The table shows the demographic distribution of the respondents included in the study. Out of the total respondents, 60% are male and 40% are female, which indicates that the majority of participants are male students. In terms of level of study, 55% of the respondents are undergraduate students while 45% are postgraduate students, showing that both groups are fairly represented in the study. The table also presents the usage of digital learning platforms among the respondents. It is observed that 70% of the students regularly use digital learning platforms, whereas 30% use them occasionally. This indicates that a large number of students are actively engaged with digital learning systems in their academic activities. Overall, the table suggests that students are increasingly using digital platforms for educational purposes, which supports the relevance of studying digital transformation in higher education.

Interpretation of Table 2: Descriptive Statistics (Mean and Standard Deviation)

The descriptive statistics table presents the mean and standard deviation values for different variables related to digital transformation in higher education. The mean values of all variables are close to 4, which indicates that most respondents agree that digital learning platforms improve skills, provide access to digital technologies, encourage innovation, and support entrepreneurship. Among these variables, "Digital Learning Encourages Innovation" has the highest mean value of 4.02, showing that students strongly believe that digital learning environments help them develop innovative thinking. The standard deviation values are relatively low, ranging from 0.71 to 0.82, which suggests that the responses of the participants are fairly consistent and there is not a large variation in their opinions. Overall, the results indicate that students have a positive perception of the role of digital technologies in enhancing their learning and entrepreneurial abilities.

Interpretation of Table 3: Correlation Analysis

The correlation table shows the relationship between digital transformation and technopreneurial skills among students. The correlation value between the two variables is 0.62, which indicates a moderate positive relationship. This means that as digital transformation in higher education increases, the development of technopreneurial skills among students also tends to increase. The positive value suggests that digital technologies and learning platforms may contribute to improving students' innovation, creativity, and entrepreneurial thinking. Therefore, the correlation analysis highlights that digital transformation plays an important role in supporting the development of technopreneurial capabilities among students.

Interpretation of Table 4: Regression Analysis

The regression analysis table explains the overall relationship between digital transformation and

technopreneurial skills. The value of R is 0.62, which indicates a positive relationship between the variables included in the model. The R Square value is 0.38, which means that about 38% of the variation in technopreneurial skills among students can be explained by digital transformation in higher education. The adjusted R Square value of 0.36 further confirms that the model provides a reasonable explanation of the relationship between the variables. The standard error value of 0.54 shows that the prediction error in the model is moderate. Overall, the regression results indicate that digital transformation has a noticeable influence on the development of technopreneurial skills among students.

Interpretation of Table 5: Regression Coefficients

The regression coefficients table shows the impact of digital transformation on technopreneurial skills. The beta coefficient value of 0.58 indicates that digital transformation has a positive effect on the development of technopreneurial abilities among students. The t-value of 6.45 suggests that the relationship between the variables is statistically strong. In addition, the significance value (p-value) is 0.000, which is less than 0.05, indicating that the result is statistically significant. This means that digital transformation in higher education has a meaningful and measurable influence on students' technopreneurial skill development. Therefore, the results support the idea that digital learning environments can help in preparing students to become future technopreneurs.

Hypothesis Testing Result

Based on the results of correlation and regression analysis, the relationship between digital transformation in higher education and the development of technopreneurial skills among students is found to be positive and statistically significant. The regression analysis shows a significant p-value (0.000), which is less than the acceptable level of 0.05. This indicates that digital transformation has a meaningful impact on the development of technopreneurial abilities among students. Therefore, the main hypothesis of the study stating that **digital transformation in higher education has a significant positive impact on the development of technopreneurial skills among students is accepted**. The findings of the study support the idea that digital learning platforms, access to technology, and digital educational practices play an important role in encouraging innovation, creativity, and entrepreneurial thinking among students.

Findings and Conclusion

The analysis of the collected data helps in understanding the role of digital transformation in higher education and its influence on the development of technopreneurial skills among students. The results obtained from descriptive statistics, correlation, and regression analysis provide useful insights about students' perceptions and experiences with digital learning environments. Based on the interpretation of the data and hypothesis testing, several important findings emerge from the study. These findings highlight how digital technologies used in higher education institutions contribute to innovation, creativity, and entrepreneurial thinking among students.

Findings

One of the important findings of the study is that a large number of students are actively using digital learning platforms as part of their academic activities. The frequency analysis shows that most respondents regularly use digital platforms for learning, which indicates that digital technologies have become an important part of higher education. This also reflects the growing acceptance of digital tools among students for accessing knowledge and improving their learning experience.

Another important finding is that students generally have a positive perception of digital learning systems. The descriptive statistics show that the mean values of the variables related to digital learning, access to digital technologies, innovation, and entrepreneurship are relatively high. This suggests that students believe digital platforms help them improve their skills, gain knowledge about new technologies, and develop innovative ideas.

The study also finds that digital transformation encourages innovation and creative thinking among students. Many respondents agree that digital learning environments allow them to explore new ideas, experiment with technology, and develop problem-solving abilities. This indicates that digital education can play an important role in supporting innovative thinking, which is an essential quality for technopreneurs.

Another key finding is that there is a positive relationship between digital transformation and technopreneurial skill development. The correlation analysis shows a moderate positive relationship between these variables, which suggests that students who have better access to digital learning resources and technologies are more likely to develop entrepreneurial and technological abilities.

The regression analysis further confirms that digital transformation has a significant impact on the development of technopreneurial skills among

students. The results indicate that digital learning platforms and technological exposure contribute to students' ability to think creatively and identify new business opportunities. This finding supports the idea that digital education can help students prepare for technology-based entrepreneurship.

