ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

Role of Service Market: The Impact of Digital Educational Technology in Promoting Economic Development

Udhayakumar K [1], Mahalakshmi K [2], Dr.T.Sarathy [3]

[1,2]Ph.D Research Scholar, Department of Management Studies, Periyar University, India.

[3]Professor, Department of Management Studies, Periyar University, India

DOI: https://doi.org/10.51583/IJLTEMAS.2026.150400016

Received: 09 April 2026; Accepted 14 April 2026; Published: 02 May 2026

ABSTRACT

This study investigates the role of digital educational technology in the service market and its impact on economic development. As economies transition to knowledge-based systems, digital learning platforms are crucial for building human capital and fostering innovation. Analyzing empirical data from 400 higher education students, this research identifies a critical paradox: while digital tool usage is high, self-assessed digital literacy remains low, indicating a gap between access and effective skill acquisition. Regression analysis reveals that a student's field of study is a more significant predictor of digital literacy than their level of higher education, highlighting a disciplinary divide that affects workforce preparedness. The study demonstrates that digital education acts as an economic catalyst by enhancing productivity, reducing costs, and creating new service-sector opportunities. However, challenges like technological inequality, uneven access between urban and rural areas, and insufficient policy frameworks hinder its potential. The findings underscore the necessity for integrated digital literacy curricula, tailored upskilling pathways, and robust public-private partnerships. It is concluded that strategic investment in a holistic digital learning ecosystem is imperative to harness the full economic potential of the service market and achieve sustainable, inclusive growth. According to the research, digital education technology is a key component of the service market, acting as a key enabler of economic transformation in the digital era and a transformation of conventional education delivery systems. This research underscores the need for policymakers and stakeholders to prioritise strategic investments in digital learning ecosystems to realise their full economic development potential.

Keywords: digital education, service market, economic development, human capital, technology adoption.

INTRODUCTION

India's service industry has emerged as a significant contributor to economic development, particularly in the age of technology. The landscape is being transformed by the growth of digital educational technology, which is increasing accessibility, affordability, and scalability of learning. This sector includes remote training services, virtual classrooms, edtech businesses, and online learning platforms, all of which contribute significantly to India's economic progress. Millions of students, including those in underserved and remote areas, benefit from the gaps in access and quality that digital educational technologies help close. These platforms attract investment to the tech sector, promote creativity, and boost workforce productivity by providing people with new skills and information [Aben, J E, 2022]. Edtech has been instrumental in fostering a service economy based on knowledge, empowering business owners, and speeding up the rate at which jobs are created. The service market, which is supported by educational technology, will continue to lead the way in promoting sustainable economic progress for India, fostering inclusion, and ensuring the country's long-term competitiveness as it moves forward on its digital transformation.

Private and Public Institution Contributions to Knowledge-Based Economic

service marketing main role is that Private and public entities play essential roles in creating a knowledge economy, each offering distinct advantages. Public institutions focus on basic research, long-term project

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

funding, and solutions to national priorities, while also providing accessible education and building crucial infrastructure, such as legal systems and digital networks [Udhayakumar, K, 2022]. They promote knowledge sharing through libraries and open access.

Private organisations drive innovation by turning research into products and supporting new businesses. They also offer specialised training through corporate colleges and help foster industry connections and knowledge networks.

Collaboration between the public and private sectors leads to innovation clusters and joint research projects. Success in these partnerships requires balancing different strengths, aligning regulations, and encouraging continuous learning through feedback.

However, challenges like information gaps and coordination issues arise. Effective solutions include clear governance, aligned incentives, consistent communication, and measuring performance. Ultimately, a successful knowledge economy thrives by combining the strengths of both sectors and ensuring good governance [Islam S, 2025].

Curriculum innovation and competitiveness in education The paper emphasizes essential skills like computational thinking, human-AI interaction, and ethics while covering curriculum innovation in education. It emphasises creative problem-solving and an interdisciplinary STEAM approach, encourages project-based learning, and fosters cross-cultural understanding.

The effects of these educational reforms are categorised into three periods. Improvements in the short term (1–3 years) include higher teacher effectiveness, higher student engagement, better learning outcomes, and lower costs. Medium-term (3–7 years) outcomes include a talented workforce, the development of innovation ecosystems, industry transformation, and educational exports. Long-term (7–15 years) objectives include economic leadership in AI/robotics, social transformation in sectors like healthcare, research excellence, and sustainable development[Edward, S, 2025].

Successful models from nations like Finland, Singapore, and South Korea highlight practical approaches, including national AI strategies, free online courses, and substantial investments in digital infrastructure. To promote innovation and competitiveness, each nation displays collaboration between education and industry.

Guide Policy and Investment:

The insights from these models can inform decisions on public policy and private investment by providing a clear understanding of the broader impacts, including potential unintended consequences. For example, a model could show that a new infrastructure project not only creates construction jobs but also accelerates the transformation of a region's industrial base towards a more sustainable, high-tech economy.

