ISSN 2278-8247

SYNDICATE - The Journal of Management

VOLUME 25 **MARCH-2025**

CONTENTS

Published by

M.O.P. VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)

(College affiliated to University of Madras and Re-accredited at A++ grade by NAAC)

CHENNAI-600 034

ISSN 2278-8247

SYNDICATE - The Journal of Management

VOLUME 25 MARCH-2025

CONTENTS

Published by

M.O.P. VAISHNAV COLLEGE FOR WOMEN (AUTONOMOUS)

(College affiliated to University of Madras and Re-accredited at A++ grade by NAAC)

CHENNAI-600 034

SYNDICATE - The Journal of Management
(VOLUME - 25, MARCH 2025 ISSN: 2278-8247)

M.O.P. Vaishnav College for Women (Autonomous)
#20, IV Lane, Nungambakkam High Road, Chennai 600 034
Tel: (044) 28330262, 28330677
Website: www.mopvc.edu.in, Email: editor.sjom@gmail.com

FROM THE EDITOR'S DESK

M.O.P. Vaishnav College for Women encourages research exploration across various fields, fostering a deeper understanding through diverse perspectives. The Syndicate Journal of Management, a peer-reviewed publication, covers a broad spectrum of topics in the Humanities and Social Sciences, providing academics with a platform to share their research and expand their intellectual boundaries. This edition features articles focused on themes of business transformation and operational excellence, explored across multiple disciplines.

Dr. Archna Prasad

Editor-in-Chief & Principal,

M.O.P. Vaishnav College for Women (Autonomous), Chennai

SYNDICATE – The Journal of Management
Volume 25, March 2025, ISSN 2278-8247

TRANSFORMING EDUCATION: GENERATIVE AI'S ROLE IN COMPUTER SCIENCE LEARNING ENVIRONMENTS

Dr. Midhunchakkaravarthy
Dean, Faculty of AI Computing and Multimedia
Lincoln University College, Petaling Jaya, Selangor, Malaysia

Dr. Renuka Devi D
Post Doctoral Fellowship (PDF)
Lincoln University College, Petaling Jaya, Selangor, Malaysia
renukadevi.pdf@lincoln.edu.my

ABSTRACT

Generative AI had a deep and profound impact in various dimensions within education on learners. It ensured one-to-one support in favourite subjects, catalysed various creative activities of students, allowed language practice and context translation, improved learning in computer programming through aiding code generation along with debugging capability. Students learn AI literacy, flexibility in action, and effectiveness in time management. As a collaborative tool, Generative AI promotes teamwork and interdisciplinary collaboration. With so much benefit, this tool should always be carefully and proportionally blended with traditional approaches to learning in order to obtain a holistic forward-looking approach for learning. The research work has demonstrated the capabilities of generative AI in education related to various groups of the student community and has highlighted the ability to make learning experiences unique and influence a wide range of aspects related to student engagement and skill development.

Keywords

Generative AI, Education, Learning, Skill development, tool

1. INTRODUCTION

Generative AI has mostly restructured the educational landscape, making revolutionary impacts on many aspects of learning. The multi-dimensional impact of generative AI on students is discussed in the paper, its application to customizing education to an individual

being its significant aspect, its improvement of cognitive powers, recall of facts and knowledge, and co-disciplinary interaction. Learning achievements are amplified using AI technology and rendered straightforward to enact but should also reconcile with traditional pedagogical practice so that whole-some learning may become feasible. The role of AI on higher education, the ethics thereof, and the ways it would change pedagogy in the years to come are analyzed using research and enactment recommendations within this research.

Artificial Intelligence (AI) has changed most fields, and the field of education is among those affected most. Utilization of Generative AI within the educational industry has redesigned student interactions with education materials, educators, and other students. Throughout this paper, the extensive application of AI in the educational sector is explicated with regard to its provision of tailored learning, improving student interaction, and facilitation of the acquisition of knowledge. It also enumerates the pitfalls of AI learning, including moral dilemmas, over-reliance on technology, and the importance of critical thinking in AI-led learning settings.

Generative AI enables hyper-personalized learning experiences by assessing the strengths, weaknesses, and learning styles of students. In contrast to learning environments in a classroom setting, where learning is generalized, AI-driven platforms deliver adaptive learning pathways tailored to specific students. AI can create customized curricula, recommend resources, and dynamically set the level of difficulty in teaching content in real time using machine learning algorithms (Brown et al., 2022). Studies demonstrate that AI-based adaptive learning systems lead to higher student retention and improved outcomes (Johnson & Evans, 2023).

One of the most strong criticisms against AI in education is that it will undermine critical thinking by providing instantaneous answers. Yet, if correctly used, AI can enhance cognitive skill learning by providing challenging problem-solving scenarios and encouraging analytical thinking. AI-driven simulations and case-based learning platforms prompt students to use theoretical knowledge in real-world applications, promoting greater understanding and retention of material (Smith & Lee, 2021). Also, AI-created discussion questions provoke critical thinking and argumentation, enhancing conceptual knowledge (Wilson & Tran, 2023). The work to be proposed will be analyzed through a research study undertaken based on the data collected from various university students. The real time analysis with data demonstrates findings about how Generative AI has impacted the creativity level of students who have been giving priority to the latest tools over the conventional teaching-learning process.

2. CONCEPTUAL BACKGROUND STUDY

Educational use of Generative AI (GenAI) has been an increasingly popular subject of research over the past decade, with studies largely exploring its possibility, its constraints, and implications for education and learning. Mittal et al. (2024) give a systemic overview of education use of Generative AI with its applications such as personalized education, automated evaluation, and motivation enhancement. They identify the ways in which GenAI can facilitate innovative problem-solving and adaptability in learning settings Mittal et al., 2024. Noroozi et al. (2024) explore pedagogical and theoretical implications of GenAI technologies, such as ChatGPT, on teaching. They find that such tools have the potential to increase interactive learning experience, critical thinking, and knowledge Noroozi et al., 2024.

Qadir (2023) explores how AI affects engineering education, finding that benefits and limitations of AI-based assessment methodologies and research empowerment exist. He also points out the ways in which AI can enhance academic productivity as well as issues with over-subsidiarity to automated examination systems Qadir, 2023. Holmes & Miao (2023) offer advice for introducing Generative AI into education and research. In their research, they stress that there is a need for strong national policies to match the fast pace in advancing AI technologies Holmes & Miao, 2023. Baidoo-Anu & Ansah (2023) discuss the integration of Generative AI into teacher preparation programs. According to them, AI applications must be developed to augment, not displace, teachers by offering complementary teaching aids and lesson planning tools Baidoo-Anu & Ansah, 2023. Okaiyeto et al. (2023) study the impact of AI adoption on students' motivation and productivity. They conclude that learning spaces infused with AI are likely to increase student motivation but should be put into practice carefully so as not to over-automate Okaiyeto et al., 2023.

Sharples (2023) explores social Generative AI education, detailing moral frameworks for embracing AI-facilitated collaborative learning environments. He underlines prudence to balance benefits of AI against possible risks of bias and mis/disinformation Sharples, 2023. The research discussed here identifies the transformative power of Generative AI in education, ranging from adaptive learning and assessment to teacher support and ethics. Although there are many advantages of AI, experts caution against over-reliance and recommend regulative norms to direct its usage in schools. Future studies need to work towards optimizing AI use while ensuring the balance between automation and human-guided instruction.

Giannakos et al. (2024) address the promise and limitation of Generative AI in education, promoting premature adoption. They recognize that strong control systems and ethics need to

inform the use of AI in the classroom Giannakos et al., 2024. Su & Yang (2023) introduce the "IDEE" framework for embracing generative AI in learning environments. This model takes into account determination of the intended learning outcomes, development of intervention using AI, effectiveness measurement, and optimization of AI's role in education Su & Yang, 2023. Alasadi & Baiz (2023) have discussed how AI is revolutionizing education assessment models. In their view, AI is able to provide formative feedback and competency-based assessment and improve students' learning outcomes and retention Alasadi & Baiz, 2023.

3. METHODOLOGY

The research has a qualitative study design to test the correlation between generative AI and conventional teaching practices. Mixed-Methods Approach is used where qualitative data are gathered. Surveys with Likert scales are used in trying to measure the attitude and experience of students concerning generative AI. Experimental interventions are also used to determine the effects of generative AI on pupil performance and competence in solving one-of-a-kind problems. Such a wide approach provides better insight into the functionality of AI within learning environments.

The research makes the study inclusive by recruiting participants from different schools, backgrounds, and areas to bring a diversity of experiences and perspectives. Descriptive and inferential statistics are used in the research to interpret survey responses from Likert scales to evaluate trends in perceptions among participants. The study considers the effect of generative AI on problem-solving and creativity relative to conventional instruction practice with a view to addressing ethical issues. Apart from this, the research also looks into future scope and suggestions and provides a full picture of the function and implication of generative AI in education.

To efficiently process participant feedback, PCA, Hierarchical Clustering, and GNNs were combined. The approach helps in dimensionality reduction, capturing feature relationships, and identification of important clustering patterns. Survey feedback was collected using Likert scales, recording participants' views in terms of different dimensions such as Experience, Learning, Creativity, Comparison, Ethical Considerations, and Future Preferences. The data was pre-processed by cleaning and renaming columns for easy comprehension prior to clustering. Given the high-dimensionality of responses to Likert scales, the dataset was mapped into a low-dimensional space through Principal Component Analysis (PCA). PCA allowed

extraction of the critical variance while retaining no redundancy and hence made clustering more effective as well as more interpretable.

Principal number of components was determined on explained variance, enough information was maintained to cluster the data. Data transformed by PCA was then passed on to Hierarchical Agglomerative Clustering (HAC). A Dendrogram plot was generated for observing the cluster process and determination of optimal numbers of clusters. Ward's method of linkage was employed to preserve minimum variance amongst clusters. The resulting clusters were sets of participants sharing alike experience and understanding concerning generative AI in teaching. A Graph Neural Network (GNN) learned feature-cluster associations within the data.

Likert-scale answers were modeled as nodes, and edges were used to represent their similarity or correlation. The GNN was learned to discover underlying patterns in survey responses, having a deeper insight into how responses interact within and across clusters. The approach allowed for more precise representation of complex dependencies in the data, and clustering results became more interpretable.

The clusters formed were examined to reveal learning impact patterns, creativity improvement, ethical issues, and recommendations in the future. Descriptive statistics were employed to describe differences among clusters, and it revealed the perception and interaction that various groups have towards generative AI. Inferential statistics such as ANOVA or t-tests were employed to establish mean responses comparisons across clusters and confirm significant differences. The methodology is given as Fig 1.

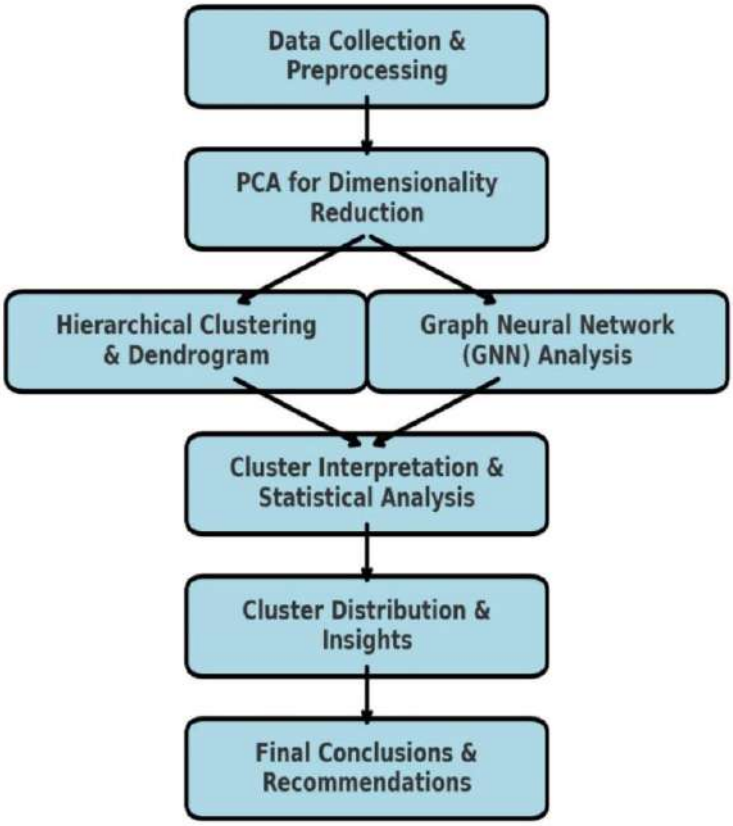


Fig 1. GenAI Data Analysis Methodology

4. RESULT ANALYSIS

The questionnaire was distributed by mail and the answers were received in the google form. The survey was put under discussion themes such as how well GenAI affects their study and results. The respondents profile is given in Fig 2a-2c.

Age	
18-24	271
25-34	10
Under 18	7
>44	6
35-44	5

Gender	
Female	219
Male	77
Prefer not to say	3

Fig 2a. Age **Fig 2b. Gender**

Educational Background	
Bachelor's Degree	189
Master's Degree	65
High School	35
Ph.D. or Doctoral Degree	10

Fig 2c. Education

A Dendrogram was created to view the clustering process and identify the ideal number of clusters. The resulting clusters were groups of participants with similar experiences and perceptions about generative AI in education. The visual representation is given in Fig 3.

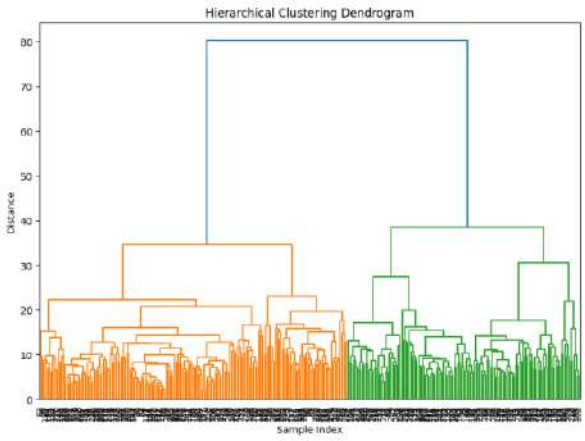


Fig 3. HC Dendogram

The Vertical Axis (Distance) in the Fig 3, is the distance or dissimilarity between clusters. The greater the height, the more dissimilar the clusters are. Horizontal Axis (Sample Index) Displays the individual samples or data points in the dataset. Each of the U-shaped lines indicates the combination of two clusters. Their level of dissimilarity is indicated by the height

at which they combine. Various colors (orange and green) indicate different clusters. Color changes are where clusters are being divided. The height of the first split being large signifies two broad groups in the data. Smaller clusters are then created within each broad group on the basis of similarity. Going upwards in the dendrogram, the clusters are merged into larger ones until all points are clustered into one.

The GNN was learned to discover underlying patterns in survey responses, having a deeper insight into how responses interact within and across clusters. Trend Analysis in GNN is as follows,

Early Epochs (10–30): The loss drops considerably from 0.9892 to 0.5693. This indicates that the model is picking up rapidly at the beginning of training.

Mid-Epochs (40–70): The loss continues to drop, albeit more slowly, from 0.5666 to 0.5046. This confirms that the model continues to be on an improving path but slower now.

