ANALYZING THE IMPACT OF SOCIAL MEDIA ON ACADEMIC PERFORMANCE: A CASE STUDY OF SELECTED TERTIARY INSTITUTIONS IN ZAMBIA

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Abstract

In the digital age, social media has become an integral part of student life, particularly in tertiary education settings. While its potential for communication and information sharing is undeniable, its influence on academic performance remains a subject of growing concern and interest. This study explores the relationship between social media usage and academic performance among students in selected Zambian colleges. Using a mixed-methods approach involving surveys and focus group discussions, the research identifies usage patterns, motivations, and perceived impacts of platforms like Facebook, WhatsApp, and TikTok. Findings indicate that while social media facilitates collaboration and access to academic content, excessive and unregulated use can lead to distraction, reduced study time, and declining academic achievement. The article concludes with recommendations for institutional digital literacy programs and self-regulation strategies among students.

Keywords: *Social media, Academic performance, Tertiary education, Student behavior, WhatsApp, Facebook, Digital distraction, Zambia, Higher education, Digital literacy*

Introduction

The rapid growth of digital technologies has revolutionized the way individuals interact, communicate, and access information. Among these technologies, social media has emerged as a dominant force in shaping contemporary communication patterns, particularly among the youth. In tertiary institutions across the globe, including Zambia, students have embraced social media platforms such as Facebook, WhatsApp, Instagram, and TikTok not only as tools for socialization but also as channels for academic engagement. However, the dual nature of social media—offering both educational utility and the potential for distraction raises important questions about its actual impact on student academic performance. The integration of social media into academic life presents a complex landscape. On one hand, social media facilitates peer-to-peer learning, collaborative research, real-time academic discussions, and access to educational resources. On the other hand, prolonged use for non-academic purposes may undermine concentration, reduce study time, and contribute to procrastination. As tertiary students transition into greater independence, the absence of structured supervision often results in self-regulated learning behaviors that are significantly influenced by online habits.

Consequently, understanding the extent to which social media supports or hinders academic success has become a critical area of research. In the Zambian context, the proliferation of mobile devices and increased internet penetration have intensified students' reliance on social media. While this digital connectivity holds promise for democratizing access to knowledge, it also introduces new challenges related to time management, information overload, and cognitive distraction. Previous studies in sub-Saharan Africa have suggested that the impact of social media is not uniform but varies according to individual usage patterns, academic discipline, and institutional support structures. Despite these insights, few studies have comprehensively examined this phenomenon within Zambia's tertiary education system, creating a gap in localized empirical evidence. This study aims to bridge that gap by exploring how social media usage affects the academic performance of students in selected Zambian tertiary institutions. It investigates the frequency and purpose of social media use, students' perceptions of its impact, and the correlation between social media habits and academic outcomes such as grades and assignment completion. The study also considers contextual variables such as gender, age, and year of study to identify demographic trends.

The central research questions guiding the inquiry are:

1. How frequently do tertiary students in Zambia use social media, and for what purposes?

2. What are students' perceptions of the impact of social media on their academic performance?

3. Is there a statistically significant relationship between social media usage patterns and academic achievement?

By addressing these questions, the study contributes to a nuanced understanding of digital behavior in academic contexts and informs the development of evidence-based strategies for enhancing educational outcomes in the digital era. It advocates for balanced social media use and highlights the role of institutions in fostering responsible digital citizenship among students.

Research Methodology

This study employed a **mixed-methods research design** to gain a comprehensive understanding of how social media use influences academic performance among students in selected Zambian tertiary institutions. The integration of both quantitative and qualitative approaches allowed for a balanced analysis of usage trends and the underlying motivations, behaviors, and academic consequences associated with social media engagement.

Research Design and Setting

The research was conducted in three tertiary institutions located in Zambia's Lusaka Province. These institutions were selected through purposive sampling, based on their population size,

internet access infrastructure, and willingness to participate in the study. The diversity of the student population across these institutions enabled the collection of varied and representative perspectives.

Participants and Sampling

A total of **150 students** were selected through **stratified random sampling** to participate in the survey component. The stratification was done based on program of study and year of enrollment to ensure the inclusion of first-year to final-year students across different academic disciplines. Additionally, **two focus group discussions (FGDs)** were conducted with **12 participants each**, drawn from the surveyed group. The FGDs provided in-depth insights into attitudes, personal experiences, and perceived academic effects of social media use.