Multi-Sector Analysis: They analyse how an action in one sector, such as a new technology in manufacturing, can create ripple effects in other sectors, like a need for new service-based jobs or changes in transportation infrastructure [Nandhini, S, 2025].

Dynamic and Long-Term Effects:

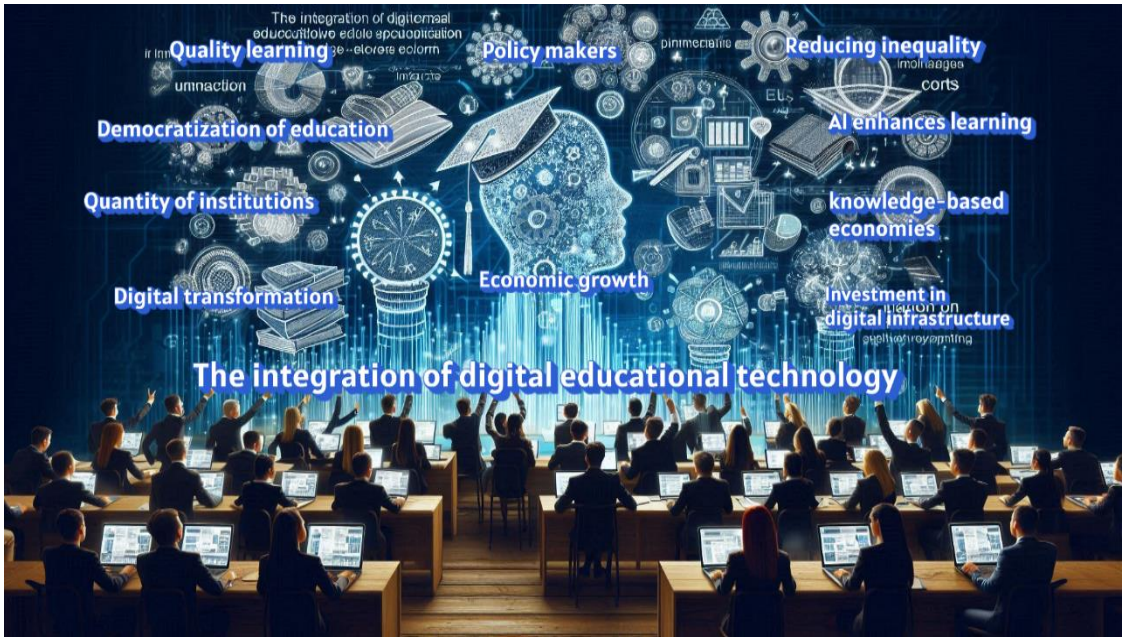
They are designed to model change over time, capturing how initial impacts evolve and accumulate to create a long-term transformation. They can help distinguish between short-term cyclical changes and permanent, structural shifts. Comparative analysis of rural vs. urban digital education for economic development. The paper analyses the differences in digital education between urban and rural areas and their effects on economic growth. Urban areas benefit from high-speed internet, advanced technology, and well-trained teachers, creating a strong market for technology and professional services. Rural regions face challenges such as poor infrastructure, unreliable electricity, outdated equipment, and limited internet access, which lower digital literacy and prompt skilled teachers to leave for better urban opportunities. Nevertheless, rural areas can develop unique markets, particularly in agricultural technology and cultural tourism.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

The countries that are leading the way in utilising digital education to boost GDP growth are:

Several countries are successfully using digital education to improve their economic growth. Singapore's government effectively utilises digital technology, heavily investing in a digital-ready workforce and strong online services, which positively impact the economy[Alenezi, M, 2023]. Finland stands out for its digital infrastructure and affordable access, fostering economic development through digital usage. Switzerland leads in using digital education to sustain high-value industries and create jobs that require specialised skills. The United States benefits from a strong digital infrastructure and widespread adoption in businesses, generating new opportunities. The United Kingdom leverages digital education for business and consumer use, contributing to GDP growth through knowledge-intensive jobs. China experiences rapid economic growth driven by high levels of digitalisation and investments in education. Indonesia focuses on enhancing digital skills, which accelerates its economic development. Generally, these countries demonstrate that effectively using digital education can drive economic change and increase GDP.

