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Chairman's Overview

We are living in a time of rapid and often unsettling geopolitical change. Shifting power equations, regional conflicts, supply-chain disruptions, climate concerns, and the pace of technological change are redefining how economies function and how organisations are managed. For India, these developments bring both uncertainty and promise. As the world looks for reliable, resilient alternatives in production, services, and innovation, India is increasingly being seen as a trusted partner and a growth engine.

These global shifts are deeply influencing the Indian management landscape. Today's managers are required to think beyond traditional boundaries, balancing business performance with responsibility, agility with stability, and growth with sustainability. Decisions are shaped not only by markets, but also by policy changes, ESG expectations, digital transformation, and evolving social realities. Entrepreneurship and innovation, in this context, are not just economic pursuits; they are responses to a changing world and expressions of India's aspirations for inclusive and self-reliant growth.

At such a moment, the role of management education and research becomes especially meaningful. We need scholarship that speaks to real challenges—research that is rooted in the Indian experience while remaining globally aware. Insights into leadership, organisational culture, financial behaviour, digital engagement, and sustainability can help organisations navigate uncertainty with clarity and purpose.

The SCMS Journal of Indian Management seeks to be a space for this thoughtful engagement. By bringing together rigorous research and practical relevance, the Journal aims to support managers, educators, and policymakers in making sense of a complex world. We believe that informed reflection and responsible leadership will be key to shaping India's management practices in the years ahead, and it is our privilege to contribute to that journey.

Dr. G. P. C. NAYAR
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SCMS Journal of Indian Management

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SCMS-COCHIN

Editorial

The latest issue of *SCMS Journal of Indian Management* presents nine scholarly articles that engage with contemporary concerns in entrepreneurship, sustainability, finance, marketing, organisational behaviour, and digital transformation. Together, these contributions combine theoretical depth with empirical rigor and practical relevance across diverse contexts.

The volume opens with a systematic review on women entrepreneurship synthesises global scholarship with a focused lens on India, identifying achievement motivation, personality traits, and education as key drivers of entrepreneurial intention. This is followed by an empirical examination of experiential memories in theme park settings, which extends the SOR framework to demonstrate how vividness, emotional intensity, and recollection shape behavioural intentions. The issue also features an evaluation of international entrepreneurial vocational education and training programmes, highlighting their impact on entrepreneurial knowledge, employability, and sustainable community development.

Another strand of research in this volume addresses sustainability and finance through an analysis of ESG performance and stock returns among NIFTY 500 firms, revealing the nuanced trade-offs between short-term market performance and long-term value creation. Complementing this perspective, a study on financial literacy explores how millennials' socially responsible investment intentions are shaped by financial behaviour and self-efficacy, underscoring the role of education and policy support.

Digital transformation and consumer engagement form another important theme, with research employing sentiment analysis of user-generated content to assess customer-based brand equity in the budget smartphone segment. Relatedly, a netnographic study of mobile fitness applications examines user satisfaction, retention, and attrition, offering actionable insights for improving long-term engagement in digital health platforms.

The volume further includes a systematic review comparing the performance of family and non-family firms, emphasising governance structures, family influence, and strategic orientation. Concluding the issue is an empirical study on organisational culture within construction supply chains in Nigeria, which highlights how balancing clan and market cultures can enhance operational resilience and performance.

Together, these articles contribute to a deeper understanding of evolving managerial challenges and opportunities. We trust that this issue of *SCMS Journal of Indian Management* will stimulate scholarly dialogue and support informed decision-making in academia, industry, and policy circles.

Dr. Radha Thevannoor

Determinants of Entrepreneurial Intention among Women Entrepreneurs in India: A Systematic Literature Review

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Abstract

Women, as entrepreneurs, are crucial contributors to the development of an economy. In their continuous efforts to contribute towards entrepreneurship ecosystem development, they face many challenges that demotivate them in the initial years of their venture creation. This study organises the literature on female entrepreneurs to explore their intention towards entrepreneurship. The paper highlights the key factors in shaping entrepreneurial intention among Indian women. This systematic literature review analyses the global academic literature on female entrepreneurs published between 1995 and 2024, with a particular emphasis on recognising the important determining factors of entrepreneurial intention among Indian women. Although the research articles reviewed are global in scope, the research synthesis emphasises the factors specifically pertinent to the Indian context. The present article adds to the existing literature. It lays the groundwork for future investigation and helps create and promote a comprehensive support system for women who want to launch their businesses. The authors arrived at three major factors that shape entrepreneurial intention among women: need achievement, personality, and education. This study has identified a gap in the literature on how these factors affect women entrepreneurs in India. The study concludes that to promote women's success and their positive intentions in commercial endeavours, they need more significant education, support networks, motivation, and the necessary personality traits.

***Keywords**: Big Five personality, Education, Entrepreneurial Intention, Need achievement, Women, Systematic Review*

1. Introduction

Entrepreneurship is extensively acknowledged as a catalyst for economic advancement and social improvement, with entrepreneurs performing as a powerhouse behind inventiveness, competitiveness, and effectiveness (Brunstein & Heckhausen, 2018; Woodside et al., 2020). Even though both men and women contribute significantly to entrepreneurial pursuits, women's entrepreneurship remains comparatively underexplored and underused. In the last few years, researchers have increasingly accentuated the potentiality of women entrepreneurs to bestow to comprehensive growth, novelty, and sustainability (Frederick, 2008; Hannon et al., 2016).

Nevertheless, in spite of remarkable global advancement, women ceaselessly encounter unique societal, cultural, and financial hurdles that refrain them from entrepreneurial engagement and participation (Liñán et al., 2011). Although the global researches (Brush & Brush, 2006) (S. Kumar & Tripathi, 2012) provide important insights into entrepreneurial behaviour of women, these results and findings cannot be generalised across regions as entrepreneurial intention is shaped by social and cultural norms, conditions of institutions, accessibility to different resources, and family system. In India, there exists a distinct environment for entrepreneurship where the participation of women is comparatively low (Prasad & Kumar Behera, 2025). Furthermore, regional differences in India are evident, with states such as Uttarakhand showing substantially lower levels of women's entrepreneurial activity than states like West Bengal and Kerala. All these situational variances justify condensing the discussion from the global to the Indian level and, finally, to the Uttarakhand context, wherein the research remains limited and fragmented. In India, women's participation in entrepreneurship has grown significantly from in-house enterprises in the 1960s to micro, small, and medium enterprises today (Suri & Verma, 2020). As per the report of "Global Entrepreneurship Monitor" in the year (2010), females constitute nearly 42 percent of entrepreneurs globally, hitherto in India; exclusively 20 percent of MSMEs are female-owned. Regional differences, to a great extent, exacerbate this gap; West Bengal and Kerala exhibit a higher proportion of involvement, while the northern states, such as Uttarakhand, lag. Considering the socio-economic framework of Uttrakhand state, the empowerment and support to women entrepreneurs `can facilitate in outstanding development (Sharma et al., 2024).

The literature identifies multiple intrinsic and extrinsic factors affecting female intention to become entrepreneurs, such as personality traits, need for achievement, risk-taking, educational exposure, and socio-cultural setting (Yukongdi & Lopa, 2017; Cabrera & Mauricio, 2017; Hossain et al., 2024). Amid psychological factors, personality attributes specifically the Big Five traits i.e "openness, conscientiousness, extraversion, agreeableness, neuroticism" have been studied to substantially prognosticate entrepreneurial intention (Bergner, 2020; Rauch & Frese, 2007). Furthermore, the theory of achievement motivation (1988) propounded by McClelland's accentuates that masses with a high degree of need achievement (nAch) shows more entrepreneurial inclination. An exposure to education further strengthens fortify this intent by enhancing mental ability, self-efficacy, and secular capital (Kain & Sharma, 2013; Galvão & Pinheiro, 2019). Despite this extensive portfolio, several significant gaps remain. Earlier studies remain shattered often emphasising on limited factors without inculcating psychological and circumstantial causations of women's entrepreneurship. Moreover, there are few empirical studies of Indian women entrepreneurs, particularly in Uttarakhand. There is a lacuna in cumulative testimony that explains how personality traits, need achievement, and educational exposure collectively influence women's entrepreneurial intention.

Therefore, the current research uses a Systematic Literature Review (SLR) to synthesise the existing literature and knowledge on the relation between personality factors, need achievement, and education that helps in giving a shape to women's intention toward entrepreneurship, with a special focus on India and particularly Uttarakhand that is generally an underexplored region in literature. To address these gaps, this study employs a Systematic Literature Review. The systematic review approach is considered appropriate for various reasons. Contrasted with meta-analysis, which requires statistically comparable data, the published or existing literature on women entrepreneurship is theoretically disparate and systematically heterogeneous, forestalling quantitative evidence synthesis (Cardella et al., 2020). Bibliometrics, though helpful for mapping different publication trends, lacks in providing a theoretical understanding– (Haylemariam et al., 2024). Consequently, the SLR approach facilitates in detailed identification and evaluation of already existing research results and findings to develop a more logical, conceptual and consistent understanding of females entrepreneurial intention –(Shabbir et al., 2022).The key findings from the present systematic review showcase that (a) personality characteristics, in particular, openness, conscientiousness, and extraversion exerts positive influence on women entrepreneurial intention; (b) the need achievement drive work as a psychologically intervening driver that links personality and women entrepreneurial intention; and (c) education accelerates entrepreneurial willingness by upgrading self-confidence, business skills and the ability to recognise opportunities. This review includes threefold contribution. Firstly, it synthesises fragmented research into a consolidated framework that explicates how personality, education, and motivation shape women entrepreneurs' intentions. Secondly, it helps identify research and regulatory gaps particular to India, especially Uttarakhand state. Thirdly, (3) it provides an empirical evidence foundation for future researches and suggests different policy measures for strengthening the ecosystem of women entrepreneurship. To provide structure to the research investigation, the present study adapts the PCC (Population–Concept–Context) approach, which is commonly used in social science systematic reviews (Shaw et al., 2024). The PCC approach helps structure broader research questions to enhance systematic reviews. It helps identify the target groups or elements, i.e., the population, the research topic (i.e., the concept), and the research setting (including the context) (Mayo et al., 2022). This framework was proposed by the Joanna Briggs Institute for the development and design of search strategies in literature reviews (Trede & Higgs, 2009). Figure 1 demonstrates the PCC approach utilised to frame the research questions. The elements include Population, denoted by (P), which is women entrepreneurs or aspirants; Concept, denoted by (C), which is personality traits, need achievement drive, and education, and their effect on entrepreneurial intention; and Context, denoted by (C), which is Indian with a special focus on Uttarakhand.

In order to bring structure and clarity in the research, this study uses the PCC (Population–Concept–Context) method. On the basis of this model, the below mentioned research questions provide guidance to this systematic review:

RQ1: Which personality attributes most strongly impact the entrepreneurial intention of women?

RQ2: How need achievement acts as a mediator between personality and women's entrepreneurial intention?

RQ3: What role education plays in shaping and strengthening women entrepreneurial intention?

RQ4: Which contextual (including social, cultural, and institutional) factors supports or obstruct entrepreneurial intention of women in India, particularly in Uttarakhand?

The importance of this research lies in its potential to advance women's entrepreneurship research in both theory and practice. By synthesising diverse evidence, it bridges the gap between intellectual or psychological viewpoints and contextual ones, providing a strong foundation for developing a gender-responsive support system for entrepreneurship. Furthermore, the review contributes to the development of region-based literature by emphasising Uttarakhand and offering policy support and insights to empower women entrepreneurs in less industrially developed regions. The Systematic review, hence, can be considered a crucial step toward the development of evidence-based policies and future detailed empirical investigation.

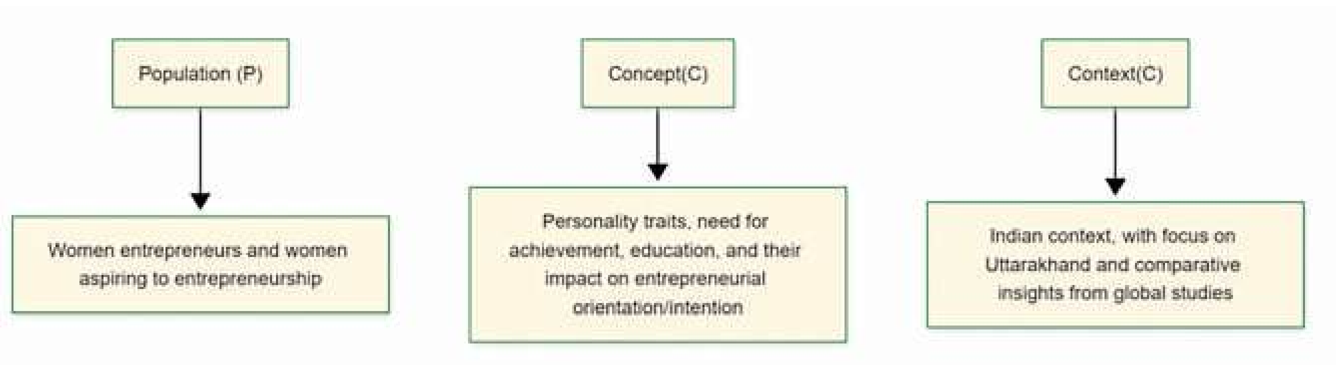

Figure 1. PCC Model

2. Review of Literature

Following systematic literature review methods, the study used the Scopus database to examine the relationship between "Big Five traits" and "need achievement" in female entrepreneurship. The research identified articles that contain the keywords "entrepreneurial behaviour," "personality traits," "big five," "women entrepreneurs," "women empowerment," and "need achievement" in their titles, using the "AND" Boolean connector. Three main criteria of restrictions have been established, i.e., a) The study contains only published journal articles, unpublished work, and working papers have not been included; b) only articles written in English have been considered for the study, c) articles published between 1995-2024 have been taken into consideration. To carry on with this systematic review, the research employed the PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) framework, that helps in providing a well-structured methodology for identifying and screening the necessary articles. Strict criteria for article inclusion and exclusion were applied. Only the journal articles within a time frame of 1995–2024, published in English, were considered, and all the unpublished articles and working papers were excluded. Finally, 94 research articles were selected for review. PRISMA technique ensures transparency and replicability, as well as improves the quality of literature review.

PRISMA

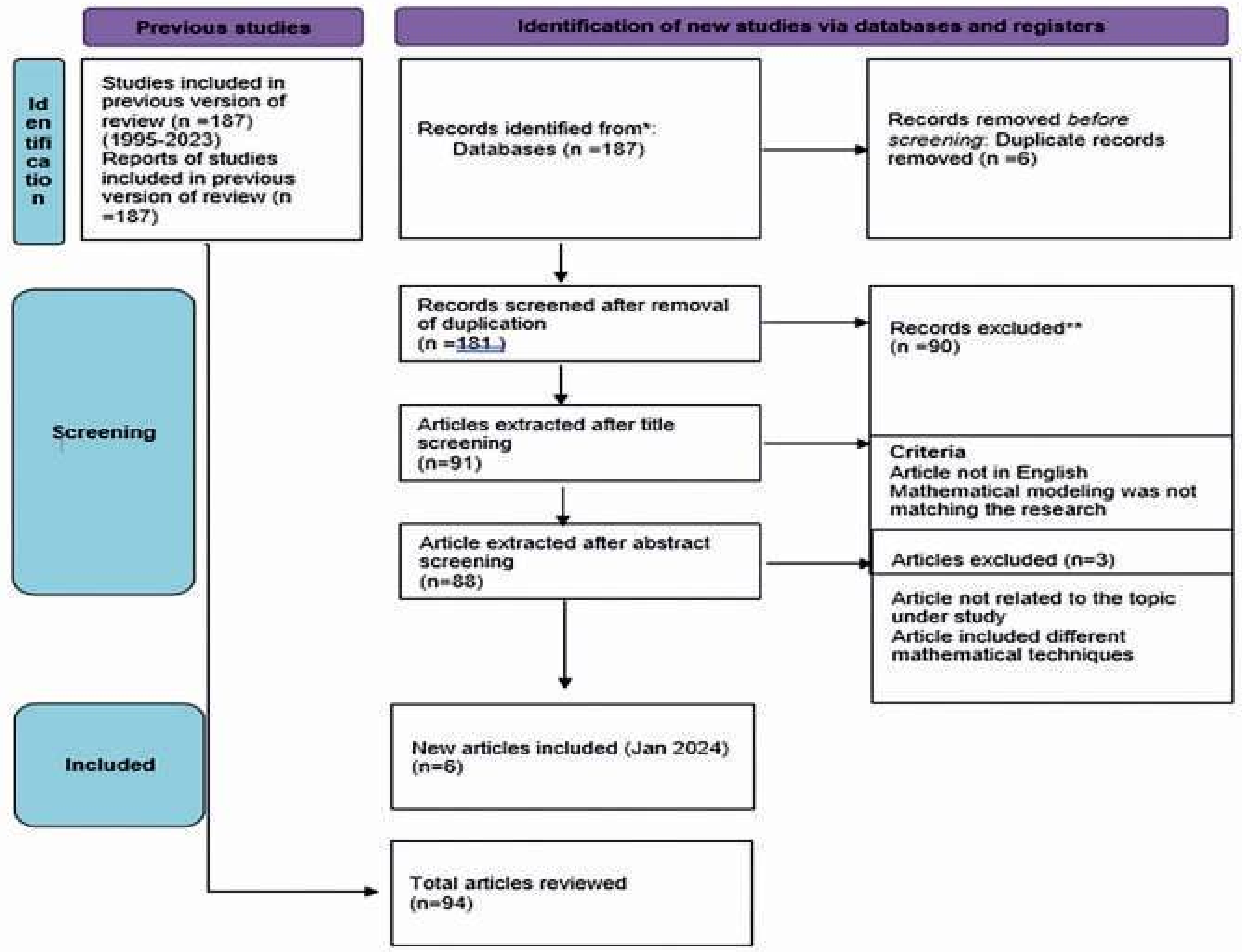

Figure 2. Articles search strategy selection

Using the PRISMA selection criteria, the final sample comprised 94 studies. To enhance clarity regarding the methodological and contextual diversity of the chosen research, Table 1 summarises the key characteristics of the reviewed studies, including the study design, sample, geographical area, and other major variables.

