

DIGITAL TRANSFORMATION AND INNOVATION IN HIGHER EDUCATION: FACULTY DEVELOPMENT AND STUDENT-CENTRIC PARADIGMS



Editors:

Sandeep Kautish
Pushan Kumar Dutta
Namrata Nagpal
Porkumaran Karantharaj
Pronaya Bhattacharya
Vijay Prakash Gupta

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Digital Transformation and Innovation in Higher Education: Faculty Development and Student-Centric Paradigms

Edited by

Sandeep Kautish

*Chandigarh University
Mohali, India*

Pushan Kumar Dutta

*Amity School of Engineering and Technology
Amity University Kolkata
Kolkata, India*

Namrata Nagpal

*Amity Institute of Information Technology
Amity University Uttar Pradesh
Lucknow, India*

Porkumaran Karantharaj

*School of Engineering
Sri Krishna College of Engineering and Technology
Tamil Nadu, India*

Pronaya Bhattacharya

*Computer Science and Engineering Department
Amity School of Engineering and Technology
Amity University Kolkata
Kolkata, India*

&

Vijay Prakash Gupta

*Institute of Business Management
GLA University, Mathura, (U.P.) India*

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Pronaya Bhattacharya and Vijay Prakash Gupta

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FOREWORD

When I began teaching more than a decade ago, “data” was a static term—something locked away in spreadsheets or tucked into end-of-semester reports. Today, there is a severe influx of data through every corner of campus life, from the admissions office to the final capstone project. That current expansion is precisely why the book *Data-Informed Leadership and Predictive Analytics in Higher Education* matters right now. This volume arrives at a moment when institutions feel both opportunity and pressure in equal measure. We all want to use information wisely—to anticipate a student’s struggle before it becomes a crisis, to invest scarce resources where they truly move the needle, to cultivate a culture where curiosity outpaces compliance. Yet the path from raw numbers to meaningful insight is never automatic. It is built, chapter by chapter, decision by decision, on the collective willingness of faculty, administrators, and technologists to question old assumptions and test new tools. You will find that spirit of pragmatic experimentation on every page. The contributors draw clear lines between theory and action: cloud platforms become the backbone for real-time dashboards; machine-learning pipelines translate intuition into evidence; and ethical frameworks remind us that a brilliant algorithm is worthless if it erodes trust. Read closely and you will notice a consistent theme—data are only as powerful as the human values that steer them.

I am especially encouraged by the authors’ insistence on inclusivity. Predictive models are not presented as silver bullets but as prompts for conversation: Which students remain invisible in our datasets? How do we respect privacy while still learning from collective patterns? Those questions, posed with both humility and resolve, echo the daily discussions I have with colleagues and students alike.

A quick tour for the busy provost: Part I reframes leadership as an evidence-seeking mindset; Part II dives into AI, ML, and cloud services; Part III explores recruitment, retention, and workforce analytics; and Part IV constructs upon the ethical scaffolding required to keep innovation humane. Along the way, vivid case studies—from Georgia State’s predictive-advising triumphs to emerging VR-enabled classrooms—keep the discussion grounded in practice. Part I reframes leadership itself, arguing that tomorrow’s successful institutions will be those that treat evidence as a shared language rather than a private treasure. Part II dives into enabling technologies—from adaptive learning platforms to cloud-native analytics stacks—while never losing sight of classroom realities. Part III turns the lens toward recruitment, retention, and workforce development, showing how demographic nuance and temporal dynamics can reshape long-standing practices. The final section steps back to tackle ethics head-on, reminding us that transparency, fairness, and accountability are not optional add-ons; they are the very infrastructure that keeps data-driven innovation upright.

What makes the collection stand out, however, is its tone. The writing is clear without being dry, confident yet free of jargon for jargon’s sake. Each chapter feels like a hallway conversation with a colleague who has just tried something new and can’t wait to share what worked—and what didn’t. That balance of candor and rigor is exactly what our sector needs.

As you embark on this journey, I encourage you to do three things:

1. Read with intention. Pause after each chapter to jot down a single action you can test on your own campus this semester.
2. Invite others in. Data-informed leadership thrives in community. Share insights with your

teams, and ask students how they would measure success.

3. Stay curious. Technologies will shift, metrics will evolve, and regulations will tighten. Curiosity is the one asset that compounds over time.

If this book succeeds—and I believe it will—it is because it treats data not as an end but as a catalyst. A catalyst for sharper questions, faster feedback loops, and, ultimately, more humane educational experiences. In that spirit, I invite you to read on, experiment boldly, and remember that behind every datapoint is a learner trusting us to get the next decision right.

Dr Alphones Arokiasamy

Past Chair, IEEE Singapore Section

Associate Professor, School of Electrical & Electronic Engineering
Nanyang Technological University, Singapore

PREFACE

Higher education institutions are in the midst of a digital revolution—one that demands agility, innovation, and a strategic vision to meet evolving student expectations. With emerging technologies reshaping how knowledge is delivered and consumed, faculty members must rethink their teaching approaches, and administrators must elevate the academic experience to thrive in a competitive marketplace. This book, *Digital Transformation and Innovation in Higher Education: Faculty Development and Student-Centric Paradigms*, provides a roadmap for institutions aiming to secure a leadership position in this changing landscape.

Unlike traditional academic texts, this volume is designed to help colleges and universities harness digital tools to strengthen their market standing and deliver robust learning outcomes. Each of the thirteen chapters addresses critical elements of modern education, offering proven strategies and compelling case studies that showcase how forward-thinking institutions position themselves for success. From recalibrating faculty skill development to reimagining students as key stakeholders—sometimes even customers—these pages explore how to stand out, appeal to diverse audiences, and sustain meaningful growth.

1. **Empowering Higher Education with Effective Methods for Enhancing Teachers' Skill Development in the Digital Era Reveals** practical techniques to boost faculty expertise in online and hybrid environments, enabling a more cutting-edge and market-friendly academic brand.
2. **Modernizing Workforce Development: Unveiling the Impact of Digital Skill Programs on Faculty Proficiency and Teaching Transformation in the Digital Era Demonstrates** how targeted professional development accelerates a culture of innovation, ensuring your institution stays ahead of leading instructional practices.
3. **Digital Transformation-Based Effective Online Learning System for Higher Education with Data-Driven Techniques Shows** how data insights can drive continuous improvement, from curriculum design to enrolment management, amplifying both institutional reputation and student satisfaction.
4. **Artificial Intelligence-Based Creative Thinking and Innovation Analysis in Digital Skill-Based Learning Explores** AI-driven approaches that boost problem-solving capabilities and spark creativity, attracting digitally savvy learners and solidifying an institution's innovative appeal.
5. **Digitalization, Innovation, and Dynamism: Examining the Role of Pedagogical Tools in Higher Education Discusses** emerging tools and platforms that optimize academic delivery, building a reputation for agility and responsiveness in a fast-changing market.
6. **Student-Centric Education: Unveiling the Dynamics of Understanding Students as Customers Illustrates** how recognizing learners as customers can heighten engagement and loyalty, driving a positive reputation and stronger enrolment pipelines.
7. **Reconceptualizing Education: Navigating the Digital Frontier—Exploring the Student as a Consumer Paradigm in Higher Tech Education Delves** deeper into the consumer mindset, proposing scalable frameworks for institutions eager to meet and exceed modern learner expectations.

8. **Elevating Income Through Online Learning: A Tactical Approach for Academic and Financial Success** Offers strategic directions for monetizing digital offerings, reinforcing sustainability and revenue diversification—a vital edge in the competitive education market.

9. **Nurturing Educational Excellence: Treating Students as Valued Customers** Underscores actionable ways to enhance student satisfaction and outcomes, ultimately fortifying institutional brand equity.

10. **Beyond Lectures: Building the Future of Higher Education with Active Learning and Innovation** Details the move from passive learning to interactive models, paving the way for standout program designs that attract students who prefer to stay engaged during the learning process.

11. **Emerging Trends in Studying and Teaching in Higher Education: Social Science and Humanities After the New Education Policy** Showcases how policy shifts transform academic delivery and drive curriculum innovations—key differentiators in an increasingly crowded marketplace.

12. **A Systematic Review and Analysis Through Graphical Visualization of Teaching Pillar of the Top Five Ranked Universities During 2020–2023** Combines data analysis and visual insights to illuminate best practices, providing readers with proven methods to bolster institutional ranking and appeal.

13. **Impact of Virtual Reality on Higher Education** Examines the disruptive influence of immersive technologies, highlighting opportunities for institutions to create unforgettable, tech-forward learning experiences.

Throughout the book, our contributors offer clear-cut tactics for integrating contemporary resources, experimenting with new teaching modalities, and championing a culture of continuous advancement. Whether you're an administrator seeking a competitive edge, a faculty member striving to refine your digital pedagogy, or a policy advocate shaping the future of academia, this collection addresses the critical shifts that will define higher education in the years to come.

We invite you to use these chapters as a framework for expanding reach, updating processes, and fostering meaningful relationships with the learners of today and tomorrow. By embracing these progressive ideas, your institution can transform challenges into profitable avenues for innovation—reinforcing its relevance in an era where differentiation and student-focused experiences are paramount.

Sandeep Kautish
Chandigarh University
Mohali, India

Pushan Kumar Dutta
Amity School of Engineering and Technology
Amity University Kolkata
Kolkata, India

Namrata Nagpal

Amity Institute of Information Technology
Amity University Uttar Pradesh
Lucknow, India

K. Porkumaran

School of Engineering
Sri Krishna College of Engineering and Technology
Coimbatore, India

Pronaya Bhattacharya

Computer Science and Engineering Department
Amity School of Engineering and Technology
Amity University Kolkata
Kolkata, India

&

Vijay Prakash Gupta

Institute of Business Management
GLA University, Mathura, (U.P.) India

List of Contributors

Aniket Srivastava	Convergia Digital Education, Noida, India
Aamer Al Aflak	University School of Business, Mohali, Punjab, India
K.M. Abubeker	Department of Electronics and Communication Engineering, Kerala, India
K.P. Sridhar	Department of Electronics and Communication Engineering/Centre for Interdisciplinary Research, Coimbatore, India
K.M. Abubeker	Department of Electronics and Communication Engineering, Kerala, India
M. Arun	Department of Mechanical Engineering, Thandalam, India
Naveen Chandra Upreti	Department of Computer Application, Lucknow, India
Parul Verma	Amity Institute of Information Technology, Lucknow, Uttar Pradesh, India
Prajitha C.	Department of Electronics and Communication Engineering/Centre for Interdisciplinary Research, Coimbatore, India
Prajitha C.	Department of Electronics and Communication Engineering/Centre for Interdisciplinary Research, Coimbatore, India
Sushma Tiwari	, Raipur, Chhattisgarh, India
S. Rinesh	Department of Computer Science and Engineering, Coimbatore, India
S. Deepa	Department of Electronics and Communication Engineering/Centre for Interdisciplinary Research, Coimbatore, India
Saumya Srivastava	Amity School of Languages, Lucknow, Uttar Pradesh, India
Seema Tripathi	Department of Management, Lucknow, India
Tapesh Chandra Gupta	Department of Commerce, Raipur, Chhattisgarh, India
Vartika Bisht	University School of Business, Mohali, Punjab, India

CHAPTER 1

Empowering Higher Education with Effective Methods for Enhancing Teachers' Skill Development in the Digital Era

Aniket Srivastava¹, Parul Verma^{2,*} and Namrata Nagpal²

¹Convergia Digital Education, Noida, India

²Amity Institute of Information Technology, Amity University, Uttar Pradesh, Lucknow, India

Abstract: In the digital age, technology has permeated every aspect of our lives, including education. Teachers play a pivotal role in harnessing the power of technology to enhance learning outcomes. However, to effectively integrate digital tools into their teaching practices, teachers must continually develop their skills. This essay explores the importance of teachers' skill development in the digital era and suggests strategies to empower educators in this rapidly evolving landscape. The importance of teachers' skill development is adaptation to technological advancements, enhancement of teaching effectiveness, meeting diverse learning needs, and global connectivity and collaboration. Strategies for teachers' skill development are continuous professional development (CPD), peer learning and collaboration, online learning platforms like MOOCs, mentoring programs, experimentation, and reflection. Teachers' skill development in the digital era is paramount for ensuring high-quality education in today's technology-driven world. By equipping educators with the necessary digital competencies, we empower them to leverage technology effectively, meet diverse learning needs, and prepare students for success in the 21st century. Through a combination of continuous professional development, peer collaboration, online learning, mentoring, and reflective practice, we can support teachers in navigating the complexities of the digital landscape and transforming education for the better.