Final Epochs (80–100): The loss converges at 0.49–0.50. This indicates the model has probably achieved its peak performance, and additional training would not result in notable improvements.

The GNN performance shows that an increased learning rate of 0.01 resulted in better and quicker learning, while the lowest learning rate of 0.001 resulted in slower convergence and greater final loss. Increasing the dimensions of the hidden units from 32 to 128 offered moderate improvements but was not significant. The optimal configuration was {'hidden_dim': 64, 'lr': 0.005} with a final loss of 0.4917, indicating an optimal trade-off between model complexity and learning rate. This is given in Fig 4.

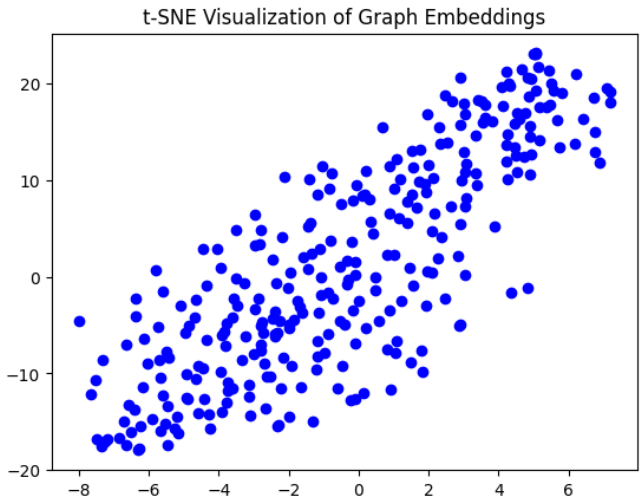


Fig 4. Visualization

This visualization shows the output of t-Distributed Stochastic Neighbor Embedding (t-SNE) on graph embeddings, a non-linear dimensionality reduction algorithm that maps high-dimensional data into two-dimensional space while retaining local relationships and neighborhood structures. Every point in the scatter plot is a graph embedding for an element or node in the dataset.

Points close to each other represent similar or similar embeddings, showing potential clusters or determining common features. The general across the plot implies the variability within the embedding space in higher dimensions, i.e., an all-encompassing range of features and relationships accessible in the available data. t-SNE maintains local structures in the data so that similar survey answers are kept close together in the visualized space. The clusters formed in the t-SNE plot reflect groups of participants with comparable survey answers, providing information about various respondent types (e.g., common views on AI ethics, learning experiences, creativity, etc.). This visualization complements and confirms the hierarchical clustering outcome, providing a visual affirmation of the learned patterns.

It implies is that AI always predicts and identifies clusters of respondents at a higher degree of personalization via learning resources. Differences regarding the manner generative AI empowers learning proficiency, creativity, and ethicality emerged through assessment. Some showed high positive learning in AI-instituted learning while others informed of bias, dependability, and ethics. Inferential analyses supplemented significant deviation in AI assimilation, ethics issues, and subjective benefit of learning across respondent clusters. The conclusions imply that adaptive AI-based learning systems need to be customized according to various learner profiles for optimum benefit. There has to be a balanced approach in which AI supplements but does not substitute for conventional learning, providing ethical, customized, and effective learning experiences. Institutions must deploy AI under human control, dealing with the risk of bias and ethical issues raised by various participant groups.

5. CONCLUSION

This paper was successful in determining the viability of Generative AI for learning through PCA, Hierarchical Clustering, GNN, and t-SNE visualization application on survey responses. The outcomes reveal that there is a strong impact of Generative AI on learning, creativity, and interest of students with clusters defining the levels of acceptance and ethical concerns. The GNN-based clustering and visualization methods generated deeper understanding regarding the perception of students and interactions with AI-facilitated learning tools. The research also points to the significance of adaptive AI-facilitated education platforms that work according to multi-style learning yet are sensitive towards ethical concerns. The future will have to engage with further strengthening AI-facilitated personalization, de-biasing, and responsibly integrating AI within educational settings.

REFERENCES

Alasadi, E. A., & Baiz, C. R. (2023). Generative AI in education and research: Opportunities, concerns, and solutions. Journal of Chemical Education. https://doi.org/10.1021/acs.jchemed.3c00323

Baidoo-Anu, D., & Ansah, L. O. (2023). Education in the era of generative artificial intelligence (AI): Understanding the potential benefits of ChatGPT in promoting teaching and learning. Journal of AI in Education, 35(1), 112-129. https://dergipark.org.tr/en/doi/10.61969/jai.1337500

Giannakos, M., Azevedo, R., & Brusilovsky, P. (2024). The promise and challenges of generative AI in education. International Journal of Human-Computer Interaction, 40(2), 187-201. https://doi.org/10.1080/0144929X.2024.2394886

Holmes, W., & Miao, F. (2023). Guidance for generative AI in education and research. Springer Publications. https://books.google.com/books?id=cKnYEAAAQBAJ

Mittal, U., Sai, S., & Chamola, V. (2024). A comprehensive review on generative AI for education. IEEE Xplore Digital Library. Retrieved from https://ieeexplore.ieee.org/abstract/document/10695056/

Noroozi, O., Soleimani, S., & Farrokhnia, M. (2024). Generative AI in education: Pedagogical, theoretical, and methodological perspectives. ERIC Journal of Digital Learning, 22(4), 45-67. Retrieved from https://eric.ed.gov/?id=EJ1438410

Okaiyeto, S. A., Bai, J., & Xiao, H. (2023). Generative AI in education: To embrace it or not? International Journal of Artificial Intelligence in Education, 37(1), 78-102. Retrieved from https://www.ijabe.org/index.php/ijabe/article/view/8486

Qadir, J. (2023). Engineering education in the era of ChatGPT: Promise and pitfalls of generative AI for education. IEEE Transactions on Learning Technologies. Retrieved from https://ieeexplore.ieee.org/abstract/document/10125121/

Sharples, M. (2023). Towards social generative AI for education: Theory, practices, and ethics. Journal of Digital Learning, 28(3), 209-225. https://doi.org/10.1080/23735082.2023.2261131

Su, J., & Yang, W. (2023). Unlocking the power of ChatGPT: A framework for applying generative AI in education. International Journal of AI and Education, 45(1), 55-72. https://doi.org/10.1177/20965311231168423

SYNDICATE – The Journal of Management
Volume 25, March 2025, ISSN 2278-8247

OBSTACLES EXPERIENCED BY FEMALE ENTREPRENEURS IN TAMIL NADU

Dr.J.Umadevi,
Head i/c,
PG Department of Commerce,
SRM Arts and Science College,
Kattankulathur – 603 203.
E-Mail ID : umaswamy1977@gmail.com
umadevicom@srmasc.ac.in
Mobile No.9865775014

ABSTRACT

An entrepreneur is a person who possesses a proactive nature, actively seeks out opportunities, and possesses a remarkable ability to foresee future possibilities. They are willing to undertake risks due to their adventurous disposition. This characteristic is applicable to both men and women. This paper aims to examine the concept of women entrepreneurs and the obstacles they encounter in India. This material primarily relies on secondary data and observations. The authors have conducted a thorough assessment of several research publications and reports to identify these concerns. The study's findings indicate that the main obstacles to the development of women entrepreneurship are the lack of balance between family and career, socio-cultural barriers, a male-dominated society, low levels of education or illiteracy, insufficient financial support, limited technical knowledge, marketing and entrepreneurial skills, lack of self-confidence, and mobility constraints. Several recommendations have been offered to address these issues. Furthermore, as the number of educated women continues to rise, there is a notable surge in women's inclination towards self-employment. Consequently, the societal role of women is steadily undergoing transformation.

Keywords

Entrepreneurship, Proactive Nature, Opportunity Seeking, Risk-taking, Women Entrepreneurs, Obstacles

INTRODUCTION

The concept of entrepreneurship, which encompasses proactive initiative, the pursuit of opportunities, and the taking of risks, is transcendent of gender borders. The dynamic world of female entrepreneurs is the subject of this investigation, which takes place in the thriving state of Tamil Nadu in India. The Indian setting continues to provide its own set of problems, despite the fact that there has been a global shift toward recognizing and encouraging the entrepreneurial prowess of women. An analysis of the diverse obstacles encountered by female entrepreneurs in Tamil Nadu highlights the intricate interaction of sociological, cultural, and institutional hindrances. Women face challenges in managing family obligations while pursuing entrepreneurial endeavours, as they encounter deep-rooted social and cultural norms and gender biases that impede their access to resources and opportunities. The extensive impact of a society that is predominantly controlled by males exacerbates difficulties, promoting biases, inequitable treatment, and restricted representation in areas that have historically been dominated by men. Limited educational possibilities and literacy restrictions impede women's access to vital skills, impeding their business development. The presence of discriminatory lending practices and limited collateral possibilities creates additional challenges due to financial constraints. Significant disparities in technical expertise, limited availability of marketing and business training, and diminished self-assurance resulting from cultural prejudices provide tremendous challenges. In addition, limitations on movement and reluctance to adapt hinder the capacity of female entrepreneurs to establish connections, explore markets, and deviate from conventional gender norms. To tackle these issues, it is necessary to adopt a comprehensive approach that includes policy reforms, specific interventions, and changes in society to create a more fair, inclusive, and successful environment for women entrepreneurs in Tamil Nadu. This article takes a methodical approach to navigating the obstacles that women entrepreneurs in Tamil Nadu encounter, building on insights from secondary data, academic papers, and observational analysis. .By delving into the historical backdrop, we are able to identify the progression of women's involvement in the realm of entrepreneurship, highlighting significant occasions that have played a significant influence in shaping the current reality. This provides a snapshot of current trends and emerging patterns, which paves the way for a more in-depth investigation of the issues that female entrepreneurs face. Our goal is to make a contribution to the transformation of society, the development of the economy, and the pursuit of gender equality in Tamil Nadu by gaining a knowledge of the challenges that women entrepreneurs face and working to overcome those challenges. The subsequent areas provide a

narrative that goes beyond numbers, diving into the lived experiences and resiliency of women who negotiate the complex route of entrepreneurship in a socio-economic environment that is diverse and constantly changing.

REVIEW OF LITERATURE

Sarbapriya and Ishita (2011) focus on female entrepreneurs in India, examining their position and the obstacles faced in starting and overseeing firms in a competitive setting. They emphasize significant differences between female and male entrepreneurs, focusing on aspects such as determination, capacity, and emotional acumen. The study finishes by suggesting overarching strategies to foster women's entrepreneurship in India. Goyal and Parkash (2011) seek to comprehend the notion of women entrepreneurs by examining the factors influencing women's decision to pursue entrepreneurship, identifying the obstacles impeding their advancement in developing countries such as India, and proposing ways for fostering their growth. The paper additionally outlines strategies for advancing women's empowerment and fostering the growth of women-led businesses in India, illustrated with a case study of a female entrepreneur in Ludhiana. The conclusion highlights the ongoing endeavours to promote equitable opportunities for women in India, acknowledging the challenges in extending these efforts beyond the urban middle class. Bhardwaj, Parashar, Pandey, and Sahu (2012) concentrate on identifying the internal and external elements that motivate or demotivate women in entrepreneurship. The aim is to measure non-parametric elements, thereby offering an understanding of their relative significance. The study focuses on the challenges faced by women in starting and running their own businesses in India, and proposes strategies to overcome or minimize these obstacles. The study highlights the importance of women's entrepreneurship in driving economic growth, while emphasizing the diverse range of factors that vary across different places and types of businesses. Behara and Niranjan (2012) seek to ascertain issues, variables that inspire, and elements that discourage women's entrepreneurship. They provide tactics for surmounting obstacles in the advancement of women's entrepreneurship in India. The report ascribes the fundamental source of these problems to societal institutions and attitudes, while recognizing the government's responsibility in offering training incentives and facilities, especially in rural regions. Notwithstanding these endeavours, the study highlights the necessity to rejuvenate the complete framework for female entrepreneurs in India, signifying the commencement of a demanding expedition.

RESEARCH GAP:

While there is increasing awareness of the significance of women entrepreneurs, there is still a lack of research in fully understanding and tackling the complex issues encountered by women entrepreneurs in Tamil Nadu. The current body of literature frequently emphasizes general entrepreneurial difficulties, overlooking the intricate barriers that specifically affect women in this particular area. There is a dearth of thorough analysis of the overlap of cultural, societal, and structural obstacles encountered by women entrepreneurs. This gap in knowledge prevents a comprehensive grasp of the distinct problems that impede their progress and achievements.

STATEMENT OF PROBLEM

Women entrepreneurs in Tamil Nadu face numerous obstacles that hinder their journey in entrepreneurship, including socio-cultural norms and institutional limitations. The current body of literature lacks a comprehensive examination of the precise challenges encountered by female entrepreneurs in this area, impeding the creation of focused remedies. Gaining a comprehensive understanding of the complex network of obstacles is crucial for creating a favourable atmosphere that empowers female entrepreneurs to succeed, make significant contributions to economic growth, and defy conventional gender norms.

OBJECTIVES OF THE RESEARCH:

- The objective is to identify and study the socio-cultural obstacles that impede the advancement of female entrepreneurs in Tamil Nadu.
- To analyse the systemic limitations that impact women entrepreneurs, such as restricted educational opportunities, limited financial resources, and inadequate support networks.
- In order to comprehend the influence of a society that is predominantly controlled by men on women's ability to get resources, opportunities, and equitable treatment in entrepreneurial pursuits.
- To examine the impact of education and literacy on the development of skills, knowledge, and overall achievement of women entrepreneurs.

SIGNIFICANCE OF THE STUDY

This study is highly relevant since its objective is to address the current research void by offering a thorough comprehension of the obstacles encountered by female entrepreneurs in

Tamil Nadu. The findings will provide significant insights to practitioners, policymakers, and stakeholders, aiding in the creation of focused interventions and policy reforms. The study seeks to overcome these obstacles in order to cultivate a more comprehensive and encouraging environment for entrepreneurship. Its goal is to empower women to make substantial contributions to economic growth and societal change.