Figure 1. The Interplay of Service Market, Digital Educational Technology and Economic Development



Objectives

1. To examine how digital educational technology builds workforce capabilities and boosts productivity and innovation within the service sector.
2. To evaluate the digital education market as a key service industry, assessing its direct economic impact through job creation, revenue generation, and potential for global export.
3. To identify the major barriers - including accessibility, cost, and regulation - that prevent equitable access to the economic gains from digital education, and to propose strategies to overcome them

Statement of The Problem

Countries' transition from resource-based economies to knowledge-centred economic development is being facilitated by the increasing use of digital educational technology, which has invested more than $350 billion in skills-oriented economics and more than $18 billion in social impact investing over recent years. However, its effects remain unclear, making it difficult to promote economic growth through education. There are issues with measuring the impact of digital education, effectively using technology, and ensuring equal access. Many initiatives fail because they do not align with market needs, and access to digital education is inconsistent, benefiting urban areas more than rural ones. There is also a lack of integration between digital education and the broader service sector, which limits potential job growth. Policymakers face obstacles due to unclear guidance on the use of digital education for economic development, leading to poor resource allocation [Ndemo, B, 2024]. There is insufficient data on the long-term effects of digital education, raising concerns about whether

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

initial benefits will last. These challenges result in misaligned policies and ambiguous opportunities for investors, potentially worsening inequalities. To tackle these issues, comprehensive research is essential to establish the link between economic growth and digital education technology, to develop evaluation methods, to identify effective strategies, and to propose policies. This research is necessary to avoid exacerbating existing problems and to leverage growth opportunities.

THE THEORETICAL FRAMEWORK

The theoretical framework establishes connections between the service market, digital educational technology, and economic development through a variety of core concepts. Digital technologies, especially ICT, power the knowledge-based economy by improving education and training in the service sector, which in turn fosters individual and societal economic advancement. Human Capital: According to the theory, investing in education, particularly digital education, increases workforce productivity and employability, resulting in higher incomes. E-Learning increases access to education by removing barriers, promoting inclusivity, particularly in developing economies[Bobro, N, 2024]. The service market's digitalisation fosters efficiency, generates jobs, and shifts labour toward knowledge-based sectors. This interaction between digital education, the service market, and economic development fosters GDP growth, job creation, and skill improvement. The framework implies a need for a study on how digital education, influenced by variables such as infrastructure and access, influences labour markets and development outcomes.

Scope And Limitation

This research focuses on the intersection of the digital education service market and economic development, with a specific scope encompassing higher education students in India. The study empirically examines the relationships between technology adoption, skill development, and perceived economic outcomes within the service sector. While it provides valuable insights into accessibility, usage patterns, and demographic disparities, its findings are primarily limited to the academic environment. They may not be fully generalizable to the entire workforce or non-student populations. A key limitation is the reliance on self-reported data for digital literacy and perceptions, which may not perfectly align with objective skill measurements. Furthermore, the study's cross-sectional design offers a snapshot in time, limiting the ability to establish long-term causal relationships between digital education and economic metrics such as GDP growth or employment rates [Novianti, 2023]. Although the research identifies the urban-rural divide as a significant challenge, the sample's specific geographic concentration may not fully capture its intensity. Future longitudinal research with a more diverse and nationally representative sample is recommended to validate and extend these findings.

Research Gap

This study examines how digital educational technology affects economic growth in the service industry. It finds that digital education platforms are vital for sustainable development, innovation, and skill enhancement as countries shift towards knowledge-based economies. The research shows these technologies improve employee skills, reduce education costs, encourage knowledge sharing, and create new economic opportunities. Investment in digital education infrastructure boosts GDP, job growth, and competitiveness in both developed and developing nations. The main conclusions indicate that digital educational technology supports economic growth by improving access to quality education, enabling rapid adaptation to market changes, fostering entrepreneurship, and positively impacting sectors such as healthcare and finance. The study stresses the need for robust digital infrastructure, robust regulations, public-private partnerships, and efforts to bridge the digital divide to maximise economic benefits. It also highlights issues such as technological inequality and the need for platform updates, and suggests possible solutions [Mahalakshmi, K, 2025]. Additionally, the study identifies gaps in understanding how digital education drives economic development, especially in less developed areas, and calls for more research on access disparities between urban and rural regions. It emphasises the importance of exploring regulatory frameworks and public-private education partnerships.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

REVIEWS OF LITERATURE

Gomathi, C. K. (2025). This review examines an article analysing the Indian IT industry's role as a catalyst for economic transformation since the 1991 liberalisation. It effectively argues that the sector became a cornerstone of growth, driven by supportive policies, global demand, and a skilled workforce. The piece quantitatively highlights its substantial contributions to GDP, service exports, and job creation. Furthermore, it qualitatively explores the industry's broader societal impact, including urban development and global integration. The article successfully presents a comprehensive overview while also acknowledging the evolving challenges and opportunities the sector faces in the contemporary digital landscape.

Udhayakumar K et al. (2025) assessed student perspectives on library service quality in arts and science colleges in Western Tamil Nadu. Using a five-point Likert-scale questionnaire, their findings indicated that the main library delivered high-quality services. However, the authors contend that true quality involves helping users articulate needs, building their confidence in information retrieval, and ensuring positive staff interactions. They conclude that comprehensive, user-centric information programs are essential for achieving complete service quality. This study offers valuable insights for libraries aiming to enhance user satisfaction.