Keywords: CPD, Higher education, MOOCS, Mentoring programs, Peer learning, Skill development.

INTRODUCTION

In an age defined by rapid technological advancement, the role of teachers has evolved beyond traditional boundaries. Today, educators are not only purveyors of knowledge but also facilitators of digital literacy and innovators in

* Corresponding author Parul Verma: Amity Institute of Information Technology, Amity University, Uttar Pradesh, Lucknow, India; E-mail: pverma1@lko.amity.edu

the classroom. As society transitions into the digital era, the importance of enhancing teachers' skill development cannot be overstated. In this chapter, we explore the strategies and tools necessary to empower educators for success in the digital age. In the dynamic landscape of education, embracing lifelong learning is paramount for teachers. Continuous professional development ensures educators remain abreast of emerging technologies, pedagogical approaches, and best practices. Institutions must foster a culture that encourages ongoing learning through workshops, conferences, online courses, and collaborative platforms.

Embracing Lifelong Learning: The Key to Continuous Teacher Skill Development

In the fast-paced and ever-evolving landscape of education, embracing lifelong learning has become imperative for educators seeking to thrive in their profession. As the demands on teachers continue to shift, from adapting to new technologies to implementing innovative pedagogical approaches, the need for ongoing professional development has never been greater [1]. In this chapter, we delve into the significance of lifelong learning for teacher skill development and explore strategies to foster a culture of continuous growth and improvement.

Understanding Lifelong Learning

Lifelong learning encompasses the idea that learning is a lifelong process that extends beyond formal education and into all facets of life. For teachers, this means continually seeking out opportunities to expand their knowledge, refine their skills, and stay abreast of emerging trends and best practices in education [2]. Embracing lifelong learning is not only essential for personal and professional growth but also for maintaining relevance and effectiveness in the classroom.

The Importance of Lifelong Learning for Teachers

In today's rapidly changing world, the skills and knowledge required of educators are constantly evolving. Teachers must adapt to new technologies, teaching methodologies, and educational trends to meet the needs of their students effectively. Lifelong learning enables teachers to stay current in their field and enhance their instructional practices.

Cultivating a Growth Mindset

At the heart of lifelong learning is the concept of a development outlook — the conviction that insight and capacities can be created through devotion and difficult work. Instructors who embrace a development mentality are bound to search out new challenges, endure despite misfortunes, and persistently make

progress toward improvement. Cultivating a growth mindset among educators is essential for fostering a culture of lifelong learning within schools and empowering teachers to reach their full potential.

Strategies for Promoting Lifelong Learning Among Teachers

Schools and educational institutions play a crucial role in supporting lifelong learning among teachers. Administrators can provide professional development opportunities, such as workshops, seminars, and conferences, that expose educators to new ideas and perspectives [3]. Additionally, schools can encourage collaboration and networking among teachers, both within and outside of the school community, to facilitate the sharing of knowledge and best practices.

Leveraging Technology for Lifelong Learning

Technology has revolutionized the way we learn, offering educators unprecedented access to resources, tools, and professional development opportunities [4]. Online courses, webinars, and virtual conferences allow teachers to engage in learning activities at their own pace and on their own schedule. Educational technology platforms, such as learning management systems and online communities, provide forums for collaboration, discussion, and sharing of resources among educators.

In the dynamic and ever-changing field of education, embracing lifelong learning is essential for teachers seeking to stay current, relevant, and effective in their practice. By cultivating a growth mindset, providing opportunities for professional development, fostering collaboration and networking, and leveraging technology for learning, schools can empower educators to continually enhance their skills and knowledge throughout their careers [5]. In doing so, we can ensure that teachers are equipped to meet the evolving needs of students and prepare them for success in the 21st century and beyond.

Digital Literacy: The Foundation of Modern Education

Digital literacy forms the cornerstone of teaching in the digital era. Teachers must possess the skills to navigate digital tools, evaluate online resources, and foster critical thinking in their students. Training programs should focus on areas such as information literacy, media literacy, and digital citizenship to equip educators with the knowledge needed to navigate the digital landscape responsibly. In the digital age, where information is abundant and technology permeates every aspect of society, digital literacy has emerged as a fundamental skill for educators. In this chapter, we explore the significance of digital literacy for teachers and strategies to integrate it into modern education effectively.

CHAPTER 2

Modernizing Workforce Development: Unveiling the Impact of Digital Skill Programs on Faculty Proficiency and Teaching Transformation in the Digital Era

Sushma Tiwari^{1,*} and Tapesh Chandra Gupta²

¹ *Pt. Ravishankar University, Raipur, Chhattisgarh, India*

² *Department of Commerce, Govt. J Yoganandam C.G College, Pt. Ravishankar University, Raipur, Chhattisgarh, India*

Abstract: In recent years, there has been a growing emphasis on the integration of digital tools and resources in education, with the aim of enhancing teaching practices and improving the efficiency of the education system. Digital skill development programs have emerged as key components in equipping faculty members with the necessary competencies to leverage digital technologies effectively in their teaching. This paper aims to explore the impact of digital skill development programs on faculty teaching practices, with a focus on how such programs contribute to increasing efficiency within educational settings. Drawing upon empirical evidence and literature review, this study examines the relationship between hands-on practice, active engagement in digital skill development programs, and the proficiency of faculty members in utilizing digital tools. By synthesizing findings from various studies, this research seeks to provide insights into the potential benefits of digital learning and teaching for enhancing teacher efficiency and improving educational outcomes. Additionally, this paper delves into the broader implications of digital skill development programs beyond individual faculty proficiency, exploring how these initiatives influence institutional dynamics and organizational culture within educational institutions. By investigating changes in faculty attitudes and the integration of digital skills into teaching practices post-program participation, this study aims to uncover the systemic impact of digital skill development initiatives on educational institutions. Furthermore, the research examines the role of institutional support in fostering faculty confidence and promoting innovative teaching approaches in the digital era. Through a comprehensive analysis of the interplay between faculty development programs and institutional frameworks, this paper offers valuable insights for educational policymakers and administrators seeking to optimize the integration of digital tools and resources to enhance teaching efficiency and overall educational effectiveness.

* **Corresponding author Sushma Tiwari:** Pt. Ravishankar University, Raipur, Chhattisgarh, India; E-mail: tiwarisushma684@gmail.com

Keywords: Active engagement, Digital equipment, Educational outcomes, Resources, Skill development, Teacher efficiency, Teaching practices.

INTRODUCTION

The pandemic has significantly impacted the global labor market, causing widespread unemployment and displacement. However, it has also accelerated the transformation of skills required in the workforce, with the demand for digital skills projected to increase dramatically. In India, the higher education sector has been adapting to this changing landscape by focusing on skill development and digital literacy initiatives. According to recent data from the Ministry of Education, the Indian government has been actively promoting initiatives to align higher education programs with the demands of the modern workforce. Programs such as the National Skill Development Mission and the Skill India Initiative aim to provide training and certification in high-demand sectors such as information technology, healthcare, and advanced manufacturing.

Furthermore, leading Indian universities and colleges have been incorporating digital skills training into their curriculum to equip students with the necessary tools for success in the digital economy. For example, the Indian Institutes of Technology (IITs) have introduced courses in data science, artificial intelligence, and cybersecurity to meet the growing demand for skilled professionals in these fields. In addition, online learning platforms like Coursera and Udemy have seen a surge in enrollments from Indian students seeking to upskill or reskill during the pandemic. This trend reflects a growing awareness among Indian learners of the importance of digital skills in today's job market.

Overall, the higher education sector in India is undergoing a significant transformation to meet the evolving needs of the workforce. By incorporating digital skills training and fostering collaboration between academia, industry, and government, India is working towards bridging the skills gap and unlocking economic opportunities for its citizens in the digital age.

Over the past three decades, globalization and technology-induced changes such as automation and digitization have irrevocably altered industries and jobs across the world. Similarly, in India, a report by the World Bank titled “Productive Jobs for Development” (2022) highlights the impact of automation and digitization on the Indian workforce. The report estimates that around 60 percent of Indian jobs are at risk of being disrupted by automation and digitization in the coming decades. Moreover, according to a study by the Indian Staffing Federation, about 64 percent of the Indian workforce will need to be re-skilled or upskilled by 2030 to fulfill the needs of a changing labor market.

The rapid pace of technological change and automation is disrupting traditional job roles and skill requirements across sectors in both India and the US. This necessitates a proactive approach to reskilling and upskilling the workforce to ensure they remain employable and can adapt to the evolving job landscape. Collaborative efforts from governments, educational institutions, and industry stakeholders are crucial to equip workers with the necessary skills and competencies for the jobs of the future.

In the rapidly evolving digital landscape, the integration of technology into teaching and learning practices has become imperative. Consequently, digital skill development programs for faculty members have emerged as a crucial means to equip educators with the necessary competencies to effectively leverage digital tools and resources in their teaching practices. The impact of such programs on faculty teaching practices has garnered significant attention from researchers and educational institutions alike. The proliferation of digital technologies in the educational realm has profoundly transformed the teaching and learning landscape. As a result, faculty members are compelled to adapt and enhance their digital skills to keep pace with the evolving demands of the 21st-century classroom. Digital skill development programs have emerged as a strategic initiative to empower educators with the requisite knowledge and proficiency to seamlessly integrate technology into their teaching practices. These programs aim to equip faculty members with a diverse range of digital competencies, encompassing the effective use of learning management systems, multimedia tools, online collaboration platforms, and digital assessment methods. By fostering these skills, institutions strive to enhance the quality of instruction, promote student engagement, and cultivate an environment conducive to active learning and collaboration.

Numerous studies have investigated the impact of digital skill development programs on faculty teaching practices, revealing both opportunities and challenges. Researchers have explored the influence of these programs on pedagogical approaches, instructional design, and the overall teaching and learning experience. Additionally, scholars have delved into the factors that facilitate or hinder the effective implementation of digital technologies in the classroom, such as institutional support, professional development opportunities, and faculty attitudes toward technology. By examining the existing body of literature, The research being conducted intends to make a contribution to the current discussion on the role of digital skill development programs in shaping faculty teaching practices. Through a comprehensive analysis, it seeks to provide valuable insights and recommendations to educational institutions, policymakers, and practitioners alike, ultimately fostering effective integration of technology into teaching and learning processes.

CHAPTER 3

Digital Transformation-Based Effective Online Learning System for Higher Education with Data-Driven Techniques

Prajitha C.^{1,*}, S. Rinesh², K. P. Sridhar¹, K.M. Abubeker³ and M. Arun⁴

¹*Department of Electronics and Communication Engineering/Centre for Interdisciplinary Research, Karpagam Academy of Higher Education, Coimbatore, India*

²*Department of Computer Science and Engineering, V.S.B College of Engineering Technical Campus, Coimbatore, India*

³*Department of Electronics and Communication Engineering, Amal Jyothi College of Engineering (Autonomous), Kerala, India*

⁴*Department of Mechanical Engineering, Saveetha School of Engineering, Saveetha Institute of Medical and Technical Sciences (SIMATS), Thandalam, India*

Abstract: The purpose of this paper is to discuss the growing importance of educational institutions using data-driven techniques in order to successfully navigate the difficulties of the modern day. A road map for establishing institutional excellence in the middle of digital transformation is provided by this chapter, which incorporates insights from data analytics. In higher education leadership, the techniques that are currently in use often lack agility and reactivity to dynamic disturbances. On top of that, traditional teaching methods usually fail to consider the potential of online learning platforms to meet the ever-changing requirements and possibilities. The Digital Transformation-based Effective Online Learning (DT-EOL) system for higher education suggests an innovative paradigm shift. DT-EOL uses digital platforms to improve the efficiency of educational delivery and administrative processes. DT-EOL enhances the ability of academic institutions to survive in the face of disruption by providing them with tailored learning experiences and streamlining their processes. When educational institutions use the DT-EOL system, they can encourage student participation, maximize available resources, and support continuous improvement *via* data-driven decision-making. The results of the implementation of DT-EOL show that there have been considerable improvements in the outcomes for students, the performance of the institution, and the satisfaction of stakeholders.