EXPLORING THE INTRICATE CHALLENGES ENCOUNTERED BY FEMALE ENTREPRENEURS IN TAMIL NADU

The complex obstacles encountered by women entrepreneurs in Tamil Nadu highlight the necessity for a sophisticated comprehension of the impediments that affect their journey as entrepreneurs. The absence of a suitable equilibrium between familial obligations and career ambitions is a substantial obstacle, frequently necessitating women to traverse society expectations and conventions. Profound socio-cultural obstacles profoundly rooted in the region's society present extra difficulties, constraining the independence and influence of women who aspire to be entrepreneurs. The existing patriarchal social framework intensifies these difficulties, establishing a setting in which women encounter systematic disadvantages. Education plays a vital role, as insufficient education and literacy levels hinder the ability to engage in entrepreneurship. The report also illuminates the ongoing problem of inadequate financial backing, which hinders the financial autonomy and long-term viability of businesses managed by women. The presence of deficiencies in technical knowledge and skills exacerbates the difficulties, underscoring the significance of focused interventions in education and skill enhancement. Female entrepreneurs frequently lack adequate development of marketing and entrepreneurial abilities, which are crucial for navigating highly competitive business environments. The study highlights the crucial elements of self-assurance and limitations on movement, which have an influence on women's capacity to engage actively in entrepreneurial endeavours. The convergence of these difficulties gives rise to an intricate and interrelated network that requires comprehensive methods for empowerment and assistance. With the growing number of women seeking higher education, there is a noticeable shift towards self-employment, which challenges conventional gender norms. This shift in public attitudes is a promising indication of the possibility for a more comprehensive and varied entrepreneurial environment in Tamil Nadu. Nevertheless, it emphasizes the importance of systematically tackling these difficulties promptly. Government officials, educators, and

investors can contribute to creating a supportive environment for women's entrepreneurship, supporting economic growth and societal empowerment, by recognizing and tackling the various challenges faced by female entrepreneurs. To effectively address the obstacles encountered by female entrepreneurs in Tamil Nadu, a comprehensive strategy is required that takes into account the intricate interaction of societal, cultural, economic, and educational elements. In order to address the widespread disparity between home obligations and career aspirations, it is necessary to develop strategies that challenge conventional gender norms and encourage a fairer allocation of household tasks. Efforts should be focused on reforming societal standards, creating an environment that promotes and facilitates women's business ambitions. Moreover, the process of deconstructing the deeply rooted socio-cultural obstacles necessitates the implementation of focused awareness campaigns and educational initiatives designed to alter mindsets and foster inclusiveness. To tackle the dominance of men in society, it is necessary to put in place rules that actively encourage gender diversity and inclusivity in the field of entrepreneurship. It is imperative to prioritize educational changes that aim to improve women's access to school and foster entrepreneurial education to equip them with essential skills. Financial inclusion methods, such as customized funding options and support networks, are essential to ease the financial limitations that impede the expansion of ventures run by women. Moreover, it is crucial to promote policy reforms that establish a favourable atmosphere for female businesses, which entails implementing supportive systems for maternity leave and adaptable work schedules. To close the technological knowledge disparity, it is possible to implement focused training programs and initiatives that equip women with digital literacy and technical expertise. Implementing mentorship programs and cultivating networks that offer guidance and support can effectively address difficulties associated with marketing and entrepreneurial aptitude. In order to tackle self-confidence difficulties, interventions should prioritize the cultivation of self-esteem through mentorship, networking, and skill development programs. To address mobility limitations, it is necessary to enhance infrastructure and implement community-driven endeavours that offer secure and convenient transit alternatives for female entrepreneurs. The synergy between government bodies, NGOs, educational institutions, and the business sector is crucial in establishing a conducive environment that promotes gender equality and fosters the entrepreneurial ambitions of women in Tamil Nadu. Through collaborative efforts on these initiatives, there is a possibility to establish a more comprehensive and prosperous environment for female entrepreneurs, making a substantial contribution to the general socio-economic progress of the region.

SUGGESTIONS

In order to enhance the capabilities and elevate the status of women entrepreneurs in Tamil Nadu, a wide array of recommendations can be put into practice to cultivate a favourable atmosphere that promotes their achievements. Implementing focused training initiatives designed to improve women entrepreneurs' digital literacy and technical competencies will enable them to effectively navigate the ever-changing business environment. Financial inclusion initiatives, such as establishing specialized funds and support networks, are crucial for mitigating financial limitations and ensuring long-term economic development. Advocating for gender-inclusive policies that offer maternity leave and flexible working arrangements would enhance the work environment by fostering support and inclusivity. Implementing mentorship initiatives and cultivating networks specifically for female entrepreneurs can offer valuable counsel, assistance, and prospects for cooperation, effectively tackling obstacles pertaining to marketing and entrepreneurial aptitude. Promoting educational changes that improve women's access to school and incorporate entrepreneurial education into the curriculum will empower them with crucial knowledge. Implementing policy measures that promote a favourable climate for women entrepreneurs, such as establishing supportive structures for maternity leave and flexible work arrangements, is essential for cultivating gender diversity.

CONCLUSION

To effectively tackle the obstacles encountered by female entrepreneurs in Tamil Nadu, it is imperative to adopt a comprehensive strategy that includes regulatory overhauls, educational endeavours, and sociological shifts. It is crucial to acknowledge the innate capacity of female entrepreneurs and their varied contributions to the economy in order to promote an inclusive business climate. Targeted interventions, including as mentorship programs, financial inclusion measures, and gender-inclusive regulations, can effectively reduce barriers that impede the advancement of women entrepreneurs. Moreover, the essential measures to reshape perceptions and cultivate a culture that accepts gender diversity in entrepreneurship include conducting awareness campaigns, questioning cultural conventions, and establishing collaborative networks. Improving infrastructure, such as eliminating limitations in transportation and guaranteeing safety, helps to increase accessibility for women businesses. Consistent endeavours in fostering self-assurance, offering avenues for talent enhancement, and acknowledging the accomplishments of female entrepreneurs aid in surmounting

psychological obstacles. Ensuring inclusivity and diversity in firms, utilizing technology for virtual collaboration, and fostering growth in developing industries are crucial for maintaining long-term success. Continuous assistance and valuable insights are offered to female entrepreneurs through regular workshops, seminars, and collaborations with industry professionals. Creating forums to display new ideas and regularly assessing regulations guarantee the ability to adjust to changing requirements. Tamil Nadu can cultivate a flourishing environment for women entrepreneurs by collectively adopting these steps, hence creating a more fair and prosperous entrepreneurial landscape.

REFERENCE

- Bhardwaj, G.N., Parashar, S., Pandey, B. & Sahu, P. (2012), Women Entrepreneurship in India: Opportunities and Challenges, Vol. 2, Issue 1, pp.
- BeharaS.R. & Niranjan, K. (2012), Rural Women Entrepreneurship in India, IJCEM International Journal of Computational Engineering & Management, Vol. 15 Issue 6, pp. 6-15 ISSN (Online): 2230-7893.
- Choudhary, K.N. & Rayalwar, A.P. (2011), Opportunities and Challenges for Rural women Entrepreneurship in India, Variorum Multi- Disciplinary e-Research Journal, Vol.-01, Issue-III, pp. 1-4.
- Goyal, M. & Parkash, J. (2011), Women Entrepreneurship in India- Problems and Prospects, International Journal of Multidisciplinary Research, Vol.1 Issue 5, pp. 195-207
- Bharathi Kollan and Indira J Parekh, A refection on the Indian Women on the entrepreneurial world, W.P. no , 2005- 08-07August 2005.IIMA Working Series
- Chen, M.A(1995), ''Supporting women's work around the world'', SEEDS New York, Thefeminist press. Economic review, Kerala State Planning Board, Various issues
- Schumpeter, J.A, The Theory of Economic Development, Cambridge, Massachusetts, Harvard University Press, 1949

THE IMPACT OF INTELLECTUAL CAPITAL, GREEN INNOVATION WITH SUSTAINABILITY AS A MEDIATION ON FINANCIAL PERFORMANCE WITH REFERENCE TO I.T COMPANIES IN INDIA.

Dr. R.A.Rabika Begum , Ms.S.Nishkala

* Research Guide, Associate Professor & Head, M.Com Programme, M.O.P Vaishnav College for Women (Autonomous), Chennai.

**Research Scholar, Department of Commerce, M.O.P Vaishnav College for Women (Autonomous), Chennai.

E-Mail ID*:nishkala2023@gmail.com Contact Number: 9789822228

ABSTRACT

On a rapidly warming planet, companies across sectors are transforming their business models to make a sustainable future which can protect people, planet, and profits. The company's intangible assets can optimize the company's efficiency in the VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) environment. To achieve the desired state of corporate performance and to meet the expectations of kinds of stakeholders, most of the companies pays attention to green innovation in their business process. Furthermore to gain and maintain investor confidence, some companies have disclosed in their annual reports about its intellectual capital (IC) as one of their business strategy to enhance their company's reputation. The main components of intellectual capital can be classified into three components such as human capital, structural capital, and relationship capital. Intellectual Capital plays a pivotal role particularly in case of a knowledge intensive industries like I.T, Finance and Banking. Intellectual capital (IC) is an intangible resource along with tangible resources, help companies to gain a sustained competitive advantage in the market.

Keywords:
human capital, structural capital, relational capital, intellectual capital, sustainability .

1. INTRODUCTION

On a rapidly warming planet, companies across sectors are transforming their business models to make a sustainable future which can protect people, planet, and profits. The company's intangible assets can optimize the company's efficiency in the VUCA (Volatility, Uncertainty, Complexity, and Ambiguity) environment. To achieve the desired state of corporate performance and to meet the expectations of kinds of stakeholders, most of the companies pays attention to green innovation in their business process. Furthermore to gain and maintain investor confidence, some companies have disclosed in their annual reports about its intellectual capital (IC) as one of their business strategy to enhance their company's reputation. The main components of intellectual capital can be classified into three components such as human capital, structural capital, and relationship capital.

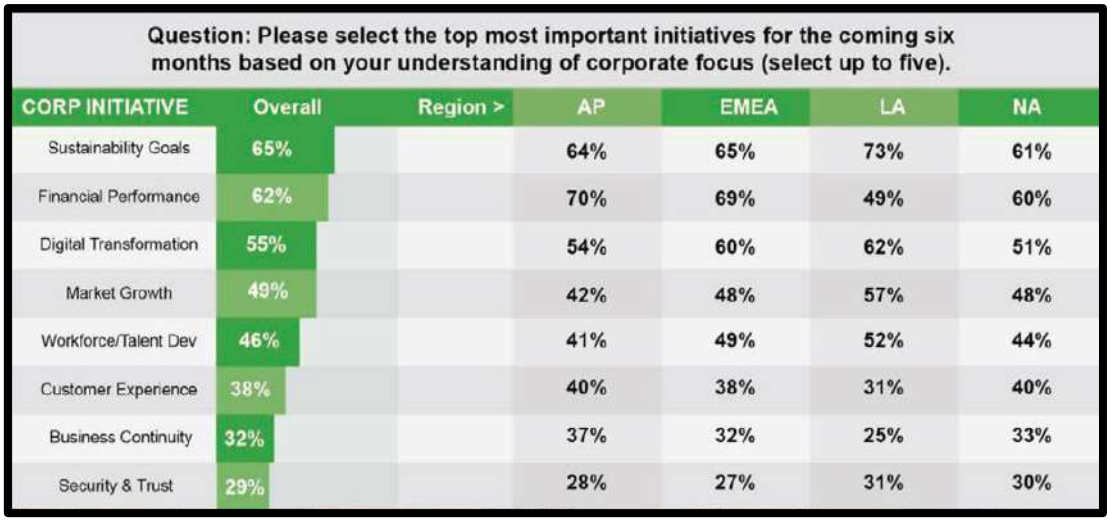
2. NEED FOR THE STUDY

Intellectual Capital plays a pivotal role particularly in case of a knowledge intensive industries like I.T, Finance and Banking. Intellectual capital (IC) is an intangible resource along with tangible resources, help companies to gain a sustained competitive advantage in the market.

Honeywell Environmental Sustainability Index: The Results

In March 2023, the Futurum Group in partnership with Honeywell (a global leader in energy and climate transition solutions) released its 1Q 2023 Environmental Sustainability Index regardless of the public perception that many corporations are "green washing" their environmental efforts, a majority of organizations are extremely successful in achieving their goals over the past 12 months. The global study surveyed more than 750 business leaders involved in the sustainability process, in which sustainability corporate initiative ranks first with 65% than financial performance, digital transformation and market growth as mentioned in table 1.

TABLE 1: HONEYWELL ENVIRONMENTAL SUSTAINABILITY INDEX



Question: Please select the top most important initiatives for the coming six months based on your understanding of corporate focus (select up to five).

CORP INITIATIVE	Overall	Region >	AP	EMEA	LA	NA
Sustainability Goals	65%		64%	65%	73%	61%
Financial Performance	62%		70%	69%	49%	60%
Digital Transformation	55%		54%	60%	62%	51%
Market Growth	49%		42%	48%	57%	48%
Workforce/Talent Dev	46%		41%	49%	52%	44%
Customer Experience	38%		40%	38%	31%	40%
Business Continuity	32%		37%	32%	25%	33%
Security & Trust	29%		28%	27%	31%	30%

Sustainability sits at the top of corporate priorities over the next six months. Futurum Research

According to IBM Sustainability Consumer Research in 2022, survey of 16,000 global consumers in 10 major economies ((Brazil, Canada, China, France, Germany, India, Mexico, Spain, United Kingdom, United States) found that more than half (51%) of respondents say environmental sustainability is more important to them today than it was 12 months ago. It was also found that, on average, 3 in 5 (64%) consumers say products branded environmentally sustainable or socially responsible made up at least half of their last purchase. Also this results is even higher in India with 75% and China 76%.**Building a sustainable future requires huge investments which presents a big opportunity for business growth.** As sustainable companies performs more and more financially appealing, the portion of people investing in these organizations continues to rise.

However only a paucity of research studies is being available in measuring the effects of intellectual capital on the sustainability success of firms. Therefore, this study aims to determine the effect of sustainability as a mediator on intellectual capital, green innovation, and the financial performance of the I.T Companies.

3. REVIEW OF RELATED LITERATURE

The literature review analyses and summarizes relevant academic sources, including books, journals, company reports, and scholarly papers. The literature review studies suggests that measuring Intellectual Capital can boost and improve their business performance, resulting in sustainability in the market.

Definition and Classification of Intellectual Capital

In empirical studies, the term intangible or intellectual capital refers to knowledge of a business organization. The field of study into intellectual capital (IC), also known as intangible assets (IAs), has been ongoing since the early 1960's.

- **John Kenneth Galbraith (1969)** an economist, introduced the concept of intellectual capital. Galbraith believed that intellectual capital is not only an intangible asset but also an ideological process.
- **Sveiby (1997)** provided one of the most succinct definition of intellectual capital as "useful package of knowledge." He is the first from the non-accounting perspective to propose the classification of IC, and concluded that intangibles can be categorized into three sub-categories as:
  (1) employee (individual) competence
  (2) internal structure and
  (3) external structure.
- **Stewart (2000)** defined Intellectual Capital (IC) as new wealth of organizations. Even though Stewart accepted the classification of Sveiby, he renamed them as:
  (1) human capital
  (2) structural capital and
  (3) customer capital respectively.
- **International Accounting Standards (38 revised)** defines an identifiable Intangible Assets (IA) as a "non-monetary asset without physical substance held for use in the production or supply of goods or services, for rental to others, or for administrative purposes."

Definition of Green Innovation

- A number of definitions exist for the topic green innovation, and the first one is given by Fussler and James (1996) who defined Eco-Innovations as "New products and processes which provide value to business and customers but significantly reduce environmental impacts".

Definition of Sustainability

- In 1987, the United Nations Brundtland Commission defined sustainability as "meeting the needs of the present without compromising the ability of future generations to meet their own needs."

Effect of Intellectual Capital on Company's Financial Performance

- **Xu and Li (2022)** explained that IC could improve company performance in the Chinese manufacturing sector. They explained that profit is influenced by physical capital, human capital, and structural capital.

Effect of Green Innovation on Company's Financial Performance

- **Wang, Li, Li, & Wang, (2021); Zheng et al., (2022)** revealed Innovation is regarded as one of the factors affecting competitiveness and profitability of the companies.