Table 1. Characteristics of Reviewed Studies

Author (Year)	Country/ Context	Research Design	Sample Size	Key Variables Examined	Main Findings Relevant to Entrepreneurial Intention
Pandey (2013)	India	Quantitative survey	120	Motivation factors	Lack of motivation reduces confidence towards entrepreneurship
Reza et al. (2020)	Indonesia	Mixed methods	220	Education quality	Education improves entrepreneurial performance and intention
McKay (2001)	USA	Qualitative interviews	34	Family support	Lack of family support decreases entrepreneurial intention
Gundry et al. (2014)	Russia	Survey	180	Innovativeness, sustainability	Low innovation ability limits opportunity recognition
Venkatesh et al. (2017)	USA	Conceptual	—	Technology adoption	Tech exposure influences entrepreneurial decision-making
Zgheib (2018)	Lebanon	Survey	250	Push/Pull factors	Push factors are dominant among women in developing countries
Jennings & Brush (2013)	Canada	Review	—	Gender issues	Women face more socio-cultural barriers to entrepreneurship
Franco & Prata (2019)	Europe	Survey	142	Personality traits	Extraversion strongly predicts entrepreneurial performance
Bergner (2020)	Switzerland	Quantitative	300	Big Five traits	Openness and emotional stability drive entrepreneurial success

Research Gap

Instead of global and country-specific growth in research on women's entrepreneurial intention, the existing literature remains fragmented. It indicates that previous researches –(Kreiser et al., 2010)(Bergner et al., 2023) tend to examine single variables like personality traits, social and cultural influences or motivation, without furnishing a comprehensive understanding of these variables in collectively shaping women's intention towards entrepreneurship. Moreover, very few studies (J. S. Kumar & Shobana, 2023; Mani et al., 2021) specifically focus on Indian women, and even fewer examine geographically less-researched regions like Uttarakhand. This widens the crucial gap in understanding the interaction of personality, education, and motivation in women's entrepreneurial decisions in India. Addressing this gap is crucial for developing theoretical insights and for recommending policies. Consequently, the present review proposes a conceptual model linking personality factors, need achievement, and education to women's entrepreneurial intention, thereby providing an integrated framework for prospective empirical studies.

3. Conceptual Model

Based on the synthesis of available literature and identified research lacuna, this study proposes an integrated conceptual model (Figure 3) that demonstrates the relations among psychological, motivational, and contextual factors in shaping women's entrepreneurial intention. Based on the reviewed literature, this research proposes a conceptual model in which the personality traits (O for openness, C for conscientiousness, E for extraversion, A for agreeableness, and N for neuroticism), as depicted in Figure 3, serve as foundational precursors influencing entrepreneurial propensity. These attributes are suggested to carry both direct and indirect influence through need achievement (NACH). Education is included as a strong factor that magnifies self-efficacy, managerial capabilities, problem-solving skills, and opportunity identification, thereby enhancing entrepreneurial intention. Additionally, contextual variables such as social norms, culture, family support, institutional support, and regional factors (specifically, Uttarakhand) act as external factors that can enable or obstruct women's entrepreneurial intention. Collectively, the model provides a conceptualization of women's entrepreneurial intention as the result of a dynamic interconnection among individual characteristics, psychological motivational factors, education, and social and cultural context. This comprehensive framework depicts a clear premise for future empirical research.

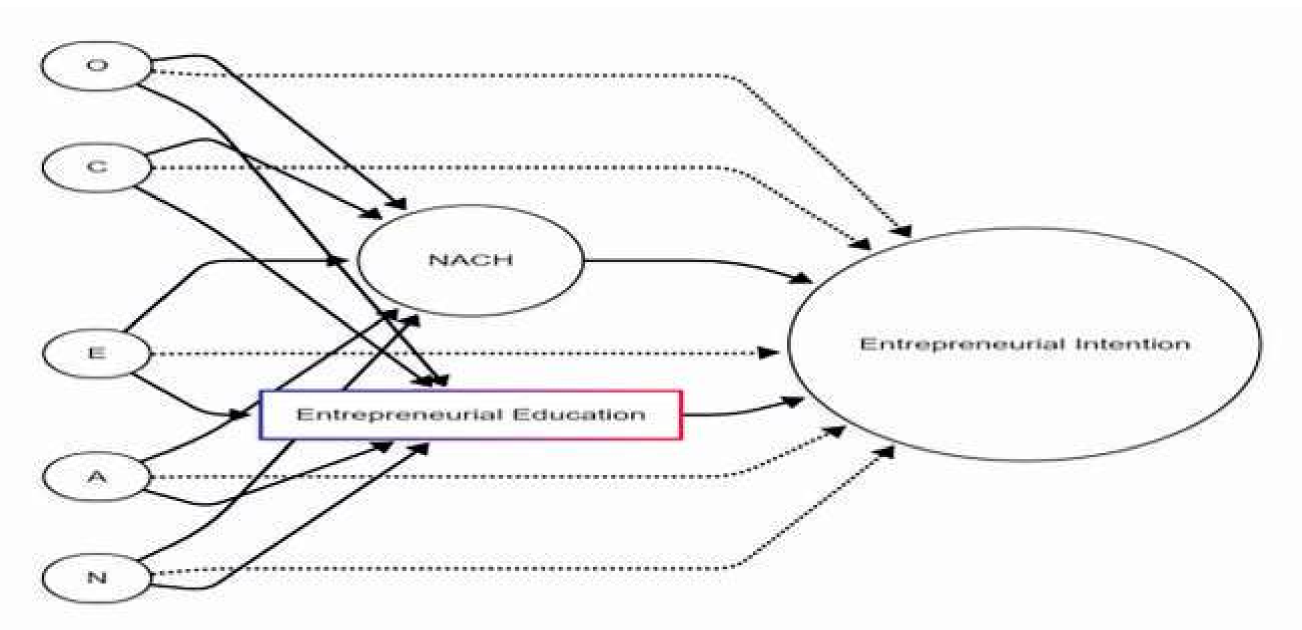

Figure 3. The conceptual model

3.1 Women Entrepreneurship: Current Landscape

Statistics and Trends in Women's entrepreneurship

The role of women has changed over the decades. The 1960s can be marked as a decade of self-realisation for women, during which they began exploring their identities and made efforts to gain financial independence (A. Singh & Singh, 2023). They started small businesses from their houses only. Such businesses include pottery, bangle-making, agarbatti-making, and so on. During the 1970s, women were more ambitious and focused on their businesses. This period witnessed women demanding for their rights. An Indian biopharmaceutical company, "BIOCON," was launched during this phase by Kiran Mazumdar Shaw. During this phase, women were ready to face the challenges of balancing personal and work life. The 1980s focused on professional training and education for women entrepreneurs. Vandana Luthra, the founder of VLCC (Vandana Luthra Curls and Curves), emerged as an influential entrepreneur in this phase. The 1990s saw another aspect of women emerge, giving them neck-and-neck competition with their male counterparts. During this era, the government also supported women entrepreneurs for career growth. In the 21st century, women entrepreneurs contributed equally to men entrepreneurs in economic growth (J. S. Kumar & Shobana, 2023). Therefore, it can be concluded that female entrepreneurs positively impact poverty reduction, per capita income growth, and job creation (Sheikh et al., 2018; Caliendo et al., 2015). Below is the graphical representation of country-wise research on urban and rural women entrepreneurs.

As depicted in Figure 4, the research on urban and rural women entrepreneurs is highest in the United States, with 22 research papers in the urban category and 36 in the rural category. At the same time, it is the lowest in Bangladesh, with only one research paper on urban women entrepreneurship and three on rural women entrepreneurship. In India, 10 articles have been published in Scopus on urban women in entrepreneurship, whereas only 25 have been published on rural women entrepreneurs. Therefore, in India, there is still significant scope for further exploration of women's entrepreneurship. Gender poses many challenges for women entrepreneurs, such as striking a fine balance between personal and professional life, limited mobility, limited say in decision-making, and so on (Tambunan, 2009). Such difficulties demotivate and prevent females from excelling in entrepreneurship, but at the same time, they also provide a chance for women to become more competent entrepreneurs (Nayyar et al., 2007). The fear of failure, traditional gender biases, lack of mobility, and difficulties in arranging financial resources are some of the major problems faced by women entrepreneurs (Roomi & Parrott, 2008) (Della-Giusta & Phillips, 2006) (Das, 1999) (Heilbrunn, 2004). Women's traditional roles, like being primary nurturers of family and being confined to household work, only, have been considered as the reason for their low level of participation in entrepreneurship

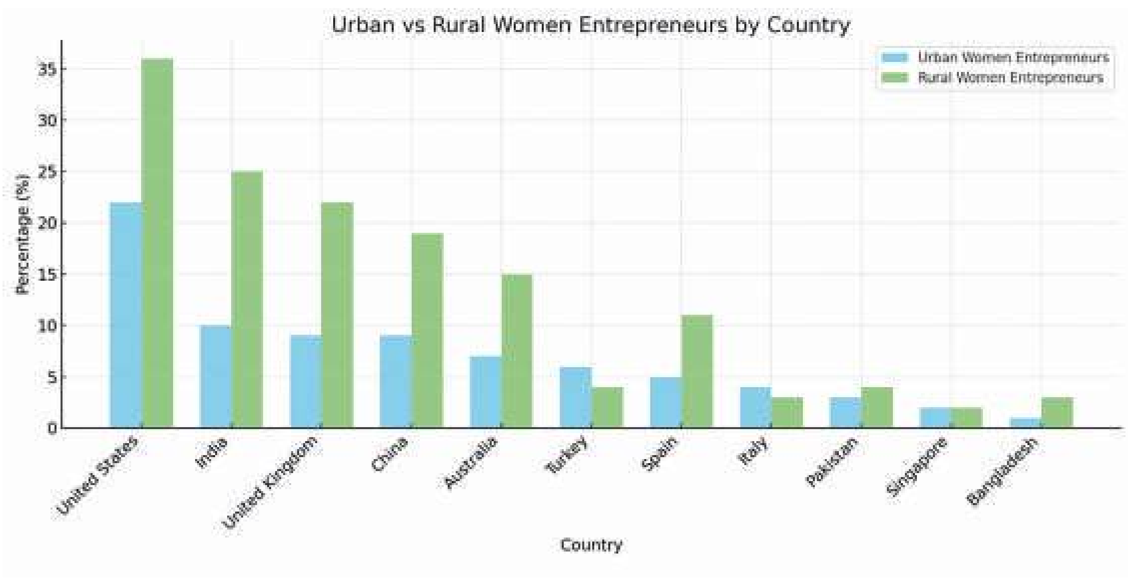

Figure 4. Country-wise representation of studies on women entrepreneurs

(Ahmad et al., 2010). Compared to male entrepreneurs, women entrepreneurs experience greater (Gambles et al., 2006). Women entrepreneurs face failure in their ventures because they possess a lack of business acumen and managerial skills –(Radipere & Van Scheers, 2005) (Boden Jr & Nucci, 2000). According to (36), young women entrepreneurs, in particular, lack the social and human capital needed to expand their businesses and realise their full leadership potential. Fear of failure is the barrier to their path to success. Through the systematic literature review, different challenges faced by female entrepreneurs have been identified, as mentioned in Table 2 below. If not recognised and addressed properly, internal and external motivational factors, such as hobbies and interests and market demand, demotivate women in entrepreneurship. In addition, the quality of education received through family support, openness to innovation and sustainability, and technological exposure influence women's intention towards entrepreneurship.

Table 2. Studies on Challenges faced by Women Entrepreneurs

Challenge	Explanation	Reference of Article
Lack of motivation	Internal motivation, including outgoing personality, hobbies, and interests, as well as external motivation, including market demand and prior work environment, affect women's intentions toward entrepreneurship. Lack of motivation reduces women's confidence in entrepreneurship.	(V. Pandey, 2013)
Lack of quality education	Quality education should encompass components such as tangibility, empathy, assurance, responsiveness, and reliability to facilitate the inculcation of entrepreneurial education among aspirants.	(Reza et al., 2020)(Chhabra & Goyal, 2019)(Schneider et al., 2017)
Lack of family and friends support and perceptional challenges	A lack of support from friends and family can reduce confidence and lead to demotivation and embarrassment among entrepreneurs. It is very difficult to change the already built perception of people related to particular businesses like beauty services, including nail art, pedicure, and manicure.	(McKay, 2001) (Field et al., 2014)(Halkias et al., 2011)

Innovativeness and sustainability challenge	In transitional economies like Russia, a lack of innovative and risk-taking capacity poses a challenge to the recognition of business opportunities, and business innovation strategies have a negative impact on firms' sustainability.	(Gundry et al., 2014)
Less exposure to Technology and Information system	The disciplines of women's entrepreneurship and information systems have ignored the importance of Women's IT entrepreneurial behaviour, which affects the entrepreneurial intention and decision-making process of a new generation of women entrepreneurs in the IT context.	(Venkatesh et al., 2017)(Moghavvemi et al., 2016)

Push and pull factors influence women's entrepreneurship. Push factors are necessary, whereas pull factors are opportunity-driven (Amit & Muller, 1995). Push factors such as gender inequality, balancing personal and professional life, and lack of family support force women to leave their existing jobs '–''–'(Hughes, 2003) –(Zgheib, 2018). According to Jennings & Brush (2013), women entrepreneurs are more influenced by push factors than men. Women establish businesses to increase family income, but men are not as motivated by this factor (Allen & Curington, 2014). Decisions toward self-employment are affected by pull factors, like demand for independence, self-efficacy, career advancement, and a family history of entrepreneurship (Hughes, 2006) –(Zgheib, 2018). According to ''Feng et al. (2023), pull factors were the primary driving force behind the establishment of enterprises by women entrepreneurs in India, as reported by approximately half of the 400 female entrepreneurs in Korea's information technology (IT) sector. Cross-cultural boundaries, women opening their startups are often driven by a desire for career growth –(J. Lee, 1996) (J. Y. Lee & Lee, 2020) (Brush & Brush, 2006). Women are driven towards entrepreneurship (Shava & Chinyamurindi, 2019). Because the intentions of female entrepreneurs are more likely to be affected by self-determination than those of males, entrepreneurial self-determination was found to be even more necessary for females to establish a firm than for males –(Shinnar et al., 2014). Females from business families are more attracted to launching a business venture than those without one –(Welsh et al., 2021). Table 3 below presents the literature on factors affecting women's inclination towards entrepreneurship. Economic necessity is a crucial factor influencing women's entrepreneurial intention. Because of economic necessity, push entrepreneurship is much more popular in developing nations. Moreover, women engage less than men in entrepreneurial setups because of gender issues. In addition, increased access to business opportunities attracts women to pursue entrepreneurship.

Table 3. Studies on factors affecting Women's entrepreneurship

Factors	Meaning	Reference	Country
Push and Pull factors	Push factors are situational factors like family dependents, family income, pressure from society, fewer job opportunities, bad working conditions, and less job security that compel women to enter entrepreneurship, whereas pull factors, such as desire for Achievement, enthusiasm, and motivation, attract a person to entrepreneurship.	(Amit & Muller, 1995) (Hughes, 2003)	CANADA and INDIA
Economic necessity	Economic necessity is a crucial factor in shaping women's intentions to become entrepreneurs. It counts much more than self-fulfilment in startup development among Lebanese women than among US women. Because of economic necessity, push entrepreneurship is more prevalent in developing countries than in industrially advanced nations.	(Zgheib, 2018)	USA
Gender issues	Women and men do not equally engage in entrepreneurship. Females are less involved than males in venture creation, owning established firms, and engaging in academic entrepreneurship.	(Jennings & Brush, 2013)	CANADA
Motivation	Men are often motivated by pecuniary factors to enter into entrepreneurship. In contrast, women are motivated by nonpecuniary factors such as family concerns, time constraints, and the opportunity to work from home to balance their personal and professional lives.	(Allen & Curington, 2014)	USA

3.2 Big Five Personality Traits and Women Entrepreneurship

The big five theory is an influential personality theory that provides a logical and scientific explanation of the causes that determine an individual's potential and direction. The big five personality dimensions can be used to classify almost all aspects of personality. Through rigorous testing and applications, researchers supported the five-factor model's universality, generalizability, and applicability to individuals (Zhao & Seibert, 2006). The significance of the Big Five traits in personality research and the potential of these key aspects have been examined by a few researchers in the context of women entrepreneurs in India (Giménez & Calabrò, 2018). Little research explains the precise connection between "big five personality" attributes and the intention to initiate a venture (Bergner et al., 2023). The intention of women to start their ventures is highly affected by extraversion, openness, and conscientiousness (Linfang et al., 2021).