* **Corresponding author Prajitha C.:** Department of Electronics and Communication Engineering/Centre for Interdisciplinary Research, Karpagam Academy of Higher Education, Coimbatore, India; E-mail: praji.devi@gmail.com

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Keywords: Digital transformation, Data-driven techniques, Higher education, Online learning, Student.

INTRODUCTION

Educational institutions struggle to adopt flexible learning frameworks from outdated architectures. Further changes must incorporate technological and institutional innovation to keep higher education relevant, available, and sustainable for students [1].

Environmental, Social, and Governance: Data governance tools, regulations, practices, and organizational beliefs guide digital era firm and individual operations to produce economic and social value. Leadership matters for organizations [2]. The academic Institution will create a collaborative group based on student participation, research, and personal knowledge to discuss university transition. The team will identify career preparation gaps and ways to collaborate with other staff to attract students [3]. The practical results redefine the district's learning agenda, district and school leadership procedures, and who has voice and agency in these processes [4].

To ensure academic success, urban high school leaders must lead the online learning system. In the digital era, principals must set up campuses that support student learning and accomplishment. The paper examined urban high school administrators' views on leadership approaches that assist at-risk students' academic progress [5]. Throughout the pandemic, disturbing commercialization spider webs grew the market for profit education in non-profits as professors, staff, and programmers were eliminated [6]. Leaders should focus on racial equity, guided pathways, and relationship-based micro politics. This paper presents an Open Educational Resource (OER) guidebook for incoming community college administrators after assessing functional and structural environments. It also gives professional learning models and onboarding resource evaluation methods [7]. Politicization, decentralization, and poor governance impact public health data. These errors must be fixed soon. Data quality must be improved and made more accessible to those who need it in a format that maximizes its utility [8]. This outlines ways to prioritize EID that change attitudes and promote an inclusive, transparent, and equitable experience, align leaders and strengthen accountability *via* an EID governance framework, and set up proper reporting and insights [9].

Optimizing High-Quality Digital Learning Experiences: A professor's Playbook helps professors strategically organize online opportunities in their digital and physical classrooms [10]. Leaders will identify higher education online learning course design and production processes using the theoretical ADDIE

framework [11]. Key technology in AI and big data-driven long-distance learning and education lets educators and academics publish their brilliant theoretical and technical studies and industry researchers' unique actual implementations [12]. Existing methods provide extensive expertise on teaching and learning innovation at all educational levels worldwide. ICT improvements are vital here. Data-driven decision-making for smart education policies is increasingly discussed in school function and potential [13]. Big data decision-making requires data collection, processing, and evaluation. Each task requires distinct management and resources. Effective assessment and decision-making need huge data analytics. Without data-driven decision-making, firms cannot properly employ BDA [14]. Online learning, learning analytics data, and intervention all three focuses were used to analyze and interpret the results. Monitoring and prediction are learning analytics' goals. Student analytics often includes learning behavior and level [15].

Contribution of the Paper

Practical Advice

The paper provides higher education executives with data-driven decision-making tools. It gives executives concrete ideas and real-world examples to overcome current issues and adapt to future changes.

Data-Informed Decision-Making

The paper stresses the relevance of data-driven higher education decision-making. It emphasizes evidence-based approaches to institutional performance and student outcomes by promoting data analytics, predictive modeling, and benchmarking.

Promotion of Institutional Excellence

The paper promotes data-informed leadership to improve higher education institutions. Institutions may succeed and stay competitive in a changing environment by optimizing resource allocation, student assistance, and faculty and staff performance.

Disruption Adaptation Recommendation

The paper helps institutions adapt and survive in the face of disruptive influences like technology and student demography. Using data, leaders may proactively address obstacles, grasp opportunities, and position their organizations for long-term success. The paper equips higher education executives to negotiate change, innovate, and flourish in the digital age, advancing the sector.

CHAPTER 4

Artificial Intelligence-Based Creative Thinking and Innovation Analysis in Digital Skill-Based Learning

Prajitha C.^{1,*}, K.P. Sridhar¹, S. Rinesh², S. Deepa¹ and K.M. Abubeker³

¹Department of Electronics and Communication Engineering/Centre for Interdisciplinary Research, Karpagam Academy of Higher Education, Coimbatore, India

²Department of Computer Science and Engineering, V.S.B College of Engineering Technical Campus, Coimbatore, India

³Department of Electronics and Communication Engineering, Amal Jyothi College of Engineering (Autonomous), Kerala, India

Abstract: Nowadays, digital transformation is one of the growing technologies educators implement in universities and higher education platforms. Artificial intelligence (AI) has become the most important skill educators use in the modern world to use digital tools in the classroom effectively. But, many of these AI resources are unfamiliar to educators. In addition to lacking the extensive technical understanding necessary to use AI educational apps effectively, these educators could struggle to foster the digital AI skills of their pupils. Therefore, the Artificial Intelligence-based Creative Thinking and Innovation Analysis (AI-CTIA) framework has been developed to identify the problem in digital skills-based teaching, gather information, and analyze the skills effectively in higher educational institutions. AI is implemented to record the students' motivation, engagement, and learning-by-doing activities. Creative thinking is based on qualitative descriptions through interviews and questionnaire sessions. The method relies on interpreting the outcomes of instrument-based activities as part of its analytical process. Innovation analysis allows educators to be aware of digital competencies from low to medium and lack specific competencies, particularly those about evaluating their teaching practice. The evaluation of the framework is based on analytical reasoning, character, teamwork, communication, creativity, innovation, problem-solving abilities, and proficiency with information and communication technologies.

Keywords: Analysis, Artificial intelligence, Digital competencies, Digital skills, Digital classroom, Digital transformation, Educators.

* Corresponding author Prajihta C.: Department of Electronics and Communication Engineering/ Centre for Interdisciplinary Research, Karpagam Academy of Higher Education, Coimbatore, India;
E-mail: praji.devi@gmail.com

INTRODUCTION

Digital transformation has been on the rise for the past few years. Nowadays, everyone agrees that digital transformation is a natural progression that will eventually affect every facet of human and business existence [1]. Many different perspectives on digital transformation have led to different understandings and conceptions [2]. When an organization adopts digital solutions like AI, it undergoes a process often called digital change, which involves making substantial changes to its features [3]. It is possible to see digital transformation as an evolutionary process, even though practitioners and academics have portrayed it as a process involving tremendous and disruptive changes and consequences that disrupt the corporate environment [4]. One of the most well-rounded and comprehensive ways of looking at digital transformations is as a natural progression toward more value-generating business models and better service delivery made possible by digital technologies and capabilities [5].

Higher education institutions have evolved into multi-faceted entities over the years [6]. Institutions are embracing technology to fulfill client demands better [7]. These technological advancements may transform the whole idea of a university [8]. Changes to everyday operations and the scope of institution missions brought about by technological advancements are redefining the landscape of higher education [9]. These days, universities and colleges are fast to use new technology, sometimes before research has shown that these tools improve student learning [10]. Technological advancements might transform the institution's operations [11]. Academic institutions are embracing cutting-edge technology such as Big Data analytics, the Internet of Things, cloud computing, cyber security, and artificial intelligence to enhance the quality of their service [12]. Personalized learning, tailored course delivery methods, *etc.*, are all examples of AI applications [13].

Modern universities have been adapting their procedures, business models, and practices to include new technology [14]. To achieve their goals, institutions of higher learning are undergoing digital transformation, which entails creating new, more efficient ways of doing things [15]. Digital transformation, according to some research, is about more than just integrating tech into company operations [16]. Instead, digital transformation assesses stakeholder expectations and wants and ensures students get research and education that meets their knowledge needs [17]. Institutions of higher learning throughout the globe are progressively embracing digital transformation to better equip their students with digital tools to enhance their learning.

Customized courses, the study of student behavior patterns, *etc.*, are urgent needs, and AI plays a crucial part in meeting these demands. If universities do not incorporate new technology and teaching methods into their curricula, they risk becoming irrelevant. Organizations are using machine learning systems to direct students. Students may automate their course load scheduling by utilizing this technology. To identify children who may struggle academically, have behavioral difficulties, or both, AI can sift through a mountain of data, including academic and operational records. These systems employ more detailed data and behavior patterns to evaluate a student's risk in real time. It is possible to collect and analyze data, such as when students cease visiting the cafeteria or library, to make better decisions. Institutions have the opportunity to incorporate AI into their teaching methods. The systems take each student's speed and development into account. In addition to recommending and delivering individual course components, these systems may evaluate students' progress.

Regarding digital transformation, universities and colleges are up against formidable obstacles. These include, but are not limited to, the use of digital tools and technologies in the classroom and the integration of technologies that alter and improve the institute's current systems, procedures, communication channels, and administration methods. The use of AI in higher education is implemented as digital transformation. The contribution of the paper is discussed below:

- AI obtains the students' motivation, engagement, and learning-by-doing activities.
- Qualitative descriptions obtained from interviews and questionnaires form the basis of creative thinking. As part of its analytic procedure, the approach depends on analyzing the outputs of operations that include instruments.
- Educators may use innovation analysis to reflect on their digital competency levels, which range from low to medium, and identify areas where they may improve, such as by assessing their teaching methods.
- Analytical thinking, integrity, collaboration, communication, creativity, innovation, and problem-solving skills are the evaluation parameters of the AI-CTIA framework.

The rest of the article is described as follows: section 2 describes the background study on digital transformation in higher education, section 3 gives a brief description of the AI-CTIA framework, section 4 focuses on the evaluation results, and section 5 describes the conclusion.

RELATED WORK

To contribute to the growth of almost every economic sector, universities produce competent human capital by leading research initiatives that bring many

CHAPTER 5

**Digitalization, Innovation, and Dynamism:
Examining the Role of Pedagogical Tools in Higher
Education****Saumya Srivastava^{1,*}**¹ *Amity School of Languages, Amity University, Uttar Pradesh, Lucknow, India*

Abstract: India is now becoming a technology-driven country focusing on making the learning process accessible and user-friendly. Higher education institutions have introduced new pedagogical methodologies, research tools, and facilities to ease learning. Hybrid or blended learning, digital libraries, interactive smart boards, flipped classrooms, *etc.*, have revolutionized the field of academia globally. Teaching has moved from one dialectical pole of autocratic and traditional to another, more democratic and participatory. The teaching and learning that take place in the virtual world can be recorded and saved. The recorded data can be accessed by the students as per their convenience. This facility helps the teachers deal with diverse students, ranging from slow learners to quick learners. The instructors have started assuming the roles of facilitator and nurturer, as students nowadays require the right kind of guidance and direction pertaining to their individual needs. Today's knowledge system is going through a continuous phase of dynamism where theories are accepted and rejected with each development and innovation. The role of the facilitator has now been relegated to disseminating selective data from the pool of knowledge available on the internet. Information and Communications Technology (ICT) tools are supposed to be used effectively by the teacher to develop and enhance the critical thinking and learning of the learners. This consequently helps in the process of nation-building and structuring a better curriculum for students. This chapter will explore the growing interest in internationalization and the exchange of intellectual property across borders with the help of technology. This chapter also focuses on innovation in the field of academia, with an emphasis on value education by developing professional ethics.