Bobro (2024) theorises that digital educational platforms are pivotal in forming new, knowledge-driven economic models. These platforms create integrated ecosystems connecting universities, businesses, and regulators. This integration transforms universities into hubs not just for learning but also for commercialising knowledge. The study concludes that such ecosystems enhance human capital and fuel innovation, thereby boosting economic competitiveness. The research identifies emerging economic activities from these digital interactions, offering strategic recommendations for integrating these technologies into global education.

Novianti and Asmara (2023) analysed the impact of digital technology on Indonesia's economy from 2018 to 2021. Their research revealed that despite fluctuating economic growth, the nation's level of digitalisation consistently increased. The study conclusively found that digital technology development had a significant positive effect on economic growth. This positive correlation was also observed among variables such as investment, infrastructure, education, and labour force participation. In contrast, the open unemployment rate negatively affected economic growth.

Han et al. (2023) explore how advancements in Internet technology, AI, and blockchain are accelerating China's digital economy. Aligned with the "Digital China" vision of the 14th Five-Year Plan, their research positions this digital transformation as a catalyst for high-quality economic development. The study identifies the current challenges that impede this qualitative growth in China. Ultimately, the authors propose a concrete, practical pathway for leveraging the digital economy to overcome these hurdles and achieve high-quality economic development.

Ruan et al. (2025) empirically analysed Chinese provincial data (2010-2022) and found that digital technology significantly promotes tourism economic growth. Their study identified tourism industry efficiency as a partial mediator in this relationship. Digitalisation spurs growth by optimising resource allocation and enhancing service efficiency in the tourism sector. The authors conclude that while digital transformation is pivotal, it necessitates strengthened regulation to ensure the market's sustainable, high-quality development.

Zeng et al. (2023) explore how digital technology enhances the social educational function of museums. They identify existing challenges and propose specific measures to address them. Their recommendations include leveraging digital tools to create innovative exhibit interpretations, enriching public engagement activities, and developing comprehensive digital museums. The authors contend that this approach not only maximises the technology's inherent benefits but also diversifies the museum's educational offerings.

Cheng et al. (2023) investigated the link between digital inclusive finance (DIF) and high-quality economic development (HQED) across 41 cities in the Yangtze River Delta. Using a panel model, they found DIF's development level is rising but regionally uneven. Their key conclusion is that DIF significantly promotes HQED, with the effect exhibiting regional heterogeneity. The promoting effect is stronger in higher-tier cities, leading to policy recommendations to accelerate digital finance, infrastructure, and regional coordination.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

Wang (2023) investigates the growing application of digital printing technology within higher education. The study explores its key characteristics and developmental background, establishing its relevance for academic settings. Through case studies across disciplines, it demonstrates the technology's utility in enhancing textbook production, classroom instruction, and research activities. The research further analyses survey data from educators and students, highlighting positive impacts on learning experiences, innovation, and personalised education. Consequently, the paper argues that digital printing is transformative, improving pedagogical efficiency and fostering interdisciplinary collaboration, thereby offering critical insights for institutional technology investment.

Hasanah (2024) investigated how educational technology mitigates the digital divide in a remote-area madrasah. Through a qualitative case study, the research found that strategic implementation, including teacher training and the provision of digital tools, was pivotal. These initiatives significantly improved access to educational resources and enhanced learning quality. Consequently, the institution successfully narrowed the digital gap, fostering a more inclusive learning environment. The study underscores technology's role in promoting educational equity in underserved regions.

Rathi P. (2025). This review examines an article on the rise and decline of India's jute industry, with a specific focus on West Tamil Nadu. Established in the 19th century, the industry flourished before facing a severe crisis in the 21st century due to scarcity of raw materials, competition from synthetic polymers, and global market pressures. The article analyses the socio-economic impacts and evaluates government interventions aimed at revitalising the sector. It concludes by proposing alternative strategies beyond existing state and federal policies to resuscitate this historically significant industry.

Safa P et al. (2025). This review examines a 2025 study assessing educational service quality at a dental school in Iran using the SERVQUAL model. The research identified a significant negative gap between students' expectations and perceptions across all five service dimensions, with the largest shortfall in tangible resources such as infrastructure and equipment. Interestingly, the assurance dimension showed the smallest gap. Findings also indicated that the quality gap widened among senior students and was more pronounced in female respondents. The study concludes that academic institutions must prioritise upgrading physical resources and enhancing staff responsiveness, aligned with regular student feedback, to effectively bridge these service quality deficits.