The five characteristics of each personality dimension that are linked to and important for comprehending the intention of entrepreneurs are listed below:

Conscientiousness: indicates a person's ability to work hard, have a goal-oriented work style, be self-sufficient, and persevere in the face of increasing challenges. These attributes motivate entrepreneurs to follow their goals and take on control-related features that strengthen their decision to become entrepreneurs (Užule et al., 2021). Because it consistently predicts employment performance, conscientiousness has an optimistic relationship with entrepreneurial performance (D. L. Pandey et al., 2023).

Openness to Experience: Entrepreneurs are recognised for inventiveness and inclination to spearhead novel transformations. (Nissan et al., 2012). Individuals receptive to new experiences may also have more confidence in their innovative and entrepreneurial abilities, anticipate success from them, and be exposed to entrepreneurial endeavours that provide them with learning opportunities and the intention to continue doing so in the future (Szeli et al., 2018).

Extraversion: These include effectively communicating one's vision and enthusiasm, networking with stakeholders, demonstrating strong negotiation skills with clients, and cultivating a positive working relationship with staff members, all of which correlate positively with entrepreneurial performance (Reshma, 2019) (Chellam & Saranya, 2021). Extraversion is found to positively impact performance among founder personality traits (Franco & Prata, 2019).

Neuroticism: Entrepreneurs are renowned for being steadfast, composed, even-tempered, resilient, optimistic, and steady. Entrepreneurs with low neuroticism can handle stress and issues with composure and positivity, leading to excellent action and performance (Bergner, 2020). Low neuroticism is consistently related to better job performance in different occupations (Bajwa et al., 2017).

Agreeableness: This dimension includes traits such as trust, selflessness, cooperativeness, and modesty (Bergner, 2020). Agreeableness significantly impacts the performance of individuals (Eaton et al., 2014). The table below showcases the big five personality traits and their effect on women's Entrepreneurship.

Table 4. Studies on Big five personality traits and women entrepreneurs

Big Five Personality Traits	Explanation	Reference
Openness to experience	Women entrepreneurs possessing openness traits are characterised by versatility, creativity, and a high level of imaginative ability. They are ready to take on new challenges within their ventures. Openness positively influences women's intention toward entrepreneurship.	(Koe Hwee Nga & Shamuganathan, 2010)
Conscientiousness	Women entrepreneurs have maintained their businesses for a longer period, are diligent and careful in their business dealings, and are self-motivated and enthusiastic.	(Uzule et al., 2019)

Big Five Personality Traits	Explanation	Reference
Extraversion	Extraversion includes being sociable, expressing opinions freely, being bold, being full of energy, and being focused. It positively affects the intentions of women entrepreneurs and motivates them toward entrepreneurship.	(Franco & Prata, 2019)
Agreeableness	Agreeableness comprises traits of trust, consideration, affection, and kindliness. High agreeableness facilitates women entrepreneurs in building an optimistic work environment and being empathetic. It prevents women entrepreneurs from promoting their own interests rather than considering others' interests in their ventures.	(Kang et al., 2023) (Rubaiyat, 2023)
Neuroticism	Neuroticism includes negative personality traits such as complaining behaviour and difficulty dealing with stress, which restricts the capability of women entrepreneurs, such that women with high levels of neuroticism often encounter more challenges, like sadness, depression, lack of motivation, and less growth in their venture, as compared to entrepreneurs with low neuroticism.	(Milano et al., 2021)

From Table 4, it is evident that women open to new challenges and experiences are positively inclined towards entrepreneurship. Conscientiousness helps women stay in their business for a long time, along with extraversion, which helps them express their views and opinions freely to others. Women with low agreeableness struggle to trust others and are only concerned with their own self-interest, negatively affecting their entrepreneurial intention. Women with low neuroticism excel in their ventures because of their calm and optimistic approach.

3.3 Need achievement and Women Entrepreneurship

Need achievement refers to an individual's desire for self-achievement. According to McClelland's achievement motivation model, individuals have three types of needs: "need achievement," "need for power," and "need for affiliation." However, the need achievement positively affects the success of women entrepreneurs (R. U. Khan et al., 2021). Various internal factors, such as achievement need, risk-taking ability, and self-confidence, and external factors, including social and cultural aspects, positively affect the growth of women's entrepreneurship (R. U. Khan et al., 2021). However, another aspect of the need achievement is that when the motive for achievement drives entrepreneurs, it tempts them to push very hard, cut corners, or disregard stakeholders. Although this can provide a temporary benefit to the entrepreneur, the long-term costs associated with it can largely exceed them. (Miller, 2015).

The need achievement is crucial to women's zeal for entrepreneurship. The vibrant endeavours in entrepreneurship, along with a positive and supportive societal attitude toward women's entrepreneurship, have enabled women to excel in entrepreneurship (Aramand, 2012). Likewise, the achievement drive includes performing difficult tasks, taking responsibility, and continuously focusing on becoming successful (Rauch & Frese, 2007). Nonprojective measures were used to examine the relationships among need for achievement, labour turnover rate, and occupation. There is a Low turnover of entrepreneurs with a high need for achievement. However, the high-need achievement drive is directly connected to labour mobility (Langan-Fox, 2005). Women entrepreneurs with a high need achievement tend to establish service firms. However, difficulty in financial arrangements demotivates women entrepreneurs to enter and excel in entrepreneurship (Serwaah & Shneor, 2021). Women with a high need for achievement are open to new experiences, have positive attitudes toward life, and are innovative in various ways, thereby thriving in their ventures compared to their predecessors (Bouarir et al., 2023). The table below showcases various studies on the need achievement and relevant women's entrepreneurial behavioural factors in India.

Table 5. Key factors identified that impact need Achievement and women's entrepreneurial behaviour

Need Achievement	Explanation	Reference
Growth Aspirations	Desire for growth and growth viability are the two important factors that predict growth aspirations in women. Support from key stakeholders, such as employees, the community, and investors, facilitates the prediction of growth aspirations and the development of entrepreneurial intention among women.	(Bulanova et al., 2016)
Persistent Behaviour	The uncertainty caused by the pandemic, business attachment, and the fear of being questioned by family persistently drive women entrepreneurs toward entrepreneurship.	(Nouri, 2023)
Curiosity	Type D curiosity is associated with self-efficacy and resilience, leading to a high level of entrepreneurial intention. Curiosity acts as a moderator between entrepreneurial intention and one's perception of starting a venture.	(Barrientos Oradini et al., 2022)
Contentment	Women are less likely to be motivated by monetary factors. Instead, they are attracted to entrepreneurship to fulfil their need for independence, discover their innate talents, gain empowerment, and achieve a dignified status in society.	(Gano-an, 2020)

Need Achievement	Explanation	Reference
Diligent Approach	A diligent approach, including effective communication, empathy, leadership, and teamwork, motivates women entrepreneurs to develop a productive social support system in their businesses.	(Siahaan & Ayustia, 2019)

Table 5 above shows the important factors in need achievement that drive women towards entrepreneurship. Women with high growth aspirations and persistent behaviour are more likely to be inclined toward entrepreneurship. In addition, women are attracted to entrepreneurship to fulfil their need for independence, empowerment, and contentment.

3.4 Entrepreneurial Education and Women Entrepreneurship

Innovative, risk-takers and competitive people want to work as entrepreneurs. Furthermore, a multi-group comparison of educational backgrounds business and non-business showed that pursuing an entrepreneurial career might be sparked by more than just business-related coursework (Batool & Ullah, 2017) and (Galvão & Pinheiro, 2019) highlights the necessity of developing a psychological coaching program for entrepreneurs to strengthen various soft skills that could increase their networking capacities, as networking is crucial for successful entrepreneurship. Moreover, education serves as an instrument that enhances one's intention to become an entrepreneur (Burch et al., 2022). Need achievement, risk-taking inclination, internal locus of control, and aspirations to pursue entrepreneurial goals are positively and statistically significantly correlated with the entrepreneurship education variable. Furthermore, a statistically significant portion of the diversity in entrepreneurial intensity was explained by the demand for Achievement, a tendency toward risk-taking, and an internal locus of control. However, only need achievement, among the three psychological characteristics, partially moderated the association between the impacts of entrepreneurship education and entrepreneurs' intent to pursue their goals (Ndofirepi, 2020). The Big Five personality traits and self-efficacy are both enhanced by entrepreneurial education (Ouni & Boujelbene, 2023). Higher sales and net profit growth were observed among entrepreneurs with greater education and experience. Additionally, being motivated and persistent, having a stronger sense of accomplishment, being risk-averse, and being careful are the traits of successful entrepreneurs (Sriram & Mersha, 2017). Female entrepreneurs are driven by moderate desires for affiliation and autonomy, a somewhat high need for dominance, and a high need achievement.

Furthermore, it was discovered that these female entrepreneurs' psychological demands are influenced by family history and life events (such as marriage and schooling). The need intensities of women company owners were significantly influenced by educational attainment (J. Lee, 1996). Entrepreneurial education programs are designed to prepare participants for a promising career in self-employment, where they learn to set up and run their own businesses. Students who received entrepreneurial education showed a greater degree of entrepreneurial intent than those who did not, according to Westhead and Solesvik (2016). However, female students' entrepreneurial intensity was lower than that of their male counterparts. When evaluated internationally, academic entrepreneurship instruction may favor one's aspirations to pursue entrepreneurship (Pittaway & Cope, 2007). Government action is necessary to promote empowerment. Adequate planning is necessary for women's interventions. Women entrepreneurs are frequently driven by necessity, and every firm that wants to succeed needs a strong supporting infrastructure. The government of India has taken policy actions to ensure women have equal opportunities. In 2009, it declared the creation of the National Skill Development Mission and Policy, which aimed to provide entrepreneurship development, skill training, and vocational education. To support women entrepreneurs through mentoring, nurturing, and training in a variety of activities, the government has launched several programs, including Startup India, Made in India, Atal Innovation Mission, Support to Training and Employment Programme for Women (STEP), Stand-Up India, Trade-related Entrepreneurship Assistance and Development (TREAD), and others. Women entrepreneurs must be sufficiently shaped with entrepreneurial traits and talents to address the shifting trends and challenges in international markets. They must also be competent enough to maintain and pursue excellence in the entrepreneurial sphere.

3.5 Education and Entrepreneurial Intention

Education plays a crucial role in moderating one's intention towards entrepreneurship, yet empirical research has not yet fully examined the moderation effect of education on personality and entrepreneurial intention. Table 6 below presents education-related variables that have helped modify the relationship between personality and women's entrepreneurial intention. For instance, elective courses, project work, internships, degree programs, and educational connectivity have a noticeable impact on entrepreneurial intention.

Table 6. Key Factors identified in Studies related to Entrepreneurial Intention and Education

Variable	Explanation	Reference
Elective courses	Implementing entrepreneurship as an elective course in universities will facilitate students' understanding of their suitability as entrepreneurs to pursue a career in this field.	(Sharma et al., 2024)
Project Work	Higher educational institutions' incorporation of practical entrepreneurial projects into their curriculum will facilitate the production of entrepreneurs rather than just entrepreneurship graduates.	(Shabbir et al., 2022)
Internships	Entrepreneurial Internship programs and business incubators have a statistically positive and significant effect on developing positive entrepreneurial intention.	(Schneider et al., 2017)
Degree Programmes	Degree programs incorporating awareness camps, seminars, workshops, and skill development activities like role-playing and management games positively impact one's entrepreneurial intention.	(Radipere & Van Scheers, 2005)
Educational connectivity	The learning environment in higher educational institutions encompasses educational connectivity between teachers, students, and other facilitators to generate entrepreneurial intention.	(Reza et al., 2020)

3.6 Entrepreneurial Intention among Women

Entrepreneurial intentions are defined (Hossain et al., 2024) as a mindset that directs a person toward initiating a business and making decisions about pursuing an entrepreneurial career. There is a positive relationship between entrepreneurial zeal and factors such as gender, family background, entrepreneurship education, attitude, risk-taking, and openness to new experiences. Women entrepreneurs are also affected by societal stereotypes and beliefs about differences in the roles of men and women when deciding to launch a venture. A person's relationship with his/her social environment significantly impacts the development of entrepreneurial intention. Supporting the social environment can also positively impact women's entrepreneurial intentions. Qualities that significantly influence an entrepreneur's intention include the need achievement, risk-bearing, and job stability. These factors must be considered to identify each person's unique attributes and their effect on one's desire to start a business. Individuals with great ambition to become entrepreneurs start businesses (Milano et al., 2021). Another significant factor influencing the development of entrepreneurial intention is communal inclination.

Compared to males, women have a more communal inclination that motivates them to start their ventures. In 2019, Zisser et al. explained that Individuals' inclinations to start their own business are significantly influenced by their extroverted personality and openness to new experiences. On the other hand, risk-taking and a desire to start a business are common personality traits among Pakistanis. An important personality attribute, "openness to Experience" appears to be directly correlated with the desire to start a business. Furthermore, there is a favourable relationship between emotional intelligence and entrepreneurial intention. Entrepreneurial intentions are also advantageous for different startups since they can help them access startup subsidies and promote their growth and innovation. Furthermore, Yukongdi and Lopa (2017) found that personality introspection is very beneficial in motivating individuals to pursue their entrepreneurial goals.

4. Findings and Discussion

The findings and discussion of the present review are showcased section-wise:

4.1 The impact of personality traits on the entrepreneurial intention of women

As per the findings of the present review, the three big five personality traits, i.e. Openness to experience, conscientiousness and neuroticism, create a positive impact on women's entrepreneurial intention. Various researches also exhibit the significance of openness trait in driving innovativeness and adaptability in entrepreneurs (L. B. Singh & Mehdi, 2022) (Khurshid & Khan, 2017). Conscientiousness, on the other hand, facilitates strong strategic planning, and extraversion in networking and opportunity identification, which plays an important role in venture success and growth (Iram et al., 2022). These research findings provide a reaffirmation of the Big Five personality traits in understanding why some females are more inclined towards entrepreneurial activities than others. Especially in Uttarakhand, rather than supportive personality traits, various regional and cultural factors can moderate such intentions. Hence, personality alone cannot develop entrepreneurial intention; it requires continuous motivation and social support from various sources to sustain it in women.

4.2 Mediating role of Need achievement

As per the reviewed research, it is clear that need achievement acts as a psychological driving force in mediating the relationship between personality and intention. To align with the theory of McClelland (1988), individuals possessing high need achievement drive are always ready to face challenging business situations and for women entrepreneurs also, need achievement act as energiser for transforming their personalities specifically the traits of openness to experience and conscientiou-sness into entrepreneurial behaviour (Yusoff et al., 2023). According to review of literature, despite of various institutional and societal hurdles, need achievement enhances the quality of resilience as well as persistence in women entrepreneurs (Bouarir et al., 2023). A strong need for achievement in women helps them turn their challenges into favourable opportunities. However, contextual factors, such as patriarchy, limited financial access, and limited scope for effective mentorship, can alter the impact of need achievement on entrepreneurial intentions. In the Indian context, need achievement coexists with family rules and expectations from culture, thereby influencing women's balancing behaviour between their ambition for entrepreneurship and societal conformity.

4.3 Role of education in enhancing entrepreneurial intention of women

Education strengthens women entrepreneurs' cognitive, technical, and managerial abilities, thereby enhancing entrepreneurial intention. Various reviewed researches suggest that education provides alleviation to women confidence makes them financially literate and improves their business skills and self-efficacy (Pittaway & Cope, 2007) (Ndofirepi, 2020). More exposure to entrepreneurship-based training and simulation models helps women entrepreneurs improve their analytical, opportunity-identification, and innovation skills. As per the reviewed research, it is clear that education strengthens the role of need achievement (mediator) by inculcating problem-solving and leadership skills in women. In Uttarakhand, educational levels differ between rural and urban areas. Educational programmes specifically targeted to women entrepreneurs of both rural and urban areas can catalyze them. However, the research findings caution that integrating local economies, societal norms, and market accessibility should be contextually relevant to achieve desirable outcomes. Additionally, recent studies (Puriwat & Tripopsakul, 2020) (Shukla & Bhasin, 2023) focused on the aspect that there is a need to integrate entrepreneurial education with Industry 4.0 competencies like digital literacy, tools based on artificial intelligence, machine learning and data analytics, electronic commerce operations and as the presently the entrepreneurial horizon is technology driven. Exposure to such technologies enhances women's confidence, their ability to identify opportunities, and prepares them to manage digitalised business models. In Uttarakhand, digital adaptability and Industry 4.0 in addition to targeted capacity-building campaigns and programs can act as strong catalysts in shaping women's entrepreneurial intention (Sharma et al., 2024).

4.4 The influence of contextual factors: Societal, institutional and cultural

The existing researches suggest that detachment of social and cultural norms from entrepreneurial intention is not possible in Indian context (Hossain et al., 2024) (D. L. Pandey et al., 2023). There is a delineation of gender roles and responsibilities, leading to problems in women's mobility, decision-making freedom, and financial accessibility. Due to the bureaucratic nature of institutional authorities at various levels, the entrepreneurial domain remains underutilised. Researches also highlighted that women entrepreneurs can easily overcome the challenges involved in social resistance if they are supported by their friends and families (Jennings & Brush, 2013) (Della-Giusta & Phillips, 2006). Conversely, various factors, such as the lack of mentorship, gender bias in obtaining financial help, and limited business networking skills, hinder women from becoming and sustaining as entrepreneurs. Hence, contextual involvement, such as the development of incubators specifically for women, special financial support for women entrepreneurs, and their participation in various capacity-building programs, will help strengthen the entrepreneurial ecosystem for Indian women entrepreneurs.