Keywords: Digitalization, Hybrid, Innovation, Internationalization, Knowledge system, Pedagogy.

* **Corresponding author Saumya Srivastava:** Amity School of Languages, Amity University, Uttar Pradesh, Lucknow, India; E-mail: saumya.sri16@gmail.com

INTRODUCTION

The introduction of technology in the field of academia has enhanced the experience of the stakeholders, making it convenient for them to perform and maintain their presence at the global level. This has further helped in building networks and collaborating with the fraternity transnationally. The constantly evolving world, with learners shifting constantly from the virtual world to the physical, has become the order of the day. Learning has now become easier as the data required to develop skills is at the disposal of each individual, and every day, new additions are made to the already existing knowledge system. Learners in contemporary times have taken an active role, which is why teachers nowadays adopt a student-centric approach. Teachers are now taking on the role of instructors to direct the students and facilitate their access to the resources required for academic success. The lives of the students are immersed in the virtual world. Their constant interaction with the physical world is a lot different from what they learn and experience online. In actuality, they learn more by attending online lectures, watching documentaries, reading articles online, *etc.* The experience of the virtual world has transgressed the territorial boundaries of nations. This phenomenon has enhanced the experience of teaching and learning. The teacher is required to study, analyze, and evaluate the right kind of data from the variety of content available online. Technological advancements in the fields of education and e-learning have helped a lot in maximizing the process of learning. E-tutorials help the students understand the subject in a better manner with the help of demonstrations.

In the era of internet connectivity, there is a growing interest amongst researchers and academicians to make their presence at the global level by inventing or creating something novel. This leads to increasing interest in the internationalization of their products and research. Internationalization has been responsible for growing diversity in knowledge creation, pedagogy, methods of delivery, research, *etc.* These have been responsible for projecting cultural variations in the methodologies adopted by instructors residing in different parts of the world. The internationalization of content can also help us study paradigmatic shifts in knowledge systems that govern the world of academia. This can also help us study the factors responsible for introducing paradigmatic shifts. The structuring and restructuring of different domains of study are based on the possible inclusion and simultaneous exclusion of theories proposed by various thinkers. The exchange of intellectual property in the form of published research has added to the fluidity of this category. Intellectual transactions increase the knowledge base while simultaneously reshaping and expanding this category. *“Internationalization in higher education is an inevitable result of the globalized and knowledge-based economy of the 21st century. Other trends affecting the*

universities, including diversification, expansion, privatization, and so on, also have implications for the international role of academic institutions” [1].

Intellectual property refers to the power of the mind to create something original. A creation in the field of science and art that is a new invention in a particular field is termed intellectual property. It is essential to protect the new product created by the inventor from imitation by other people. The inventor's copyright on their product helps them maintain the standard of their work. Therefore, intangible intellectual property, also known as incorporeal property, which is the force behind giving shape to tangible products, is like any other tangible property protected by law. Intellectual property rights (IPRs) also help in creating an evolutionary environment for the creation of new products and services, thereby developing an ecosystem for continuous competition for the upcoming companies trying to establish themselves. The thrust is mainly on innovations across different domains. There are many technological software available that facilitate cross-border infringement of intellectual property rights. This leads to the exchange of intellectual property, which also facilitates the creation of inferior products that compromise quality as they are replicas of the original and far deviate from the actual product.

India has seen a great deal of transition in the education sector since independence. The statistical detail mentioned in this chapter captures the transitional phase through which India is continuously heading towards becoming a more civilized, developed nation and technology-driven country. The education sector is heavily influenced by the introduction of artificial intelligence. Various types of artificial intelligence (AI) tools have different functions to perform. Artificial intelligence (AI) tools should be used after analyzing the content, domain and learners' ability so as to make learning efficient and feasible.

Artificial intelligence (AI) comes in two types—weak artificial intelligence (AI) or narrow artificial intelligence (AI) and strong or general artificial intelligence (AI). Weak or narrow artificial intelligence (AI) is responsible for accomplishing selective tasks with limited cognitive faculty, whereas strong or general artificial intelligence (AI) can perform intellectual tasks with a broader domain like any human being. General or strong artificial intelligence (AI) has enhanced cognition. It is believed that if technology keeps advancing at this pace, that day is not far when artificial intelligence (AI) will surpass human intelligence. The future form of artificial intelligence (AI) is termed ‘superintelligence.’ The potential of this form of intelligence will have unmatched cognitive abilities. Instructors must have a thorough knowledge of artificial intelligence (AI) tools in order to integrate artificial intelligence (AI) as a tool for pedagogical and

CHAPTER 6

Student-Centric Education: Unveiling the Dynamics of Understanding Students as Customers

Vartika Bisht^{1,*} and Aamer Al Aflak¹

¹ University School of Business, Chandigarh University, Mohali, Punjab, India

Abstract: The study delves into the changing relationship between higher educational institutions and students, redefining students as customers within the context of contemporary education. The novelty of this study lies in its comprehensive exploration of the evolving relationship between students and higher educational institutions, framed within the context of contemporary education. UTAUT model explores technology's role in education dynamics, emphasizing its mediation effects for deeper insights. The research encompasses 733 higher education students selected from the top five universities in Punjab, based on the NIRF ranking of 2023. Employing a purposive sampling technique, the study relies on Partial Least Squares Structural Equation Modeling (PLS-SEM) software for robust data analysis. The key findings of the study underscore the significant impact of UTAUT variables, except for effort expectancy, on students' behavioral intention to choose a particular educational institution for higher studies. Moreover, the study reveals a substantial mediating effect of technology in this decision-making process, emphasizing the role of technological advancements in shaping students' choices. The study's implications shift from viewing students as learners to a customer-centric approach, revolutionizing educational perspectives. Educational institutions are encouraged to reevaluate their roles, recognizing the changing landscape and adapting to evolving expectations. Recommendations for institutions include the incorporation of interactive teaching methods, leveraging technology to facilitate learning, and providing resources that align with students' diverse interests and learning styles.

This shift towards a more personalized and responsive educational environment could result in heightened satisfaction among students, potentially improving retention rates and overall educational outcomes. Future research endeavors are encouraged to explore diverse theoretical models or consider an integration of multiple theories. In conclusion, this study sheds light on the intricate dynamics of the evolving relationship between students and higher educational institutions, emphasizing the need for a customer-centric paradigm.

Keywords: Consumers, Higher education, PLS-SEM, Student-centric, UTAUT.

* Corresponding author Vartika Bisht: University School of Business, Chandigarh University, Mohali, Punjab, India; E-mail: bishtvartika2909@gmail.com

INTRODUCTION

In recent years, the education sector has experienced a significant evolution, with an increasing focus on student-centric approaches [1]. Traditional paradigms are shifting as educators and institutions recognize the necessity of viewing students not merely as recipients of knowledge [2] but as active participants and valued customers in their educational journey. Central to this discourse is the recognition of students as stakeholders invested in their educational pursuits. Just as consumers engage with products and services, students interact with educational offerings, seeking value, relevance, and satisfaction [3]. Moreover, according to [4], the rise of digital technologies and personalized learning platforms has empowered students to exert greater autonomy over their educational journey. As such, educational institutions are compelled to adapt and innovate, leveraging data analytics and adaptive learning tools [5] to cater to the unique needs of each student effectively.

The notion of students as customers challenges conventional perspectives [6], prompting a reevaluation of pedagogical practices and institutional frameworks. By embracing this paradigm shift, educators can cultivate environments that prioritize student needs [7], fostering a symbiotic relationship that enhances both the learning experience and outcomes. While there is extensive research on student decision-making in the context of college choice [8, 9], there is a need for more nuanced studies that examine the factors influencing students' behavioral intentions (BI) throughout their academic journey. As technology becomes more deeply embedded in higher learning [10], there is a need to investigate students' BIs toward adopting and utilizing educational technologies. While student engagement is recognized as a key predictor of academic success and satisfaction [11, 12], there is a gap in research focusing on the antecedents of student engagement and its impact on BIs. Thus, the novel contribution of this study and the research gap found is to view students as customers and explore their behavioral intention toward higher education institutions of this paradigm shift in diverse educational settings in the state of Punjab.

LITERATURE REVIEW

Higher Educational Institutions (HEIs)

HEIs are typically universities, colleges, and vocational schools that offer advanced learning beyond the secondary level [13]. There is increasing scholarly focus on educational leadership in higher education [14], fostering a collaborative culture that embraces experimentation, improvement, and adaptation to unexpected challenges. Susilawati *et al.* [15] revealed significant relationships between student commitment, service quality, and student loyalty, indicating

effective management by Indonesian education institutions with technology innovation as a mediator. The changing role of HEIs today encompasses ensuring the educational process [16] and serving as platforms for innovation [17], utilizing the latest scientific developments, fostering collaboration for joint projects, and establishing online scientific and educational platforms [18].

In a previous study by Salas *et al.* [19], a systematic literature review revealed student involvement across behavioral, cognitive, and affective dimensions, highlighting key features focusing on Latin American higher education institutions during the COVID-19 pandemic. Moreover, the bibliometric analysis done by Rautela *et al.* [20] emphasized HEIs' role in mental health promotion, student stress, and depression. Only a few studies have realized the importance of conducting an empirical study in relation to higher education students' BI towards the selection of a particular institution, thus providing the research foundation for the current study.

Student-Centric Education

The behavioral intention in HEIs refers to the inclination or likelihood of students to engage in certain behaviors [21] related to their academic pursuits. It has been highlighted by Barnes & Hutson [22], that understanding students' behavioral intentions is essential for higher educational institutions to design effective interventions and initiatives aimed at promoting student success and well-being. By identifying the factors that drive students' intentions and addressing barriers to engagement [23], institutions can create environments that foster academic excellence and student development. Student-centric education is an approach that places the student, *i.e.*, the learner, at the center of the educational experience [24]. Instead of focusing primarily on the content to be delivered or the teacher as the primary authority figure, student-centric education emphasizes the needs, interests [25], and abilities of individual students [26]. A student-centric education strives to establish learning environments that are adaptable to the varying needs and abilities of students [27], empowering them to become lifelong learners who are capable of adapting to an ever-changing world [28]. By prioritizing the learner and their individual journey, student-centric education seeks to maximize the educational outcomes and experiences of all students [29].

Framework of the Study and Hypotheses Development

The current research uses the Unified Theory of Acceptance and Use of Technology (UTAUT) to understand the factors influencing students' behavioral intentions [30] and gives a complete exploration of the evolving relationship between students and higher educational institutions. It posits that performance expectancy (PY), effort expectancy (EY), social influence (SE), and facilitating

CHAPTER 7

Reconceptualizing Education: Navigating the Digital Frontier - Exploring the Student as a Consumer Paradigm in Higher Tech Education

Seema Tripathi^{1*} and Naveen Chandra Upreti²

¹ Department of Management, Integral & Innovative Sustainable Education College, Lucknow, India

² Department of Computer Application, International Institute for Special Education, Lucknow, India

Abstract: This paper explores the transformative impact of artificial intelligence (AI) on digital education, focusing on the development and implementation of AI tools in educational settings. As AI technologies continue to evolve, they offer unprecedented opportunities to enhance teaching and learning experiences, personalize instruction, and address the diverse needs of learners. Through a comprehensive review of literature and case studies, this research investigates the applications of AI in digital education, including intelligent tutoring systems, adaptive learning platforms, automated grading systems, and virtual assistants. The study examines the benefits and challenges of integrating AI tools into educational environments, such as improving student engagement, increasing instructional efficiency, and promoting equitable access to education. Moreover, the paper discusses ethical considerations, privacy concerns, and implications for educational equity and inclusion in the context of AI-driven digital education. By critically analyzing the potential of AI in transforming teaching and learning practices, this research contributes to the ongoing discourse on the future of education and provides insights into harnessing the transformative potential of AI to advance educational access, equity, and excellence in the digital age.