Data Collection Instruments

Two main tools were used to gather data:

1. **Structured questionnaires** – consisting of both closed-ended and Likert-scale items – were used to assess patterns of social media usage, frequency, time spent online, academic habits, and self-reported academic performance.

2. **Focus group discussion guides** – these included open-ended questions to explore how and why students use social media and how they believe it has affected their studies.

The questionnaire was pilot-tested among a small group of students to validate the clarity and reliability of the items before full deployment.

Data Analysis

Quantitative data from the questionnaires were analyzed using **descriptive statistics** (frequency, mean, percentage) and **correlational analysis** to determine the relationship between social media use and academic performance. SPSS software was used for statistical computation. Qualitative data from the focus group discussions were transcribed and analyzed using **thematic analysis**. Themes were identified based on recurring patterns and categorized into benefits, drawbacks, and behavioral influences.

Ethical Considerations

Ethical clearance was obtained from the institutional research ethics committee. Informed consent was secured from all participants. Confidentiality and anonymity were maintained throughout the research process, and participants had the right to withdraw at any point without consequences.

Findings and Discussion

The study yielded important insights into how social media use affects academic performance among tertiary students in Zambia. The findings are organized into three major themes: (1) patterns and purposes of social media usage, (2) perceived academic benefits and drawbacks, and (3) correlation between social media use and academic performance.

1. Patterns and Purposes of Social Media Usage

Survey responses indicated that **96% of students used social media daily**, with **Facebook (80%)**, **WhatsApp (92%)**, and **TikTok (55%)** emerging as the most commonly used platforms. The average time spent on social media per day ranged from **2 to 5 hours**, with some students exceeding this threshold on weekends or during school breaks.

The primary purposes for using social media included:

- **Social communication** (87%)

- **Entertainment and leisure** (75%)

- **Academic collaboration and information sharing** (63%)

- **News updates and current affairs** (49%)

Students reported that WhatsApp was most often used for academic discussions and sharing of lecture notes, especially through class group chats. Facebook was favored for joining academic forums and connecting with subject-matter experts, while TikTok was largely consumed for entertainment, with limited educational value cited.

2. Perceived Academic Benefits and Drawbacks

From the focus group discussions and survey responses, it became evident that social media offers both benefits and risks to academic success.

Perceived benefits included:

- **Ease of accessing academic materials** – students frequently received lecture notes, YouTube video links, and past papers via WhatsApp.

- **Peer learning and collaboration** – group chats enabled learners to clarify doubts and prepare for assignments or tests collaboratively.

- **Time-saving** – social media allowed students to discuss and resolve academic queries quickly without needing to meet in person.

As one participant noted:

"If I don't understand something, I just drop a question in the group chat. Most times, I get an answer immediately. That saves me a lot of time."

However, the **drawbacks** were equally prominent:

- **Distraction from studies** – 69% of students admitted to being frequently distracted by non-academic content such as memes, gossip, or entertainment videos.

- **Procrastination** – many students reported postponing their academic tasks due to prolonged time spent on social media.

- **Sleep disturbances** – usage of social media late at night affected students' sleep patterns and their alertness during lectures.

Another respondent stated:

"Sometimes, I go online to find a textbook link, and I end up scrolling for hours watching random videos."

3. Correlation Between Social Media Usage and Academic Performance

Quantitative analysis revealed a **moderate negative correlation** between time spent on non-academic social media use and students' self-reported academic performance ($r = -0.45$, $p < 0.05$). In contrast, moderate academic use (under 2 hours per day) showed a **positive correlation** with GPA maintenance and timely assignment submission. Students who reported using social media primarily for educational purposes had **higher self-rated academic scores** and were more consistent in attending lectures and participating in discussions. Conversely, those who admitted to using social media excessively for leisure often cited issues such as missed deadlines, poor concentration, and incomplete assignments. Interestingly, **gender differences** were observed. Female students tended to use social media more for communication and academic networking, while male students more frequently used platforms for entertainment. However, both groups reported similar levels of distraction and time mismanagement when social media use was unregulated.