Furthermore, the research studies undertaken after pandemic (Marsan & Sabrina, 2020) (Nouri, 2023) revealed that COVID-19 reshaped the landscape of women's entrepreneurship significantly. COVID-19 intensified business hurdles, extended domestic responsibilities, and restricted women's mobility, yet at the same time accelerated digital adaptation. Many women gained entrepreneurial opportunities through online platforms; many started home-based businesses and sought the benefits of digital marketplaces during the pandemic, particularly women with higher openness and conscientiousness. Thus, COVID-19 acted as both a barrier and a catalyst in shaping how personality traits, need achievement, and education interact in the development of entrepreneurial intention among women in the post-2020 era.

5. Emerging trends: Digital entrepreneurship, platform work and gig economy

Recently, trends such as digital entrepreneurship, online platform-based businesses, and the gig economy have emerged, influencing women's participation in entrepreneurship. Such business models offer advantages in terms of flexibility, ease of online access, and the ability to launch ventures with low capital, making them particularly attractive for women facing mobility constraints. With the help of Digital platforms, markets and networks have expanded, but to take advantage of them, sufficient digital skills and support systems are required from time to time. The reviewed findings suggested that personality, education, and need achievement are now operating within these emerging digital ecosystems, which can empower or hinder women based on accessibility and skills.

Similarities in Research Findings

There is clear consensus in existing studies that personality, need achievement, and education are important drivers of women's entrepreneurial intention. Maximum researches concluded that the three big five traits i.e. extraversion, openness and conscientiousness strongly predicts women entrepreneurial intention (Kang et al., 2023). Similarly, need achievement is a globally recognised motivational factor that helps develop entrepreneurial behaviour. In addition to it, a strong agreement is provided in existing researches that education enhances women business acumen improves their self-efficacy and boosts their confidence level thus fostering in women empowerment as well –(Maziriri et al., 2024). Many researches provide an affirmation that women entrepreneurial intention can also be enhanced by necessary institutional and societal support in different ways –(Yukongdi & Lopa, 2017) (Westhead & Solesvik, 2016). Collectively, the present findings converge on the idea that the intention of women entrepreneurs is multifaceted and develops from a joint interaction of psychological and contextual factors.

Contradictions in Research Findings

Although there are similarities in the research findings, contradictions among the variables and their relations also persist in this research. There exist few researches which show the positive impact of agreeableness on entrepreneurial intention (Eaton et al., 2014). However, other researches shows its negative impact as extra compliance creates assertiveness creating decision making problems (Chellam & Saranya, 2021). In the same manner the need achievement is considered as contextual factor in developing economies like India wherein the external motivational factors sometimes supersede the internal achievement drives (Alam et al., 2012). There is also a contradiction with respect to educational impact on women intention as different researches argue that only formal education cannot enhance entrepreneurial intention, hands on experience is also requires for the same (Pittaway & Cope, 2007). Moreover, in India, there are various policies and regulations to support women's entrepreneurship, but disparities persist in their design and implementation, particularly in less industrialised areas. Such inconsistencies highlight that women's entrepreneurial intention cannot be explained at a universal level. Rather, such an intention can be contextually modified under different conditions, such as cultural, social, or financial.

The synthesis of current research findings shows that women's entrepreneurial intention is multi-layered and is clearly shaped by the interaction of motivation, personality, contextual factors, and education. A strong psychological base is facilitated by the Big Five traits, motivation is driven by need achievement, and education enhances capability. Yet, all such factors work well in a large socio-cultural setting that can nurture or obstruct entrepreneurial behaviour. The integration of different research suggests that there should be a holistic approach to all entrepreneurial interventions, considering women, and that these interventions must incorporate various psychological and educational factors. Hence, the present systematic review bridges the theoretical aspects of motivational, educational, and personality psychologies to propose a conceptual model for understanding, developing, and improving women's intention towards entrepreneurship, especially in a developing economy like India.

Implications

The present review's findings are highly pertinent to India's developing economic environment, where women's entrepreneurship is being elevated to promote comprehensive growth. As the economy moves towards digitalisation and innovation, traits like **openness, conscientiousness,** and **neuroticism** directly support creativity, flexibility, and strategic decision-making required in growing industries, including gig tasks and digital home-based enterprises. Need achievement also plays a significant role in the current societal context, where women aspire to independence in matters of finance and decision-making while navigating traditional gender norms. Need achievement facilitates in improving women persistence despite obstacles. However, the results show that only motivation cannot overcome problems associated with mobility, low networking, and patriarchal expectations. Education also uphold strong relevance in present scenario. With a strong focus on digitalisation, literacy, and skill development, education helps strengthen women's financial literacy, problem-solving, and opportunity identification. Yet the review shows that context-based educational modules are needed, as the disparity between rural and urban areas limits the benefits for many females. In totality, the implications suggest that psychological power enhances entrepreneurial intention only when it is aligned with a well-established supporting ecosystem. Female-focused credit plans and incubation facilities, along with easy access to mentoring and a community support system, are important for fully exploring women's entrepreneurial acumen, which is seeded by personality, need achievement, and education.

6. Theoretical Contributions

Redefining the Role Big Five Traits play in Women's Entrepreneurship

The review strengthens the Big Five theory of personality by confirming that traits such as openness, conscientiousness, and neuroticism consistently predict women's entrepreneurial intention. This shows that psychological temperament certainly matters in socially inhibited, developing-nation contexts, underscoring the pertinence of the Big Five theory to gender-specific entrepreneurship research.

Advancing McClelland's Achievement Motivation Theory

The mediation of Need achievement underscores the importance of internal motivation in translating women's personality traits into their entrepreneurial behaviour, despite several cultural and societal barriers. This extends McClelland's theory by investigating need achievement within a gender-conscious entrepreneurial journey.

Positioning Education as a Moderating Cognitive Resource

According to the findings, education strengthens the influence of personality and need achievement on women's entrepreneurial intention by enhancing their analytical skills, confidence levels, and opportunity-identification skills. Theoretically, education can be viewed as a moderator of capability enhancement rather than a common input into human capital.

Embedding Intention Models in Socio-Cultural Contexts

The review highlights that women's entrepreneurial intention cannot be studied or analysed without considering different social norms, family structures, and institutional support. This makes contextual and intersectional theories of entrepreneurship relevant, demonstrating the need to adapt and understand mainstream intention models for resource-constrained contexts such as those in India.

Proposing a Multi-Layered Integrated Framework

By integrating psychological, educational, contextual and motivational variables, this review provides a multi-layered demonstration of women's entrepreneurial intention. This comprehensive approach provides a theoretical foundation for the future moderated-mediation relation, which can be suited to developing economies.

Future Directions

This research includes a systematic literature review of women entrepreneurs in India. In future longitudinal studies can be initiated and explored with respect to the same problem. Such studies can provide greater clarity on the interactions among different psychological and contextual factors over time. Intersectional studies can also help untangle the overlapping hurdles. Such hurdles include gender bias, lack of education, and geographical factors, among others. As technology adoption increases, future studies must examine the impact of digitalisation on women-owned and managed businesses, accounting for key factors such as market accessibility, literacy levels, and innovativeness. Another important aspect that can be studied in the future is sustainability in women's entrepreneurial ventures and the integration of their social and environmental values to make their businesses profitable and successful. Further, by deep-diving into the crucial roles and functions of family and society, future research can provide insights into the influence of informal groups on the development of entrepreneurial intentions.

An entrepreneurial ecosystem, including factors such as policies and financial support, can also be studied in relation to entrepreneurial growth in the future. In addition, more research is needed to better understand psychological factors and resilience, as they help maintain long-term business sustainability. Further, predictive techniques and artificial intelligence can also be applied to understand the dimensions of women's entrepreneurship. Initiating cross-sectional studies can also help understand policy differences across economies. Lastly, studying cultural aspects, as well as women's media interactions and representations, can help uncover different perceptions of entrepreneurship. A robust agenda can be developed collectively based on the discussed directions for advancing both theory and practice in the entrepreneurial domain.

7. Conclusion

This article is motivated by observations about women entrepreneurs and their crucial role in shaping economies. The study found that, despite women entrepreneurs' evolving role and importance, they still lack an intention to become entrepreneurs. This study aimed to investigate which factors play a critical role in shaping women entrepreneurs and to identify where the ecosystem is lacking in supporting them. The current study carried out a systematic review of women's entrepreneurial intention. This study highlighted the opportunities and challenges women entrepreneurs face, as well as how personality affects their entrepreneurial endeavours. The review demonstrated that financial, cultural, and societal constraints are the main obstacles female entrepreneurs must overcome. According to the literature, Women have a favourable attitude toward entrepreneurship, but their success is more based on possibilities than on necessity. Targeted measures must be put in place to enable women entrepreneurs to contribute to business growth. This study has identified three crucial factors, i.e., personality, need, Achievement, and education, that shape women entrepreneurs' intentions across the globe. This study has identified a gap in the literature on how these factors affect women entrepreneurs in India. Future studies can

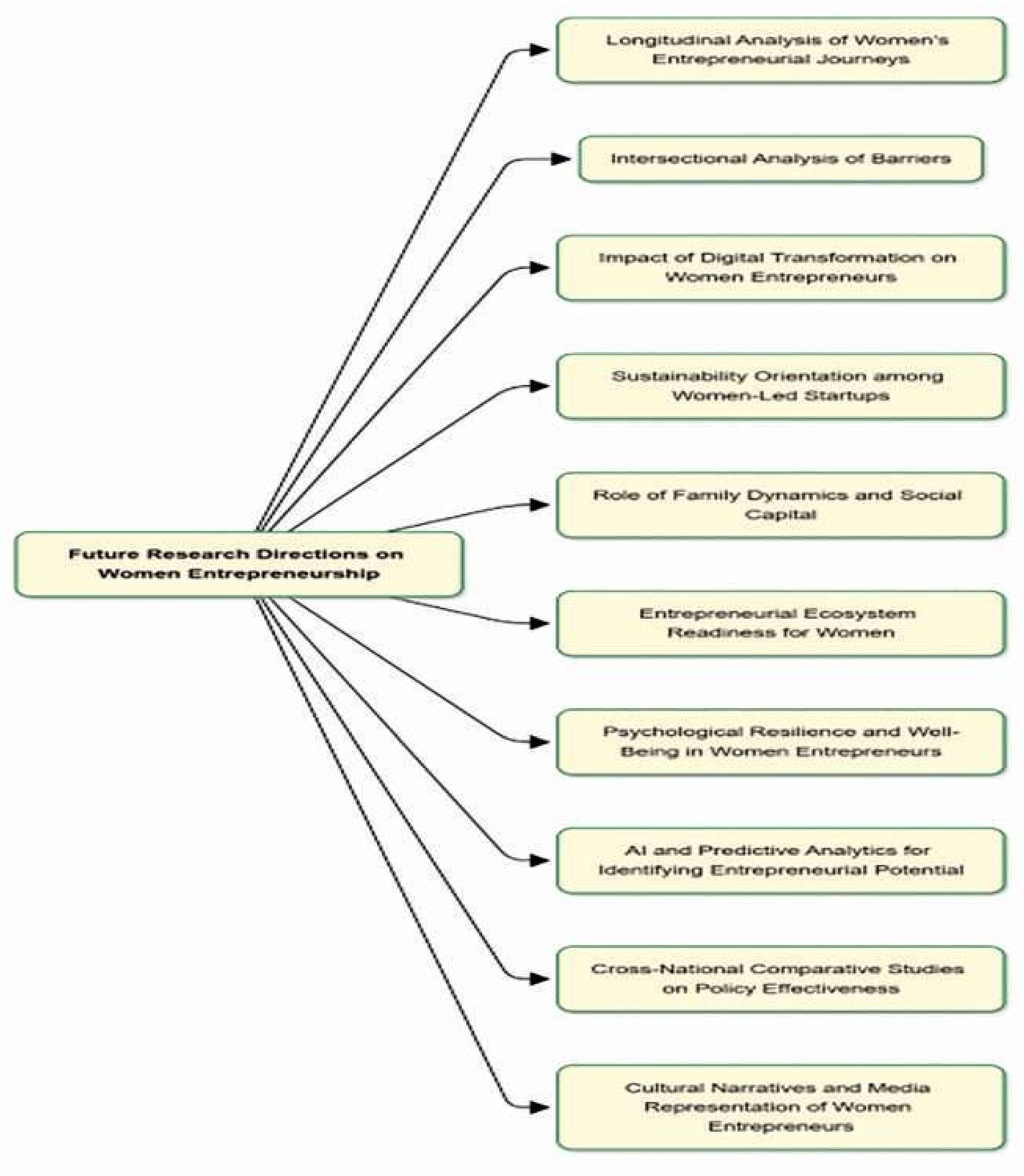

Figure 5. Future Research Directions

empirically test how personality, needs, Achievement, and education affect women's entrepreneurial intention. This study will contribute to creating and promoting a thorough support system for women who want to launch their businesses. The research findings also show that women's entrepreneurial behaviour in the post-2020 period cannot be separated from the revolutionary impact of COVID-19.

The pandemic catalysed shifts toward digital adaptability, home-based business, and technology-assisted business models. As a result, psychological, motivational, and educational factors now interconnect within a digital environment, generating innovative opportunities for women entrepreneurial aspirants. The development of Industry 4.0 underscores the need for digital readiness among women. Entrepreneurial education should also integrate skills in artificial intelligence, digital tools, business analytics, and other online business management modules to boost entrepreneurial acumen and opportunity identification. Various emerging trends, such as digitalisation in entrepreneurship, gig jobs, and venture-based online platforms, are creating new opportunities for women's participation in entrepreneurship. Future research should investigate how the personality characteristics, motivation and education interplay within emerging digital ecosystems and how these trends can be used to enhance entrepreneurial engagement of women, specifically in marginalised regions like Uttarakhand. Furthermore, encouraging and supporting policymakers will likely help women in the Indian economy engage in entrepreneurship. Future research must employ quantitative analysis to independently examine women's entrepreneurship in India's regions, as it is critical to comprehend the influence of unique characteristics in each location.

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Ethics Approval

The Department of Management has granted ethics approval.

Data Availability

The Data is sourced from the Scopus database and will be available upon request.

Abbreviation

MSMEs: Micro, small, and medium enterprises
PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses
STEP: Support to Training and Employment Programme for Women
TREAD: Trade-related Entrepreneurship Assistance and Development

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Making Experiences Memorable: The Mediating Role of Experience Intensifiers and Components of Memory

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Abstract

The study examines the serial mediation relationship between experience, experience intensification, valence, vividness, recollection, coherence, emotional intensity of memory, and behavioural intention by extending the SOR framework developed by Mehrabian and Russel. The author team collected data from 408 respondents with theme park experiences. The results from SEM and serial mediation confirmed that overall experience influences experience intensification, that is, souvenir purchase behaviour, and that the intern impacts the vividness, recollection, coherence, valence, and emotional intensity. All the memory dimensions influence behavioural intention. The research findings showed that the memory dimension predicts visitors' behaviour and their intention to return.

Keywords: *Autobiographical Memory Experience, Experience Intensification, Customer Experience*

"One of the best ways to make yourself happy in the present is to recall happy times from the past. Photos are a great memory-prompt, and because we tend to take photos of happy occasions, they weight our memories to the good" - Gretchen Rubin.

1. Introduction

Kahneman and Riis (2005) have described that experiences are fleeting (whereas) memories are what we get to keep from our experience. The success of the entertainment business depends on the expertise of available services. Theme parks have been an essential and attractive sector of the tourism industry (Manthiou et al., 2016). Theme parks have become alluring tourist destinations that stimulate the local economy (Bigne et al., 2005). "The theme park is a family amusement complex oriented towards a range of subjects or historical periods, combining the continuity of costuming and architecture with entertainment through rides and other attractions, catering, and merchandising to provoke an experience for the imagination" (Fyall et al., 2008). The unique experience would enrich consumers' memories by providing an opportunity to participate in entertainment events (Manthiou et al., 2014).

This research focuses on the relationships among experience, experience intensification, memory components, and behavioural intention regarding the theme park. This study explores the application of the Stimulus Organism Response framework in the context of the theme park. This research paper extends the analysis of the consumer behaviour process from the psychological perspective. This research work also analyses consumers' mental ruminations by examining the causes and effects of the multidimensional experience of autobiographical memory, i.e., recollection, vividness, valence, coherence, and emotional intensity.

The authors have argued that the customer's memory is influenced by the overall experience, which, in turn, affects behavioural intention. The authors would like to extend the previous research by Rajadurai et al. (2021) and Sivakumar and Rajadurai (2019, 2021). This research work has used the Stimulus-Organism-Response (SOR) framework (proposed by Mehrabian & Russell, 1974).

The experience stimulates the emotional enjoyment the customer feels in every encounter. In this present study, the component of memory was examined in an organism. Memory is "recollection of previous experiences in the customer's mind" (Tung & Ritchie, 2011) and a significant influencer of behaviour (Carù & Cova, 2003; Pine & Gilmore, 1998; Triantafillidou & Siomkos, 2013).

Aims and objectives:

This study examines how specific components of autobiographical memory mediate the impact of theme park experiences on visitors' behavioural intentions. Objectives are:

1. To measure and compare the influence of emotional intensity, vividness, coherence, valence, and recollection on theme park visitors' memories.

2. To test their mediating roles in the relationship between experience intensification and revisit intention or advocacy.

Research gap:

Despite recognition of memory's importance in consumer experience literature (Tung & Ritchie, 2011; Wood & Kenyon, 2018), there is limited empirical research—especially post-COVID—examining how multiple memory dimensions mediate experience effects in theme parks (Kim & Chen, 2021; Zhao et al., 2023; Cajiao et al., 2024).