MATERIALS AND METHODS

This study employed a descriptive research design to systematically investigate the role of the digital education service market in promoting economic development. The research population consisted of students enrolled in various higher education institutions across the country, from whom a sample of 400 participants was selected. To ensure each member of the population had an equal opportunity to be selected and to enhance the representativeness of the findings, the Simple Random Sampling technique was utilised [Han, Y, 2023]. Primary data constituted the core of this research, gathered through a well-structured questionnaire meticulously designed to align with the study's objectives. The questionnaire was divided into distinct sections to capture data on demographics, the accessibility and usage patterns of digital educational technologies, the perceived enhancement of workforce skills, and respondents' views on the impact of these technologies on productivity, innovation, and the broader service-sector economy. Before the main survey, a pilot study was conducted with a small group to refine the instrument and ensure the clarity, validity, and reliability of the questions. The collected quantitative data were systematically compiled and organised in Microsoft Excel 2016, facilitating initial data cleaning and the creation of basic descriptive visualisations. For a more advanced and rigorous statistical analysis, the data were then imported into JAMOVI 2.7.9 software. The analytical approach within JAMOVI involved generating comprehensive descriptive statistics - including frequencies, means, and standard deviations - to summarise the sample characteristics and key variables. Furthermore, inferential statistical techniques, such as correlation and regression analyses, [Ruan, J, 2025] were employed to examine the relationships between the adoption of digital educational tools and variables related to skill development and economic outcomes, thereby providing a deeper, evidence-based understanding of the proposed mechanisms.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

All ethical considerations were strictly adhered to, with participants providing informed consent, and the anonymity and confidentiality of their responses were guaranteed throughout the research process.

Analysis And Interpretation

Table 1. Descriptive Analysis

S No	Particulars	Categories	Values	Percentage	Mean	SD
1	Gender	Male	182	45.5%	1.54	0.499
		Female	218	54.5%		
2	Age	Below 20	113	28.2	2.02	0.767
		21 – 25	165	41.3		
		Above 26	122	30.5		
3	Current Level of Higher Education	Undergraduate	112	28	2.02	0.764
		Postgraduate	167	41.8		
		Doctoral	121	30.3		
4	Study Area	Science, Technology, Engineering & Maths	71	17.8	2.48	0.952
		Business, Finance & Management	128	32		
		Arts, Social Sciences & Humanities	141	35.3		
		Education	60	15		
5	Digital tools Usage for Academic work	Daily	110	27.5	2.58	1.354
		Several times a week	104	26		
		Once a Week	77	19.3		
		Rarely	60	15		
		Never	49	12.3		
6	Primary source of Funding for Education	Family Support	104	26	2.62	1.349
		Loans	106	26.5		
		Scholarship	78	19.5		
		Part-time Job	62	15.5		
		Government Funding	50	12.5		
7	Own Digital Literacy skills	Expert	55	13.8	3.48	1.421
		Advanced	60	15		
		Intermediate	52	13		
		Basic	105	26.3		
		Beginner	128	32		

The descriptive statistics provide a crucial demographic and behavioural profile of the 400 higher education students surveyed. The sample is well distributed, with slightly higher representation of females (54.5%) and a majority of students in the 21-25 age bracket (41.3%), indicating a focus on the core academic youth. A significant finding is the high self-reported usage of digital tools for academic work, with over half (53.5%) using them daily or several times a week. However, this stands in stark contrast to the perceived digital literacy skills, where a concerning 58.3% of respondents rated themselves at only 'Basic' or 'Beginner' levels. This discrepancy suggests that while access to and frequency of use of digital tools are relatively high, confidence and proficiency in leveraging these technologies effectively remain low. This directly echoes the challenges highlighted [Jansen, T, 2024]. regarding the gap between digital infrastructure and actual digital competency in Bangladesh's higher education sector. Furthermore, the diversity in study areas and primary funding sources (with Family Support and Loans being the most common) establishes a varied baseline for understanding how different student backgrounds interact with digital educational technology.

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

Table 2. Linear Regression analysis

Dependent variable : Own Digital Literacy skills (Y)

Independent variables : 1. Current level of Higher education (X1)

2. Study Area (X2)

				Overall Model Test		
Model	R	R^2	F	df1	df2	p
1	0.672	0.452	164	2	397	<.001

Note. Models estimated using sample size of N=400

Multiple R value : 0.672

R Square value : 0.452

F value : 164

P value : <0.001**

Table 3. Model Coefficients

Model Coefficients – Own Digital Literacy skills						
Predictor	**Estimate**	**SE**	**T**	**P**	**Stand. Estimate**	
Intercept	5.716	0.1846	30.97	<.001		
Current Level of Higher Education	0.146	0.0710	2.06	0.040	0.0785	Significant
Study Area	-1.024	0.0569	-17.99	<.001	-0.6859	Highly Significant

The linear regression analysis was conducted to identify the predictors of students' digital literacy skills, with 'Current Level of Higher Education' and 'Study Area' as independent variables. The model is statistically significant ($F=164$, $p<.001$) and explains 45.2% ($R^2=0.452$) of the variance in digital literacy, indicating a strong model fit. The analysis reveals that the 'Study Area' is a significant negative predictor ($\beta = -1.024$, $p<.001$), indicating that students in fields such as Arts, Social Sciences, and Humanities tend to report lower digital literacy scores than their peers in reference fields such as STEM. This validates the concern about disciplinary divides in digital skill acquisition. Conversely, the 'Current Level of Higher Education' is a positive but weaker predictor ($\beta = 0.146$, $p = 0.040$), suggesting that as students progress from undergraduate to postgraduate levels, their digital literacy improves, albeit modestly. This finding underscores that, while academic progression helps, the field of study is a far more decisive factor in shaping digital competencies, with direct implications for workforce skill development and the service sector's talent pool.