Discussion

The findings support existing literature suggesting that the impact of social media on academic performance is highly dependent on **usage patterns, self-discipline, and the academic context** in which it is applied. Social media, when strategically used, becomes a learning enhancer—enabling immediate feedback, peer collaboration, and access to educational content that might not be readily available through traditional means. However, when used excessively

or without academic intent, social media can act as a **barrier to effective learning**, leading to cognitive overload, attention fragmentation, and lower academic performance. This duality echoes the concerns raised by educators and psychologists about the addictive nature of digital platforms and the difficulty many students face in self-regulating their online behavior. The study also highlights a **digital maturity gap**—while students are digitally connected, many lack the digital discipline necessary to separate academic engagement from recreational browsing. This suggests a growing need for institutions to **design digital literacy programs** that not only teach students how to use tools, but also how to use them wisely. Additionally, institutional support in the form of **academic-focused social media policies** could provide a guiding framework for both students and faculty. Integrating platforms like WhatsApp or Google Classroom into official academic structures, rather than leaving them informal and voluntary, could help maximize their educational potential while reducing misuse.

Conclusion

This study explored the relationship between social media use and academic performance among students in selected Zambian tertiary institutions. It revealed that while social media tools such as WhatsApp, Facebook, and TikTok are widely used and offer substantial opportunities for academic collaboration and peer learning, their unregulated and excessive use contributes to significant academic challenges. Distractions, procrastination, and time mismanagement were key issues among students who primarily used these platforms for non-academic purposes. Conversely, when used constructively—especially for sharing academic content, coordinating group work, and accessing subject-relevant discussions—social media can enhance academic engagement and performance. The key determinant of its impact lies not in the tools themselves but in how and why students use them. The study highlights the importance of fostering responsible digital behavior and equipping students with the skills to leverage technology effectively in pursuit of their academic goals.

Recommendations

1. **Integrate Digital Literacy into Curricula** Tertiary institutions should implement structured digital literacy programs that teach students to manage their screen time, critically assess online content, and prioritize academic tasks while using social media.

2. **Encourage Academic Use of Social Platforms** Faculties can adopt platforms like WhatsApp or Google Classroom for formal learning tasks, thus guiding students toward purposeful online engagement.

3. **Set Institutional Guidelines for Social Media Use** Institutions should formulate policies that address appropriate academic uses of social media, discouraging misuse and supporting productivity.

4. **Provide Student Support Services** Counseling and mentoring services can help students develop effective time management strategies and digital self-regulation habits.

5. **Further Research** Future studies should explore longitudinal impacts of social media on academic achievement and examine potential differences across academic disciplines and socioeconomic groups.

Reference

1. Akila, V., M., R. E., Prabhu, G., Akila, R., & Swadhi, R. (2025). Performance Metrics in Blockchain-Enabled AIML for Cognitive IoT in Large-Scale Networks: Optimizing Data Analytics for Enhanced Network Performance. In R. Kanthavel & R. Dhaya (Eds.), AI for Large Scale Communication Networks (pp. 265-288). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6552-6.ch012

2. Arockia Venice, J., Arivazhagan, D., Suman, N., Shanthi, H. J., & Swadhi, R. (2025). Recommendation Systems and Content Personalization: Algorithms, Applications, and Adaptive Learning. In R. Kanthavel & R. Dhaya (Eds.), AI for Large Scale Communication Networks (pp. 323-348). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6552-6.ch015

3. Arockia Venice, J., Vettriselvan, R., Rajesh, D., Xavier, P., & Shanthi, H. J. (2025). Optimizing Performance Metrics in Blockchain-Enabled AI/ML Data Analytics: Assessing Cognitive IoT. In S. Hai-Jew (Ed.), Enhancing Automated Decision-Making Through AI (pp. 97-122). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6230-3.ch004

4. Arockia, V. J., Vettriselvan, R., Rajesh, D., Velmurugan, P. R., & Cheelo, C. (2025). Leveraging AI and Learning Analytics for Enhanced Distance Learning: Transformation in Education. In H. Mamede & A. Santos (Eds.), AI and Learning Analytics in Distance Learning (pp. 179-206). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-7195-4.ch008

5. Bansod, A., & Venice, A. (2023). Importance of Cybersecurity and RegTech in FinTech. Telecom Business Review, 16(1).

6. Basha, R., Pathak, P., Sudha, M., Soumya, K. V., & Arockia Venice, J. (2025). Optimization of Quantum Dilated Convolutional Neural Networks: Image Recognition With Quantum Computing. Internet Technology Letters, 8(3), e70027.