This research addresses this gap by integrating contemporary theories and methodologies to provide actionable insights for managers and expand the academic understanding of experience-driven loyalty and advocacy.

2. Literature Review

Numerous studies have been conducted on the Consumer Behaviour domain. Initially, microeconomic theories were used; later, researchers proposed input-output (I-O) models based on consumers' spending and purchasing behaviours. Most of those models use untenable hypotheses (Jacoby, 2002). Generally, researchers conceptualised consumers as responding to stimuli, drawing on existing psychological research. Since internal factors affecting the individual are not open to denial, input-output models paved the way for more sophisticated research, such as the S-O-R model (Bettman, 1979, p. 17). Compared to the previous I-O model, S-O-R gave greater attention to the internal organismic (O) factor compared to the stimulus (S), i.e., input (I) and Response (R), i.e. output (O). Instead of boxes and arrows, this framework is one of the most significant theories grounded in existing well-known literature (Jacoby, 2002).

The seminal work of Mehrabian and Russell (1974) provides the starting point for research in environmental psychology. According to the two authors, stimuli from the external physical environment influence the organism, and the consumer's internal state affects responses, approach, and avoidance behaviour. As we discussed earlier, their model follows three steps. The external stimuli may be visual, auditory, olfactory, gustatory, tactile, and design. The environmental factor, i.e., the theme park, comprises the setting in which tangible products, intangible services, and souvenirs are consumed, which act as reminders of the experience (Mossberg, 2007). Overall experience is an internal process of perception that happens after the activation of senses, also called sensory stimuli or sensations in psychology (Goldstein, 2010). After that stage, individuals with sensory limitations interpret the information collected through the senses to elicit positive or negative feelings towards the destination by making cognitive associations (Agapito et al., 2013). In this process, an individual's mental and affective domains will develop place attachments or avoidance, influence satisfaction and dissatisfaction, and lead them to recommend the place and build revisit intention (Bigné et al., 2005; Enrique Bigné et al., 2008; Gnoth et al., 2006). After reaching home, the perception can be modified by creating stories, sharing them with others, comparing their story with other family members' and friends' stories, and stories conveyed through other sources such as reviews, advertising, and social networking websites. This process leads to long-term satisfaction and memory. Many individuals develop and extend the pleasure by sharing it at dinner table conversations, showing souvenirs to others, and sharing photographs on social networking sites like Facebook and Instagram (Larsen, 2007; Perdue et al., 2004; Thompson et al., 2013).

2.1 Experience

Can experience be a stimulus? According to Jacoby (2002), the experience should not be considered an experience storehouse, also called long-term memory, which comes under the organism. Since experience is an immediate result of a service encounter and is emotional, it should be considered as a stimulus.

So the modern definition goes like this: "The customer experience originates from a set of interactions between a customer and a product, a company, or part of its organisation, which provoke a reaction (Gentile et al., 2007). This experience is strictly personal and involves the customer at different levels (rational, emotional, sensorial, physical, and spiritual) (Brakus et al., 2009; LaSalle & Britton, 2003). Its evaluation depends on comparing a customer's expectations and the stimuli from the interaction with the company and its offering in correspondence with the different moments of contact or touch-points" (LaSalle & Britton, 2003; Shaw & Ivens, 2002). Designing the service encounter of the theme park is limited to service interface, retail atmosphere, assortment, and price. However, the service provider cannot control the crowd, others' inspiration, or the reason for the visit.

So, the consumption experience is not limited to pre-purchase activities like need stimulation or post-purchase activities like future actions, but comprises a series of activities, including pre-purchase, purchase, post-purchase, and remembered (Arnould et al., 2002). From the previous literature, the researcher found that experience is subjective, involving the construction and transformation of the individual by stimulating emotions and immersing them in the cognitive dimension. But marketing is objective by providing something significant and unforgettable (Carù & Cova, 2003).

Pine and Gilmore (1998) studied the experiential views of operations and defined them under four terms: educational, escapism, aesthetic, and entertainment. Brakus et al. (2009) conceptualised it as sensations, feelings, cognition, and behavioural responses, and it will be influenced by brand-related stimuli such as communication, packaging, and other brand elements. (Hosany and Gilbert (2010) noted that all experiences are emotional and identified their' psychometric properties' like joy, surprise, and love. Multiple factors measure experience. Various researchers have studied under different circumstances, and all the dimensions are given below. In this research, the researcher has studied the overall experiences.

2.2 Experience Intensification

Experience intensification has been an ignored variable by consumer behaviour researchers, and it is being termed as the spot purchase behaviour (Bigne et al., 2005)

According to researchers Gordon (1986) and Littrell et al. (1993), Experience intensification is a more accurate portrayal of consumers' experiences of their efforts, which occurs after experiential consumption.

For some travellers, the purchase is a must-do activity, while for others it is a souvenir (Sthapit & Björk, 2019). Usually, tourists will not travel for shopping, but shopping is part of their travel (Fowler et al., 2012). Travellers/ tourists tend to obtain tangible reminders in the form of souvenirs and artefacts to symbolise travel experiences

(Mossberg, 2007; Wei, 2018). These types of purchases are called experience intensification; i.e., "visitors purchase souvenirs and gifts, to make their travel experience more tangible" (Dong & Siu, 2013, p. 543). Many travellers believe that without these purchases, the trip is not complete (Swanson & Horridge, 2006). According to Stage (2012), experience and intensity go hand in hand. A meaningful experience should involve one's senses, enhance attention, change the visitor's sense of time, evoke emotional responses, be distinctive, and create intrinsic value, building a relationship between the visitor and the theme park through action (Boswijk et al., 2007).

Intensification connects all these elements with actions and increases all six dimensions. The experience of the occasion is recognised through photographs, souvenirs, or other media to visually enrich the real-time experience, turning a visitor into an individualised auteur, making him share it on social media and reterritorialise it (Stage, 2012). It is more of tangibilizing intangible experiences (Dong & Siu, 2013).

2.3 Valence

Earlier researchers (Duffy, 1934, 1941; Dunlap, 1932) assessed that emotional experience has two properties: valence and intensity. Valence is "the degree to which the experience described in the memory is perceived to be positive or negative" (Sutin & Robins, 2007).

This dimension comprises the valence of the experience, the valence at the time of the experience, and the valence while recalling the experience. Reviving old negative memories is linked with avoidance rather than approach behaviour (Singer, 1990).

Positive or negative information or evaluation from a trusted source about a product or service will capture the customer's cognitive attention and prompt them to reevaluate (Bone, 1995; Herr et al., 1991).

2.4 Recollection

Brand Recall is one of the most widely researched variables in the Brand Management domain of marketing (Hutchinson et al., 1994). A recollection is termed one of the principal functions of memory, and it is explained as experiences, discussions, and behaviours (Schacter et al., 1993). While making decisions, consumers do not ruminate on prior experiences and infer new information (Brakus et al., 2009). Research studies show that pleasant memories can be easily reminisced (Linton, 1975; Meyer & Schwager, 2007; Talarico et al., 2004; Wagenaar, 1986; White, 1982).

Based on many researchers' observations, low-intensity memories were not recalled, whereas high-intensity memories were recalled and discussed frequently (Bernstein & Fink, 1998; Trowbridge & Cason, 1932), and were recalled voluntarily or involuntarily (Bernstein & Fink, 1998; Berntsen et al., 2003). According to Guy and Cahill (1999), rehearsal alone cannot predict whether a memory will be low- or high-intensity. The happiness factor is one of the major predictors, along with rehearsal, over other factors like anger, surprise, and sadness (Bluck & Li, 2001). People trust their memories through how they recall or reminisce, and are confident in their memories of actual encounters. (Talarico et al., 2004). High intensity positive and negative events can be recollected with more confidence than low intensity events (Neisser & Harsch, 1992; Neissser,1998; Talarico & Rubin, 2003; Talarico et al., 2004; Talarico et al., 2009).

2.5 Coherence

Autobiographical memory is memory of personal experiences, with an emotional component, and extends beyond mere factual description (Vanderveren et al., 2019). Though it has many dimensions, such as emotional intensity and vividness, narrative coherence is one of the essential features that need to be analysed. Autobiographical memory has two challenging demands: encoding a previous experience and maintaining coherent storytelling (Conway et al., 2004). The first is called adaptive correspondence, and the second is self-coherence. In their Self Memory System model, Conway et al. (2004) defined coherence as self-defining memory. Narrative coherence is "memory is recalled as a unified, coherent story, either in words or images, rather than as fragmentary, isolated details" (Talarico et al., 2004).

According to Richardson (1990), representation and mode of reasoning define the narratives. The author also stated that people could recount the incident. Bruner (1986) has explained that narrative reasoning is a cognitive mode that shapes experience and constructs reality. The coherent form helps recall positive, highly intense events (Berntsen et al., 2003; Rubin et al., 2004; Rubin et al., 2003; Talarico et al., 2004).

Memory coherence is another characteristic or dimension of autobiographical memory, in which memories are narrated coherently. Memory narratives can be considered coherent when the sequence of events is clearly explained, and the information provided about the time and place it happened. According to Reese et al. (2011), narrative coherence is constructed by chronology, context, and theme.

2.6 Vividness

Marketing communications frequently use pictorial representations of products or services to convey verbal descriptions of features and to help consumers imagine personal use of the advertised product. Vividness is an essential characteristic of autobiographical memory (Brewer, 1986; Fivush, 2011; Rubin et al., 2003), and it is a significant area for study in the tourism context (Manthiou et al., 2014).

The motive of tourism is to create vivid memories that withstand the tourist's (visitors) memory and make them remembered for a long time (Tung & Ritchie, 2011). Vividness refers to the visual clarity and intensity of memory retrieved from the schemata. The vividness rating helps to differentiate the perceived and imagined events. Vividness can be defined as "the amount of perpetual or sensory detail" (Talarico et al., 2004). According to Richardson (1999), vividness is defined as the lifelikeness of sensory perpetual content. The vividness of visual imagery helps predict the strength of memory, and vividness is a core component of memory (Rubin, 2005). Vividness has a stronger correlation with positive experiences and events than with negative, traumatic, and neutral events (Comblain et al., 2005; D'Argembeau et al., 2003). Kim (2010) said that extraordinary experiences, unique moments, or events are remembered through the senses. Hence, extraordinary experiences can create vivid memories for visitors.

2.7 Emotional Intensity

Emotional intensity is the intensity of emotion felt when recalling a previous experience, distinct from valence (Sutin & Robins, 2007). Russell and Carroll (1999) and Russell (1980) have supported the view that valence is a bipolar dimension divided by the intensity of the emotion. Previous research has shown that visitors can easily report prior emotional experiences, but the intensity of those emotions is lower than during the encounter (Thompson et al., 2013). Pleasant experiences are easily reported, and even if they have been recalled more quickly than unpleasant experiences (Rubin et al., 2003; Bernsten et al., 2003)

2.8 Behavioural Intention

People's environmental stimuli can be described using two parameters: approach and avoidance behaviour. The approach behaviour (favourable) includes revisiting, sharing memorable experiences, exploring the destination, and extending the vacation. Avoidance behaviour (unfavourable) would be the opposite of the behavioural elements of favourable behaviour. Warshaw and Davis (1985) have discussed behavioural intention as a formulation of specific future behaviours based on a conscious plan. According to Jang and Namkung (2009), Namkung and Jang (2009), and Siu et al. (2012), behavioural intention refers to visitors' revisiting and referral intentions.

2.9 Conceptual Framework

The conceptual framework of this study is drawn from Experiential Marketing Theory (Pine & Gilmore, 1998; Schmitt, 1999), Affective Events Theory (AET) (Weiss & Cropanzano, 1996), Cognitive-Experiential Self-Theory (CEST) (Epstein, 1998), Cognitive Appraisal Theory (Lazarus, 1991), and the Stimulus-Organism-Response (S-O-R) Model (Mehrabian & Russell, 1974) and this framework proposes that the effect of Experience (independent variable) on Behavioural Intention (dependent variable) is mediated by Experience Intensification (M1) and five experiential dimensions: Recollection (M2), Coherence (M3), Vividness (M4), Valence (M5), and Emotional Intensity (M6).

Each mediating variable is hypothesised to interact with Experience Intensification, intensifying its impact on Behavioural Intention. This serial mediation model captures the interactions among experiences that shape visitor behaviour in theme park settings (Lemon & Verhoef, 2016; Tsiotsou & Goldsmith, 2012). The proposed hypotheses explore these relationships in detail.

Experience Intensification involves intensifying the impact of an experience on an individual's psychological processes (Pine & Gilmore, 1998). Recollection refers to the cognitive process of recalling memories with clarity and detail (Conway & Pleydell-Pearce, 2000; Tulving, 1972). Research shows that extraordinary experiences are more likely to be recalled and have a more considerable impact on future behaviours (Fredrickson & Kahneman, 1993).

Cognitive Appraisal Theory suggests that how experiences are assessed and recalled, and also how they influence behavioural intention and decision-making (Bagozzi, 1992; Lazarus, 1991). In theme parks, memorable experiences are likely to lead to stronger behavioural intentions, i.e., to revisit or recommend the park (Quintal et al., 2014; Sthapit & Björk, 2019). Thus, the following hypothesis is proposed:

H1: Experience Intensification and Recollection mediate the relationship between Experience and Behavioural Intention.

Coherence refers to the logical structuring and meaningful integration of an experience, aligning with an individual's cognitive frameworks and expectations (Kunda, 1990; Thagard, 2000). The **Stimulus-Organism-Response (S-O-R) Model** (Mehrabian & Russell, 1974) suggests that experiences that are both intense and coherent lead to emotional and cognitive states and predict positive behavioural outcomes(Bitner, 1992; Lee et al., 2019).

In the context of theme parks, coherent experiences are those in which the storyline, ambience, and sensory cues are seamlessly integrated, thereby enhancing visitor satisfaction and loyalty (Gentile et al., 2007). Intensified coherent experiences are likely to strengthen visitors' intentions to engage in future behaviours, such as revisiting or recommending the park (Tsiotsou & Goldsmith, 2012). Therefore, the following hypothesis is formed:

H2: Experience Intensification and Coherence mediate the relationship between Experience and Behavioural Intention.

Vividness involves the sensory richness and clarity with which an experience is perceived and remembered (Epstein, 1998). The **Cognitive-Experiential Self-Theory (CEST)** suggests that the experiential system processes vivid, emotionally charged stimuli more effectively, thereby influencing decision-making and behavioural intentions (Epstein, 1998; Pham, 2004). Theme parks are designed to create vivid experiences that engage visitors' senses and emotions, thereby improving their behavioural intentions (Holbrook & Hirschman, 1982; Tynan & McKechnie, 2009).

Prior research indicates that intensified, vividly remembered experiences, such as a thrilling roller coaster ride or a remarkable show, significantly influence visitors' intentions to revisit or recommend the park (Brakus et al., 2009; Gentile et al., 2007). Therefore, we propose:

H3: Experience Intensification and Vividness mediate the relationship between Experience and Behavioural Intention.

Emotional Intensity refers to the strength and impact of the emotional response elicited by an experience (Bagozzi, 1992; Weiss & Cropanzano, 1996). According to **Affective Events Theory (AET)**, experiences that evoke strong emotions significantly influence attitudes and behaviours (Weiss & Cropanzano, 1996). In theme parks, emotional intensity is heightened by thrilling attractions, interactive experiences, and immersive storytelling (Ali et al., 2016; Hosany & Witham, 2010).

Intensifying emotional experiences amplifies their impact on **Behavioural Intention**, leading to stronger motivations to revisit or advocate for the theme park (Fredrickson, 2001; Richins, 1997). Empirical evidence supports that heightened emotional responses are critical drivers of positive word-of-mouth and loyalty behaviours (Homburg et al., 2006; Meyer & Schwager, 2007). Therefore, the following hypothesis is formulated:

H4: Experience Intensification and Emotional Intensity mediate the relationship between Experience and Behavioural Intention.

Valence represents the intrinsic attractiveness or averseness of an experience(Bagozzi, 1992; Lazarus, 1991). The **Peak-End Rule** (Fredrickson & Kahneman, 1993) suggests that people evaluate experiences based on the most intense moments and their endings. In theme park settings, experiences with positive valence, particularly when intensified, are likely to lead to positive evaluations and favourable behavioural intentions (Kahneman & Riis, 2005).