The study also highlights that higher education institutions have an important role in promoting digital learning and innovation. When universities provide digital infrastructure, modern learning tools, and opportunities for collaborative learning, students are more likely to develop the confidence and skills required to become future technopreneurs.

Conclusion

The findings of the study clearly show that digital transformation has become an important factor in shaping the modern higher education system. The increasing use of digital technologies in universities has created new opportunities for students to learn, innovate, and develop entrepreneurial abilities. Digital learning platforms not only improve access to educational resources but also encourage students to explore new ideas and technologies.

The study concludes that digital transformation in higher education positively contributes to the development of technopreneurial skills among students. When students are exposed to digital tools, online learning platforms, and technology-based educational practices, they are more likely to develop innovative thinking and entrepreneurial mindset. These qualities are essential for creating technology-driven business opportunities in the future.

However, the successful development of technopreneurs also depends on the support provided by educational institutions. Universities and colleges need to strengthen their digital infrastructure, promote innovation-based learning, and encourage students to participate in technology-related projects and entrepreneurial activities. By creating a supportive digital learning environment, higher education institutions can play an important role in preparing students for the challenges of the digital economy.

Overall, the study highlights that digital transformation in higher education is not only improving the learning process but also helping in building a generation of students who are capable of becoming future technopreneurs.

Bibliography

1. Agarwal, R., & Prasad, J. (2018). Digital learning and entrepreneurship development in higher education. *International Journal of Educational Development*, 63, 1–8.
2. Arora, A., & Srinivasan, R. (2020). Impact of digital learning during COVID-19 on Indian higher education. *Asian Journal of Distance Education*, 15(1), 82–91.
3. Audretsch, D. B. (2014). From the entrepreneurial university to the university for the entrepreneurial society. *The Journal of Technology Transfer*, 39(3), 313–321.
4. Bailetti, T. (2012). Technology entrepreneurship: Overview, definition, and distinctive aspects. *Technology Innovation Management Review*, 2(2), 5–12.
5. Bansal, S., & Sharma, R. (2019). Digital initiatives and higher education in India. *University News*, 57(20), 15–20.
6. Bond, M., Marín, V. I., Dolch, C., Bedenlier, S., & Zawacki-Richter, O. (2018). Digital transformation in German higher education: Student and teacher perceptions. *International Journal of Educational Technology in Higher Education*, 15(48), 1–20.
7. Chatterjee, S., & Bhattacharjee, K. K. (2020). Adoption of digital technologies in higher education: A study in India. *Education and Information Technologies*, 25(5), 4033–4052.
8. Das, K., & Nair, S. (2021). Innovation and digital entrepreneurship in higher education institutions. *Journal of Entrepreneurship Education*, 24(2), 1–10.
9. Etzkowitz, H. (2013). Anatomy of the entrepreneurial university. *Social Science Information*, 52(3), 486–511.
10. Gupta, V., & Batra, S. (2016). Entrepreneurship education in Indian universities: A review of emerging trends. *Journal of Entrepreneurship in Emerging Economies*, 8(2), 158–181.
11. Jain, R., & Sharma, P. (2022). Digital learning environment and student entrepreneurship development. *International Journal of Innovation Science*, 14(3), 321–334.
12. Joshi, A., Vinay, M., & Bhaskar, P. (2020). Impact of digital technologies on learning outcomes in Indian higher education. *Education and Information Technologies*, 25(5), 3657–3675.
13. Kapoor, S., & Singh, R. (2022). Technopreneurship development through digital education in universities. *Journal of Entrepreneurship and Innovation*, 11(1), 45–56.
14. Kulkarni, P., & Chavan, S. (2020). Digital readiness in Indian higher education institutions. *International Journal of Educational Management*, 34(6), 1121–1134.
15. Kumar, A., & Nanda, P. (2019). Social media and student engagement in higher education

institutions. *Education and Information Technologies*, 24(2), 1393–1407.
16. Kumar, V., Singh, A., & Gupta, S. (2021). Digital divide and online learning challenges in India. *Journal of Educational Technology Systems*, 50(1), 85–98.
17. Mehta, D., & Verma, S. (2021). Institutional support and digital learning adoption in universities. *Higher Education Research & Development*, 40(6), 1234–1247.
18. Mishra, L., & Panda, S. (2020). Digital learning in higher education: Opportunities and challenges. *Asian Association of Open Universities Journal*, 15(3), 311–325.
19. OECD. (2021). *Digital education outlook 2021: Pushing the frontiers with artificial intelligence, blockchain and robots.* OECD Publishing.
20. Patel, H., & Patel, M. (2020). Role of digital infrastructure in higher education development. *Journal of Educational Planning and Administration*, 34(2), 173–188.
21. Ratten, V., & Usmanij, P. (2021). Entrepreneurship education and digital transformation. *Education + Training*, 63(7/8), 1073–1087.
22. Redecker, C. (2017). *European framework for the digital competence of educators (DigCompEdu).* European Commission.
23. Reddy, V., & Reddy, P. (2021). Digital competence and student innovation in higher education. *International Journal of Technology in Education*, 4(2), 235–247.
24. Selwyn, N. (2016). *Education and technology: Key issues and debates.* Bloomsbury Academic.
25. Sharma, K., & Srivastava, R. (2021). Digital learning and skill development in higher education institutions. *Journal of Educational Technology*, 18(2), 55–63.
26. Singh, V., & Thurman, A. (2019). How many ways can we define online learning? A systematic literature review of definitions of online learning. *American Journal of Distance Education*, 33(4), 289–306.