7. Catherin, T. C., Vettriselvan, R., Mathur, S., Regins, J. C., & Velmurugan, P. R. (2025). Integrating AI and Learning Analytics in Distance Learning: Strategies for Educators and Institutions. In H. Mamede & A. Santos (Eds.), AI and Learning Analytics in Distance Learning (pp. 207-228). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-7195-4.ch009

8. Catherine, S., Kiruthiga, V., & Gabriel, R. (2024). Effective Brand Building in Metaverse Platform: Consumer-Based Brand Equity in a Virtual World (CBBE). In Omnichannel Approach to Co-Creating Customer Experiences Through Metaverse Platforms (pp. 39-48). IGI Global Scientific Publishing.

9. Catherine, S., Ramasundaram, G., Nimmagadda, M. R., & Suresh, N. V. (2025). Roots, Routes, and Identity: How Culture Shapes Heritage Travel. In Multiple-Criteria Decision-Making (MCDM) Techniques and Statistics in Marketing (pp. 343-352). IGI Global Scientific Publishing.

10. Catherine, S., Suresh, N. V., Mangaiyarkarasi, T., & Jenefa, L. (2025). Unveiling the Enigma of Shadow: Ethical Difficulties in the Field of AI. In Navigating Data Science: Unleashing the Creative Potential of Artificial Intelligence (pp. 57-67). Emerald Publishing Limited.

11. Delecta Jenifer, R., Vettriselvan, R., Saxena, D., Velmurugan, P. R., & Balakrishnan, A. (2025). Green Marketing in Healthcare Advertising: A Global Perspective. In B. Miguélez-Juan & S. Rebollo-Bueno (Eds.), AI Impacts on Branded Entertainment and Advertising (pp. 303-326). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-3799-8.ch015

12. Devi, M., Manokaran, D., Sehgal, R. K., Shariff, S. A., & Vettriselvan, R. (2025). Precision Medicine, Personalized Treatment, and Network-Driven Innovations: Transforming Healthcare With AI. In R. Kanthavel & R. Dhaya (Eds.), AI for Large Scale Communication Networks (pp. 303-322). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6552-6.ch014

13. Duraimutharasan, N., Deepan, A., Swadhi, R., Velmurugan, P. R., & Varshney, K. R. (2025). Enhancing Control Engineering Through Human-Machine Collaboration: AI

for Improved Efficiency and Decision-Making. In M. Mellal (Ed.), Harnessing AI for Control Engineering (pp. 155-176). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-7812-0.ch008

14. Gayathri, K., Krishnan, P., Rajesh, K., Anandan, K., & Swadhi, R. (2019). Synthesis, growth, structural, optical, thermal, dielectric and laser damage threshold studies of new semi organic NLO crystal: Tetra aqua bis (hydrogen maleato) cobalt(II). AIP Conference Proceedings, 2115, 030412. https://doi.org/10.1063/1.5113251.

15. Gayathri, K., Rajesh, K., Krishnan, P., Anandan, K., Swadhi, R., Devaraj, A. R., & Anbalagan, G. (2020). Structural and optical properties of SnO_2 thin films deposited by spray pyrolysis technique. AIP Conference Proceedings, 2265, 030425. https://doi.org/10.1063/5.0017481

16. Geethapriya, J. & Devaraj, Anitha & Krishnan, Gayathri & Swadhi, R. & Elangovan, N & S.Manivel, & Subbaiah, Sowrirajan & Thomas, Renjith. (2023). Solid state synthesis of a fluorescent Schiff base (E)-1-(perfluorophenyl)-N-(o-toly)methanimine followed by computational, quantum mechanical and molecular docking studies. Results in Chemistry. 5. 100819. 10.1016/j.rechem.2023.100819.

17. Gokila, S., Helen, D., Alemu, A. M., & Suresh, N. V. (2024, November). Scaling Approach Over Learning Layer of Deep Learning Model to Reduce the FALSE Error in Binary Classification. In 2024 8th International Conference on Electronics, Communication and Aerospace Technology (ICECA) (pp. 1294-1300). IEEE.