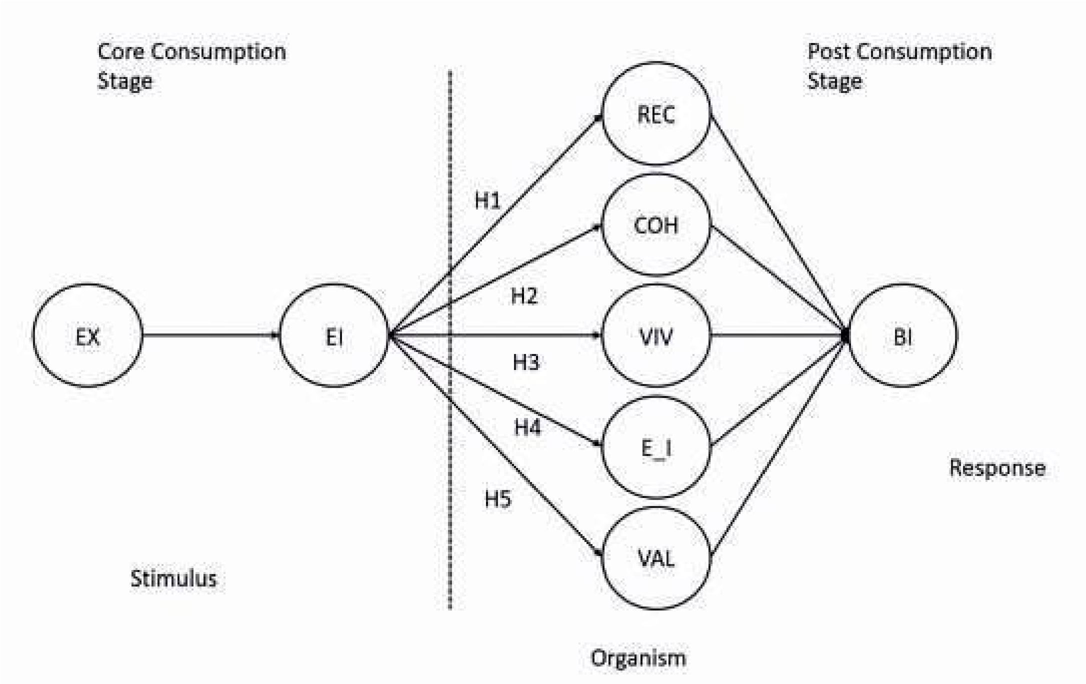
Studies have shown that when experiences are both intense and positively valenced, they enhance customer satisfaction and foster positive behavioural outcomes, such as loyalty and advocacy (Chitturi et al., 2008; Dagger & Danaher, 2014). This leads to the hypothesis:

H5: Experience Intensification and Valence mediate the relationship between Experience and Behavioural Intention.

Based on the research question, the framework below has been developed using theories.

3. Research Framework

Based on the research question, the framework below has been developed with the help of theories.



CX: Customer Experience, EI: Experience Intensification, REC: Recall, COH: Coherence, VIV: Vividness, VAL: Valence, E_I: Emotional Intensity, BI: Behavioural Intention
H1: CX->EI->REC->BI, H2: EX->EI->COH->BI, H3: EX->EI->VIV->BI,
H4: CX->EI->E_I->BI, H5: X->EI->VAL->BI

Figure 1. Research Framework

4. Methodology

For this proposed model, we used a descriptive research method. The authors have identified scales for each variable, collected population samples, and conducted the data analysis.

4.1 Scale Identification

The research instrument was developed in English and has three sections. The first section depicts experience and experience intensification. The scale for overall experience was taken from Oh et al., (2007) and Dong and Siu (2013) for experience intensification. Recollection and vividness were measured using Talarico et al., (2004). The items for Emotional Intensity, Valence, and Coherence were taken from Sutin and Robins (2007). Finally, the scale for behavioural intention was taken from Bigné et al. (2005).

4.2 Data Collection Procedure

When the population and sampling method is identified, the next step is to define the sample size. Based on a few practical considerations, the sample size can be referred from similar research work (Churchill, 1999). According to a similar study, the sample sizes were 334 (Manthiou et al., 2014), 283 (Manthiou et al., 2016), and 362 (Ittamalla & Srinnivas Kumar, 2019). So, the authors have circulated 500 questionnaires. The final sample size for the analysis was 408 after removing incomplete and inconsistent data.

4.3 Data Analysis Procedure

The collected usable data were entered into the Statistical Package for the Social Sciences (SPSS) software. The missing and incorrect data were double-checked. Respondents were asked not to miss any questions. However, if any data were missing, the researcher treated them as missing values and analysed them using methods for missing data. Thus, the data were trimmed.

For hypothesis testing, the researcher did multiple regression. Also, he used Structural Equation Modelling (SEM) to assess whether the collected data fit the proposed model, and all fit indices were evaluated according to

Cheng's (2001) recommendations. The researcher has chosen CB-based SEM over PLS-based SEM, as it was not recommended by Rönkkö et al. (2016) and Guide Jr. and Ketokivi (2015). The results of hypothesis testing are presented in the discussion section. The researcher has suggested a mediation method for hypothesis testing (Baron and Kenny, 1986).

Table 1. Demographic Details

Characteristics	Frequency	Percentage
Gender		
Male	269	65.9
Female	139	34.1
Age		
18-25	64	15.7
26-35	81	19.9
36-45	90	22.1
46-55	70	17.2
56+	103	25.2
Education		
Diploma Certificate	140	34.3
UG Degree	89	21.8
PG Degree	87	21.3
Others	92	22.6
Timing of visit		
A year back	53	13
1-2 years back	53	13
3-4 years back	122	29.9
More than 4 years back	180	44.1

Table 2. Statistics – Descriptive, Regression, and Regression Weights

Factors / Variables		Arithmatic Mean	Std. Dev.	Stand. Loading	Value of Cronbach Alpha
R1	As I think about the event, I can remember it rather than just knowing that it happened	4.75	1.2	0..83	0.921
R2	While remembering the event, I feel as though I am reliving it	4.86	1.12	0.81	
R3	My memory is based on details specific to my life, not on general knowledge that I would expect most people to have	4.77	1.13	0.99	
R4	While remembering the event, I feel that I travel back to the time when it happened	3.71	1.18	0.86	
VIV1	My memory for this event is clear.	5.02	1.2	0.71	0.871
VIV2	My memory for this event is very vivid	4.9	1.23	0.81	
VIV3	My memory for this event is very detailed	4.96	1.23	0.87	

Factors / Variables		Arithmatic Mean	Std. Dev.	Stand. Loading	Value of Cronbach Alpha
C1	This memory is of an event that occurred once at a particular time and place, not a summary or merging of many similar or related events	4.72	1.3	0.59	
C2	When I recall this memory, the sequence of events seems realistic	4.71	1.23	0.67	0.862
C3	The order of events in the memory is clear	4.64	1.1	0.83	
C4	I recognise the setting in which my memory takes place	4.7	1.14	0.89	
V1	The overall tone of memory is positive	4.79	1.18	0.77	
V2	The experience described in this memory is positive	4.82	1.17	0.87	0.923
V3	My feelings at the time were positive	3.81	1.11	0.8	
EX1	Experience was stimulating	5.27	1.27	0.82	
EX2	Experience was Exciting	5.08	1.3	0.78	0.857
EX3	Experience was Enjoyable	5.35	1.27	0.77	
EX4	Experience was Interesting	5.14	1.33	0.7	
E_I1	As I am remembering the experience now, my feelings are very intense	4.86	1.26	0.75	
E_I2	My emotions are very intense concerning this event	4.95	1.19	0.79	0.925
E_I3	The memory of this event evokes powerful emotions	4.88	1.19	0.76	
BI1	I mention this theme park to others quite frequently	5.02	1.19	0.78	
BI2	I've told more people about this theme park than most other theme parks	5.01	1.22	0.85	
BI3	I seldom miss an opportunity to tell others about this theme park	5.25	1.23	0.81	0.884
BI4	When I tell people about this theme park, I tend to talk about that in great detail	5.54	1.25	0.75	
EI1	I purchased souvenirs in the theme park shops	4.88	1.2	0.61	
EI2	I took memorable pictures there	5.03	1.13	0.74	0.816
EI3	I used to see the pictures and souvenirs which help me keep the experience	5.2	1.15	0.81	

The collected data were tested with EFA and CFA for each construct. To assess sample adequacy, the authors have tested the collected data using KMO (Kaiser-Meyer-Olkin) and Bartlett's test of sphericity, as recommended by Hair et al. (1998). The sampling adequacy was 0.921, which is close to 1, indicating a high degree of interrelation among the variables.

Harman's single-factor test is used to identify common method bias. Based on the process proposed by Podsakoff et al. (2003), the researcher came to know that a single factor is 35.718% will account for 35.718% of the covariance, which is less than 50% (Podsakoff et al., 2003). The researcher can conclude that common method bias is not significant.

To conduct a confirmatory factor analysis, correlation values ranging from .40 to .80 were retained. The questions R4, V3, and E4 were inconsistent, so they were removed. The test yielded CFI = 0.956, GFI = 0.9, and RMSEA = 0.045. The author found that the comparative fit indices exceeded the 0.90 criterion, as indicated by the modification indices. The factor loading is above 0.7, and that is also acceptable.

The author has tested the composite reliability and found that it lies between 0.770 and 0.929, which is above 0.7; they have also tested Cronbach's Alpha, which lies between 0.763 and 0.900, and is acceptable (Churchill Jr, 1979; Hair et al., 1998). The reliability of experience is 0.847. The reliability (α) of experience intensification is 0.763. For recollection, the reliability (α) is 0.9. For coherence, the alpha value is 0.838. The reliability (α) value for vividness is 0.832. For valence, the reliability (α) value is 0.853. The reliability (α) value of emotional intensity is 0.863, and for behavioural intention, it is 0.872. Therefore, the reliability values for all eight measures are intact and acceptable.

As discussed in the earlier section, the collected data were thoroughly checked for validity. First, content validity was established using scales from the existing literature, and experts in the field reviewed the items. Secondly, construct validity was checked with the help of factor analysis and correlation analysis. To measure construct validity, a principal component analysis that produced nine factors (i.e., experience, experience intensification, recollection, emotional intensity, coherence, valence, vividness, and behavioural intention) was used. Hence, the construct validity of the measures has been achieved. The next correlation coefficient was used to achieve convergent and discriminant validity. Table 6.2.3 showcases the correlation coefficient among the measures. The validity has also been examined and produced. From the extracted data, the average variance extracted lies between 0.580 and 0.767, which is above 0.5, and it is acceptable (Bagozzi & Yi, 1988). Table 3 shows the inter-construct correlation matrix. The table below shows the correlation between each construct. The value is less than the square root of the average variance extracted for the same construct (Fornell & Larcker, 1981). From this, it can be argued that discriminant validity is present.

Table 3. Validity and Reliability Concern

	CR	AVE	COH	BI	INT	EX	EMO	REC	VAL	VIV
COH	0.844	0.580	**0.761**							
BI	0.875	0.638	0.735	**0.798**						
INT	0.770	0.531	0.503	0.547	**0.729**					
EX	0.849	0.586	0.482	0.645	0.435	**0.765**				
EI	0.866	0.683	0.504	0.631	0.387	0.415	**0.826**			
REC	0.928	0.765	0.369	0.553	0.382	0.396	0.609	**0.874**		
VAL	0.855	0.664	0.611	0.543	0.400	0.295	0.411	0.281	**0.815**	
VIV	0.840	0.639	0.596	0.662	0.434	0.493	0.537	0.429	0.558	**0.799**

*Note: Figures in **bold** denote $\sqrt{AVE}$, and the elements below the diagonal denote the Pearson correlation coefficient between each pair of constructs.*

REC- Recollection; COH- Coherence; BI- Behavioural Intention; INT- Experience Intensification; EX- Experience; EI- Emotional Intensity; VAL- Valence; VIV- Vividness; CR- Composite Reliability, AVE- Average Variance Extracted, MSV- Maximum Shared Variance.

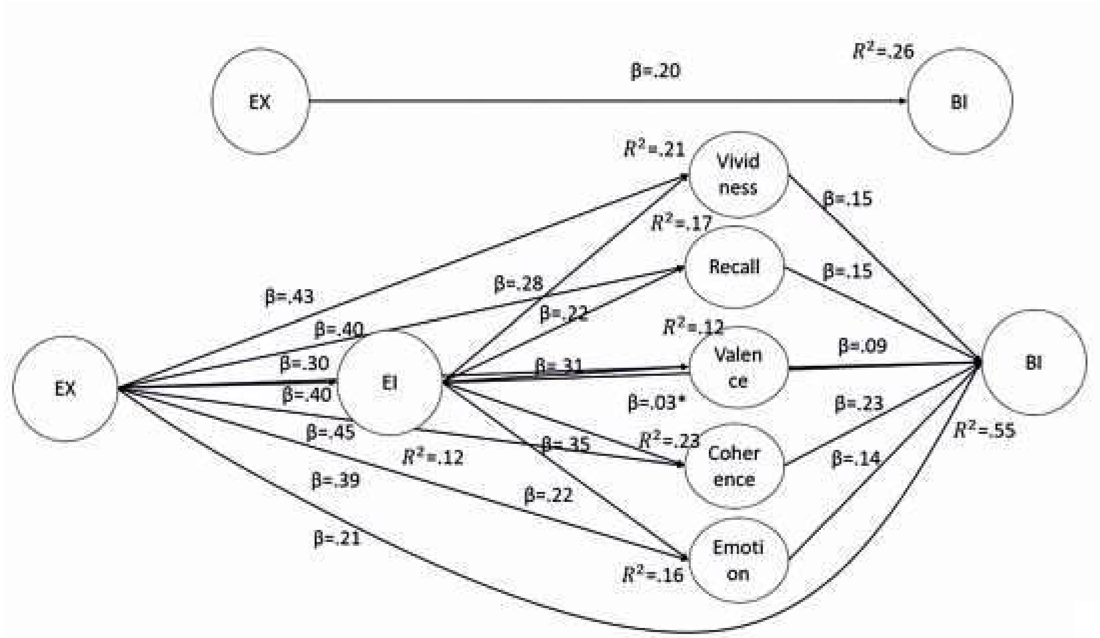


Figure 2. SEM model

Table 4. Path Coefficient

Direct Path	Coeff	SE	t Value	LLCI	ULCI	Result
EX->EI	0.4071	0.0453	8.9805	0.318	0.4962	Supported
EI->VAL	0.3161	0.0494	6.395	0.2189	0.4133	Supported
EI ->E_I	0.2246	0.0487	4.6128	0.1289	0.3203	Supported
EI ->REC	0.2241	0.0484	4.6269	0.1289	0.3194	Supported
EI ->COH	0.3532	0.0454	7.7851	0.264	0.4423	Supported
EI ->VIV	0.2808	0.047	5.98	0.1885	0.3731	Supported
EX-B_I	0.2138	0.0391	5.4648	0.1369	0.2907	Supported
EI ->B_I	0.0383	0.0388	0.9868	-0.038	0.1147	Not Supported
VAL ->B_I	0.0954	0.0417	2.2911	0.0135	0.1773	Supported
E_I->B_I	0.1458	0.0417	3.496	0.0638	0.2278	Supported
REC->B_I	0.1589	0.041	3.8804	0.0784	0.2394	Supported
COH->B_I	0.2386	0.045	5.3001	0.1501	0.327	Supported
VIV->B_I	0.1527	0.0448	3.4044	0.0645	0.2408	Supported
EX->VAL	0.3018	0.0473	6.3796	0.2088	0.3949	Supported
EX->E_I	0.3964	0.0456	8.7	0.3068	0.486	Supported
EX->REC	0.4065	0.0453	8.9645	0.3173	0.4956	Supported
EX->COH	0.448	0.0444	10.0958	0.3607	0.5352	Supported
EX->VIV	0.4351	0.0447	9.7358	0.3472	0.5229	Supported

EX: Customer Experience, EI: Experience Intensification, REC: Recall, COH: Coherence, VIV: Vividness, VAL: Valence, E_I: Emotional Intensity, B_I: Behavioural Intention

Table 5. Serial mediation model

The mediation role of EI and components of autobiographical memory experience depicted in the following table.

Indirect Path	Indirect Effect	SE	LLCI	ULCI	Decision
EX->EI->VAL ->B_I	0.0123	0.0063	0.0018	0.0263	Supported
EX->EI->E_I->B_I	0.0133	0.0057	0.0041	0.0265	Supported
EX->EI->REC->B_I	0.0145	0.0058	0.0048	0.0273	Supported
EX->EI->COH->B_I	0.0343	0.0101	0.0168	0.0568	Supported
EX->EI->VIV->B_I	0.0175	0.0081	0.0041	0.0353	Supported

EX: Customer Experiences , REC: Recall, COH: Coherence, VIV: Vividness, VAL: Valence, E_I: Emotional Intensity, B_I: Behavioural Intention, EI: Experience intensification

According to Hu and Bentler (1999), the SEM model is also an excellent fit as the CFA=0.955, which is greater than 0.95, SRMR= 0.053, which is less than 0.08, CMIN/DF= 1.642, value lies between 1 and 2, RMSEA =0.043, which is less than 0.06, and PClose value is 0.9, i.e. insignificant.

4.4 Bridging Experience and Behavioural Intention through Experience Intensification, Valence, Emotional Intensity, Vividness, Recall and Coherence

The authors have utilised the tool developed by Hayes (2009) and Preacher and Hayes (2004) for testing mediating effects of variables. As recommended by Preacher and Hayes (2004), the authors have utilised the bootstrapping method to execute the process. The researcher has used model no 81, which was prescribed in Hayes (2017).

Table 4 showcases the direct effect or direct regression depicted in Figure 5.2.3 which is similar to the regression value what we found using SPSS. Table 4 and 5 explains the direct and indirect effect of dependent and independent variable. Effect denotes the average estimate of the indirect effect from a bootstrap sample of size 5000, which was recommended by (Hayes 2017; Hayes & Scharkow, 2013; Preacher & Hayes, 2004), since it is better than Sobel's test for analysing the direct and indirect methods. In Table 5 we have shown the indirect effects along with 95% bias corrected confidence interval for the path.

As predicted earlier, all hypotheses are accepted. As proposed, experience positively correlates with experience intensification, valence, recall, vividness, emotional intensity, coherence, and behavioural intention. Furthermore, experience intensification positively affects recall, valence, coherence, emotional intensity and Vividness. Surprisingly, experience intensification is not a predictor for behavioural intention. Additionally, recall, coherence, vividness, valence, and emotional intensity are positively related to behavioural intention.