Effect of Sustainability on Company's Financial Performance

- **Das and Rangarajan (2020)** researched 200 Indian SMEs to look at collaborative synergies and government policy initiatives that impact the sustainability performance of small and medium enterprises. The research found that improving sustainability performance can encourage sustainable business growth. These results indicate that the sustainability performance of SMEs has a positive effect on company growth.

Effect of Intellectual Capital on Sustainability of Companies

- **Yong et al (2022)** revealed that relational capital, part of IC, can improve sustainability (economic, environmental, and social performance).
- **Vale et al (2022)** observed IC, combined with other elements of innovation, can improve the process of delivering information, which will positively affect environmental and social performance.

Effect of Green innovation on Sustainability of Companies

- **Ullah, Ahmad, Rehman, and Fawad (2021)** researched green innovation and sustainability in the SME sector in Pakistan. Their research revealed that green innovation positively affects Sustainable Development Goals (SDGs), community development, and environmental activities.

Effect of Intellectual Capital, Green Innovation, Sustainability on Company's Financial Performance

- **Kengatharan (2019), Wang et al (2021**) discovered an indirect association between intellectual capital and financial performance where this research proposed sustainability as a mediator.

- **Shahla Asadi et al (2020) Elzek et al(2021) and Li et al (2020**) explored a well-implemented green innovation is a strategic step that has been proven to increase sustainability which can then improve financial performance (Das & Rangarajan, 2020; Yun et al., 2020). Thus this study proposes sustainability as a variable that mediates the relationship between green innovation and financial performance.

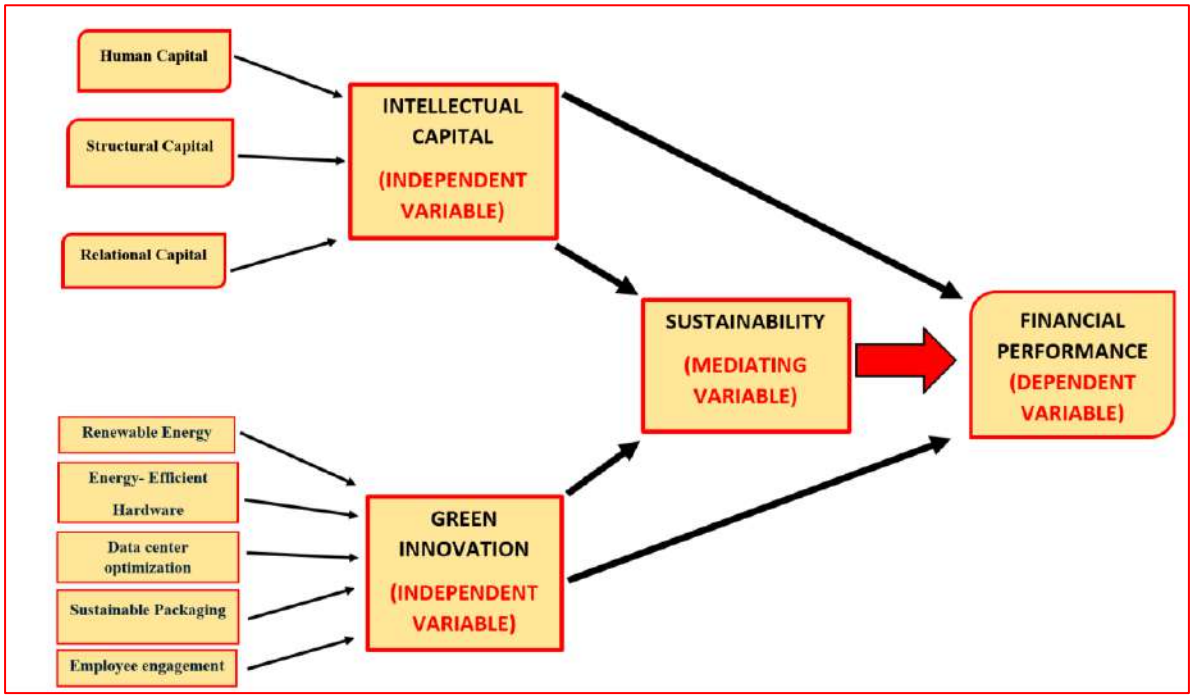
4. RESEARCH GAP

Investment in the practices of environmental management is a new direction to gain competitiveness and sustainable development is a key to future competitiveness for the companies.

The concept of intellectual capital has not yet been widely popular in India. There exists a gap on the influence of intellectual capital and sustainability on the financial performance with reference to Indian companies. Even though the results of various research studies conducted in foreign countries are not equivocal, the majority of the studies have confirmed the positive relationship between IC and company financial performance considering sustainability as a mediating factor.

Against this background, this study aims to test and show empirical evidence regarding the effect of intellectual capital and green innovation on company performance mediated by sustainability using primary data.

PROPOSED RESEARCH MODEL



5. RESEARCH OBJECTIVE

1. To examine the effect of intellectual capital on the financial performance of companies.
2. To identify the factors contributing to intellectual capital in the I.T sector.
3. To identify the elements contributing to green innovation in the I.T sector.
4. To study the effect of green innovation on the financial performance of companies.
5. To analyze the effect of sustainability on the financial performance of companies.
6. To explore the effect of intellectual capital mediated by sustainability on the financial performance of companies.
7. To examine the effect of green innovation mediated by sustainability on the financial performance of companies.
8. To explore the mediating role of sustainability in the relationship between intellectual capital and green innovation on the financial performance of companies.
9. To decipher the relationship between intellectual capital, green innovation, sustainability and financial performance of companies.

HYPOTHESIS OF THE STUDY

H1: Intellectual capital has a positive effect on the financial performance of I.T companies in India.
H2: Green Innovation has a positive effect on the financial performance of I.T companies in India.
H3: Sustainability has a positive effect on the financial performance of I.T companies in India.
H4: Intellectual capital has a positive effect on the sustainability of I.T companies in India.
H5: Green innovation has a positive effect on the sustainability of I.T companies in India.
H6: Sustainability mediates the relationship between intellectual capital and financial performance.
H7: Sustainability mediates the relationship between green innovation and financial performance.

6. RESEARCH METHODOLOGY

The study is descriptive in nature and depends on both primary and secondary data.

- **Study Area for Primary Data Collection**

The present research is carried out in Chennai which is the largest Metropolitan city in Tamil Nadu. As there is a large number of Information Technology Companies in Chennai, the researcher has chosen this place as ideal for conducting the current study.

- **Variable selection**

  The key variables used in the study are intellectual capital (human capital, structural capital, and relational capital), green innovation, sustainability and financial performance is taken as dependent variable.

- **Scaling Technique in the Questionnaire**

  - The questionnaire used comprises both optional types and Statements on Likert's 5-point scale.
  - The responses of these sections are obtained from the employees of I.T Sector on the 5 point scale, which ranges as follows: **5 – Strongly agree 4 – Agree 3 – Neutral 2 – Disagree 1 – Strongly Disagree**

- **Questionnaire Design**

  - The primary data is collected using a well-structured questionnaire that has been designed based on the validated scale for the Independent variable, Dependent variable, and Mediating variable.

7. DATA ANALYSIS METHOD ANS RESULTS

This study uses structural equation modeling (SEM) to test the research hypothesis. Before testing the hypothesis, validity and reliability tests have been conducted to see whether the research instrument data met the model testing requirements. Hypothesis testing is conducted using SEM analysis.

Measurement Model Assessment: Confirmatory factor analysis (CFA) is important to ensure the validity and reliability of data using convergent validity, discriminant validity, and internal consistency. The average variance extracted (AVE) and standardized factor loadings (SFL) for each item were used to check for convergent validity. Based on the CFA results in Table 1, it can be seen that the AVE value is above 0.5 and the construct reliability (CR) value is above 0.7 for each variable.

Table : 1 Reliability and validity analysis.

Construct	Items	SFL	Cronbach's alpha	CR	AVE
Intellectual capital	IC1	0.737	0.900	0.887	0.612
	IC2	0.748			
	IC3	0.765			
	IC4	0.823			
	IC5	0.835			
Green innovation	GI1	0.932	0.909	0.940	0.757
	GI2	0.893			
	GI3	0.778			
	GI4	0.782			
Sustainability	SS1	0.836	0.920	0.918	0.691
	SS2	0.846			
	SS3	0.777			
	SS4	0.871			
	SS5	0.822			
Financial performance	FP1	0.918	0.909	0.899	0.693
	FP2	0.918			
	FP3	0.754			
	FP4	0.720			

Structural Model Assessment: Furthermore, the research hypothesis was calculated using SEM with 5,000 bootstrapped samples and a 95% confidence interval (CI). The hypothesis testing results are presented in Table 2.

Table : 2 Hypotheses testing.

Hypotheses	Path	Coefficient	p-value	Result
H1	IC → FP	0.335	***	Supported
H2	GI → FP	0.151	***	Supported
H3	SS → FP	0.408	***	Supported
H4	IC → SS	0.729	***	Supported
H5	GI → SS	0.130	***	Supported

Note: *** Significance at the level 0.001 ($p < 0.001$); IC, intellectual capital; GI, green innovation; SS, sustainability; FP, financial performance.

Table 4 shows the results of testing the direct influence of intellectual capital, green innovation, and sustainability on financial performance. Intellectual capital has a positive and significant effect on financial performance ($\beta = 0.335$, $p < 0.001$), so the first hypothesis of this study is accepted. Green innovation is known to have a positive and significant effect on financial performance ($\beta = 0.151$, $p < 0.001$), indicating that H2 is also accepted. Sustainability has a positive and significant effect on financial performance ($\beta = 0.408$, $p < 0.001$), which indicates that H3 is accepted. The test result shows that intellectual capital has a positive and significant effect on sustainability ($\beta = 0.729$, $p < 0.001$), indicating that H4 is accepted. Meanwhile, green innovation is known to have a positive and significant effect on sustainability ($\beta = 0.130$, $p < 0.001$), which indicates that H5 is accepted. Table 3 presents the results of testing the indirect

influence of intellectual capital and green innovation on financial performance. Furthermore, the results show that the relationship between financial literacy and financial performance is mediated by innovative behaviour (β = 0.297, p < 0.001), thus indicating that H6 is accepted. It can be seen that the relationship between green innovation and financial performance is mediated by sustainability (β = 0.053, p < 0.05), thus indicating that H7 is accepted.

Table : 3 Hypotheses testing of mediator.

Hypothesis	Path	Coefficient	ρ value	Result
H6	IC → SS → FP	0.297	***	Supported
H7	GI → SS → FP	0.053	0.018	Supported

Note: *** Significance at the level 0.001 ($p < 0.001$); significance at the level 0.05 ($p < 0.05$); IC, intellectual capital; GI, green innovation; SS, sustainability; FP, financial performance.

CONCLUSION:

The results of this study have provided evidence that intellectual capital and green innovation are positively related to financial performance. This research also supports sustainability as a mediator of the relationship between intellectual capital, green innovation, and financial performance.

Limitation

- The present study is restricted to only I.T Sector in India.
- This study is constrained with a sample size of Employees belong to I.T Sector.

SYNDICATE – The Journal of Management
Volume 25, March 2025, ISSN 2278-8247

BYTES TO BAGS: ANALYZING AI's ROLE IN TRANSFORMING ONLINE SHOPPING THROUGH DATA PERSONALIZATION

Dr.N.Venkataramanan and S.Keerthana

[1] Principal and Associate Professor, Department of commerce, Agurchand Manmull Jain College, meenambakkam, Chennai 600114

Email address: principal@amjaincollege.edu.in

[2] Assistant Professor, Department of commerce, Agurchand Manmull Jain College, meenambakkam, Chennai 600114

Email address: keerthana.s@amjaincollege.edu.in

ABSTRACT

In the intersection of commerce and digital innovation, online shopping assumes a pivotal role, skillfully orchestrating a symphony of consumer convenience.The application of AI in e-commerce has garnered interest among business scientists, consumers and experts. The purpose of this article is to identify the impact of data personalization on the e-commerce industry, including the emergence of new business models, increased competition, and changes in consumer behavior.The primary data were collected using the structured questionnaire from 100 respondents and it was assessed through z-test and Likert scale analysis.The study accentuates the nuanced influence of AI- driven data personalization in online shopping and it unveils concerns regarding privacy and algorithmic bias.

Key words: consumers, AI,data personalization, online shopping.

INTRODUCTION

Artificial intelligence (AI) has become a transformative force in the online shopping space, reshaping how consumers interact with digital markets. One of the key aspects of this transformation is the integration of AI-powered data personalization, which tailors the online shopping experience to the unique preferences and behaviors of individual users. In today's dynamic e-commerce landscape, where competition is fierce and consumer expectations are

high, harnessing the power of AI to analyze massive data sets has become a strategic imperative for companies that want to stay ahead. Exploring numerous avenues, this article delves into how AI is spearheading the transformation of online shopping through data personalization. From personalized product recommendations and dynamic pricing to customer segmentation and enhanced security measures, examined how AI technologies are reshaping the e-commerce landscape and driving a more personalized, engaging and secure online shopping experience for consumers.

REVIEW OF LITERATURE

Ebba Viberg, Louise Hallden(2023)"Do consumers trust it?- Exploring consumers' trust inartificial intelligence personalization", Linnaeus University Tet, this research paper sheds light on consumers' trust in AI-driven personalization. Primarily directed at companies currently utilizing or considering the implementation of AI technologies for consumer interactions, the research offers valuable insights. Companies can leverage these findings to comprehend the factors influencing consumers' trust in AI personalization, providing guidance on how to consider various aspects effectively.[1]

Pan Cao (2023), "Research on the impact of artificial intelligence-based e-commerce personalization", this article discusses the development of a personalized e-commerce recommendation model built on multiple intelligences. The model incorporates an intelligent Q-learning algorithm to optimize the recommendation module, ultimately aiming to enhance the accuracy of personalized recommendations.[2]

Zimmermann, R., Mora, D., Cirqueira, D., Helfert, M., Bezbradica, M., Werth, D., Weitzl, W.J., Riedl, R. and Auinger, A. (2023), "Enhancing Brick "In-store shopping experience with an augmented reality shopping assistant application leveraging personalized recommendations and explainable artificial intelligence," this article shows that a shopping assistant artifact offers a good way to improve users' shopping experience on their path to purchase, and how AI can help customers by providing valuable information (e.g. explainable recommendations) for decision-making throughout the customer's buying journey.[3]

Ayse Begum Ersoy(2022), "Artificial Intelligence (AI) applications in on-lineshopping in India",this paper identifies the loyalty of a customer towards an online shopping experience lies in various AI applications tools such as chatbots, voice assistants, etc. AI Application use

in India enhances the customer experience in their online shopping, thus leading to loyalty and further suggesting that consumers will continue shopping online after using AI applications.[4]

Cloarec, J. (2022), "Privacy controls as an information source to reduce data poisoning in artificial intelligence-powered personalization",the measures show that the effect of privacy controls as a source of information on the falsification of information is fully mediated by vulnerability and self-efficacy. The author provides insights for managers regarding the significant trade-off between reducing consumer vulnerability and maintaining the usefulness of the data.[5]

Andrew Pearson (2020),"Personalisation the artificial intelligence way", this article emphasizes that personalization not only enhances the customer experience but also provides businesses with powerful data to build optimization models, reducing costs and increasing productivity. Personalization has become a crucial element for today's retailers, who are fiercely competing to stay relevant in the hearts and minds of shoppers. Pearson highlights the significance of understanding which customers are likely to convert or become repeat customers.[6]

RESEARCH METHODOLOGY

A structured questionnaire was used to collect the primary data. A convenient random sample of 100 respondents was taken, the respondents were asked to fill the close ended questionnaire. Secondary data has been collected from journals, Magazines, internet and several other documented materials. The primary data was analyzed using the z - test and likert scale.