18. Helen, D., & Suresh, N. V. (2024). Generative AI in Healthcare: Opportunities, Challenges, and Future Perspectives. Revolutionizing the Healthcare Sector with AI, 79-90.

19. J. Jayaganesh, K. Suresh Kumar, Konda Hari Krishna, Mohit Tiwari, R. Vettriselvan, Chetan Shelke, (2026) Different Requirements in Quality of Service Using an Adaptive Network Algorithm, Advances in AI for Cloud, Edge, and Mobile Computing Applications, Apple Academic Press, Taylor & Francis Group.

20. Kalaivani, M., Suganya, V., Suresh, N. V., & Catherine, S. (2025). The Next Wave in Marketing: Data Science in the Age of Generative AI. In Navigating Data Science (pp. 13-26). Emerald Publishing Limited.

21. Manoharan, C., Poongavanam, S., Arivazhagan, D., Divyaranjani, R., & Vettriselvan, R. (2020). Cognition and emotions during teaching-learning process. International Journal of Scientific and Technology Research, 9(2), 267-269.

22. Natraj, N. A., Abirami, T., Ananthi, K., Venice, J. A., Chandru, R., & Rathish, C. R. (2024). The Impact of 5G Technology on the Digital Supply Chain and Operations Management Landscape. In Applications of New Technology in Operations and Supply Chain Management (pp. 289-311). IGI Global.

23. Natraj, N. A., Abirami, T., Ananthi, K., Venice, J. A., Chandru, R., & Rathish, C. R. (2024). The Impact of 5G Technology on the Digital Supply Chain and Operations Management Landscape. In Applications of New Technology in Operations and Supply Chain Management (pp. 289-311). IGI Global.

24. Poongavanam, S., Srinivasan, R., Arivazhagan, D., & Suresh, N. V. (2023). Medical Inflation-Issues and Impact. Chettinad Health City Medical Journal (E-2278-2044 & P-2277-8845), 12(2), 122-124.

25. R. Vettriselvan, C. Vijai, J. D. Patel, S. Kumar.R, P. Sharma and N. Kumar, "Blockchain Embraces Supply Chain Optimization by Enhancing Transparency and Traceability from Production to Delivery," 2024 International Conference on Trends in Quantum Computing and Emerging Business T

26. Ramya, R., Kiruthiga, V., Vettriselvan, R., Gayathri, V., & Velmurugan, P. R. (2025). Hybrid Entrepreneurship Navigating Career Transitions: Career Shifts and Their Impact on Economic Growth. In M. Tunio (Ed.), Applications of Career Transitions and Entrepreneurship (pp. 241-268). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-4163-6.ch010

27. Shanthi, H. J., Gokulakrishnan, A., Sharma, S., Deepika, R., & Swadhi, R. (2025). Leveraging Artificial Intelligence for Enhancing Urban Health: Applications, Challenges, and Innovations. In F. Özsungur (Ed.), Nexus of AI, Climatology, and Urbanism for Smart Cities (pp. 275-306). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-5918-1.ch010

28. Suganya, V., & Suresh, N. V. (2024). Potential Mental and Physical Health Impacts of Spending Extended Periods in the Metaverse: An Analysis. In Creator's Economy in Metaverse Platforms: Empowering Stakeholders Through Omnichannel Approach (pp. 225-232). IGI Global.

29. Sujatha, R., Aarthy, S. L., & Vettriselvan, R. (Eds.). (2021). Integrating Deep Learning Algorithms to Overcome Challenges in Big Data Analytics. CRC Press.

30. Suresh, N. V., & Rexy, V. A. M. (2024, February). An Empirical Study on Empowering Women through Self Help Groups. In 3rd International Conference on Reinventing Business Practices, Start-ups and Sustainability (ICRBSS 2023) (pp. 957-964). Atlantis Press.

31. Suresh, N. V., Ananth Selvakumar, Gajalaksmi Sridhar, and S. Catherine. "Ethical Considerations in AI Implementation for Patient Data Security and Privacy." In AI Healthcare Applications and Security, Ethical, and Legal Considerations, pp. 139-147. IGI Global, 2024.

32. Suresh, N. V., Catherine, S., Selvakumar, A., & Sridhar, G. Transparency and accountability in big data analytics: Addressing ethical challenges in decision-making processes. In Digital Transformation and Sustainability of Business (pp. 742-745). CRC Press.