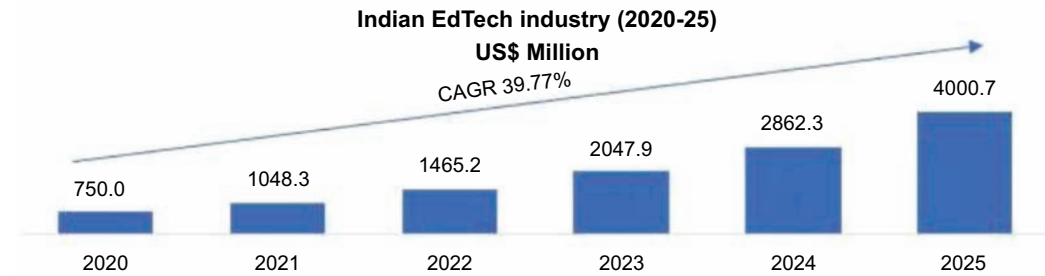
Keywords: Consumer, Digital frontier, Educational technology, Higher education, Learning experiences, Market-driven demands, Student.

INTRODUCTION

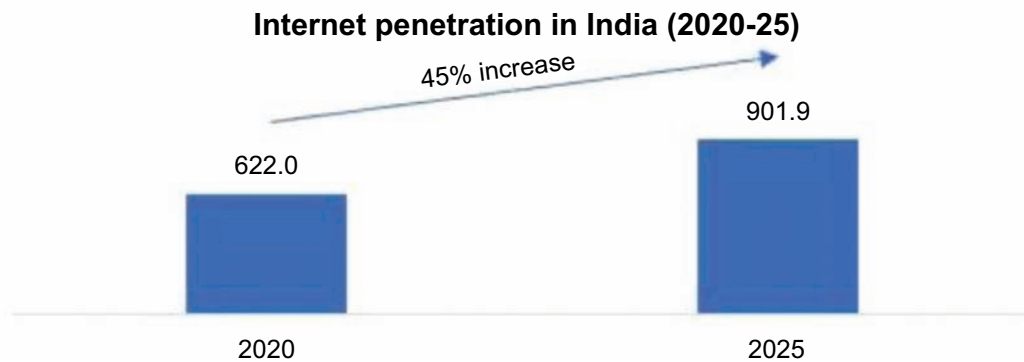
The digital revolution has revolutionized nearly every aspect of modern life, and education is no exception. As technology continues to permeate educational

* Corresponding author Seema Tripathi: Department of Management, Integral & Innovative Sustainable Education College, Lucknow, India; E-mail: smtripathi330@gmail.com

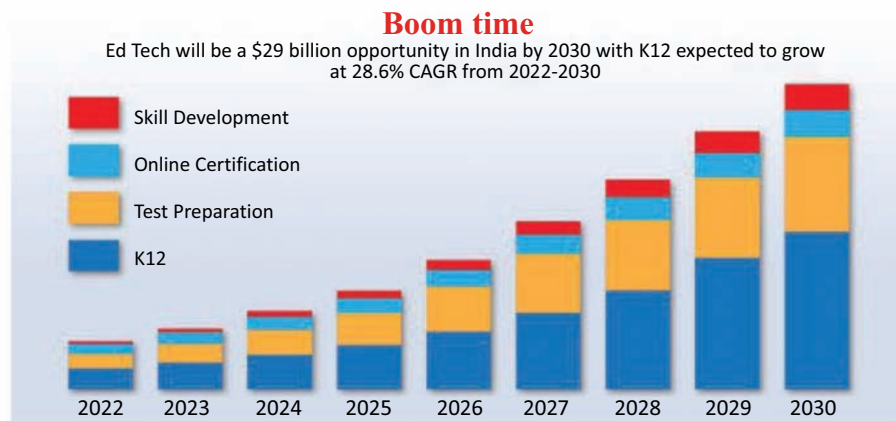
environments, traditional notions of teaching, learning, and student engagement are being redefined. Central to this transformation is the emergence of the student as a consumer paradigm in higher education as shown in Fig. (1) [1]. In this paper, we delve into the multifaceted dimensions of this paradigm shift, exploring its implications for educational stakeholders and the broader societal context.



Source- IBEF.



Source -IBEF.



Source: Inc42

Fig. (1). Source- Inc42.

The global artificial intelligence (AI) software market is anticipated to witness significant growth from 2019 to 2025 as shown in Fig. (2).

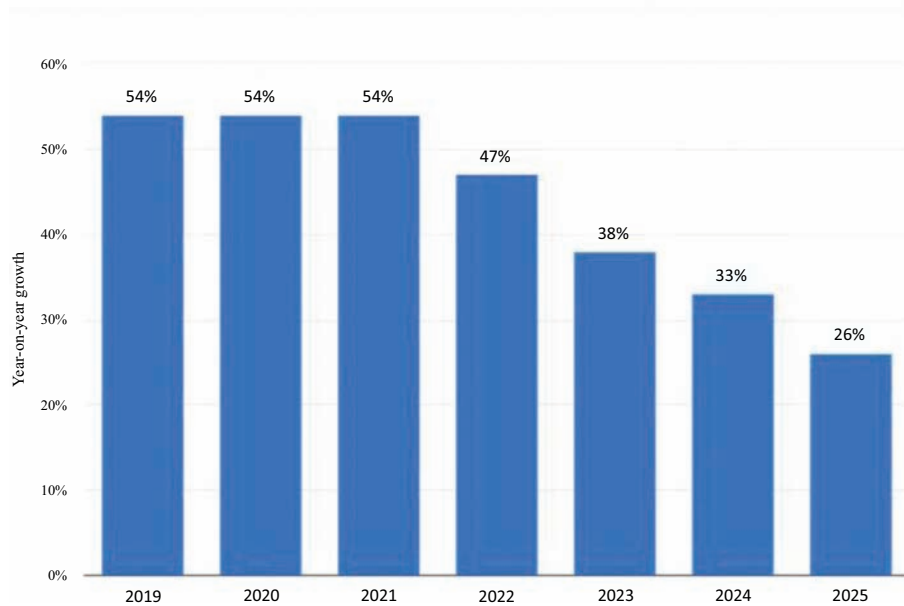


Fig. (2). Source projected growth of AI software using Statistica 2024.

The projected growth for the global AI software market in 2020 is estimated to be approximately 54%, reaching a forecasted size of \$22.6 billion USD. AI encompasses various technologies aimed at developing intelligent software or hardware capable of learning and problem-solving, including machine learning, computer vision, and natural language processing (NLP). Its anticipated widespread adoption across industry verticals suggests that AI can catalyze a significant technological shift akin to the advent of the computer age or the smartphone revolution.

Example - Below is a simplified Python code example demonstrating how an AI tool can be used in digital education to create a simple question-answering system. This system will take input from the user, process it, and provide a predefined answer based on the input.

This code defines a Question Answering System that contains a predefined knowledge base of questions and their corresponding answers as shown in Fig. (3). The answer-question method takes a user question as input, searches the knowledge base, and returns the appropriate answer. If the question is not found in the knowledge base, it returns a default response.

CHAPTER 8

Elevating Income Through Online Learning: A Tactical Approach for Academic and Financial Success

Rajeev Sijariya¹, Om Prakash Yadav^{2,*}, Ram Sewak Singh³, Rajkumar Teotia⁴ and Rashi Baliyan²

¹ Atal Bihari Vajpayee School of Management, Jawaharlal Nehru University (JNU), India

² Noida International University, Greater Noida, India

³ Adama Science and Technology University, Adama, Ethiopia

⁴ H.R. Institute of Science & Technology, Ghaziabad, India

Abstract: In today's rapidly evolving digital landscape, characterized by technological advancements and shifting economic paradigms, the role of education in fostering both academic excellence and financial success has become increasingly paramount. Against this backdrop, online learning has emerged as a transformative force, offering individuals unprecedented opportunities to elevate their incomes while advancing their educational goals. This paper aims to delve deeply into the tactical approaches that individuals can employ to harness the power of online learning for holistic growth, blending academic achievement with financial prosperity. The foundational premise of this study rests upon the recognition of online learning as a dynamic and versatile tool that transcends traditional educational boundaries. By embracing digital platforms, individuals can access a vast array of courses, resources, and opportunities tailored to their unique interests and career aspirations. This democratization of education not only empowers learners to acquire new skills and knowledge but also enables them to adapt to the evolving demands of the global economy.

Central to the discussion is the exploration of various tactical approaches through which individuals can leverage online learning to augment their incomes. One such approach revolves around skill acquisition, wherein individuals strategically identify high-demand competencies and pursue targeted learning pathways to enhance their marketability. Whether mastering coding languages for software development, honing digital marketing skills for entrepreneurial ventures, or acquiring proficiency in data analysis for emerging industries, the strategic acquisition of skills through online learning serves as a cornerstone for financial success in the digital age.

* Corresponding author Om Prakash Yadav: Noida International University, Greater Noida, India;
E-mail: om.prakash@niu.edu.in

Furthermore, this paper examines the pivotal role of online learning in facilitating career advancement and professional development. In a rapidly evolving job market characterized by technological disruption and globalization, individuals must continually upgrade their skill sets and adapt to changing industry trends to remain competitive. Through online platforms, professionals can access specialized courses, certifications, and networking opportunities that empower them to progress along their chosen career trajectories, whether climbing the corporate ladder or transitioning into new fields.

Keywords: Content marketing, Consumer behavior, Data privacy, Digital transformation, Innovation, Marketing perspective.

INTRODUCTION

In the history of higher education, the emergence of online learning has sparked a paradigm shift, propelling institutions into a new era characterized by innovation, adaptability, and strategic reimagining. This transformation is not merely an evolution in pedagogical methodologies but a fundamental restructuring of the traditional academic landscape. As institutions grapple with the dual imperatives of academic excellence and financial sustainability, the exploration of avenues to elevate income through online learning has assumed paramount significance. This comprehensive endeavor, encapsulated within the strategic framework of a tactical approach, heralds a revolutionary chapter in the narrative of higher education's future. At its core, the tactical approach to online learning represents a deliberate and calculated strategy employed by higher education institutions to not only embrace the digital revolution but to leverage it for academic and financial gain. This approach goes beyond the conventional understanding of online education as a supplementary tool; it envisions a holistic integration of virtual platforms into the fabric of institutional operations. The goal is clear: to empower institutions with the financial dexterity required to navigate the complexities of the contemporary educational landscape while simultaneously enhancing the quality and accessibility of academic offerings. As we embark on an exploration of this multifaceted topic, it is imperative to dissect the key components that constitute the tactical approach to elevating income through online learning. From strategic program development to innovative pricing models, optimized course formats, and the strategic utilization of data-driven decision-making, each facet plays a pivotal role in steering institutions toward a future where financial prosperity and academic prowess are not mutually exclusive. The contemporary higher education ecosystem is not without its challenges, and the tactical approach is a response to these challenges with a proactive and strategic mindset. The initial investment costs, faculty resistance, and concerns about academic integrity form intricate layers that must be carefully navigated. Technological barriers, market saturation, and the perpetual evolution of technology and pedagogy add further

complexity. However, it is within these challenges that opportunities for growth, innovation, and resilience are embedded, making the tactical approach a transformative strategy rather than a mere reaction to external pressures. This comprehensive exploration will delve into the various dimensions of the tactical approach, uncovering its nuances and shedding light on the intricate interplay between academic quality and financial viability. From the strategic development of online programs that resonate with market demands to the innovative pricing structures that balance financial sustainability with affordability for diverse student populations, each element contributes to the overarching goal of elevating income while upholding the core tenets of higher education. As we navigate through the chapters of this exploration, we will witness the pivotal role of data in shaping strategic decisions and ensuring the relevance and effectiveness of online programs. The tactical approach requires institutions to embrace a data-driven mindset, utilizing learning analytics and actionable insights to guide program optimization, recruitment strategies, and student success initiatives. In doing so, institutions not only elevate their income but also establish themselves as nimble entities capable of adapting to the ever-changing educational landscape. Furthermore, the tactical approach recognizes the importance of collaboration and partnerships in fostering academic and financial success. Whether through alliances with industry partners, other educational institutions, or the strategic utilization of open educational resources, institutions can amplify the impact of their online programs. This collaborative ethos extends beyond geographical boundaries, creating a global network of learning that transcends the limitations of traditional education delivery. As we embark on this exploration of elevating income through online learning, it is crucial to approach the topic with a forward-looking perspective. The tactical approach is not a static strategy; rather, it is a dynamic framework that necessitates continuous adaptation, innovation, and a commitment to excellence. It is a pathway for institutions to reimagine their financial landscapes, positioning themselves not only as educational providers but as architects of a sustainable and resilient future for higher education. In the following chapters, we will unravel the intricate layers of the tactical approach, examining each facet in detail and uncovering the strategies employed by institutions at the vanguard of this educational revolution. From the challenges encountered in the initial phases to the real-world success stories that illuminate the possibilities within grasp, this exploration seeks to provide a comprehensive understanding of the tactical approach to elevating income through online learning. Together, we will navigate the digital horizon, where academic and financial success converges and where the future of higher education takes shape.