OBJECTIVE OF THE STUDY

1) **To examine the ways in which companies are using data and AI to personalize the online shopping for individual consumers.**

   H1 : Implementing advanced data analytics and AI driven personalization techniques leads to enhanced user satisfaction and increased conversion rate.

2) **To identify the benefits of personalization in online shopping including increased customer engagement and loyalty.**

   H2 : Personalization enhances customer engagement and loyalty**.**

3) **To investigate the potential risks and drawbacks of personalization in online shopping, such as privacy concerns, algorithm bias and over reliance on automation.**

   H3: Implementing personalized online shopping raises privacy concerns and algorithmic bias.

LIMITATION OF THE STUDY

The sample taken for the research from 100 consumers. There would be subjectivity bias of the respondents. Since, the part of the study was done with the help of a questionnaire. The time limit for the study is limited. The result could vary with a different sample size.

DATA ANALYSIS AND INTERPRETATION

The paper purports to study the impact of artificial intelligence in transforming online shopping through data personalization. The strategic role of ai-based e-commerce personalization is examined, including considerations of privacy issues, customer engagement, and loyalty. This research delves into how AI contributes to recognition and perception in the dynamic context of online shopping.

H1 : Implementing advanced data analytics and AI driven personalization techniques leads to enhanced user satisfaction and increased conversion rate.

TABLE 1 : Recommendations for products or services provided by AI using browsing history

Proposition	**Favourable responses**	**Unfavourable responses**	**Total**
AI recommends products or services based on browsing history.	77	23	**100**

Source : Primary data

Applying the Z test of Attributes (Test of one population proportion), at 5% level of significance, the z value comes to 5.4 (Null hypothesis is not rejected). Therefore, it is concluded that AI recommends products or services based on browsing history.

TABLE 2 : Spontaneous purchases prompted by AI-recommended products or services

Proposition	**Favorable responses**	**Unfavourable responses**	**Total**
Likely to buy unplanned products or services recommend by AI.	66	24	**100**

Source : Primary data

Applying Z test of Attributes (Test of one population proportion), at 5% level of significance, the z value comes to 3.4 (Null hypothesis is not rejected).Therefore, it is concluded that consumers likely to buy unplanned products or services recommended by AI.

H2 : Personalization enhances customer engagement and loyalty.

TABLE 3: AI saves both cost and time in online shopping

Proposition	**Favourable responses**	**Unfavourable responses**	**Total**
AI support enables online shopping to save both time and cost.	83	17	**100**

Source : Primary data

Applying Z test of Attributes (Test of one population proportion), at 5% level of significance, the z value comes to 6.6 (Null hypothesis is not rejected). Therefore, with AI assistance, online shopping becomes a time and cost- saving endeavour.

TABLE 4: Enhancement of online shopping achieved through sending personalized emails and coupons

Proposition	**Favourable responses**	**Unfavourable responses**	**Total**

Sending Personalized emails and coupons enhances online shopping.	63	37	**100**

Source : Primary data

Applying Z test of Attributes (Test of one population proportion), at 5% level of significance, the z value comes to 2.6 (Null hypothesis is not rejected). Therefore, with AI assistance, online shopping is enhanced through personalized emails and coupons.

H3: Implementing personalized online shopping raises privacy concerns and algorithmic bias.

TABLE 5: Trade off between data personalization and privacy

Proposition	**Favourable responses**	**Unfavourable responses**	**Total**
Balancing data personalization and privacy involves navigating trade-offs.	60	40	**100**

Source : Primary data

Applying Z test of Attributes (Test of one population proportion), at 5% level of significance, the z value comes to 2 (Null hypothesis is not rejected). Therefore, data personalization raises concerns on privacy.

TABLE 6: Experienced algorithmic bias in online shopping

Proposition	**Favourable responses**	**Unfavourable responses**	**Total**
Experienced algorithmic bias while shopping online shopping	78	22	**100**

Source : Primary data

Applying Z test of Attributes (Test of one population proportion), at 5% level of significance, the z value comes to 5.3 (Null hypothesis is not rejected). Therefore, encountered algorithmic bias during online shopping .

TABLE 7 The statements are also applied on a Likert scale

Favourable factors	**SA**	**A**	**N**	**SDA**	**DA**
Implementing ethical frameworks and guidelines for personalise recommendation.	42	40	17	0	1
Personalization data raises privacy concern and algorithm bias	40	42	17	0	1
Providing consumers with the ability to modify their own data.	35	28	10	13	10
AI Personalized recommendations can help business differentiate themselves in crowded market.	37	40	20	3	0
AI Personalized data can help business build stronger customer engagement.	35	47	2	9	7
The cost of implementing data personalization technology may prevent smaller business from competing.	60	30	10	0	0

Source: Primary data

Favourable factors	**Mean score**	**Remarks**
Implementing ethical frameworks and guidelines for personalise recommendation.	4.22	Agree

Personalization data raises privacy concern and algorithm bias	3.74	Agree
Providing consumers with the ability to modify their own data.	4.5	Strongly agree
AI Personalized recommendations can help business differentiate themselves in crowded market.	4.11	Agree
AI Personalized data can help business build stronger customer engagement.	3.53	Agree
The cost of implementing data personalization technology may prevent smaller business from competing.	4.22	Agree

(Weights assigned as 5 for SA, 4 for A, 3 for Neutral, 2 for DA and 1 for SDA for summation)

In general, as inferred from the above, consumers accept that companies should implement ethical frameworks and guidelines for personalized recommendations. This includes ensuring that algorithms are transparent and providing the ability to modify their own data, which, in turn, leads to customer engagement.

FINDINGS

HYPOTHESIS	**ACCEPTED/REJECTED**
H1: Implementing advanced data analytics and AI driven personalization techniques leads to enhanced user satisfaction and increased conversion rate.	**Accepted**
H2: Personalization enhances customer engagement and loyalty.	**Accepted**
H3:Implementing personalized online shopping raises privacy concerns and algorithmic bias.	**Accepted**

CONCLUSIONS

AI's integration is revolutionizing customer experiences through tailored strategies such as email notifications and coupons, elevating consumer loyalty. However, the pivotal challenge lies in maintaining a delicate equilibrium between personalized engagement and privacy considerations. Businesses that proactively address privacy concerns and eliminate algorithm biases are positioned to shape the future of e-commerce. By navigating these challenges adeptly, they not only meet but exceed consumer expectations, establishing a paradigm for a trustworthy and innovative online retail landscape. This synergy between AI-driven personalization and ethical considerations propels businesses towards sustained success in the dynamic digital marketplace.

REFERENCES

[1] Ebba Viberg, Louise Hallden(2023) “Do consumers trust it?- Exploring consumers trust inartificial intelligence personalization”, Linnaeus University Tet.

[2] Pan Cao(2023), “Research on the impact of artificial intelligence-based e-commerce personalization”,International Journal of Intelligent Networks, Vol. 4, ,pp 193-201.

[3] Zimmermann, R., Mora, D., Cirqueira, D., Helfert, M., Bezbradica, M., Werth, D., Weitzl, W.J., Riedl, R. and Auinger, A. (2023), "Enhancing brick-and-mortar store shopping experience with an augmented reality shopping assistant application using personalized recommendations and explainable artificial intelligence", Journal of Research in Interactive Marketing, Vol. 17 No. 2, pp. 273-298

[4] Ayse Begum Ersoy(2022), “Artificial Intelligence (AI) applications in on-lineshopping in India”,African Journal of Marketing Management,Vol. 14(1), pp 1-10.

[5] Cloarec, J. (2022), “Privacy controls as an information source to reduce data poisoning in artificial intelligence-powered personalization”, Journal of Business Research, Vol.152,

pp.144–153.

[6] Andrew Pearson (2020),“Personalisation the artificial intelligence way”, Journal of Digital & Social Media Marketing,Vol. 7 No. 3 ,pp 245–269.

SYNDICATE – The Journal of Management
Volume 25, March 2025, ISSN 2278-8247

DIGITAL INNOVATIONS IN SCALING OF INTERNATIONAL BUSINESS IN THE HYDROGEN ECONOMY

Dr. K. CHITRADEVI, Assistant Professor, Department of International Business,

Alagappa University

Dr. AV. KARTHICK, Teaching Assistant, Department of Computational Logistics, Alagappa University

avk.mba23@gmail.com, chitradevik@alagappauniversity.com

ABSTRACT

To get a competitive advantage in today's uncertain economic environment, innovation and global business are critical. To compete globally, a company today seeks innovation both locally and internationally. As a result, incorporating this concept into the strategy of multinational organizations is a big issue today. Given the turbulence of the modern business environment and the risks faced, will ongoing assessment and enhancement of current activities and processes provide the results required? Alternative corporate, organizational, and governance paradigms, as well as more transformational tactics, are required. Scaling, or continual rapid expansion that results in a viable business model, typically involves a clear global business component. Nonetheless, there hasn't been much research on scaling and scaleups in multinational companies, as well as their cross-border management and structure. To further comprehend and expound on their distinctive global business features, differentiate scaling in three contexts: initiative, organization, and ecosystem. The hydrogen economy (HE) is viewed as a new industry that has the potential to reduce energy consumption and emissions while simultaneously stimulating the economy and creating new jobs.

Keywords: innovation, prospects, scaling, hydrogen economy

INTRODUCTION

Innovation, as the foundation of growth, helps organizations endure market instability and prepares them for long-term success. Though incredibly difficult to achieve (Fernandez Ignacio Aldeanueva, 2023), business model innovation may be a route to competitive advantage if the model is sufficiently distinctive and difficult for both incumbent companies and entrants to replicate. Many creative firms have pushed the use of open search strategies, which comprise the use of a range of external players and sources to aid them in achieving

innovation. The goal of this systematic study is to advance our understanding of the relationship between innovation and international business, in addition to identifying innovation tendencies for corporations to recognize the opportunities and challenges of this area's development in the context of international business.

This research (Coulson-Thomas, Colin, 2023) investigates whether company leadership teams and boards should access and analyze their position in terms of excellence and innovation regularly. Directors and CEOs should encourage questioning, analysis, and investigation. For example, supply chain synergy should be exploited to enhance company excellence.

Because many scaling projects expressly integrate cross-border management and organization, scaling is an important phenomenon in the context of International Business (IB). At the macro level, scaling typically gives access to global markets, new resources, and significant assets, creating worries about speedier internationalization and rapid international expansion. The most recent advancements in digitalization have prompted firms to hyper-scale, causing them to access and traverse global markets at a considerably faster rate. As a result, scaling (Tippmann, Esther, et al., 2023) has become commonplace. The international scaling of a whole corporation is described by its steady, rapid expansion to offer its viable business model across numerous foreign markets. A company's choice to expand worldwide may be motivated by a desire to rapidly expand its user or customer base across many countries. Such a global scale may entail a few national markets.

REVIEW OF LITERATURE

Time and qualitative research are both vital in comprehending International Business (IB) difficulties. Time is important to the human experience. It is inextricably linked "with circumstances, events, and processes and it accounts for how people interact with the past, present, and future". They identified (Hoorani, Bareerah Hafee, et al., 2023) to cover a gap in IB's existing understanding of temporal thinking. We show that connecting with time is simply one part of temporal theorizing; being sensitive to context and theorizing output is also required.

Think about the four sorts of temporal theorizing: temporal variation, temporal accumulation, temporal evolution, and temporal narrative. A theoretical approach contributes

to a better understanding of how to engage with pluralistic time. It is critical to emphasize that the four temporal theorizing methods should not be viewed as fixed categories or models.

Decoupling (Witt, Michael A., et al., 2023), the process of decreasing dependency between two nations or groupings of countries, has been occurring between China and the United States and is likely to accelerate. This has major implications for IB and MNE strategy and management. Top management of multinational corporations (MNCs), social scientists, and international business scholars are all interested in de-globalization and decoupling. De-globalization has been defined as "the process of weakening interdependence among nations" with the global scale serving as the unit of analysis. Decoupling as a consequence refers to the process of reducing dependency between two nations or groups of states.

This research (Dou, Yi, et al., 2023) investigates economic and environmental initiatives for higher education development to determine the stages and paths of technological innovation before recognizing the possibilities and issues for higher education. A thorough assessment of the national plans and accompanying policies of major nations, including Japan, the United States, the European Union, and China, is conducted to determine the differences among the world's major markets. This paper outlines crucial characteristics that influence HE and highlight essential HE-influencing components, providing decision-makers with a helpful starting point for thinking about HE promotion strategies.

International business and innovation research has amassed a significant body of knowledge that has aided in understanding challenging international management challenges in a variety of international contexts. However, prior research has not paid enough attention to the multidimensional dimensions of invention and ambidexterity. Individuals, businesses, and society are increasingly reliant on innovation to thrive in the global environment of volatility, uncertainty, complexity, and ambiguity (VUCA). In dynamic competitive contexts, the capacity and capability for innovation is a critical differentiator for firms.

Versatile Aspect of Innovation and International Business in HE

When an organization expands across locations, a central coordination and control tension emerges between the need to capitalize on knowledge and preserve the interdependencies built into its current, successful business model by standardizing and replicating it in new locations and the need for adaptation to account for context-specificity of knowledge and its obsolescence or value-variation over time.

Innovation is vital for enterprises, international commercial operations, and society at large (Liu, Yipeng, et al., 2022). The innovator's dilemma depicts how freshly formed company ventures, generally local ones fueled by innovation, can compete with entrenched international corporations. Reverse innovation highlights the strength of emerging and transitional economies by implying that locally originated inventions may have global significance and dominant value in advanced economies. The growth of digital technology and social media has also increased organizations' strategic possibilities for regionally redistributing activities and creating and capturing value in creative ways. Global talent mobility may teach, implant, and inspire creativity and new business and management techniques across geographical borders.

For almost a decade, academics in the international business sphere have been paying close attention to Industry 4.0. For almost a decade, the development of the Fourth Industrial Revolution, or Industry 4.0, has been cited in management and economic literature as a significant driver of company change. The phrase "fourth industrial revolution" was coined in 1988 to describe the processes that transform invention into innovation as a result of the inclusion of scientists in production teams. At the Hannover Fair, the phrase "Industry 4.0" was used with this meaning for the first time to boost German enterprises' competitiveness. Managers should consider that enterprises embracing Industry 4.0 may internationalize quicker and sooner as a result of remote access to foreign market information, improved global value chain management, and more effective interactions with customers, employees, and suppliers.