Furthermore, regarding the mediating role, valence, emotional intensity, and vividness have a significant but slight mediating effect on the relationship between intensification and behavioural intention. Recall and coherence have a stronger mediating role than the above components. EI is not a significant mediator between experience and behavioural intention. Likewise, EI and coherence mediate the relationship between experience and BI. EI and valence mediate the relationship between experience and BI. EI and recall mediate the relationship between experience and BI. EI and emotional intensity mediate the relationship between experience and BI. EI and vividness mediates the relationship between experience and BI.

4.6 Global Goodness of Fit

The predictive power of the model can be assessed using global goodness-of-fit (GOF). If the explaining power (GOF) is greater than 0.36, the model has better goodness-of-fit. It can be calculated by multiplying the R2 value by the square root of the endogenous variable's Average Variance Extracted. The current model value is 0.43 and has better explanatory power than the expected value.

$$\text{GoF}= \sqrt{AVE}\ X\ R^2$$

5. Discussion

This study displays the significance of customer experience on the success of amusement parks. This study extends the SOR framework and finds that the overall customer experience is a key contributor to recollection, valence, vividness, coherence, emotional intensity, and behavioural intention through intensification. Precisely, memory is highly influenced. From the results, we have also shown that experience intensification and components of memory, such as recollection, vividness, valence, coherence, and emotional intensity of memory, mediate the relationship. Experience is an essential factor that determines experience intensification. When visitors are happy, they will purchase items available in the theme park to sustain the experience. Visitors want to retell special occasions, minutes, or moments in their lives and keep evidence of the highly special moments.

When visitors bring back souvenirs (experience intensifiers, i.e., EIs) or memorabilia purchased in the theme park and keep them in the vicinity, they are extending the experience. Tourism is considered a "sacred journey," and people bring back souvenirs of "sacred and extraordinary time or space" (Wilkins, 2011, p. 242). They buy those intensifiers for recollection, proof, and sign it. When they are kept in the vicinity, they will remind visitors of the extraordinary experience they had. What made people buy is also important. When the visitors are pleased, they open their wallets. When the experience is extraordinarily joyous and filled with surprise, they will buy memorabilia to extend it. If the experience needs to be extended, the theme park managers must provide a better experience.

After keeping the souvenirs, i.e., experience intensifiers (EIs), they will act as reminders. The name itself is a form of memorabilia or reminiscence. Whenever visitors see it mindfully, it will remind them of their extraordinary experience. According to Holak and Havlena (1992) and Holak and Havlena (1998), any photos, artefacts and other known materials will kindle nostalgic emotions. So making souvenirs (EI) that visitors like is also important.

The research we tested showed that intensifiers are strong influencers of recall and vivid memories. It helps visitors narrate stories coherently.

6. Managerial Implications

Since the hypothesis has been proved, we can argue that the dimension of memory predicts visitors' behaviour, such as evangelising behaviour and intention to visit again. The visitor's recollection, vivid memories, emotional intensity, narrative coherence, and valence can be ignited by sharing memorabilia, sending invitation emails and advertisements (Bigné et al., 2005). Selfies during the play, joyful moments, and selfies with cartoon-themed characters (e.g., Disney, Mickey Mouse) can also rekindle memories. These intensifiers can bring back old memories. The authors recommend that theme park managers provide photographs in digital and hard format. They can even create a digital repository to store visitors' photos, which is accessible only to visitors.

The modern theme park manager must design the encounters to provide memorable customer experiences. Further, the predominant way to quantify the favourableness of the customer experience is to assess memory, as visitors' memories may fade quickly with respect to the physical environment.

Theme parks can install automated souvenir photo booths (Durrant et al., 2011). This souvenir-generating software service uses photographs captured on mobile devices and by users to create digital photo books or printed photo stories. Other than that, theme parks can hire people to take candid pictures of the most enjoyable moments and offer them as a service. They can create a combined photo-story system that uses both professional and personal photographs to produce souvenirs. Theme parks can develop different types of souvenir templates according to the various personalities of visitors. They can provide different captions to the photographs.

Additionally, theme park managers can provide various memorabilia, together with souvenirs and souvenirs and normal objects, like nail cutters or pens that act as significant tokens, contrasting to novelty-intensive products. Things that are gathered as mementos every so often drop their sentimental value over time, however, utilitarian things that are carried household from a trip obtain meaning in recollection. Such figurative reminders, covered with implication and concerns, activate a fantasy coming back to unforgettable moments and accompany the formation of delight in the leisure experience.

7. Future Research

The research design is descriptive and may not portray the true picture of experimental design. Furthermore, the samples collected through mall intercept method across academic fraternity like government institutions, private universities and schools. The finding may be quite dissimilar. The study can be conducted among the public and the employees of various bodies in the future. Further, this study can be done through a longitudinal method to understand the real effect of intensifiers on behavioural intention. Future researchers also can do the effect of age of experience as a moderator between intensification and all the components of memory.

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Impact of International EVET Capacity-Building Programs on Entrepreneurial Competencies and Policy Outcomes

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Abstract

Entrepreneurship education (EE) typically unfolds in three interlinked stages. First, knowledge transfer occurs through structured training delivered by educators, mentors, and industry experts. Second, participants build skills and attitudes through individual and group-based experiential learning. Finally, EE emphasises networking, enabling participants to connect with peers, ecosystem enablers, and policy stakeholders to apply their knowledge in real-world contexts. This holistic approach is especially relevant for vocational training programs, which aim to enhance employability and foster self-reliance.

This study evaluates the impact of short-term international entrepreneurial vocational education and training capacity-building programs (EVET-CBP) on participants from low- and middle-income economies. Conducted under the Indian Technical and Economic Cooperation (ITEC) initiative and programs implemented at the Entrepreneurship Development Institute of India (EDII), the research investigates how these programs influence participants' entrepreneurial knowledge, skills, and attitudes (KSAs). Using a purposive sampling method, data were collected from 50 participants, senior government officials, policymakers, researchers, and domain experts, selected by their home countries to attend intensive 8-week training programs in India. Descriptive and inferential statistics, including t-tests and ANOVA, along with qualitative feedback analysis, were employed to assess the long-term transfer of learning and its implementation in policy and practice. Findings indicate significant improvements in KSAs, employability, and sustainable community-based entrepreneurial initiatives. These results highlight the role of EVET-CBP in advancing Sustainable Development Goal (SDG) 4—Quality Education—by promoting inclusive, transformative, and context-driven learning models. The study offers policy insights for designing gender-sensitive, context-specific, and network-driven training models to strengthen entrepreneurship ecosystems globally.

***Keywords**: Entrepreneurship education, capacity-building, vocational education and training, sustainable development, EVET, SDG 4*

1. Introduction

Entrepreneurship is widely recognised as a catalyst for economic growth, social innovation, and sustainable development. The United Nations Sustainable Development Goals (SDGs), Goal 4, emphasises the importance of inclusive and equitable quality education, including vocational education and training (VET), to promote lifelong learning, particularly for individuals from low- and middle-income countries (ONU, 2022). Achieving this requires educational models that are beyond traditional classroom learning to incorporate application-oriented and experiential approaches, fostering entrepreneurial competencies and industry-ready skills (Chandra, 2021; Yagnik & Chandra, 2019).

Entrepreneurship education (EE) typically unfolds in three interlinked stages. First, knowledge transfer occurs through structured training delivered by educators, mentors, and industry experts. Second, participants build skills and attitudes through individual and group-based experiential learning. Finally, EE emphasises networking, enabling participants to connect with peers, ecosystem enablers, and policy stakeholders to apply their learning in real-world contexts. This holistic approach is especially relevant for vocational training programs, which aim to enhance employability and foster self-reliance.

Recent years have seen a surge in short-term vocational training programs targeting entrepreneurship and skill development. These programs cater to a diverse group of learners, including government officials, youth, and working professionals seeking to upgrade their knowledge and competencies. Studies highlight the value of “learning by doing” pedagogies that blend theory and practice, leading to higher retention and greater application of skills (Cope & Watts, 2000; Pittaway & Cope, 2007; Sarasvathy, 2009). However, while entrepreneurship education and training have gained global momentum, their long-term impact remains under-researched (Valerio et al., 2014).

Previous studies have examined how entrepreneurship training improves employment and self-employment. For instance, Martínez et al. (2013) found significant increases in labor income and self-employment among beneficiaries of micro-entrepreneurship programs, while Lyons and Zhang (2017) demonstrated the positive effects of training for marginalised groups. Greve and Salaff (2003) illustrated how professional network support sustainable entrepreneurial outcomes. Despite these encouraging findings, few studies assess whether knowledge and skills acquired during training are effectively applied after participants return to their home environments. This creates a gap in understanding the sustainability and transferability of entrepreneurial learning, especially within international capacity-building programs.

To address this gap, the present study evaluates the impact of short-term international entrepreneurial vocational education and training (EVET) programs organised under the Government of India's Indian Technical and Economic Cooperation (ITEC) platform. These programs, implemented at the Entrepreneurship Development Institute of India (EDII), focus on building participants' entrepreneurial knowledge, skills, and attitudes (KSAs) from diverse socio-economic and cultural backgrounds. By examining post-training application and community-level outcomes, this study contributes to the literature on entrepreneurship education, sustainable development, and international collaboration.

This paper proceeds as follows: the next section discusses the study's background, followed by a review of relevant literature. The subsequent sections outline the methodology, present and discuss the results, and conclude with implications for policy and future research.

2. Background of the Study

The present study examines the impact of short-term international Entrepreneurial Vocational Education and Training Capacity-Building Programs (EVET-CBP) on participants drawn from low- and middle-income economies. These programs are part of a broader initiative under the Indian Technical and Economic Cooperation (ITEC) scheme, a flagship capacity-building platform of the Ministry of External Affairs, Government of India.

2.1 Indian Technical and Economic Cooperation (ITEC) Initiative

Launched in 1964, the ITEC is a capacity-building program of the Ministry of External Affairs, Government of India aims to promote international cooperation through knowledge exchange, technical assistance, and human capital development (ITEC, 2025). Operating across 161 countries in Asia, Africa, Eastern Europe, Latin America, the Caribbean, and the Pacific, ITEC focuses on equipping participants with technical expertise, managerial skills, and policy frameworks to drive development in their respective home countries.

Each ITEC program batch consists of carefully selected candidates, primarily senior government officials, policymakers, industry and domain experts, practicing professionals, etc., nominated by their respective countries. These individuals are expected to act as change agents, using their training experience to shape policies, design entrepreneurial programs, and foster systemic improvements in their countries. This distinctive participant profile makes the program highly targeted and strategic, with outcomes designed to ripple across institutions and communities.

Since 2014, India had facilitated over 100,000 training opportunities through ITEC, highlighting its role as a key player in global capacity-building efforts. These programs not only provide technical and managerial training but also expose participants to India's entrepreneurial ecosystem, offering practical insights into policy design and implementation.

2.2 Role of the Entrepreneurship Development Institute of India (EDII)

The Entrepreneurship Development Institute of India (EDII), located in Gandhinagar, Gujarat, is one of the leading institutions selected to deliver ITEC programs. Established in 1983 as an autonomous, not-for-profit institute, EDII is supported by major financial institutions, including IDBI Bank Ltd., IFCI Ltd., ICICI Bank Ltd., and the State Bank of India (SBI).

EDII has extensive experience in entrepreneurship education over the past 4 decades, having established 12 state-level entrepreneurship development centres across India and worked with schools, universities, and vocational training institutions to promote entrepreneurship across various segments. Since 2000-2001, EDII has conducted various skill capacity-building programs for officials and strengthened bilateral and regional ties with ITEC countries. Over these 24 years, these programs have attracted 4753 officials and professionals from 142 ITEC countries (EDII, 2025).

2.3 Pedagogy and Structure of EVET-CBP

The 8-week EVET-CBP programs at EDII are designed to build participants' entrepreneurial literacy and business acumen. The programs follow a blended learning model that combines classroom instruction, hands-on workshops, simulation exercises, field visits, and networking opportunities.

Key learning components include:

- Country presentations to foster cultural exchange and contextual understanding.
- Small-group activities encouraging peer learning and problem-solving.
- Coaching and mentoring on business ideation, models, and product development, growth, and scale-up by experts.
- Field visits to industries, incubation centers, and entrepreneurial hubs.
- Networking sessions with ecosystem enablers, including entrepreneurs, investors, and policymakers.

As shown in Figure 1, a unique feature of these programs is the action plan developed by each participant. This plan serves as a roadmap for implementing new policies, programs, or business initiatives upon returning home. Participants are encouraged to implement these plans in their countries, providing a mechanism for evaluating the transfer of learning into practice.

Given the high-profile nature of participants, even small cohorts can have a substantial national-level impact. For instance, a single policymaker implementing insights from the training could influence an entire ministry's approach to entrepreneurship development. Therefore, the focus is on quality and depth of engagement, rather than training large numbers of individuals.

The success of the program is measured by understanding how effectively the classroom training translates into practical application in participants' day-to-day work. Recognising that implementing these action plans is a long-term process, we reached out only to participants who had completed at least 2 years since their training by the time of data collection. We anticipated that this timeframe would be sufficient for participants to share the challenges and successes encountered in implementing their action plans. Hence, data collection for this study involved participants reporting on their implemented action plans. These responses were analysed in relation to the study's objectives. With this backdrop, the next section of this paper summarises a review of relevant literature.

Source: Author

Figure 1. Showing the EVET-CBP structure and impact pathway

2 Literature Review

3.1 Entrepreneurship Education and Vocational Training

Entrepreneurship Education (EE) and Vocational Education and Training (VET) are recognised globally as vital tools for fostering economic growth, innovation, and sustainable livelihoods. EE aims to equip individuals with entrepreneurial knowledge, skills, and attitudes (KSAs), enabling them to identify opportunities, manage risks, and create value (Cope & Watts, 2000; Sarasvathy, 2009). Similarly, VET focuses on providing practical, skills-based training aligned with labour-market needs, emphasising employability and self-reliance (ILO, 2020).

A growing body of literature highlights the intersection of EE and VET, where entrepreneurship-oriented VET models integrate theoretical learning with hands-on, experiential activities. This integration prepares learners not only for wage employment but also for self-employment and enterprise creation (Pittaway & Cope, 2007). According to Kolb's experiential learning theory (1993), learning is maximised when participants actively engage in doing, reflecting, conceptualising, and applying their knowledge in real-world settings. Developing these connecting skills can augment employability (Becker, 1964).

Global development agendas, such as the United Nations Sustainable Development Goal (SDG) 4, explicitly call for inclusive and equitable quality education, including vocational and technical education, to promote lifelong learning opportunities. Within this framework, entrepreneurship education plays a pivotal role in empowering individuals and communities, particularly in low- and middle-income countries, by fostering innovation and sustainable development (UNESCO, 2000).

3.2 Capacity-Building Programs and International Collaboration

Capacity-building initiatives are essential for strengthening human capital and institutional capacities, especially in emerging economies where entrepreneurship ecosystems are still evolving. International collaboration in this field has grown significantly, with organisations such as UNIDO, ILO, and the World Bank supporting programs that provide technical assistance, skill development, and policy support (Valerio et al., 2014).

Entrepreneurial capacity-building programs extend beyond individual learning by targeting policy makers, government officials, and domain experts who are positioned to influence systemic change. Such programs focus on creating an enabling environment for entrepreneurship by formulating supportive policies, establishing incubation and mentoring structures, and promoting innovation-driven enterprises (Lyons & Zhang, 2017).

The Indian Technical and Economic Cooperation (ITEC) initiative is a unique model of international collaboration that brings participants from diverse countries to India for specialised training. Unlike generic VET programs, ITEC workshops are highly targeted, emphasising knowledge transfer that is contextualised to participants' home countries. This aligns with literature emphasising the importance of cross-border knowledge exchange, where best practices are adapted rather than simply transplanted (Aldrich & Martinez, 2001; Martínez et al., 2013).

3.3 Examples of International Entrepreneurial Capacity-Building Programs

Globally, several countries and international organisations have implemented entrepreneurial capacity-building initiatives to strengthen skills, promote innovation, and support sustainable economic growth. These programs vary in scope, target groups, and pedagogical design, but share a common goal of fostering entrepreneurial ecosystems. Some of these programs are:

a) United States – Small Business Administration (SBA):

The SBA runs training programs for entrepreneurs and policymakers, focusing on small business development, access to finance, and ecosystem building. These include structured mentorship, incubation support, and technical assistance to improve entrepreneurial outcomes (SAB, 2022).

b) United Kingdom – UK Aid and Foreign, Commonwealth & Development Office (FCDO) Initiatives:

UK Aid has supported entrepreneurship development projects in Africa and Asia, combining vocational training with microfinance and business support services. Such programs often target women and marginalised communities, emphasising inclusive economic participation (DFID, 2021).

c) Germany – GIZ Vocational Entrepreneurship Programs:

The Deutsche Gesellschaft für Internationale Zusammenarbeit (GIZ) implements vocational training programs that integrate entrepreneurship education with skill development, particularly in African and Asian nations. These programs emphasise dual training systems that link classroom learning with hands-on experience (GIZ, 2020).

d) UNIDO and ILO Global Programs:

The United Nations Industrial Development Organisation (UNIDO) and the International Labour Organisation (ILO) run a variety of global initiatives to promote job creation through entrepreneurship. Examples include the Entrepreneurship for Migrants and Refugees Program and the Start and Improve Your Business (SIYB) modules, both of which have demonstrated measurable impacts on self-employment and microenterprise growth (Asad & Rose-Losada, 2013; International Training Centre, 2020).

e) China – International Cooperation in Entrepreneurship Training:

China has developed South-South cooperation models, offering international training programs that blend policy dialogues, technology transfer, and vocational training. These initiatives are designed to help developing countries create innovation-driven economies (Wen-Bo et al., 2013).