One-Way Anova

Null Hypothesis: There is no significant difference among the Age Groups with Skill Development and Career Preparedness, Perceived Economic Value, Industry Growth, Service Market Transformation, Challenges, and The Role of Policy.

Table 4. Description of Employees

One-Way ANOVA (Welch's)	F	df1	df2	P
Skill Development and Career Preparedness	20.93	2	249	<.001

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

Perceived Economic Value and Industry Growth	7.82	2	245	<.001
Service Market Transformation	10.93	2	249	<.001
Challenges and The Role of Policy	18.68	2	250	<.001

A series of Welch's ANOVA tests was performed to examine the effect of age groups on key perceptual variables related to the study's objectives. The results decisively reject the null hypothesis, revealing statistically significant differences ($p<.001$ for all) among the age groups concerning 'Skill Development and Career Preparedness,' 'Perceived Economic Value and Industry Growth,' 'Service Market Transformation,' and 'Challenges and The Role of Policy.' The high F-values, particularly for 'Skill Development' ($F=20.93$) and 'Challenges and Policy' ($F=18.68$), indicate strong age-based perceptual disparities. This implies that younger students (e.g., 'Below 20') may perceive the economic value and career benefits of digital education differently than their older peers ('Above 26'). These findings are critical as they highlight that the impact of digital educational technology is not uniform across all demographics. It suggests that initiatives like the 'Smart Bangladesh' agenda and the 'National Skills Development Policy 2023' must be tailored to address the specific expectations and perceived challenges of different age cohorts within the student population to be truly effective.

Table 5. Chi-Square Test

Ho: There is no significant difference between Gender and the primary source of Funding for education.

χ^2 Tests	Value	df	p
χ^2	0.758	4	0.944
N	400		

The Chi-Square Test of Independence was used to assess the relationship between 'Gender' and 'Primary Source of Funding for Education.' **The result is not statistically significant** ($\chi^2 = 0.758$, $p = 0.944$), so we fail to **reject the null hypothesis**. This indicates that there is no significant association between a student's gender and the funding of their education. The distribution across funding sources—be it family support, loans, scholarships, part-time work, or government funding—is independent of gender. This is a positive finding, suggesting equity in access to educational financing mechanisms across genders within the sample. For the broader research objective concerning equitable economic benefits, this implies that the primary barriers to accessing digital education's economic advantages are not rooted in gender-based funding disparities, thereby directing focus to other potential obstacles such as the digital divide, the cost of technology, and the disciplinary digital literacy gap identified in the regression analysis.

RESULTS AND DISCUSSION

This study set out to investigate the intricate role of digital educational technology in the service market and its subsequent impact on economic development. The empirical findings reveal a complex landscape marked by both significant potential and critical challenges. A central and paradoxical finding is the stark contrast between high digital tool usage and low self-assessed digital literacy among the surveyed higher education students. While over half (53.5%) use digital tools frequently for academic work, a majority (58.3%) rate their own skills as 'Basic' or 'Beginner'. This indicates that mere access and frequency of use are insufficient for building the advanced competencies required by a modern, knowledge-based service economy. This finding resonates with the challenges identified by Udhayakumar, K, 2024 in the context of Bangladesh, suggesting a common pitfall in digital transformation: infrastructure outpacing actual skill acquisition.

Delving into the determinants of digital literacy, the regression analysis provides critical insights. The finding that a student's 'Study Area' is a far more powerful predictor of their digital literacy than their 'Current Level of Higher Education' underscores a significant disciplinary divide. Students in STEM fields likely benefit from a curriculum that inherently integrates and values advanced digital tools. In contrast, those in Arts, Humanities, and Social Sciences may not receive the same level of immersive digital training [Nandhini S, 2025]. This has direct implications for the first research objective, which was to analyse how digital education enhances

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

workforce skills. The results suggest that the mechanism is currently uneven, potentially creating a two-tiered workforce where certain sectors are better prepared for the digital service economy than others, thereby limiting overall productivity and innovation.

FINDINGS AND RECOMMENDATIONS.