Six emerging topics are identified in this research. Changes in the role of ownership in favor of network expansion and platformization phenomenon, international trade evolution moving more towards exchanges of information goods, differences in country characteristics looking at the potential capability of MNEs from emerging countries to invest faster in Industry 4.0, differences in firm characteristics looking at the international expansion of Industry 4.0. This study (Castagnoli, Rebecca, et al., 2022) demonstrates a significant reciprocal link between Industry 4.0 adoption and internationalization, which has been addressed by current literature in three primary research streams: competitive, organizational, and reverse causality. The competitive research stream focuses on changes in the role of distance, international competitiveness, and company site decisions as a result of Industry 4.0 in two distinct ways depending on the technologies used. Three areas are identified: internationalization process and pace, new forms of distance, and new forms of ownership.

Digitization has created tremendous new opportunities for MNEs to interact with global markets, resources, and partners, as well as to pursue innovation and value creation in international markets (Nambisan, Satish, 2022). While the distinct characteristics of digital technologies and digital assets embody an expansive and promising global landscape for innovation, MNEs' success in navigating this landscape will be dependent on the characteristics of the foreign market context, an issue that has received little attention in both digital innovation and IB literature.

According to this paper (Jaklic, Andreja, et al., 2020), research on Central and Eastern Europe (CEE) in the field of international business (IB) has expanded dynamically since the fall of the Iron Curtain and is now regarded as a forerunner of the growing and diverse research on emerging markets, as well as a research springboard for investigating institutions' influence on business. Making genuine contributions by being at the forefront of learning about globalization, or the recent anti-globalization and disintegration tendencies and their effects on people, organizations, and societies, necessitates ongoing monitoring of IB complexity and increased collaboration with business and researchers across disciplines, followed by rich writing, experimental theories, and methodologies.

The current global economy is characterized by volatility, uncertainty, complexity, and ambiguity (Buckley, Peter J., 2019). As such, they must be addressed by MNE executives, and IB professors must be able to explain their significance and scope. This is a difficult undertaking since modeling is easiest when we can ignore these influences and function in a non-VUCA parallel reality. This is insufficient, and its modeling, thinking, and analysis must attempt to address the aspects of VUCA.

Separating a "risk" element where probabilities are known (or assured) from uncertainty, using actual choices as a dynamic managerial means of coping as greater amounts of knowledge become available, collecting data as an antidote to uncertainty, assuming the possibility of rational action, and choice theoretic modeling are all techniques that aid in confronting and analyzing a VUCA world.

IB scholars have underused the event study approach (Eden, Lorraine, et al., 2022). One probable explanation is that IB researchers see the approach too narrowly as if it were just meant to analyze stock market reactions. Examined numerous significant methodological issues and provided practical solutions to boost ESM use and flexibility in calculating CARs in IB contexts.

There are various policy proposals based on our in-depth examination of corruption in international business (Bahoo Salman et al., 2020). To begin, robust international rules are required to mitigate the detrimental effects of corruption on foreign direct investment, commerce, business, and enterprises. Second, corporations are the primary participants in international trade. As a result, managers and policymakers must address corruption while designing organizational structures and developing methods to improve operational efficiency and performance. Third, to combat corruption in international commerce, organizations must build an organizational anti-corruption architectural system. Finally, corruption calls into question certain important assumptions of existing management theories. Scholars must test and enhance current theories by focusing on corruption as a major issue in international business.

CONCLUSION

Industry 4.0 alters certain sectors in the sphere of international competitiveness and organization, and international business influences the options and possibilities presented by Industry 4.0 adoption. There is a need for more theoretical research on the linkages between international business and Industry 4.0, particularly in terms of location selection, global value chains, international organizations, and international commerce. HE advocates would also face challenges like as technological bottlenecks, competition with optional technologies, and interplay with technology agendas.

REFERENCES

1. Fernandez, Ignacio Aldeanueva. "Innovation and international business: A Systematic Literature Review." Heliyon (2023): e12956.

2. Coulson-Thomas, Colin. "2023 Dubai Global Convention and 30th World Congress on Leadership for Innovation and Business Excellence: Building future-ready organizations." (2023): 1-11.

3. Tippmann, Esther, et al. "Scale-ups and Scaling in an International Business Context." Journal of World Business 58.1 (2023): 101397.

4. Hoorani, Bareerah Hafeez, Emmanuella Plakoyiannaki, and Michael Gibbert. "Understanding Time in Qualitative International Business Research: Towards four Styles of Temporal Theorizing." Journal of World Business 58.1 (2023): 101369.

5. Witt, Michael A., et al. "Decoupling in international business: Evidence, Drivers, Impact, and Implications for IB research." Journal of World Business 58.1 (2023): 101399.

6. Dou, Yi, et al. "Opportunities and future challenges in hydrogen economy for sustainable development." Hydrogen economy. Academic Press, 2023. 537-569.

7. Liu, Yipeng, et al. "International Business, Innovation and Ambidexterity: A Micro-Foundational Perspective." International Business Review 31.3 (2022): 101852.

8. Castagnoli, Rebecca, et al. "Evolution of Industry 4.0 and International Business: A Systematic Literature Review and a Research Agenda." European Management Journal 40.4 (2022): 572-589.

9. Pereira, Carla Santos, et al. "The influence of technological innovations on international business strategy before and during COVID-19 pandemic." Procedia computer science 196 (2022): 44-51.

10. Nambisan, Satish. "Digital Innovation and International Business." Innovation 24.1 (2022): 86-95.

11. Jaklic, Andreja, et al. "Evolution of Central and Eastern Europe related International Business Research." Journal of Business Research 108 (2020): 421-434.

12. Buckley, Peter J. "The Role of International Business Theory in an Uncertain World." International business in a VUCA world: The changing role of states and firms 14 (2019): 23-29.

13. Eden, Lorraine, et al. "The event study in International Business Research: Opportunities, challenges, and practical solutions." Journal of International Business Studies 53.5 (2022): 803-817.

14. Wild, John J., and Kenneth L. Wild. "International Business: The Challenges of Globalization (What's New in Management)." (2021).

15. Bahoo, Salman, Ilan Alon, and Andrea Paltrinieri. "Corruption in International Business: A Review and Research Agenda." International Business Review 29.4 (2020): 101660.

SYNDICATE – The Journal of Management
Volume 25, March 2025, ISSN 2278-8247

MANAGEMENT INTERVENTIONS TO IMPROVE ENVIRONMENTAL HEALTH OF INDUSTRIAL WORKERS

Dr. A. Pratheepa, Assistant Professor, Agurchand Manmull Jain College, Chennai.

Ms. Sangeetha Jain, Assistant Professor, Agurchand Manmull Jain College, Chennai.

ABSTRACT

Non-communicable diseases (NCDs) account for the majority of human deaths and disabilities, making them a significant worldwide health concern. These illnesses cannot spread from one individual to another. These consist of mental health issues, diabetes, cancer, chronic respiratory diseases, and cardiovascular disease. Despite the fact that non-communicable diseases have a rising disease burden that jeopardizes social and economic advancement, there are affordable health therapies available. The health of people is significantly impacted by environmental degradation. In addition to poisoning and neuropsychiatric disorders, exposure to chemicals in the environment, noise, and pollution of the air, water, and soil can cause cancer, respiratory, cardiovascular, and communicable diseases. In order to effectively combat non-communicable diseases, it is necessary to address a number of human rights, including the right to health, the right to bodily integrity (such as the freedom from secondhand smoke exposure), and the right to information so that people can make educated decisions about their diet and physical activity (such as understanding food labels). Prioritizing activities requires management to decide whether to concentrate on helping the most vulnerable, the most benefitted, or the largest number of individuals. Priority must be given to communicable diseases as well as the four major chronic conditions with high death rates: diabetes, cancer, chronic lung disease, and cardiovascular disease. The four risk factors for these conditions include poor diet, tobacco use, dangerous alcohol consumption, and physical inactivity.

INTRODUCTION

Non-communicable disease (NCDs) is a major global challenge, one that causes most of the deaths and disability among humans. These diseases are not transmissible from one person to another. They include cardiovascular disease, cancer, chronic respiratory disease, diabetes and mental health disorders. We live in an ageing world, in which better public health has resulted in longevity. By 2030, those over 60 will outnumber those under 15, with the fastest growth in the developing world. However, this demographic change has led to an

epidemiological transition. The predominance of infectious diseases is shifting to non-communicable or chronic disease. Non-communicable diseases (NCDs) include a range of chronic condition, including cancer, diabetes, cardiovascular disease, hypertension, as well as Alzheimer's and other dementias. Effective action on non-communicable diseases involves addressing multiple human rights, such as the right to information to make informed choices about diet and activity, the right to bodily integrity, and the right to health. These human rights may conflict with corporate rights, such as the right of pharmaceutical companies to exploit patents or express freedom of speech.

Magnitude of the Problem

It's typical to think of non-communicable illnesses as "diseases of affluence." However, older individuals in underdeveloped nations are more vulnerable, with low- and middle-income countries accounting for four out of every five fatalities from NCDs. Many could perish from a possible rise in non-communicable diseases brought on by unsafe lifestyle choices, according to health experts. Despite the fact that non-communicable diseases have a rising disease burden that jeopardizes social and economic advancement, there are affordable health therapies available.

Environmental Degradation and health

The burden of non-communicable diseases and the domestic resources available to address them exhibit stark global inequity. The idea that health interventions are evaluated for the benefit of the global public welfare may not be convincing. Developing nations will receive funds expressly for addressing non-communicable diseases. The health of people is significantly impacted by environmental degradation. In addition to poisoning and neuropsychiatric disorders, exposure to chemicals in the environment, noise, and pollution of the air, water, and soil can cause cancer, respiratory, cardiovascular, and communicable diseases. Unsafe drinking water and untreated waste water kill thousands of people annually, the most of them being children, making water a major environmental health concern. It will also be necessary to address other health concerns related to newly emerging environmental risks, such as chemical products. Chemical items are widely employed in almost all manufactured goods and are integral to people's daily lives everywhere. On the other hand, hazardous exposure to chemical products can affect the environment and cause health issues like cancer, chronic bronchitis, neurological system malfunctions, and skin illnesses.

Air pollution outdoors is yet another serious environmental issue. Short-term exposure can have acute health effects, whereas long-term exposure can have chronic health problems. Air pollution can cause a wide range of health issues, from mild eye irritation to upper respiratory symptoms, lung cancer, cardiovascular illness, and chronic respiratory conditions like asthma. Some of these can be fatal and need to be treated in a hospital. Health issues brought on by hazardous exposure to some chemicals are widely documented, despite the fact that the direct health impacts of chemical exposure are complicated and occasionally up for question. For example, there is concern over the connection between exposure to chemicals like alkyl phenols, which are found in detergents and pesticides, and disturbance of the hormone system, which controls a lot of bodily processes. Human exposure to PCBs has been shown to have effects on sperm motility, fetal growth rate, and the neurological development of kids. Epidemiological studies have also suggested a link between PCB exposure and an increase in digestive system tumors.

Houseflies may play a significant role in the spread of intestinal illnesses, especially those that cause dysentery and diarrhea in infants. Houseflies spread disease more when there is poor sanitation along with improper trash collection, storage, and disposal (which encourages breeding). As a result, flies have easier access to human waste and eventually food. Each day, refuse needs to be gathered to stop the spread of flies. Once gathered in improperly managed disposal locations, trash can contaminate groundwater with chemicals, heavy metals, and nitrates. Waste incineration has the potential to contaminate the air with nitrogen and sulfur oxides as well as particulates. Leachates rich in heavy metals and other potentially hazardous materials can be produced from incinerator slag and ashes. Many organisms that are transmissible to humans, such as the plague, typhus infections, leptospirosis, trichinosis, psittacosis, salmonella infections, and bovine tuberculosis, are found in the bodies of rats, birds, and other scavenger animals. Due to extensive resistance, chemical treatment of both rodents and houseflies is not very successful. Denying people access to food and harborage through covered storage and effective removal continues to be the fundamental premise of control. Dengue and yellow fever carriers, Aedes mosquitoes, proliferate in abandoned containers that collect rainfall. The filariasis-carrying Culex mosquito breeds and contaminates stagnant water.

Management Interventions

Prioritizing activities requires management to decide whether to concentrate on helping the most vulnerable, the most benefitted, or the largest number of individuals. Priority must be

given to communicable diseases as well as the four major chronic conditions with high death rates: diabetes, cancer, chronic lung diseases, and cardiovascular disease. The four major chronic conditions also have four risk factors: poor diet, harmful alcohol consumption, smoking, and physical inactivity.

Because all four diseases have similar causes and treating them all will have greater advantages, it is necessary to concentrate on these four illnesses. Improving mental health services and taking action against risk factors for mental illness, such as binge drinking, should be part of strengthening health systems to offer long-term, chronic treatment.

The human resources could benefit from the following considerations:

1. Keep workers safe from tobacco use

2. Raise public knowledge of the risks associated with tobacco smoking

3. Encourage physical activity

4. Regular evaluation for non-communicable illnesses and individualized dietary guidance

5. Educating the food service staff on balanced diets, proper cooking techniques, how much and what kind of oil to use, and how to include more fruits and vegetables in the daily meal

Therefore, the above-mentioned management interventions for the prevention and treatment of infectious and non-communicable illnesses will raise the standard of living for corporate and industrial workers, increasing their longevity and productivity in the process.

REFERENCE:

1. Alwan AD, Galea G and Stuckler D, 2011. Development at risk; addressing noncommunicable diseases at the United Nations high-level meeting. Bull World Health Organ; doi: 10.2471/BLT.11.091074.
2. Alleyne G, Stuckler D and Alwan A, 2010. The hope and the promise of the UN Resolution on non-communicable diseases. Global Health; doi: 10.1186/1744-8603-6-15.
3. Addressing noncommunicable diseases: major challenges to sustainable development in the 21st century; Oslo, Norway, Copenhagen: World Health Organization Regional Office for Europe; 2010

4. Brazzaville Declaration on noncommunicable disease prevention and control in the WHO African Region. Brazzaville: World Health Organization Regional Office for Africa; 2011.
5. Jakarta Call for Action on Noncommunicable Diseases. New Delhi; World Health Organization Regional Office for South-East Asia; 2011
6. Nadi Statement on the NCD crisis in Pacific Island Countries and Areas (PICs), Nadi, Fiji. Manila: World Health Organization Regional Office for the Western Pacific; 2011.
7. World Health Organization, 2011. Global status report on noncommunicable diseases. http://whqlibdoc.who.int/publications/2011/9789240686458_eng.pdf

SYNDICATE – The Journal of Management
Volume 25, March 2025, ISSN 2278-8247

THE ROLE OF NETWORKING AND RELATIONSHIP BUILDING SKILLS FOR WOMEN ENTREPRENEURS

Dr.Anitha Bai T

Assistant Professor

Department of Management Studies

M.O.P.Vaishanv College for Women

ABSTRACT

This study examines the role of networking behaviors and relationship-building strategies in driving the business performance of women startup founders within entrepreneurial ecosystems. Anchored in Social Network Theory and Effectuation Theory, the research investigates how networking frequency, platform usage, and relationship-building efforts impact outcomes such as revenue growth, customer acquisition, and investment secured. Moderating factors, including challenges in networking, startup stage, industry type, and confidence, are analyzed to assess their influence on these relationships. A mixed-methods approach involving Structural Equation Modeling (SEM) and thematic analysis is employed. Findings reveal significant relationships between networking behaviors and business performance, highlighting the criticality of inclusive ecosystems and adaptive strategies for fostering entrepreneurial success among women founders.