33. Suresh, N. V., Karthikeyan, M., Sridhar, G., & Selvakumar, A. (2025). Sustainable urban planning through AI-driven smart infrastructure: A comprehensive review. Digital Transformation and Sustainability of Business, 178-180.

34. Suresh, N. V., Manoj, G., Rajkumar, M. D., & Kanagasabai, B. (2024). Fundamental anomalies as a mediator in the relationship between heuristics and investment decisions. International Journal of Applied Management Science, 16(4), 383-396.

35. Suresh, N. V., Selvakumar, A., & Sridhar, G. (2024). Operational efficiency and cost reduction: the role of AI in healthcare administration. In Revolutionizing the Healthcare Sector with AI (pp. 262-272). IGI Global.

36. Suresh, N. V., Selvakumar, A., Sasikala, B., & Sridhar, G. (2024, June). Integrating Environmental, Social, and Governance (ESG) Factors into Social Accounting Frameworks: Implications for Sustainable Business Practices. In International Conference on Digital Transformation in Business: Navigating the New Frontiers Beyond Boundaries (DTBNNF 2024) (pp. 18-28). Atlantis Press.

37. Suresh, N. V., Selvakumar, A., Sridhar, G., & Jain, V. (2024). Integrating Mechatronics in Autonomous Agricultural Machinery: A Case Study. Computational Intelligent Techniques in Mechatronics, 491-507.

38. Suresh, N. V., Selvakumar, A., Sridhar, G., & Jain, V. (2025). Dynamic Pricing Strategies Implementing Machine Learning Algorithms in E-Commerce. In Building Business Models with Machine Learning (pp. 129-136). IGI Global Scientific Publishing.

39. Suresh, N. V., Selvakumar, A., Sridhar, G., & Trivedi, S. (2024). A Research Study on the Ethical Considerations in Harnessing Basic Science for Business Innovation. In Unleashing the Power of Basic Science in Business (pp. 55-64). IGI Global.

40. Suresh, N. V., Shanmugam, R., Selvakumar, A., & Sridhar, G. Patient-centric care optimization: Strategies for enhancing communication and efficiency in healthcare settings through cross-functional collaboration. In Digital Transformation and Sustainability of Business (pp. 738-741). CRC Press.

41. Suresh, N. V., Sridhar, J., Selvakumar, A., & Catherine, S. (2024). Machine Learning Applications in Healthcare: Improving Patient Outcomes, Diagnostic Accuracy, and Operational Efficiency. In AI Healthcare Applications and Security, Ethical, and Legal Considerations (pp. 1-9). IGI Global

42. Swadhi, R. (2025). Innovative Strategies for Widespread Adoption in a Climate-Smart Future: Scaling Up Agroforestry. In A. Atapattu (Ed.), Agroforestry for a Climate-Smart Future (pp. 473-496). IGI Global Scientific Publishing.

43. Swadhi, R., Gayathri, K., Anitha Rexalin, D., Rajesh, K., & Anandan, K. (2025). Development and characterization of gadolinium-doped hydroxyapatite to enhance biocompatibility in biomedical applications. Texila International Journal of Public Health, 13(1). https://doi.org/10.21522/tijph.2013.13.01.art033

44. Swadhi, R., Gayathri, K., Anitha Rexalin, D., Rajesh, K., & Anandan, K. (2025). Magnesium-doped brucinium hydroxyapatite: A versatile material for biomedical applications. Cuestiones de Fisioterapia, 54(4), 288–298

45. Swadhi, R., Gayathri, K., Dimri, S., Balakrishnan, A., & Jyothi, P. (2025). Role of Digital Marketing in Shaping Travel Decisions: Consumer Behavior in Tourism. In B. Sousa & V. Santos (Eds.), Intersections of Niche Tourism and Marketing (pp. 153-176). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-8417-6.ch007https://doi.org/10.4018/979-8-3693-8282-0.ch016

46. Swadhi, R., Gayathri, K., Rajesh, K., Anandan, K. & Anitha Rexalin, D., (2023). Hydrothermal synthesis and characterization of brucine functionalized hydroxyapatite

materials for bioimaging applications. European Chemical Bulletin, 12(7), 2456–2469. https://doi.org/10.48047/ecb/2023.12.7.190

47. Thiruvasagam, G., & Vettriselvan, R. (2021). What is after COVID-19?: Changing economies of the shipping industries and maritime education institutions. 21st Annual General Assembly, IAMU AGA 2021-Proceedings of the International Association of Maritime Universities, 96-110.