This study's findings reveal a critical gap between high digital tool usage and low self-assessed digital literacy among students, which is further exacerbated by significant disciplinary and age-based disparities. To translate these findings into actionable economic development, the following evidence-based recommendations are proposed:

1. **Integrate Digital Literacy Across Curricula:** Move beyond providing access to embedding mandatory, advanced digital competency modules in all academic programs, especially in non-STEM fields, to ensure a uniformly skilled workforce for the service sector.
2. **Develop Tailored Upskilling Pathways:** Create age-specific and career-stage-specific digital learning programs. This will address the identified perceptual gaps, making lifelong learning more relevant and effective across different demographics.
3. **Invest in Foundational Infrastructure and Equity:** Policy must prioritise bridging the urban-rural digital divide through targeted infrastructure investment. Subsidies for devices and data can mitigate cost barriers, ensuring equitable access to the economic benefits of digital education.
4. **Foster Industry-Academia Collaboration:** Encourage partnerships to align curriculum with the evolving needs of the service market. This will enhance the relevance of skills training, boost graduate employability, and fuel innovation.

By implementing these strategies, stakeholders can transform the digital education service market from a passive tool into an active engine for economic growth, job creation, and inclusive development.

CONCLUSION

The integration of digital educational technology is vital for fostering sustainable economic growth. The impacts include creating new business models, enhancing productivity, lowering costs, and supporting knowledge-based economies. The service market has been transformed by the democratisation of education, enabling wider access to quality learning and enabling technology-enabled services to scale efficiently. Personalisation through AI enhances learning experiences. This technology fuels economic development by enhancing human capital through reskilling, promoting innovation, and reducing inequality. For policymakers, investing in digital infrastructure and creating balanced regulations is crucial. Businesses should focus on continuous learning and integrate educational services for a competitive advantage. Educational institutions must embrace digital transformation, leveraging hybrid methods and data insights to improve.

Future Study

Future research should build upon these findings to explore several critical avenues. A longitudinal study tracking the career progression and earning potential of graduates with varying levels of digital literacy would provide concrete evidence of the long-term economic returns on digital education investments[Ali, M., 2026]. Secondly, a deeper qualitative investigation into the urban-rural divide, examining specific infrastructural, cultural, and pedagogical barriers, would inform more effective equity-based interventions. Furthermore, as Artificial Intelligence becomes more embedded in education, research is urgently needed to evaluate its impact on learning outcomes, job skill requirements, and the ethical dimensions of its use. Finally, comparative studies analysing the effectiveness of different national policy frameworks in bridging the digital skills gap could yield valuable best practices for policymakers aiming to harness the service market for sustainable economic growth [Udhayakumar, K, 2025].

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

REFERENCE

1. Aben, J. E., Timmermans, A. C., Dingyloudi, F., Lara, M. M., & Strijbos, J. W. (2022). What influences students' peer-feedback uptake? Relations between error tolerance, feedback tolerance, writing self-efficacy, perceived language skills and peer-feedback processing. *Learning and Individual Differences, 97*, Article 102175. https://doi.org/10.1016/j.lindif.2022.102175.
2. Alenezi, M. (2023). Digital Learning and the Role of Emerging Technologies in Higher Education Post-COVID-19. Journal of Educational Technology & Society, 26(1), 99-111. https://doi.org/10.30191/ETS.202301_26(1).0008.
3. Ali, M., & Dr.S.Thandayuthapani, , & K, U. (2026). Overcoming Cultural Barriers: Selling Insurance Through Banks In Telangana's Semi-Urban Areas. International Journal of Innovative Research in Technology (IJIRT). https://doi.org/doi.org/10.64643/IJIRTV12I8-191632-459
4. Anderson, P., Anson, C. M., Gonyea, R. M., & Paine, C. (2015). The contributions of writing to learning and development: Results from a large-scale multi-institutional study. Research in the Teaching of English, 50(2), 199–235. https://doi.org/10.58680/rte201527602
5. Bobro, N. (2024). The Role of Digital Educational Platforms in Shaping New Models of Economic Development. Problems of Modern Transformations. Series: Economics and Management, (14). https://doi.org/10.54929/2786-5738-2024-14-11-01
6. Cheng, X., Shang, Y. & Pan, T. (2023). Discussion on the impact of digital inclusive finance on high quality economic development: Empirical research based on cities in the Yangtze River Delta. Thermal Science and Engineering. https://doi.org/10.24294/tse.v6i1.2100.
7. Edward, S. (2025). The Groundbreaking Educational Initiatives Effectuated by Tamil Nadu Government During M.K. Stalin's Tenure. International Journal For Multidisciplinary Research, 7(5). https://doi.org/10.36948/ijfmr.2025.v07i05.55359.
8. Han, Y., Li, W., Zhang, X. & Xie, S. (2023). The role of digital economy in promoting high-quality development. Information Systems and Economics. https://doi.org/10.23977/infse.2023.040605.
9. Hasanah, R. (2024). Analysis of The Impact of Educational Technology on Reducing The Digital Gap in Remote Areas. International Journal of Instructional Technology, 3(2). https://doi.org/10.33650/ijit.v3i2.9318
10. Islam, S. and Sekher, T. V. (2025). Socio-economic and Health Status of the Older Adults Across Socio-religious Groups in Uttar Pradesh. Routledge eBooks. https://doi.org/10.4324/9781003661597-11
11. Kasimani, M., & Palanivelu, V. R. Entrepreneurship Development of Merchandise Export from Namakkal District by Implementation of Schemes in India. doi.org/10.36647/TTASSH/05.02.A008
12. Kothari, C. R. (2004). Research methodology: Methods and techniques. New Age International.
13. Mahalakshmi, K., Palanivelu, V.R. & Kirubakaran, D. Global Market Trends in Biomedical Sensors: Materials, Device Engineering, and Healthcare Applications. Biomedical Materials & Devices (2025). https://doi.org/10.1007/s44174-025-00362-w
14. Nandhini S, Dr K.Arul, Udhayakumar K (2025), "Modeling The Link Between Institutional Resources And Faculty Commitment: The Mediating Roles Of Engagement And Motivation In Indian Higher Education", IJRAR - International Journal of Research and Analytical Reviews (IJRAR), E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.12, Issue 4, Page No pp.1-23, November 2025, https://doi.org/10.56975/ijrar.v12i4.322560
15. Nandhini, S. (2025). The Impact of Employee Engagement on Organizational Commitment in Higher Education Institutions: Implications for Organizational Development. Anusandhanvallari, 1656-1668.
16. Ndemo, B., & Weiss, T. (2023). Digital Kenya: An Entrepreneurial Revolution in the Making (2nd ed.). Palgrave Macmillan. https://doi.org/10.1007/978-3-031-14139-4
17. Novianti, A. G. and Asmara, A. (2023). The Development of Digital Technology and Its Impact on Indonesia's Economic Growth. International journal of research and review. https://doi.org/10.52403/ijrr.20230932
18. Pan, W., & Xie, T. (2024). The Impact of AI-Driven Educational Tools on Skill Mismatch in the Service Labour Market. Journal of Labour Research, 45(2), 210-235. https://doi.org/10.1007/s12122-024-09365-6