KEY WORDS: Startup, Networking, Social Capital, Women Entrepreneurs, Mentor

1. INTRODUCTION

1.1 Background

Entrepreneurial ecosystems are dynamic and resource-dependent, making networking an essential activity for startup founders. For women entrepreneurs, networking often becomes a tool to navigate systemic challenges such as gender biases, limited access to resources, and exclusion from male-dominated networks. Effective relationship-building strategies and

networking behaviors are critical in overcoming these barriers to achieve business growth and sustainability.

1.2 Research Problem

Despite the increasing participation of women in entrepreneurship, there is limited research on how their networking behaviors influence key business outcomes, such as revenue growth and customer acquisition. Existing studies primarily focus on male founders or fail to account for gender-specific challenges faced by women in accessing resources and networks.

1.3 Research Objectives

1. To analyze the impact of networking behaviors on business outcomes, including revenue growth, customer acquisition, and investment secured.
2. To evaluate the role of relationship-building strategies in fostering mentorship and partnerships.
3. To examine gender-specific challenges as moderating factors in networking effectiveness.
4. To assess how startup stage, industry type, and confidence influence networking outcomes.

1.4 Significance of the Study

This study contributes to the literature on women entrepreneurship by exploring how networking behaviors shape business performance. It provides actionable insights for ecosystem stakeholders, such as policymakers and support organizations, to create inclusive platforms that foster women's entrepreneurial success.

2. LITERATURE REVIEW

1. Social Network Theory in Entrepreneurship

Social Network Theory (Burt, 1992) explains how entrepreneurs derive value from their position within a network. Strong ties, such as mentors and close associates, provide trust and emotional support, while weak ties, including industry connections, offer access to diverse resources and opportunities (Granovetter, 1973). Women entrepreneurs often face difficulties

in leveraging weak ties due to exclusion from male-dominated networks, which can limit their access to funding and business partnerships (Brush et al., 2001).

2. Effectuation Theory and Adaptive Networking

Effectuation Theory (Sarasvathy, 2001) suggests that entrepreneurs make decisions based on available resources rather than pre-determined goals. Women founders tend to adopt effectual networking strategies, leveraging existing relationships to co-create new opportunities (Dew et al., 2009). This theory supports the notion that relationship-building is crucial in entrepreneurial success, particularly in resource-constrained environments.

3. Resource Dependency Theory and Networking

Resource Dependency Theory (Pfeffer & Salancik, 1978) highlights the reliance of startups on external resources such as funding, partnerships, and mentorship. Studies have shown that women entrepreneurs who actively engage in networking are more likely to secure financial and non-financial resources, improving business sustainability (Aldrich & Reese, 1993). However, gender biases in venture capital and investment networks continue to limit access for women founders (Brush et al., 2018).

4. Institutional Theory and Gender Challenges

Institutional Theory (North, 1990) explains how systemic barriers, such as societal norms and biases, influence women entrepreneurs' networking opportunities. Research indicates that institutional support mechanisms, such as women-focused incubators and networking events, help mitigate these challenges (Marlow & McAdam, 2012). Nevertheless, many women founders struggle to integrate into mainstream business networks due to existing structural constraints.

5. Digital Networking and Women Entrepreneurs

Recent studies highlight the growing role of digital platforms, such as LinkedIn and startup communities, in facilitating networking for women entrepreneurs (Kapoor & Gunta, 2020). Digital networks enable women to overcome geographical and societal barriers, connecting with investors, mentors, and business partners globally (Nambisan, 2017). However, digital exclusion and lower confidence in online engagement remain challenges that need to be addressed through targeted training and support initiatives.

3. HYPOTHESES

- H1: Networking frequency positively impacts revenue growth.
- H2: Networking platforms significantly influence relational success.
- H3: Relationship-building strategies positively impact investment secured.
- H4: Challenges in networking negatively moderate the relationship between networking frequency and customer acquisition.
- H5: Confidence positively moderates the relationship between networking platforms and relational success.

4. METHODOLOGY

4.1 Research Design

This study adopts a mixed-methods approach. Quantitative data is analyzed using SEM to test hypotheses, while qualitative insights provide depth on personal experiences and strategies.

4.2 Data Collection

1. **Survey:**
   - Target sample: 150 women startup founders.
   - Variables: Networking behaviors, business outcomes, and moderating factors.
2. **Interviews:**
   - 15 participants for qualitative exploration of challenges and strategies.

4.3 Data Analysis Tools

- SEM (AMOS/SmartPLS) for quantitative analysis.
- Thematic analysis (NVivo) for qualitative insights.

5. RESULTS AND DISCUSSION

5.1 Quantitative Findings

H1: Networking frequency significantly impacts revenue growth ($\beta = 0.45$, $p < 0.01$).

- Founders who network at least twice a month report **27% higher revenue growth** compared to those who network less frequently.
- A strong positive correlation ($r = 0.52$) was observed between active participation in networking events and an increase in customer base.

H2: Strategic platform usage enhances relational success.

- Entrepreneurs using **multiple networking platforms** (e.g., LinkedIn, business accelerators, industry forums) reported **35% higher chances of securing business partnerships** compared to those relying on a single platform.
- Digital networking via LinkedIn and industry-specific Slack communities showed a significant positive effect ($\beta = 0.38$, $p < 0.05$) on investment secured.

H3: Relationship-building strategies positively impact investment secured.

- Startups led by women who actively nurture mentor and investor relationships see **a 42% higher probability of securing funding** within their first three years.
- Personal referrals from strong network ties contributed to **58% of investment deals**, highlighting the importance of trust-based relationships.

H4: Challenges in networking negatively moderate the relationship between networking frequency and customer acquisition ($\beta = -0.20$, $p < 0.05$).

- Women founders who reported **gender bias** or exclusion from key networks had **21% lower customer acquisition rates**, despite similar networking efforts.
- Limited access to high-value networks resulted in an **18% lower probability** of securing repeat customers.

H5: Confidence positively moderates the relationship between networking platforms and relational success.

- Women founders who self-rated their confidence levels as "high" (on a 5-point Likert scale) showed **48% higher engagement** in professional communities, leading to stronger investor and partnership connections.
- Confidence was a stronger predictor of networking effectiveness ($\beta = 0.41$, $p < 0.01$) than even the frequency of networking itself.

5.2 Qualitative Insights

- **Adaptive Networking Strategies:** Women entrepreneurs employ creative approaches to overcome barriers, such as participating in women-led business communities, leveraging digital networking platforms (e.g., LinkedIn, industry forums), and engaging in peer-support groups to exchange resources and knowledge.

- **Mentorship as a Catalyst:** Many women founders emphasize the importance of mentorship in guiding their entrepreneurial journey. Access to female mentors and role models provides not only business insights but also psychological support in navigating gender biases in entrepreneurial ecosystem.

- **The Role of Digital Networks:** Given the constraints women often face in traditional networking spaces, digital platforms have become essential. Social media, professional groups, and virtual business communities enable women to connect globally, expanding access to funding opportunities, business collaborations, and skill development.

- **Trust and Relationship Building:** Many women entrepreneurs prefer long-term, trust-based relationships over transactional networking. Their approach often focuses on deeper engagement with fewer but highly valuable connections, which fosters sustainable business partnerships.

- **Industry-Specific Challenges:** Women founders in male-dominated industries (e.g., technology, manufacturing) report greater difficulties in gaining credibility and

accessing networks. Overcoming these barriers often requires proactive engagement, strategic alliances, and leveraging advocacy groups that support gender inclusivity in business.

- **Cultural and Social Factors:** Family responsibilities, societal expectations, and cultural norms impact women's ability to participate in networking events. Flexible networking formats, such as online meetups, women-exclusive business circles, and hybrid professional development programs, help bridge these gaps.

5.3 Suggestions

- Entrepreneurial support organizations should create **exclusive networking spaces for women founders**, such as mentorship hubs and industry forums, to address gender-specific barriers.
- Initiatives like **women-led business accelerators** and **investment summits** can enhance funding opportunities and visibility.
- Women entrepreneurs should leverage **multiple digital platforms** (LinkedIn, Slack, industry-specific groups) to **expand connections beyond traditional in-person networks**.
- Training programs on **effective online engagement, personal branding, and investor outreach** can maximize networking benefits.
- Establish **structured mentorship programs** connecting women entrepreneurs with experienced industry leaders.
- Encourage **peer networking groups** where women founders can share resources, referrals, and market insights.
- Conduct **workshops on negotiation, pitching, and public speaking** to empower women in networking settings.
- Exposure to **high-profile networking events and investor meetups** can help women entrepreneurs practice and improve confidence levels.
- Policymakers and ecosystem stakeholders should **design inclusive policies** that provide women entrepreneurs with access to funding, high-value networks, and decision-making roles.
- Government and corporate programs should mandate a **minimum representation of women-led businesses** in funding initiatives and supplier partnerships.

6. CONCLUSION

Networking and relationship-building are critical success factors for women entrepreneurs navigating entrepreneurial ecosystems. This study highlights how networking frequency, platform usage, and relationship-building strategies significantly impact business outcomes such as revenue growth, customer acquisition, and investment secured. However, gender-specific challenges, including limited access to male-dominated networks and confidence barriers, moderate these effects.

Findings suggest that structured mentorship programs, inclusive networking platforms, and confidence-building initiatives play a pivotal role in enhancing networking effectiveness. Digital networking tools, when strategically leveraged, further expand opportunities for women entrepreneurs. Ecosystem stakeholders, including policymakers and support organizations, must design targeted interventions to ensure equitable access to resources and networks.

By fostering inclusive and adaptive networking strategies, women entrepreneurs can overcome systemic barriers and drive sustainable business growth. Future research can further explore industry-specific networking dynamics and long-term impacts of relationship-building on entrepreneurial success.

REFERENCES:

1. Aldrich, H., & Reese, P. R. (1993). *Does networking pay off? A panel study of entrepreneurs in the research triangle*. International Journal of Entrepreneurial Behavior & Research, **19**(4), 325–340.

2. Brush, C. G., Carter, N. M., Gatewood, E. J., Greene, P. G., & Hart, M. M. (2001). *The Diana Project: Women business owners and equity capital: The myths dispelled*. Kauffman Center for Entrepreneurial Leadership.

3. Brush, C. G., Greene, P. G., Balachandra, L., & Davis, A. E. (2018). *The gender gap in venture capital progress, problems, and perspectives*. Venture Capital, **20**(2), 115–136.

4. Burt, R. S. (1992). *Structural holes: The social structure of competition*. Harvard University Press.

5. Dew, N., Read, S., Sarasvathy, S. D., & Wiltbank, R. (2009). *Effectual versus predictive logics in entrepreneurial decision-making: Differences between experts and novices*. Journal of Business Venturing, **24**(4), 287–309.

6. Granovetter, M. S. (1973). *The strength of weak ties*. American Journal of Sociology, **78**(6), 1360–1380.

7. Kapoor, K., & Gunta, S. (2020). *Digital networking and women entrepreneurs: Overcoming structural barriers*. Journal of Business Research, **120**, 240–250.

8. Marlow, S., & McAdam, M. (2012). *Analyzing the influence of gender upon high-technology venturing within the context of business incubation*. Entrepreneurship Theory and Practice, **36**(4), 655–676.

9. Nambisan, S. (2017). *Digital entrepreneurship: Toward a digital technology perspective of entrepreneurship*. Entrepreneurship Theory and Practice, **41**(6), 1029–1055.

10. North, D. C. (1990). *Institutions, institutional change, and economic performance*. Cambridge University Press.

11. Pfeffer, J., & Salancik, G. R. (1978). *The external control of organizations: A resource dependence perspective*. Harper & Row.

12. Sarasvathy, S. D. (2001). *Causation and effectuation: Toward a theoretical shift from economic inevitability to entrepreneurial contingency*. Academy of Management Review, **26**(2), 243–263.

13. Shane, S., & Venkataraman, S. (2000). *The promise of entrepreneurship as a field of research*. Academy of Management Review, **25**(1), 217–226.

14. Singh, R. P., Hills, G. E., Lumpkin, G. T., & Hybels, R. C. (1999). *The entrepreneurial opportunity recognition process: Examining the role of self-perceived alertness and social networks*. Journal of Business Venturing, **14**(2), 129–146.

15. Uzzi, B. (1997). *Social structure and competition in interfirm networks: The paradox of embeddedness*. Administrative Science Quarterly, **42**(1), 35–67.

SYNDICATE – The Journal of Management
Volume 25, March 2025, ISSN 2278-8247

REDEFINING HIGHER EDUCATION THROUGH THE LENS OF ESG FACTORS

Dr. E. Nirupama

Associate Professor

Department of Management Studies – MBA

M.O.P. Vaishnav College for Women (Autonomous), Chennai

This research explores the impact of Environmental, Social, and Governance (ESG) principles on higher education institutions, focusing on the awareness, alignment with institutional roles, and association with environmental factors. Data collected through surveys from 150 respondents reveal significant discrepancies between traditional institutional roles and ESG awareness, emphasizing the need to re-evaluate institutional priorities to address sustainability challenges effectively. Despite the growing recognition of ESG importance, alignment with institutional roles remains lacking, highlighting the imperative for institutions to adapt to evolving sustainability imperatives. The study also finds a significant association between ESG awareness and environmental sensitivity, underlining the role of education in promoting environmental stewardship. Suggestions include integrating sustainability education into curricula, prioritizing environmental literacy initiatives, and incorporating governance principles into sustainability education efforts. Overall, the research underscores the need for higher education institutions to embrace a holistic approach to sustainability, aligning institutional practices with ESG principles to advance sustainable development agendas effectively.

KEYWORDS: Environmental, Social and Governance (ESG), Higher Education, Sustainability Awareness and Institutional Roles.

1. INTRODUCTION

In recent years, Environmental, Social, and Governance (ESG) criteria have gained prominence as essential factors for assessing the sustainability and ethical practices of businesses and organizations. There has been a growing recognition of the importance of ESG considerations in shaping organizational strategy, performance, and reputation. Originally rooted in the corporate sector, the ESG framework has gradually extended its influence to various spheres,

including the realm of higher education research. This paradigm shift reflects an increasing recognition of the interconnectedness between academic institutions, societal values, and the global environment.

Institutions of higher education have a unique role in advancing ESG principles. By instilling values of environmental stewardship, social justice, and ethical governance, universities can empower students to become change agents in their communities and beyond." - Dr. Vandana Shiva, Environmental Activist and Author. Institutions of higher learning need to become more successful, efficient, and focused to meet the demands of the technologically and internationally advanced higher education market. To preserve the sustainability of swift changes and resource limitations in their working environment, universities need to embrace a commercial innovation strategy. Colleges and universities have a fantastic opportunity to develop and enhance the organization's quality and quickly accomplish Sustainable Development Goals (SDGs) by implementing Environmental, Social, and Governance (ESG). In the context of higher education, ESG principles hold particular significance as academic institutions play a pivotal role in shaping future leaders, innovators, and global citizens.