CHAPTER 9

Nurturing Educational Excellence: Treating Students as Valued Customers

Abhijit Vhatkar^{1,*}, Vilis Pawar¹ and Pravin Chavan¹

¹ *Global Business School and Research Centre, Dr. D. Y. Patil Vidyapeeth, Pune, India*

Abstract: The roles and responsibilities of teachers and leaders from the educational field have changed significantly because of the dynamic educational landscape. Students with different demographics, different expectations, upgradation of technologies, *etc.*, demand innovative approaches in the educational sector. Considering students as important stakeholders can evolve as a customer-centric strategy that can be adopted by the educational institutes. Considering students as valued customers can improve classroom engagement, flexibility of teaching-learning, and overall satisfaction. This chapter explores the ‘Student as a Valued Customer’ approach.

This chapter focuses on the changing environment of the education sector and the importance of highlighting student expectations. It discusses various strategies to meet the different educational needs of students. It focuses on the practical strategies for implementing the student-centric approach. These strategies and approaches will be beneficial for the long-term success of any educational institute.

Keywords: Customer-centric approach, Higher education, Quality education, Student as a valued customer.

INTRODUCTION

The role of teachers and leaders of educational institutes has changed drastically because of the dynamic educational environment. Teachers face challenging situations apart from their teaching and administrative responsibilities these days.

Changes in the student demographics, technology improvements, growing expectations of the students and expectations for personalized learning are some of the examples of the challenges [1]. Because of the paradigm shift and new challenges in the educational institutes, a new approach should be adopted by the

* **Corresponding author Abhijit Vhatkar:** Global Business School and Research Centre, Dr. D. Y. Patil Vidyapeeth, Pune, India; E-mail: aavhatkar@gmail.com

educational institutes toward the students and overall teaching process [2]. A more specific and data-driven approach is required for the decision-making and progress of the institute [3].

Institutes must adopt various creative techniques to survive in the disruptive educational environment. The idea of ‘Student as a Customer’ can be a creative strategy. This is a customer-centric strategy that has the potential to revolutionize the higher education sector [4]. The recognition of students as an important stakeholder and beneficiaries of educational services leads to improvement in the classroom environment. This approach creates a more engaging, flexible, and supportive environment in the educational institutes [5].

This chapter examines the ‘Student as a Valued Customer’ approach in higher educational institutes. This approach matches with data-informed management which includes the use of data analytics to make strategic decisions for the betterment of the teaching-learning process in the modern educational environment. Adopting a customer-centric mentality results in the effective management of modern educational challenges [6].

This chapter highlights the dynamics of the relationship between students and educational institutes and the importance of understanding the changes in this relationship. The chapter is focused on the implementation of the customer-centric approach where students are considered as a main stakeholder. The customer-centric approach from the other industries helps to understand the concept of a student as a customer.

In addition to that, the chapter considers various strategies for the satisfaction of various needs and wants of the students. This includes customization of education, data-informed decision-making, predictive analysis, *etc.* [7]. It is useful for understanding students’ behavior, problems faced by the students, and possibilities of academic success for the students.

The chapter provides practical strategies to implement the student-centric approach. It includes creating personalized learning environments, use of adaptive learning methodologies, use of feedback systems, *etc.*, to make continuous improvements in higher education [8].

The readers will understand the benefits of treating students as valued customers by the end of this chapter. The student-centric approach will have a significant impact on institutional excellence in this digital age. This approach will have a long-term positive impact on student satisfaction, educational quality, and the teaching-learning process [9].

UNDERSTANDING THE RELATIONSHIP BETWEEN STUDENTS AND EDUCATIONAL INSTITUTES

The students and educational institutes have a strong hierarchical relationship traditionally [10]. The educational institutes and universities were the ultimate authorities in the educational processes, and the students were expected to adhere to the educational standards, norms, and curricula prescribed by these authorities. This traditional approach used to provide a key decision-making role to teachers and administrators whereas very little inputs from the students were taken. Students were mostly considered as the absorbers of knowledge rather than the active contributors in the teaching-learning process [11].

The traditional relationship between students and educational institutes has changed significantly in recent years. The modern educational approach considers students as the important and active stakeholders in the educational system. The modern educational approach tries to consider the opinions of the students and meet the educational needs of the students [12]. This approach matches with the recent developments in society to support customer experiences and the creation of tailored experiences for the customers. Educational institutes try to be relevant as well as competitive by meeting the needs and wants of the students. More and more institutes see their students as customers. Considering the students as important and primary stakeholders in the educational ecosystem is a necessary part of treating them like a customer. This strategy leads to the movement of education from a ‘one-size-fits-all’ approach to an ‘individualized’ approach [13].

It is very important to understand the relationship between students and educational institutes from a customer-centric perspective. The customer-centric perspective in educational institutes leads to the improvement in the overall involvement and achievements of the students [14]. The engaged students have higher levels of educational performance, persistence in the struggle, and higher levels of successful completion of the program. Treating the students as esteemed customers would escalate engagement and the general retention of the program with better results. The customer-centric approach practiced in the institutions propagates educational excellence. Institutions that are custodians of their students are in a much stronger place to deliver academic excellence. Setting a student-centric perspective benefits the students as well as the institutes and helps attract good students and faculty members [15].

The data-informed governance is required to get output from the ‘Student as a Valued Customer’ approach [16]. Data is important to understand and enhance the interaction between students and educational institutes. The use of data analysis will help institutes find choices, actions, and outcomes of the students. The data

Beyond Lectures: Building the Future of Higher Education with Active Learning and Innovation

Namrata Nagpal^{1,*}, Yuli Rahmawati² and Alin Mardiah²

¹ Institute of Information Technology, Amity University Uttar Pradesh, Lucknow, India

² Universitas Negeri Jakarta, Jakarta, Indonesia

Abstract: In the ever-evolving landscape of higher education, the traditional lecture-based approach is being reimagined to accommodate the diverse needs and aspirations of today's learners. However, in today's rapidly evolving educational landscape, educators are increasingly recognizing the limitations of passive learning approaches and embracing active learning strategies to better engage the modern learner. This chapter explores the transition from lectures to active learning and innovation in higher education, shedding light on the transformative potential of these pedagogical strategies in shaping the future of learning. It also aims to highlight the benefits, challenges, and best practices associated with this transformative pedagogical approach. Active learning encompasses a spectrum of instructional methods that actively involve students in the learning process, encouraging them to construct knowledge, solve problems, and apply concepts in real-world contexts. From flipped classrooms and peer instruction to problem-based learning and collaborative projects, a wide range of active learning techniques offer educators versatile tools to create dynamic and interactive learning environments. Several active learning strategies are portrayed in the framework of transformative education and constructivism, such as case-based learning, problem-based learning, project-based learning, STEM project-based learning, dilemma-teaching pedagogy, and other teaching models. It explores the use of ICT integration such as through augmented reality, virtual reality, and artificial intelligence. It also fits into the theme of understanding students as customers.

The chapter further focuses on several factors related to higher education, as well as active learning and innovative ideas applied during the COVID-19 pandemic worldwide. It also discusses traditional and modern teaching methodologies in higher education. The online teaching/learning initiatives applied by Indonesia and India are also explained, along with the future of higher education with active learning and innovation. It also presents the case studies of Indonesian and Indian universities for engaging students as modern learners with active learning strategies emphasizing the lessons learned during the COVID-19 pandemic and thereafter.

* **Corresponding author Namrata Nagpal:** Amity Institute of Information Technology, Amity University Uttar Pradesh, Lucknow, India; E-mail: nnagpal@lko.amity.edu

Keywords: Active learning, AR/VR, Flipped classrooms, Higher education, ICT learning, STEM, Student-centered, Technology integration.

INTRODUCTION

In the digital era, which is transforming every aspect of our lives, how can higher education adapt to the requirements of contemporary learners? This compelling question underpins the transformative voyage of contemporary education systems. Higher education teaching, learning, and research are increasingly taking place within a framework of ongoing globalization and competitiveness [1]. Barak discovered that university instructors continue to employ lecture-based instruction, primarily utilizing learning management systems to disseminate learning materials and information [2]. While historically essential and widely acknowledged, the didactic technique now faces more scrutiny over its efficacy in promoting profound learning and critical thinking. Amidst a constantly changing educational environment, there is a growing acknowledgment that more conventional lectures may be needed to effectively involve and equip students for the intricacies of the contemporary world.

The lecture-based approach has long been a fundamental aspect of higher education, originating from the medieval universities of Europe, where lectures were the primary means of teaching [3]. This strategy, which focuses on the authoritative distribution of knowledge, has proven successful *in situations* where information is limited and concentrated. Nevertheless, the drawbacks of this approach have become increasingly evident in the modern day. The conventional lecture cannot frequently involve students, leading to little material retention and restricted chances for practical application [4, 5]. In contrast, higher education nowadays often receives requests for increased student active learning and the use of novel teaching approaches such as by a study [6]. Researchers frequently characterize student active learning as the antithesis of teacher-dominated instruction [7]. In order to characterize instructional methods that include students, academic research employs terms such as active learning, interactive engagement, collaborative learning, and problem-based learning [8].

In the 1990s, educators in higher education had a natural understanding of “active learning”, which is the belief that learning is inherently dynamic and that students are actively engaged when they listen to formal lectures in the classroom [6]. Active learning practices should prioritize students' engagement in hands-on activities and critical reflection on their actions. Carr [9] argued that active learning encompasses more than just collaborating with classmates on in-class projects, giving presentations, asking questions, or participating in discussions. It also involves engaging in community-based projects as part of a course,

collaborating with peers outside of class on assignments, discussing course concepts with others outside of the classroom, and tutoring fellow students.

The onset of the COVID-19 pandemic in early 2020 resulted in the most extensive upheaval of the global school system, including in higher education. The COVID-19 epidemic has caused a complete transformation in the conventional methods of teaching and learning in educational institutions [10]. Higher education institutions made substantial investments in technology to establish classrooms throughout the transition period [11]. The pandemic had a significant impact on educational institutions, catching them off guard. However, it also presented them with a chance to identify shortcomings, revamp the online education system, foster global cooperation, and establish an online education network. Furthermore, to ensure the educational process remains uninterrupted, various measures such as e-interviews [12], video interviews [13], mobile learning [14], and distance learning [15] were implemented.

The impediments that were discovered were categorized into three overarching topics. The three main areas of focus are:

- Leadership and organization,
- Teaching competence and training requirements, and
- Technology [1].