48. Velmurugan, P. R., Arunkumar, S., Vettriselvan, R., Deepan, A., & Rajesh, D. (2025). Strategic Approaches to Corporate Social Responsibility and Sustainable Development: Integrating Leadership, Marketing, and Finance. In I. Gigauri & A. Khan (Eds.), Navigating Corporate Social Responsibility Through Leadership and Sustainable Entrepreneurship (pp. 373-406). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6685-1.ch013

49. Velmurugan, P. R., Catherine, S., Vettriselvan, R., E. P., J., & Rajesh, D. (2025). Innovative Intercultural Communication Training in Translator Education: Cultivating Cultural Competence. In M. Amini (Ed.), Cutting-Edge Approaches in Translator Education and Pedagogy (pp. 217-244). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6463-5.ch008

50. Velmurugan, P. R., Swadhi, R., Varshney, K. R., Regins, J. C., & Gayathri, K. (2025). Creating Engaging and Personalized Learning Experiences in Distance Education: AI and Learning Analytics. In H. Mamede & A. Santos (Eds.), AI and Learning Analytics in Distance Learning (pp. 103-126). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-7195-4.ch005

51. Venice, J. A., Thoti, K. K., Henrietta, H. M., Elangovan, M., Anusha, D. J., & Zhakupova, A. (2022, September). Intelligent space robots integrated with enhanced information technology and development activities. In 2022 4th international conference on inventive research in computing applications (ICIRCA) (pp. 241-249). IEEE.

52. Venice, J. A., Thoti, K. K., Henrietta, H. M., Elangovan, M., Anusha, D. J., & Zhakupova, A. (2022, November). Artificial Intelligence based Robotic System with Enhanced Information Technology. In 2022 Sixth International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud)(I-SMAC) (pp. 705-714). IEEE.

53. Vettriselvan, R. & Ramya, R. (2025). Sustainable Curriculum Design and Development: A Comprehensive Approach. In A. Sorayyaei Azar, S. Gupta, K. Al Bataineh, N. Maurya, & P. Somani (Eds.), Smart Education and Sustainable Learning Environments in Smart Cities (pp. 471-486). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-7723-9.ch027

54. Vettriselvan, R. (2025). Commercial Applications of Aeroponics: Revolutionizing Modern Agriculture and Sustainable Food Production. In C. G. (Ed.), Utilizing Aeroponics Techniques for Improved Farming (pp. 249-282). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-2320-5.ch010

55. Vettriselvan, R. (2025). Empowering Digital Education: The Future of Value-Based Learning in the Digital Era. In B. Sousa & C. Veloso (Eds.), Empowering Value Co-Creation in the Digital Era (pp. 199-228). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3373-1742-7.ch009

56. Vettriselvan, R. (2025). Harnessing Innovation and Digital Marketing in the Era of Industry 5.0: Resilient Healthcare SMEs. In T. Olubiyi, S. Suppiah, & C. Chidoko (Eds.), The Future of Small Business in Industry 5.0 (pp. 163-186). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-7362-0.ch007

57. Vettriselvan, R., & Anto, M. R. (2018). Pathetic health status and working condition of Zambian women. Indian Journal of Public Health Research & Development, 9(9), 259-264.

58. Vettriselvan, R., Anu, S., & Jesu Rajan, F. S. A. (2016). Problems faced by women Construction workers in Theni District. International Journal of Management Research and Social Science, 3(2), 58-61.