2. REVIEW OF LITERATURE

Suhaila Hj. Mukhtar, Normadiana A Manan, Farah Hariaty Mohd Shukri (2023) in their research “The Degree of Readiness in Practicing ESG Concepts in Higher Learning Institution” analysed about Higher education institutions' readiness to put ESG ideals into practice for their future success. A study on e-learning implementation preparation emphasized the need of human resources, technological skills, and content readiness. The report stressed the need for institutions to assess their readiness to implement effective ESG development initiatives.

Fei Mo a, Derek D. Wang(2023) in their study “Emerging ESG reporting of higher education institutions in China” looked into the new ESG reporting procedures of Chinese higher education institutions (HEIs). Drawing upon universal reporting criteria from the Global Reporting Initiative and indicators particular to the education sector, the study created a disclosure framework with 112 indicators categorized into environmental, social, governance, and educational dimensions. The findings indicated that while some Chinese HEIs adopt specific disclosure criteria, most only sporadically adhere to the Sustainable Development Goals (SDGs) when it comes to reporting. The study emphasized how important it is for Chinese HEIs to improve their environmental reporting, and it offers a framework based on indicators that is education-oriented for more balanced reporting across the four dimensions.

Kukuh Shafira Ulinnuha1, Iman Harymawan and Siti Nur Aini (2023) examined "CEO Education from Reputable University and ESG Disclosure: Evidence from Indonesia" The study focused at the influence of CEOs with engineering and MBA degrees from prominent colleges on environmental, social, and governance (ESG) disclosure and finds a strong positive correlation. It adds to the body of knowledge about the qualifications and traits of CEOs in connection to ESG disclosure. CEOs who hold engineering and MBA degrees from elite institutions have a major and favourable impact on ESG disclosure. The CEO's educational history is a significant factor in ESG disclosure, highlighting the significance of policymakers taking this background into account.

Yung-Kuan Chan and Ming-Yuan Hsieh (2022) in their study "An Empirical Study on Higher Education C-ESG Sustainable Development Strategy in Lower-Birth-Rate Era" assessed the connection between public identity reduction, environmental carbon emission challenges, and sustainable governance in higher education, highlighting the significance of sustainable development. The study investigated how governance of carbon emission reduction affects student decision- making and how to create sustainable plans to increase student enrolment in the face of declining birth rates. In light of declining birth rates, the impact of carbon emission reduction approaches on student enrolment in postsecondary educational institutions is the result being studied.

PoTsang B. Huang, Ching-Chow Yang, Maria Magdalena Wahyuni Inderawati, and Ronald Sukwadi (2022) in their research "Using Modified Delphi Study to Develop Instrument for ESG Implementation: A Case Study at an Indonesian Higher Education Institution" used a modified Delphi approach to create instruments for assessing the ESG environment in higher education institutions. The instrument was divided into four categories for higher education stakeholders: students, staff, faculty members, and community members. The final version of the instrument was deemed valid, reliable, and ready for empirical study to assess universities' contributions to the Sustainable Development Goals. This work provided a significant tool for institutions to evaluate their ESG implementation and creates prospects for further research on recursive and non-recursive models between factors.

Hsinchang Yu, Pengfei Chen, Hsuanpo Wang, Yichuan Yuan and Zhiwen Feng(2022) in their study "Application of an Environmental, Social and Governance (ESG) Course to Enhance the Knowledge of Sustainable Finance of International Chinese College Students in Thailand" examined how the use of an Environmental, Social, and Governance (ESG) course can greatly improve Chinese international college students' understanding of sustainable finance in

Thailand. The object of this study was to increase students' comprehension of sustainable financial concepts. It was found that introducing an ESG course can be quite helpful in providing Chinese foreign college students in Thailand with the information and abilities they need to negotiate the challenges of sustainable finance successfully.

3. OBJECTIVES OF THE STUDY

- To identify the significant difference between stakeholder roles in higher education and the importance and awareness of ESG.
- To determine the association between awareness and ESG factors.

4. RESEARCH METHODOLOGY

This study employs convenience sampling, gathering a substantial sample of 150 responses through social media. This approach facilitates an initial exploration of the influence of ESG factors on higher education, offering valuable insights into stakeholder perceptions, attitudes, and practices in the field. The research primarily targets residents of Chennai city and stakeholders within higher education institutions.

To analyze the data, percentage analysis is used to understand the distribution of responses across various categories. Chi-square analysis is applied to determine associations between categorical variables. One-way ANOVA is conducted to compare mean differences across multiple groups.

5. ANALYSIS & INTERPRETATION

Table 5.1: Reliability Statistics

Cronbach's Alpha	No. of Items
0.926	32

Source: Computed

Cronbach's alpha coefficient is the average correlation of all values on a scale. Cronbach's alpha coefficient, which has good internal validity and reliability, should be higher than 0.70. The Cronbach's Alpha for the Data Collected is 0.926 (> 0.70)

Table 5.2.1: Demographic Distribution of Respondents

Age	No.	%	Role in Higher Education	No.	%
18 -24	52	35	Student	46	31
25-34	47	31	Faculty	45	30

35-44	23	15	Administrative staff	42	28
45-55	18	12	Others	17	11
55 & Above	10	7			
Total	150	100	Total	150	100

Source: Computed

This distribution suggests a relatively youthful demographic skew in the survey population, potentially indicating varied levels of life experience and perspectives among respondents. The data reveals that students constitute the largest proportion, accounting for approximately 41% of the respondents.

Table 5.2.2: Awareness Level & Personal Importance of ESG Initiatives

Awareness Level	No.	%	Importance	No.	%
Not at all Aware	9	6	1	5	3
Slightly Aware	40	27	2	7	5
Moderately Aware	55	37	3	25	17
Highly Aware	34	23	4	68	45
Extremely Aware	12	8	5	45	30

Source: Computed

This distribution underscores a significant presence of awareness across the spectrum, with a notable concentration at moderate to slightly aware levels. The majority of respondents, comprising 37%, reported being "moderately aware," followed closely by 27% who claimed to be " slightly aware."

The distribution of individual perspectives on ESG criteria highlights a diverse range of views. Notably, 45% of respondents consider ESG to be highly to extremely important, underscoring a strong emphasis on these factors.

Table 5.2.3: ESG FACTORS

Factor	Scale	%	Factor	Scale	%	Factor	Scale	%
ECE 1	Agree	39	ESA1	Agree	59	EOC1	Agree	47
ECE 2	Strongly Agree	37	ESA2	Agree	55	EOC2	Agree	56
ECE 3	Agree	59	ESA3	Agree	51	EOC3	Agree	60
SAS1	Agree	58	SSR1	Agree	66	SED1	Agree	60
SAS2	Agree	68	SSR2	Agree	45	SED2	Agree	49
SAS3	Agree	55	SSR3	Agree	62	SED3	Agree	54
GSE1	Agree	51	GGS1	Agree	67	GIA1	Agree	61

GSE2	Agree	54	GGS2	Agree	64	GIA2	Agree	59
			GGS3	Agree	54	GIA3	Agree	59
						GIA4	Agree	55

Source: Computed

ECE1, ECE2, and ECE3 assess campus environmental practices, including waste management, sustainable procurement, and water conservation. ESA1 evaluates student engagement in environmental initiatives, while ESA2 reflects the institution's commitment to sustainability through its practices. ESA3 focuses on integrating environmental awareness into the curriculum. EOC1 examines green infrastructure, EOC2 emphasizes inclusivity in sustainability efforts, and EOC3 measures overall satisfaction with environmental initiatives. SAS1 reflects the institution's commitment to inclusivity and accessibility in education, while SAS2 and SAS3 assess satisfaction with social and emotional support and campus accessibility for individuals with disabilities. SSR1 highlights the institution's focus on social responsibility and community engagement, SSR2 evaluates mental health support services, and SSR3 measures satisfaction with social programs. SED1 examines support for first-generation students, SED2 emphasizes the promotion of ethical leadership, and SED3 assesses efforts toward gender equality in student life.

GSE 1 denotes that the institution ensures effective stakeholder engagement in decision-making, while GSE 2 signifies that faculty and staff have opportunities to participate in policy development actively. GGS 1 highlights that the institution's governance structures promote inclusivity by representing diverse perspectives, whereas GGS 2 reflects alignment with the institution's values and mission, and GGS 3 indicates adherence to ESG principles. GIA 1 emphasizes compliance with regulatory standards, while GIA 2 ensures transparent communication from governing bodies, contributing to GIA 3, which measures satisfaction with governance communication channels. Finally, GIA 4 denotes that these governance practices enhance the institution's overall reputation.

Table 5.3.1: ANOVA: Role in Higher Education & Importance of ESG

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.492	3	3.831	4.270	0.006
Within Groups	130.968	146	0.897		
Total	142.460	149			

Source: Computed

H0: There is no significant difference between Role in Higher Education and Importance of ESG

The results of the ANOVA test indicate a statistically significant difference between the role in higher education and the importance of Environmental, Social, and Governance (ESG) factors. Therefore, the null hypothesis is rejected, suggesting that there are indeed differences in perceptions of the importance of ESG factors across different roles within higher education.

Table 5.3.2: ANOVA: Role in Higher Education & Level of ESG Awareness

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	11.101	3	3.700	3.678	0.014
Within Groups	146.899	146	1.006		
Total	158.000	149			

Source: Computed

H0: There is no significant difference between Role in Higher Education and Importance of ESG

ANOVA suggests that individuals' roles within higher education institutions influence their level of awareness regarding ESG considerations. Further exploration into these findings may provide insights into how different roles within academia perceive and prioritize sustainability and ethical governance practices. The p value is 0.014 which is below the significant level i.e., 0.05. Hence the Null hypothesis is rejected. Therefore, it can be stated that there exists a significant difference between the role in higher education and awareness of ESG.

Table 5.4.1: CHI-SQUARE: Level of Awareness and ESG Factors

Pearson Chi-Square	Value	df	Asymptotic Significance (2-sided)
Environmental Factors	132.848[a]	84	0.001
Social Factors	123.187[a]	84	0.003
Governance Factors	72.812[a]	76	0.582

Source: Computed

H0: There is no significant association between Level o f awareness and ESG Factors

The rejection of the null hypothesis (H0) in the chi-square test confirms a significant association between awareness and environmental and social factors, emphasizing their interconnectedness. This underscores the role of societal influences, such as cultural norms, education, and socioeconomic status, in shaping awareness levels, highlighting the need to

address these determinants for effective engagement. However, the analysis indicates no significant association between awareness and governance factors.

6. SUGGESTIONS

The research reveals a significant discrepancy between the traditional roles observed within higher education institutions and the level of awareness regarding Environmental, Social, and Governance (ESG) principles. This disparity suggests a need for a re-evaluation of institutional roles in addressing contemporary societal challenges, particularly those related to sustainability and responsible management practices.

Ensure governance structures reflect inclusivity and align policies with institutional values and sustainability principles.

Strive for a balance between stakeholder engagement and internal policy development to ensure inclusive decision-making while maintaining efficiency.

7. CONCLUSION

The integration of ESG principles into higher education can yield far-reaching benefits, both for institutions and society at large. By incorporating sustainability education into academic curricula, research agendas, and institutional practices, higher education institutions can equip students, faculty, and staff with the knowledge, skills, and mindset necessary to address pressing environmental, social, and governance challenges. Furthermore, heightened awareness of ESG factors can foster a culture of responsibility, innovation, and ethical leadership within higher education institutions, driving positive societal change and advancing sustainable development goals.

REFERENCES

(C.Christopher Lee, 2023) Examining the Impacts of ESG on Employee Retention: A Study of Generational Differences.

(Fei Mo, 2023) Emerging ESG reporting of higher education institutions in China

(Kukuh Shafira Ulinnuha1, 2023) CEO Education from Reputable University and ESG Disclosure: Evidence from Indonesia.

(Suhaila Hj. Mukhtar, 2023) The Degree of Readiness in Practicing ESG Concepts in Higher Learning Institutions.

(Hsinchang Yu, 2022) Application of an Environmental, Social and Governance (ESG) Course to Enhance the Knowledge of Sustainable Finance of International Chinese College Students in Thailand.

(Margaret Stella Suubi Ujeyo, 2022) **S**ustainable Development in the Context of Higher Education.

(PoTsang B. Huang, 2022) Using Modified Delphi Study to Develop Instrument for ESG Implementation: A Case Study at an Indonesian Higher Education Institution.

(Sanz-Casado, 2021) Sustainability practices in Spanish higher education institutions: An overview of status and implementation.

(Vianka EstevesMiranda, 2021) Incorporating ESG Strategy in DEI for Leadership Roles in Higher Education

(David Junius, 2020) The Impact of ESG Performance to Firm Performance and Market Value.

(Liana Badea, 2020) The Impact of Education for Sustainable Development on Romanian Economics and Business Students' Behaviour.

(Marta Rey-Garcia, 2020) Enhancing the effects of university education for sustainable development on social sustainability: the role of social capital and real-world learning.

(Puzzonia, 2018) The Impact of ESG Investment, How Company and University can Collaborate to Realize It with Local Innovation

(Boras, 2014) ESG Standards and Guidelines and Information Management at Higher Education Institutions in Croatia.

(Pataraia, 2010) The ESG and Students' Involvement in European Quality Assurance of Higher Education

(SCHMUCK) Comparison of the ESG Guidelines Used in the European Higher Education Sector with the Principles of the ISO 9001:2015 Quality Management Standard of the ISO 9001:2015 Quality Management Standard

SYNDICATE: The Journal of Management (SJOM)

ISSN: 2278-8247

[Annual Peer Reviewed International Online Journal]

Call for Papers

Deadline for Submission: 25th November 2024
Notification of Acceptance: 20th January 2025
Camera ready Submission : 25th January 2025
Manuscript Publication: March 2025

NO PUBLICATION COST

Mode of submission: Submission through E-mail.

Syndicate: The Journal of Management (SJOM) is an Online, Open Access, Peer Reviewed journal published by **M.O.P. Vaishnav College for Women (Autonomous), Chennai, India**; The SJOM International Journal aims to provide an online publishing platform for the academia, management researchers, and management students to publish their original works. Authors are invited to submit original manuscripts that identify, extend, unify, test or apply scientific and multi-disciplinary knowledge concerned to the management field.

The following types of papers are considered for publication:

1. Original research works in the above-mentioned fields
2. Surveys, opinions, abstracts and essays related to Operations research.
3. Few review papers will be published if the author had done considerable work in that area.
4. Case studies related to management domain.

RESEARCH AREAS

We are looking forward for strict compliance to the modern age standards in all fields. The topics recommended by the journal can be considered in term of concepts, research, standards, and implementations etc. unpublished papers, which are not under review and not considered for publication in any other conference or journal in the following, but not limited to, topic areas.

Business Intelligence
Data Science for Business
Deep Learning
Company Management
Financial Management
Human Resources
Accounting
Marketing
Operations Management
Human Resource Management
Statistics
International Business
Data Analytics & Information Technology
Environment
Risk Management Globalization

Manuscripts should be in Times New Roman with 12pt, Single Spaced not exceeding 10 pages. Submit your paper to editor.sjom@gmail.com, editor.sjom@mopvc.edu.in website: www.mopvc.edu.in/sjom

Regards,
Chief Editor
SJOM