ISSN 2278-2540 | DOI: 10.51583/IJLTEMAS | Volume XV, Issue IV, April 2026

19. Rathi P. (2025). Jute Industry and Its Workers: Examining the Trend of Transformation in Tamil Nadu. International Journal For Multidisciplinary Research, 7(1). https://doi.org/10.36948/ijfmr.2025.v07i01.37156
20. Ruan, J., Satjawathee, T. & Awirothananon, T. (2025). The Impact of Digital Technology on Tourism Economic Growth: Empirical Analysis Based on Provincial Panel Data, 2010–2022. Tourism and Hospitality, 6(2). https://doi.org/10.3390/tourhosp6020073
21. Safa, P., Jafari, E., Hemmati, Y. B. & Falahchai, M. (2025). Analaysis of Educational Service Quality in the Faculty of Dentistry at Guilan University of Medical Sciences: A SERVQUAL Model Study. Journal of Guilan University of Medical Sciences, 34(2). https://doi.org/10.32598/jgums.34.2.1955.1
22. The jamovi project (2025). *jamovi*. (Version 2.7). Retrieved from https://www.jamovi.org.
23. Udhayakumar K, Dr.T.Sarathy (2025), "Confluence Of Online Learning And Artificial Intelligence In Enhancing Service Quality In Higher Education: A Strategic Analysis", IJRAR - International Journal of Research and Analytical Reviews (IJRAR), E-ISSN 2348-1269, P- ISSN 2349-5138, Volume.12, Issue 4, Page No pp.355-369, October 2025. https://doi.org/10.56975/ijrar.v12i4.322261
24. Udhayakumar, K. (2025). Impact of Technological Transformation on Student Experience and Service Quality in Higher Education. Anusandhanvallari, 1637-1647.
25. Udhayakumar, K., & Sarathy, T. (2024). Assessment of Entrepreneurial Education Service Quality Among Management Students in Salem District, Tamil Nadu. Recent trends in Management and Commerce,(74-79). https://doi.org/10.46632/rmc/5/3/12
26. Udhayakumar, K., and T. Sarathy. (2025). Evaluating Students' Perceptions of Library Service Quality and Its Utilization in Arts and Science Colleges in Western Tamil Nadu. Technoarete Transactions on Advances in Social Sciences and Humanities, 5(2), 64-73. https://doi.Org/10.36647/ttassh/05.02.a010.
27. Udhayakumar, K., Sarathy, T., & Vignesh, P. (2022). The Influence of Library Service Quality on Student Satisfaction in Special Reference to Government Arts and Science Colleges in Namakkal District, Tamil Nadu. http://doi.org/10.46632/jbab/1/1/7
28. Wang, J. (2023). The Application and Impact of Digital Printing Technology in Higher Education Teaching. Advances in Educational Technology and Psychology, 7(16). https://doi.org/10.23977/aetp.2023.071618