Higher Education leaders and staff must know of these barriers and why they persist. New generations of students bring new expectations about learning activities, ways of working, and the use of campus facilities. Leaders must actively take these expectations into consideration when designing rooms, buildings, and furniture and planning professional learning opportunities for staff. Student active learning also places demands on students' collaborative skills and ability to self-regulate. Teachers must, therefore, get an overview of their students' skills, provide constructive feedback, and teach them self-regulation, cooperative writing, active listening, sharing, and so on to enable them to actively engage in their learning process. Most importantly, however, teaching staff must consider the relationship between expected learning outcomes and pedagogical approaches.

Innovative lecturers must possess several essential qualities, such as humility, courage, impartiality, open-mindedness, empathy, excitement, discernment, and imagination [16]. To successfully promote active learning, lecturers need to have a profound comprehension of different pedagogical methods and be skilled at establishing captivating, learner-focused learning environments. It requires not just a high level of proficiency in active learning methods like flipped classrooms, peer instruction, and problem-based learning but also the skill to incorporate these

CHAPTER 11

Emerging Trends in Studying and Teaching in Higher Education: Social Science and Humanities after the New Education Policy

Satendra Kumar Mishra^{1,*}

¹ Amity Institute of Information Technology, Amity University Uttar Pradesh, Lucknow, India

Abstract: It was assumed that due to the uniqueness of each nation-state, the education system of each country would also have its own specialty. Along with this, it was assumed that the development of the education system would be uniform throughout the country. Local history, under this belief, was a miniaturized form of national school history. Either it restores or violates national norms and narratives. In this understanding, the nation was a homogenous unit in which there was no place for conflict. This tradition of historiography was challenged by new approaches. Attention was paid to the universality of the national educational structure instead of considering local history as only a part of the nation. The history of India's education system is the history of the evolution of different states. It is important to understand that in the absence of a historical perspective, the present, its concerns, questions, and projects feel brand new. Ignorance of how historical experiences, concepts, beliefs, and practices are present in today's functioning and how today's world is being shaped by a particular time, society, pressures, and ideas also leads to the incomplete understanding of 'education policy'. This incomplete understanding neither allows us to understand the challenges of today nor does it teach us what lessons emerge from yesterday's experience for today. This incomplete understanding, disregarding the larger social, political, and economic contexts in which education is embedded, turns education into an independent misguided missile that can hit the initiator. Social, political, and economic contexts can deepen our understanding of evolution. It is very important to search and evaluate some questions like what is the relationship between education and social change? Is it determined only by external pressures, influences, and forces, or does it also influence, create, and interact with social processes, socioeconomic structures, state formation, social power relations, and cultural conflicts? Even if we look at education and schools as a closed institution in themselves, then what will be their independent role in the evolution of social history?

Keywords: Education policy, Homogenous, Historical experiences, Higher education, Universality.

* Corresponding author Satendra Kumar Mishra: Amity Institute of Information Technology, Amity University Uttar Pradesh, Lucknow, India; E-mail: skmishra2@lko.amity.edu

INTRODUCTION

The historical roots and perspective of education are not considered an important topic in the conversation and verbal discussions on education in the Indian academic field. Every decade comes up with some new education policy with new insights copied (inspired) from the western education system. A long list of recommendations from various committees, commissions, and government policies is visible in the name of the historical research of education in the programs of education training in India. In either case, a historical approach and understanding of the text do not develop.

What is the need for a historical approach and understanding? What is the need to trace the growth and evolution of education in the Indian subcontinent? Is it not important to analyze the traditional approach to education, keeping in mind the infrastructure of our country? How can the study of the historical roots of education help in developing a historical understanding of education? How does this insight place verbal vocabulary, concerns, discourse, and ideas in a historical perspective? Does the historical approach help in better understanding the policies, programs, and debates on them? Through this analytical research of education, what light must be shed on the evolution of education? It is equally important to analyze the role of family members, teachers, officials, and children, their activities, and objectives.

It is important to understand that in the absence of a historical perspective, the present, its concerns, questions, and projects feel brand new. Ignorance of how historical experiences, concepts, beliefs, and practices are present in today's functioning and how today's world itself is being shaped by a particular time, society, pressures, and ideas also leads to an incomplete understanding of 'education policy'. This incomplete understanding neither allows us to understand the challenges of today nor does it teach us what lessons emerge from yesterday's experience for today. This incomplete understanding, disregarding the larger social, political, and economic contexts in which education is embedded, turns education into an independent misguided missile that can hit the initiator. Social, political, and economic contexts can deepen our understanding of evolution.

What are the stages through which today's curriculum has passed? What is the output of tomorrow and when and why was the subject added or removed from the school curriculum? Answers to such questions can be found in tracing the historical roots of education. The history of education points, on the one hand, to the historical character of the closed world of the school, the curriculum, the examinations, the timetable, the discipline, the uniforms, the morning assemblies,

and the ceremonies. On the other hand, it recreates the experiences, work, sorrows, and struggles of the people working, living, and passing through it.

A historical understanding of education can also help us to understand the role of education in the rise of today's 'corporate' education system, privatization of education, the rise of 'corporate' democracy, development of 'bank controlled' nation-states, and the development of the spirit of nationalism under the umbrella of 'corporate world'. While on the one hand, the history of modern education becomes a narrative of continuous progress, development, and freedom, on the other hand, its colonial hegemony and participation in 'development' based ethnic violence and racial differentiation give us an idea of present-day society, education, and development. Reasons to think about directions, cases, and alternatives can also give more points on how the 'academic' institutions changed into 'corporate'.

HISTORY OF EDUCATION: SOME QUESTIONS?

What questions does the study of the history of education raise, and what evidence and sources does it use for its analysis? Is education's history just a narrative, or does it contain both narrative and interpretation? How do historians, their viewpoints, questions, and historical evidence influence each other to create narratives of the past and interpretations for the present? Is the history of education a non-controversial, linear, chronological account of the education of the past, or does the changing understanding of the concepts that have been used to preserve historical events and the questions arising from them bring into question the interpretation of that historical account, its importance, and cause-effect? Can it be understood by keeping it apart from the economic, political, social, cultural, and religious history of the society? What is the relationship between education and social change? Is it determined only by external pressures, influences, and forces, or does it also influence, create, and interact with social processes, socioeconomic structures, state formation, social power relations, and cultural conflicts? Even if we look at education and schools as a closed institution in themselves, then what will be their independent role in the evolution of social history? What does the social history of the text relate to the history of ideas and their effects (Tyack 1983)? In many debates about tracing the historical roots of education, it would be better to analyze history and historical perspective.

History and Historical Perspectives

The understanding of 'what is history' has constantly changed and is still a matter of debate. Nevertheless, we can say that the meaning of the historical approach is to see any idea, event, person, group, process, institution, object, *etc.*, in the context of time and society. This means that they should be understood in

CHAPTER 12

A Systematic Review and Analysis Through Graphical Visualization of Teaching Pillar of the Top Five Ranked Universities During 2020-2023

Susanta Das^{1,*}, Shravani Kulkarni¹, Amna Kausar¹, Atharva Saraf¹ and Piyush Bhosale¹

¹ School of Engineering, Ajeenkya DY Patil University, Pune, Maharashtra, 412105, India

Abstract: This study investigates the teaching performance of the top five institutions/universities ranked by THE (Times Higher Education) World Rankings from 2020 to 2023, utilizing data from its website. Despite the challenges presented by the COVID-19 pandemic, these leading institutions have sustained their teaching quality. Employing graphical representations and quantitative analyses, the study illustrates annual fluctuations in teaching performance among universities and ranks during the 2020-2023 period. Notably, each university's average teaching score exceeds 90, indicating consistent, high-quality teaching across these institutions. This emphasizes the vital role of continuous efforts to enhance teaching quality, profoundly impacting a university's overall ranking and reputation. Variations in teaching performance across universities and ranks are evident, with Harvard showing marked improvement and MIT displaying the lowest average score but the least variability among top-ranked universities. The 1st and 2nd ranked universities demonstrated overall improvement in teaching performance, with the 2nd rank achieving the highest average score. Conversely, the 3rd rank exhibited the widest performance variation, while the 5th rank had the lowest performance but with minimal variation. Comparative analyses between top-ranked and other universities highlighted cases where lower-ranked institutions surpassed higher-ranked ones within the teaching pillar. These findings underscore the influence of additional evaluation criteria in shaping universities' overall scores and rankings. We argue that the inclusion (or exclusion) of a university impacts the teaching pillar's average value in specific years. However, a more extensive investigation encompassing diverse universities is imperative to gain deeper insights into the intricacies of the teaching pillar.

Keywords: COVID-19, The rankings, Teaching pillar, Top five ranked universities, Visualizations.

* **Corresponding author Susanta Das:** School of Engineering, Ajeenkya DY Patil University, Pune, Maharashtra, 412105, India; E-mail: susanta2024das@gmail.com

INTRODUCTION

Various organizations employ different pillars, parameters, and criteria, each with varying weights, to globally rank universities [1 - 3]. Consequently, they offer a comprehensive overview for stakeholders, including students, parents, government bodies, and funding agencies [4 - 8]. 'Teaching' stands as one of the pivotal pillars or parameters. A high-quality teaching and learning environment attracts students from diverse social, economic, and cultural backgrounds worldwide, fostering a culturally and ethnically dynamic, diverse, and inclusive campus [6, 9 - 12]. Moreover, teaching serves as a revenue source for universities and acts as a yardstick for their reputation concerning the caliber of faculty, significantly impacting their global ranking [1, 3, 5, 13 - 14].

THE rankings utilize five pillars to assess and rank universities worldwide [2]. The 'teaching' pillar assesses the quality of the teaching/learning environment and the university's overall reputation. This assessment is based on five performance indicators or metrics [2].

This chapter presents an analysis and graphical representation of the teaching of THE ranked top five universities for the period 2020-2023 [2]. The analysis focuses on both ranks and universities. We observed notable variations in the average values of the teaching pillar over these years. Additionally, we evaluated teaching between the first-ranked and the remaining four universities and between consecutively ranked institutions (universities), both annually and across the entire period, identifying fluctuations in the teaching pillar among these ranks. Notably, we found that occasionally, lower-ranked universities in overall scores performed better than higher-ranked ones in the teaching pillar during the period 2020-2023. Our analysis also encompassed the effects of including or excluding a university from the pillar, revealing substantial fluctuations in average values of the teaching pillar and between ranks of universities. The COVID-19 pandemic presented unprecedented challenges for universities worldwide, including social and academic disruptions, emotional and psychological impacts on students and staff, lockdowns, financial constraints, and travel restrictions [15 - 21]. These factors have made it difficult for universities to maintain the quality of their teaching/learning environment. Consequently, we conducted a study to investigate the effect of the COVID-19 pandemic on teaching during the period 2020-2023. We argued that this might impact this pillar, hence the overall rankings of institutions/universities.

DISCUSSION

Table 1 displays rankings, universities, and data of teaching pillars for the period 2020-2023, sourced from THE's website [2]. We observed that the California

Institute of Technology (CalTech) in 2023 (6th rank/position), the University of Cambridge (Cambridge) in 2021 (6th rank), and Harvard University (Harvard) in 2020 (7th rank) could not make it in the top five. Their positions in those years are revealed in Table 1 for reference. This is because five of the six following institutions/universities formed the band of the top five during the considered period - the University of Oxford (Oxford), Cambridge, Harvard, Stanford University (Stanford), CalTech, and MIT. Additionally, the table presents calculated statistics. Numbers in brackets within Table 1 indicate the same ranking.

Table 1. Overall rank and teaching pillar of top 5 THE ranked institutions/universities. The same rankings are shown in brackets. 6th and 7th ranked (only for 2020) are also shown for analysis.