59. Vettriselvan, R., Deepa, R., Gautam, R., Suresh, N. V., & Cathrine, S. (2025). Bridging Academia and Industry Through Technology and Entrepreneurial Innovation: Enhancing Supply Chain Efficiency. In P. Mahalle (Ed.), Bridging Academia and Industry Through Cloud Integration in Education (pp. 145-174). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6705-6.ch006

60. Vettriselvan, R., Deepan, A., Garg, P. K., Suresh, N. V., & Velmurugan, P. R. (2025). Advanced Text Analysis, Simplification, Classification, and Synthesis Techniques: Leveraging AI for Enhanced Medical Education. In N. Jomaa (Ed.), Using AI Tools in

Text Analysis, Simplification, Classification, and Synthesis (pp. 37-66). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-9511-0.ch002

61. Vettriselvan, R., Deepan, A., Jaiswani, G., Balakrishnan, A., & Sakthivel, R. (2025). Health Consequences of Early Marriage: Examining Morbidity and Long-Term Wellbeing. In E. Uddin (Ed.), Social, Political, and Health Implications of Early Marriage (pp. 189-212). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-3394-5.ch008

62. Vettriselvan, R., Rajesh, D., Subhashini, S., Gajalakshmi, K., & Sakthivel, R. (2025). Developing and Applying PCK in Diverse Subjects: Best Practices for Mathematics, Science, Social Sciences, and Language Arts. In N. Taskin Bedizel (Ed.), Current Trends and Best Practices of Pedagogical Content Knowledge (PCK) (pp. 1-30). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-0655-0.ch001

63. Vettriselvan, R., Rajesh, D., Swadhi, R., Velmurugan, P. R., & Arunkumar, S. (2025). Enhancing Efficiency and Accountability: Innovative Approaches to Public Financial Management in Higher Education. In A. Enaifoghe & R. Mthethwa (Eds.), Challenges of Public Administration Management for Higher Education (pp. 81-112). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-4346-3.ch005

64. Vettriselvan, R., Ramya, R., Sathya, M., Swadhi, R., & Deepan, A. (2025). Service Delivery and Citizen-Centric Approaches: Innovating Public Administration Management in Higher Education. In A. Enaifoghe & R. Mthethwa (Eds.), Challenges of Public Administration Management for Higher Education (pp. 113-136). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-4346-3.ch006

65. Vettriselvan, R., Velmurugan, P. R., Deepan, A., Jaiswani, G., & Durgarani, M. (2025). Transforming Virtual Education: Advanced Strategies for Quality Assurance in Online and Distance Learning. In M. Kayyali (Ed.), Navigating Quality Assurance and Accreditation in Global Higher Education (pp. 563-580). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6915-9.ch024

66. Vettriselvan, R., Velmurugan, P. R., Regins, J. C., Uma Maheswari, S., & Joyce, R. (2025). Best Practices, Ethical Challenges, and Regulatory Frameworks for AI Integration in Banking: Navigating the Future. In P. Chelliah, R. Venkatesh, N. Natraj, & R. Jeyaraj (Eds.), Artificial Intelligence for Cloud-Native Software Engineering (pp.

377-410). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-9356-7.ch015

67. Vettriselvan, R., Velmurugan, P. R., Varshney, K. R., E. P., J., & Deepika, R. (2025). Health Impacts of Smartphone and Internet Addictions Across Age Groups: Physical and Mental Health Across Generations. In M. Anshari, M. Almunawar, & P. Ordóñez de Pablos (Eds.), Impacts of Digital Technologies Across Generations (pp. 187-210). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6366-9.ch010

68. Vettriselvan, R., Vijai, C., Patel, J. D., Sharma, P., & Kumar, N. (2024, March). Blockchain embraces supply chain optimization by enhancing transparency and traceability from production to delivery. In 2024 International Conference on Trends in Quantum Computing and Emerging Business Technologies (pp. 1-6). IEEE.

69. Vijayalakshmi, M., A. K., S., Vettriselvan, R., Velmurugan, P. R., & Hasine, J. (2025). Strategic Collaborations in Medical Innovation and AI-Driven Globalization: Advancing Healthcare Startups. In V. Gupta & C. Gupta (Eds.), Navigating Strategic Partnerships for Sustainable Startup Growth (pp. 85-110). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-4066-0.ch004

70. Vijayalakshmi, M., Subramani, A. K., Vettriselvan, R., Catherin, T. C., & Deepika, R. (2025). Sustainability and Responsibility in the Digital Era: Leveraging Green Marketing in Healthcare. In H. Rahman (Ed.), Digital Citizenship and Building a Responsible Online Presence (pp. 285-306). IGI Global Scientific Publishing. https://doi.org/10.4018/979-8-3693-6675-2.ch011