2023			2022		
Rank	University	Teaching Score	Rank	University	Teaching Score
1	Oxford	92.30	1	Oxford	91.00
2	Harvard	94.80	2	CalTech.	93.60
3	Cambridge	90.90	3 (2)	Harvard	94.50
4 (3)	Stanford	94.20	4	Stanford	92.30
5	MIT	90.70	5	Cambridge	90.90
-	Total	462.90	-	Total	462.30
-	Average	92.58	-	Average	92.46
-	Median	92.3	-	Median	92.3
-	Mode	-	-	Mode	-
-	Stand. Dev.	1.87	-	Stand. Dev.	1.58
6	CalTech	90.9	6(5)	MIT	90.9
2021			2020		
Rank	University	Teaching Score	Rank	University	Teaching Score
1	Oxford	91.30	1	Oxford	90.50
2	Stanford	92.20	2	CalTech.	92.10
3	Harvard	94.40	3	Cambridge	91.40
4	CalTech	92.50	4	Stanford	92.80
5	MIT	90.70	5	MIT	90.50
-	Total	461.10	-	Total	457.30
-	Average	92.22	-	Average	91.46
-	Median	92.2	-	Median	91.4
-	Mode	-	-	Mode	90.5
-	Stand. Dev.	1.41	-	Stand. Dev.	1.00

Impact of Virtual Reality on Higher Education

Ajay Pratap^{1,*} and Abriya Ansari¹

¹ Amity Institute of Information Technology, Amity University Uttar Pradesh, Lucknow, India

Abstract: The use of virtual reality (VR) technology in higher education has completely changed the way that people teach and learn. VR-enhanced simulations help students learn difficult subjects more deeply by making them absorb themselves in virtual surroundings that mimic real-world scenarios. This technology also promotes international dialogue and a feeling of global connectivity, which helps to enable collaborative learning experiences. Teachers may create customized learning paths, adapt the material to fit the requirements of individual students, and promote involvement *via* hands-on learning. The absorption of learning environments, teaching innovations, and the development of essential skills for the workforce of the twenty-first century are some of the benefits of virtual reality (VR) in higher education. Virtual reality (VR) helps students develop a growth mindset and endurance by exposing them to simulated real-world challenges. This helps them get ready for the quickly changing professional contexts. However, cost, accessibility, and technological know-how are challenges to the wider adoption of VR in higher education.

Keywords: Collaborative learning, Educational technology, Experiential learning, Global classroom, Immersive learning, Personalized learning paths, Simulation-based education, Student engagement, 21st-century skills.

INTRODUCTION

Virtual reality (VR) technology has become a transformative tool in recent years, having the potential to alter education as well as other industries. Virtual reality (VR) in higher education delivers immersive and interactive experiences that go beyond traditional approaches to learning, giving students unmatched chances for experimentation, exploration, and engagement. Virtual reality (VR) offers a compelling solution that can enhance the educational experience, stimulate creativity, and prepare students for the demands of the future workforce, all while appealing to educators looking for new and inventive approaches to improve teaching and learning results, as shown in Fig. (1).

* Corresponding author Ajay Pratap: Amity Institute of Information Technology, Amity University Uttar Pradesh, Lucknow, India; E-mail: apratap@lko.amity.edu

The Impact of Virtual Reality in Higher Education

This study explores the impact of virtual reality (VR) on teaching, learning, research, and student involvement in higher education.

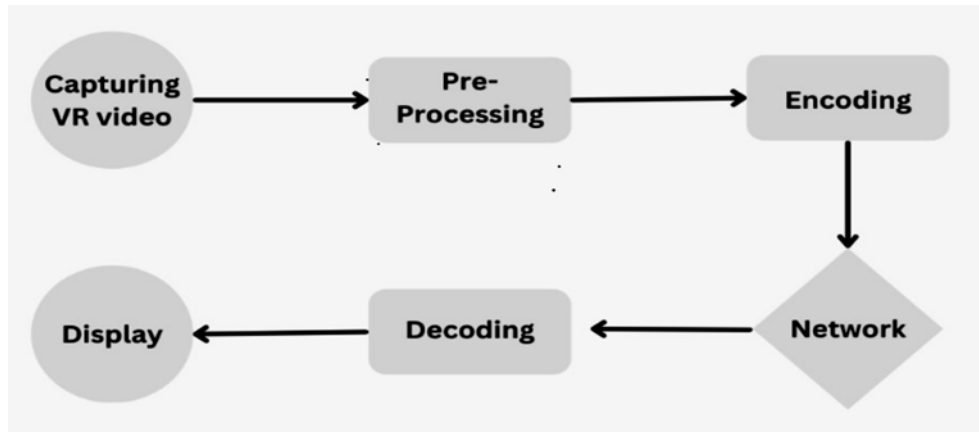


Fig (1). Concept of virtual reality.

VR technology allows students to experience immersive learning experiences beyond traditional classrooms, enabling them to explore complex ideas, engage with vivid settings, and gain practical experience in various disciplines. It helps students develop critical thinking, problem-solving, and practical knowledge by providing a safe and controlled environment for experimentation and exploration. VR also offers customizable and flexible learning experiences that cater to individual learning preferences and styles, enhancing learning outcomes and engagement. It also makes mutually beneficial educational experiences feasible, allowing students to work together and interact in virtual environments worldwide [1].

Virtual reality has significant opportunities for scientific investigation, exploration, and discovery, as researchers can conduct experiments in virtual laboratories, imitate real-world events, and display complex data sets. It also opens up opportunities for multidisciplinary study and innovation by providing new tools and methodologies for data processing and visualization [2]. However, there are several obstacles to consider before VR is widely used in higher education, including ethical issues, technological obstacles, and the quality of material, instructional design, and teaching strategies. To fully utilize VR in education, educators must be willing to innovate, collaborate, and pursue growth while carefully weighing the technology's advantages, disadvantages, and ethical risks [3].

UNDERSTANDING VIRTUAL REALITY (VR) IN HIGHER EDUCATION

Virtual reality (VR) technology has become an innovative tool capable of reshaping the higher education sector. Virtual reality (VR) provides educators and students with extraordinary opportunities to learn, explore, and interact in previously unthinkable ways by constructing immersive and interactive worlds. Here, we examine the idea of virtual reality in higher education and consider its uses, advantages, drawbacks, and effects on instruction and learning.

The topic of experiential learning is one of the main areas where virtual reality is being used in higher education. Students can enter virtual settings that mimic real-world events, such as historical events, scientific experiments, or architectural designs, by using VR simulations [4]. Students who actively participate in these simulations gain real-world experience and useful skills that are critical to their academic and career growth. Additionally, virtual reality technology gives teachers the ability to design adapted and flexible learning programs that meet the interests and preferences of each individual student. Teachers can enhance learning outcomes and promote greater engagement and retention by customizing materials and activities to each student's learning preferences, learning style, and expertise level [5].

Virtual reality also makes it possible for cooperative learning experiences to cross geographical borders. Students can collaborate on projects, solve issues, and share ideas in real time with peers, teachers, and professionals from around the globe using multiplayer virtual reality environments. Students feel more a part of the community and have a better overall learning experience because of this collaborative feature of VR. The increasing use of virtual reality (VR) in higher education comes with a number of considerations and problems despite its many advantages. These include the price of VR gear and software, technical drawbacks like motion sickness and delay issues, and the requirement for assistance and training for teachers in order to successfully incorporate VR into their lesson plans [6].

The immersive, engaging, and customized learning experiences that virtual reality (VR) technology offers have the potential to completely transform higher education. Teachers may create dynamic and interesting learning environments that encourage students' curiosity, creativity, and critical thinking by utilizing virtual reality technology. However, in order to overcome technological, financial, and educational hurdles and realize the full potential of VR in higher education, careful planning, investment, and collaboration are necessary [7]. VR is expected to have a significant and exciting impact on higher education as it develops further, changing teaching and learning in profound and creative ways.

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Sandeep Kautish

Dr. Sandeep Kautish, ranked among the Top 2% Scientists globally by Stanford University and Elsevier (2024), is Director at the Institute of Innovation, PhysicsWallah Limited, Noida. With over 21 years of academic experience, including leadership roles at Chandigarh University and Asia Pacific University (Malaysia), he specializes in Intelligent Systems, Healthcare Analytics, and Business Analytics. A prolific researcher, he has published 150+ papers, including 50+ in JCR Q1/Q2 journals such as IEEE Transactions on Industrial Informatics and Scientific Reports. He has 3,000+ citations with an h-index of 31 and has authored or edited 32 books with leading publishers like Springer, Elsevier, and Wiley.



Pushan Kumar Dutta

Dr. Pushan Kumar Dutta is an Associate Professor at Amity University Kolkata with over twelve years of academic and research experience. He earned his Ph.D. from Jadavpur University and completed postdoctoral research as an Erasmus Mundus Scholar at the University of Oradea, Romania. He has edited over 60 books with publishers like Springer, Elsevier, and CRC Press, focusing on AI in healthcare, Industry 5.0, quantum computing, and digital sustainability. With 180+ Scopus-indexed publications, patents, and international collaborations, he is recognized as a thought leader. He has received honors including the Mentor of Change Award by NITI Aayog and the Young Faculty Awards, and he serves as Series Editor for "Sustainable Industrial Engineering Systems" with CRC Press.



Namrata Nagpal

Dr. Namrata Nagpal is an accomplished academician and researcher at AIIT, Amity University Uttar Pradesh, Lucknow Campus. She holds a Ph.D. in Information Technology and has over 20 years of academic and research experience. Her expertise includes Data Science, Artificial Intelligence, Machine Learning, Semantic Web, and Ontologies applied in healthcare, sustainable development, and education. She has served as Program Leader for BCA and Coordinator of Media, Outcome Assessment & Quality Assurance. Dr. Nagpal has edited five books/proceedings with international publishers, authored a reference book on Unix, and published around 40 research papers and book chapters in reputed journals and conferences. She is also a member of the Editorial Board of IJIS and professional bodies like IEEE, ISOC, and IAENG.



Porkumaran Karantharaj

Prof. Porkumaran Karantharaj is Senior Professor and Principal at Sri Krishna College of Engineering and Technology, Coimbatore. With 30 years of teaching, 21 years of research, and 20 years in administration, he has published 175+ papers, 22 book chapters, and holds several patents. A Fellow of IE and IETE and Senior Member of IEEE, he has held key leadership roles in IEEE India and Madras Section.

He has received prestigious awards including the ISTE Bharatiya Vidya Bhavan National Award, IEI Outstanding Engineer Award, and FICCI Startup Leader of the Year 2023. Dr. Porkumaran has guided 14 Ph.D. scholars, secured major funded projects, and contributed to defense innovations such as unmanned submarine vehicles, earning recognition at DefExpo 2022.



Pronaya Bhattacharya

Dr. Pronaya Bhattacharya, Associate Professor at Amity University, Kolkata, holds a Ph.D. from Dr. A. P. J. Abdul Kalam Technical University, Lucknow. With over ten years of teaching experience, he has authored 200+ research papers in leading SCI journals and top IEEE COMSOC A* conferences, with an h-index of 38 and i10-index of 84. His work has appeared in journals such as IEEE Journal of Biomedical and Health Informatics, IEEE Transactions on Vehicular Technology, and IEEE Internet of Things Journal. He has edited four books and is currently editing eight with publishers like Springer, Elsevier, and IGI Global. Listed among the Top 2% Scientists by Stanford University, he has received eight Best Paper Awards and serves as keynote speaker, session chair, and reviewer for 50+ reputed journals. His research interests include healthcare analytics, optical networking, federated learning, blockchain, and IoT.



Vijay Prakash Gupta

Dr. Vijay Prakash Gupta, Associate Professor and Area Co-Chair (Economics) at GLA University, Mathura, has 18 years of academic and research experience. He holds a Ph.D. in Management, an MBA, and an MA in Economics, and is UGC NET qualified. Honored by the Uttar Pradesh Higher Education Department for curriculum design under NEP-2020 and recipient of the PERFICIO Award (2020) for Best Research and Innovation, he has edited 13 books with publishers like Springer, Emerald, and Wiley, and published 30+ papers in reputed journals indexed in ABDC, Scopus, Web of Science, and UGC CARE.