These examples highlight a global movement toward entrepreneurship-focused capacity-building, yet most existing evaluations emphasise immediate post-training outcomes such as participant satisfaction or skill acquisition. Few studies track long-term systemic effects, such as how training influences policy reform, institutional strengthening, or sustainable community-level entrepreneurship. This creates a clear gap, which the present study addresses by examining outcomes two years or more after training completion.

3.4 Measuring the Impact of Entrepreneurship Training

Evaluating the impact of entrepreneurship training has been a focal point of research, but challenges persist. Studies commonly assess outcomes at three levels:

1) **Individual-level outcomes**, such as enhanced entrepreneurial KSAs (Acharya & Chandra, 2019), increased confidence, and higher employability (Cope, 2011).
2) **Institutional-level outcomes**, including improved program design and curriculum development (Stefano, 2016; Valerio et al., 2014).
3) **Community-level outcomes**, such as increased self-employment, enterprise creation, and ecosystem strengthening (Asad & Rose-Losada, 2013).

Quantitative techniques such as t-tests, ANOVA, and regression analysis are frequently used to measure changes in participants' knowledge and behaviors pre- and post-training (Fayolle, 2013). However, researchers caution that short-term evaluations may not capture the full extent of training effectiveness. For instance, Martínez et al. (2013) found that while immediate skill gains were evident, sustained impact was best observed through longitudinal tracking of participants.

Moreover, studies highlight the importance of considering the context in which training is applied. A program's success depends not only on its content but also on the availability of supportive institutions, market opportunities, and cultural readiness for entrepreneurship (Staber, 2013). Thus, impact assessment must combine quantitative measures with qualitative insights, ensuring a holistic understanding of how training influences real-world entrepreneurial ecosystems.

3.5 Research Gaps and Conceptual Framework

While numerous studies have explored entrepreneurship education and vocational training, several critical gaps remain:

- **Limited focus on international participants**: Most research examines local or national programs, with insufficient attention given to cross-border capacity-building initiatives.
- **Lack of longitudinal tracking**: Few studies evaluate outcomes two or more years after training, making it difficult to assess sustainability and long-term application.
- **Neglect of systemic impact**: Existing literature often focuses on individual skill gains rather than exploring how participants translate learning into policy and institutional reforms.

This study addresses these gaps by focusing on senior government officials, policymakers, and domain experts who completed an intensive 8-week EVET-CBP under the ITEC program at EDII. It evaluates participants two years post-training to assess how their learning has been translated into policy, practice, and community-level initiatives.

The proposed conceptual framework (Figure 2) outlines this pathway: starting with inputs (participants and resources), moving through the training process (knowledge transfer, skill building, networking), leading to outputs (enhanced KSAs, action plans), and resulting in long-term outcomes such as policy reforms and strengthened entrepreneurship ecosystems that advance SDG Goal 4: Quality Education.

While global programs highlight the importance of entrepreneurial capacity-building, ITEC–EDII stands apart by targeting high-impact participants capable of driving systemic change. By examining how these individuals apply their learning over time, this study provides unique insights into the sustained effectiveness and transformative potential of international entrepreneurship training.

Source: Author

Figure 2. Showing the framework model of EVET capacity-building programs

3.1 Study Objectives and Hypotheses

Building on the identified research gaps and the global relevance of entrepreneurial capacity-building programs, this study was designed to evaluate the long-term impact of the ITEC–EDII EVET-CBP. The focus was on understanding how participants, two years after completing the program, applied their learning to policy development, institutional strengthening, and community-level entrepreneurial initiatives.

3.1.1 Objectives

The study was guided by the following specific objectives:

1) To analyse the post-training impact of short-term international entrepreneurship-focused vocational education and training (EVET) programs on the personal and professional development of participants.

2) To evaluate the effectiveness of EVET programs in enhancing participants' entrepreneurial knowledge, skills, and attitudes (KSAs) for building sustainable competencies.

3) To assess the role of capacity-building programs in improving participants' overall enterprising skills and ecosystem-building capabilities.

3.1.2 Hypotheses

Based on these objectives, the following hypotheses were formulated for empirical testing:

H1: Participation in EVET-CBP significantly improves entrepreneurial knowledge, skills, and attitudes (KSAs) among participants from low- and middle-income economies.

H2: Participants in EVET-CBP experience an increase in employability and self-employment opportunities in their communities upon completing the program.

H3: The development of professional networks during EVET-CBP is positively associated with participants' ability to create green and sustainable business practices.

With these objectives and hypotheses serving as a foundation, the study proceeded to data collection and analysis to evaluate both the immediate and long-term outcomes of the EVET-CBP. The following section details the research design, sampling process, data collection tools, and analytical techniques used to achieve these objectives and test the hypotheses.

4 Methodology

4.1 Research Design

This study adopted a mixed-methods research design to comprehensively evaluate the impact of the EVET-CBP. The quantitative component focused on measuring changes in entrepreneurial knowledge, skills, and attitudes (KSAs) among participants, while the qualitative component captured in-depth narratives of how these competencies were applied in policy, institutional practices, and community-level interventions.

By integrating both approaches, the study provides a holistic understanding of the program's outcomes, aligning with best practices for evaluating complex capacity-building interventions.

4.2 Population and Sample

The population for this study consisted of senior government officials, policymakers, researchers, and domain experts nominated by their respective countries to attend the 8-week ITEC international entrepreneurship training programs at the Entrepreneurship Development Institute of India (EDII).

The study employed a purposive sampling technique (Briggs et al., 2012) to ensure that respondents were highly relevant to the research objectives. Unlike random sampling, purposive sampling was selected because participants were not general trainees, but individuals uniquely positioned to drive systemic changes in their home countries through policy formulation, program design, and ecosystem development.

The final sample consisted of 50 participants representing multiple low- and middle-income countries. While the sample size was relatively small, its significance lies in the strategic roles these individuals hold. Each participant functions as a high-leverage actor, meaning their learnings have far-reaching ripple effects on entrepreneurial policies and practices within their national contexts.

To strengthen the study's focus on long-term outcomes, only participants who had completed a minimum of two years post-training were included. This criterion ensured they had sufficient time to apply their learning, allowing the research to capture sustained changes rather than short-term, immediate post-program effects. This approach enhances validity by linking training outcomes to tangible, real-world implementation.

4.3 Development of Data Collection Tools

The survey instrument was custom-designed by the authors in consultation with subject matter experts in entrepreneurship education and program evaluation. The process involved several steps to ensure rigor, clarity, and contextual relevance, including:

- Closed-ended questions on a 5-point Likert scale to measure entrepreneurial KSAs.
- Open-ended questions to capture qualitative feedback about policy influence, challenges faced, and success stories.

4.3.1 Pilot Testing with an Ongoing ITEC Batch

The draft survey was administered to a current ITEC training batch to gather feedback on the clarity and relevance of questions. These pilot participants were different from the main study group. Their responses were not recorded for analysis, ensuring that the final study data were not contaminated; instead, their feedback was used solely for refinement. Based on pilot feedback, several questions were rephrased for better clarity and cultural sensitivity. Certain items were added to capture country-specific policy implementation and sustainability practices. The revised tool was then finalised for administration.

4.4 Data Collection

The finalisedfinalised survey was administered to the target group, previous ITEC participants who had completed their training at least 2 years prior. Data collection was primarily conducted through online platforms and email, given the international nature of respondents. Follow-up communications ensured a high response rate despite geographical dispersion. This process enabled the researchers to capture first-hand insights into how participants applied their learning after returning to their home countries, with a focus on policy changes, institutional strengthening, and community impact.

4.5 Data Analysis

The collected data were analysed using a combination of quantitative and qualitative techniques. For quantitative analysis, descriptive statistics were used to summarise demographic data and overall patterns. Later t-tests and ANOVA were applied to examine differences in entrepreneurial KSAs across participant groups and to test the study's hypotheses.

For qualitative analysis, open-ended responses were coded and analysed thematically to identify recurring themes. This process yielded rich narratives that illustrated how training translated into tangible outcomes, such as policy reforms, new programs, and grassroots entrepreneurship initiatives.

4.6 Ethical Considerations

The study adhered to strict ethical research standards, including obtaining informed consent from all participants before data collection. Participants were assured of confidentiality and anonymity, with findings reported only in aggregate form. Given the involvement of government officials and policymakers, special care was taken to ensure no sensitive institutional information was disclosed. Participation was voluntary, and respondents could withdraw at any stage without consequences.

Table 1. Demographic analysis of participants

Variable	Category	Percentage (%)
Gender	Male	68
	Female	32
Region	Asia	40
	Africa	36
	Latin America	24
Professional Role	Policymaker / Govt. Official	52
	Program Manager / Domain Expert	48
Sector Representation	Industry Development	30
	Education / VET	28
	Finance / Microcredit	22
	Other	20

Source: Author

Table 3. Impact on KSAs

KSA Dimension	Pre-Training Mean	Post-Training Mean	t-value	p-value
Knowledge	3.1	4.5	9.25	<0.01 **
Skills	3.05	4.4	8.98	<0.01 **
Attitudes	3.22	4.42	8.77	<0.01 **

Source: Author

The next section summarises the study's key results and findings.

5. Findings and Discussion

a) Overview of Respondents' Demographics

Table 1 shows the demographic overview of the survey respondents. The diversity reflects the global and cross-sectoral nature of the ITEC program participants, underscoring its broad applicability in fostering entrepreneurial ecosystems.

b) Results by Hypothesis

H1: Participation in EVET-CBP significantly improves entrepreneurial KSAs

Analysis of pre- and post-training scores indicated a statistically significant improvement in participants' entrepreneurial knowledge, skills, and attitudes (KSAs). As shown in Table 3, the descriptive statistics indicate that the mean KSA score increased from 3.12 (pre-training) to 4.45 (post-training) on a 5-point scale. Further, the t-test shows the improvement was significant at $p<0.01$, confirming that participation in the EVET-CBP substantially enhanced KSAs. The results support H1, demonstrating that the program effectively built foundational entrepreneurial competencies among participants.

H2: Employability and self-employment opportunities increase post-program

Participants reported significant improvements in employability and job creation within their communities. Many initiated entrepreneurship development programs, introduced new policies, or created training modules in their home countries. The ANOVA results showed notable differences across regions, with Asian and African participants reporting higher levels of post-program community initiatives compared to others ($p < 0.05$). Some of the qualitative evidence of respondents shows,

> "*After returning home, I developed a national policy on youth entrepreneurship that has since been adopted by my ministry*," – Participant from Africa.

> "*We launched a new incubation center to support rural women entrepreneurs, directly inspired by the EDII model*," – Participant from Asia.

These findings support H2, confirming that EVET-CBP outcomes extend beyond personal growth to community and national-level impacts.

H3: Networking supports green and sustainable business practices

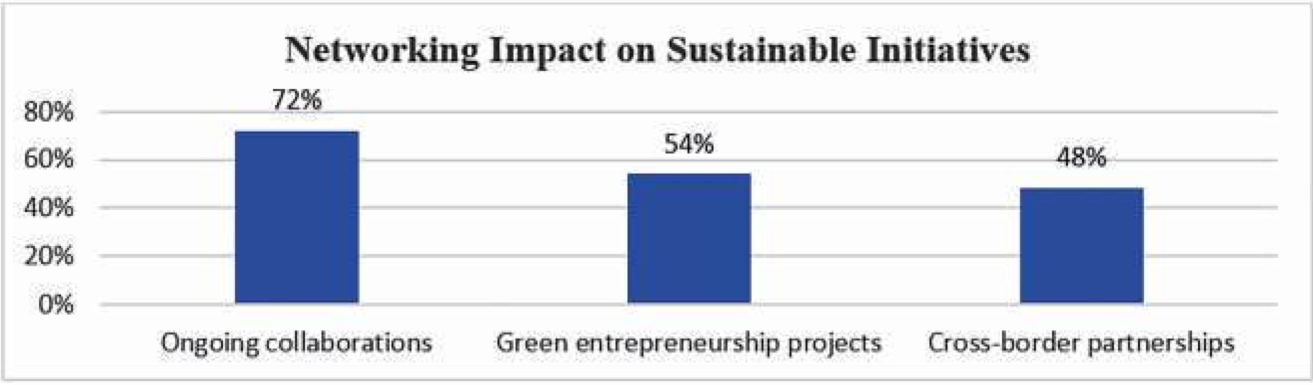
Participants highlighted the importance of professional networks formed during the program. These networks facilitated cross-border collaborations, particularly in promoting sustainable and green business practices. The survey findings observed that 72% of respondents reported ongoing collaborations with peers from their batch. While 54% credited these networks for initiating green entrepreneurship projects, such as waste management ventures and clean energy startups. As shown in Figure 3, these results confirm H3, showing that the networking component of EVET-CBP acts as a catalyst for sustainable, innovation-driven entrepreneurship.

a) Emergent Themes (Qualitative Insights)

Beyond the three hypotheses, several themes emerged from qualitative responses, such as,

- **Policy-Level Influence**: Participants became champions of entrepreneurship policies in their home countries.
- **Capacity Building Beyond Individuals**: Many trained local trainers, multiplying the program's reach.

While implementing the above initiatives, many encountered common barriers, including funding



Source: Author

Figure 3. Networking Impact on Sustainable Initiatives

constraints, bureaucratic hurdles, and cultural resistance to change. For instance, a *participant from Latin America established a national entrepreneurship curriculum, integrating lessons from EDII into the country's vocational training system, impacting over 5,000 students annually*. These findings demonstrate that the EVET-CBP achieved substantial, multi-level impact, from individual capacity building to policy reform and ecosystem strengthening. The following section interprets these results, links them to the broader literature, and explores implications for future program design and policy-making.

c) Emergent Themes (Qualitative Insights)

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d) Descriptive Analysis of Post-Training Impact

In addition to hypothesis testing, descriptive analysis was conducted to understand the practical outcomes and ripple effects of the EVET-CBP on participants and their home countries. The analysis focused on seven key areas, as shown in Table 5.

Table 4. Summary of key findings

Objective	Key Finding	Supported Hypothesis
Enhance KSAs	Significant increase in knowledge, skills, and attitudes ($p<0.01$)	H1
Increase Employability & Self-Employment	Launch of new programs, policies, and community initiatives	H2
Build Networks for Sustainability	Networks facilitated green business practices and collaborations	H3

Source: Author

Table 5. Studied variables and coded keywords for data analysis

SN	Studied variables	Coded Keywords	Description
1	Entrepreneurial vocational education and training capacity-building programs	EVET-CBP	The programs attended
2	Impact of learning on professional development	ImPD	The effect of EVET on participants' professional growth.
3	Impact of learning on knowledge, skills, and attitudes	ImKSA	The transfer of knowledge gained from EVET to others in the participants' network.
4	Impact of learning after returning to their home country	ImC	How participants applied their learnings upon returning home
5	Similar training programs are conducted in their home country	TrC	Instances where participants conducted or replicated similar training programs in their home countries
6	Impact of learning on creating ventures/ products	ImVP	The extent to which participants were able to create ventures or products based on their training.
7	The overall impact of learning on society and marginalised communities	ImO	Broader societal effects, particularly on marginalised communities

Source: Author

The descriptive results are presented below.

Table 6. Post-training impact on participants' personal and professional development (N=50)

[Question: How has this course helped you after you returned to your country? (ImC)]

Parameter	Frequency	Percentage (%)
Could enforce strategic initiatives for livelihood promotion	1	2%
Enhanced product portfolio	1	2%
Improved entrepreneurial knowledge and ability	13	26%
Improved entrepreneurship training/teaching/support insights	16	32%
Improved job skills	19	38%

Source: Author

Table 7. Impact on developing entrepreneurial knowledge, skills, and attitudes in others (N=50)

[Question: How has your contribution helped in generating an impact of learning on developing the knowledge, skills, and attitudes of other people? (ImKSA)]

Parameter	Frequency	Percentage (%)
Career progress	8	16%
Contribution to livelihood promotion	9	18%
Contribution to policy formation/reformation	4	8%
Contribution through research/projects	2	4%
Direct/indirect contribution to employment generation or enhancing business practices	13	26%
Training/consultation in entrepreneurship and intrapreneurship	14	28%

Source: Author

As shown in Table 6, the majority of participants reported that the training primarily enhanced their job-related skills (38%) and entrepreneurship training capabilities (32%), with a significant number also gaining entrepreneurial knowledge and abilities (26%). This demonstrates the program's direct value in improving participants' individual competencies and enabling them to support others in their ecosystems.

As shown in Table 7, over 54% of respondents reported making significant contributions to training, consultation, and employment generation in their countries. Notably, 8% contributed to policy reforms, indicating that the training not only improved individual capacities but also influenced systemic and institutional changes

As shown in Table 8, more than half of the respondents (56%) reported that their training activities contributed to the development of entrepreneurship practices in their home countries. This suggests a strong multiplier effect, with knowledge gained at EDII being transferred to others, fostering entrepreneurial ecosystems at scale.

As shown in Table 9, the majority of respondents (56%) reported a visible impact in product development initiatives, followed by market assessment and validation (36%). This indicates that the training spurred participants to apply their skills in practical, market-oriented activities, bridging the gap between conceptual learning and real-world execution.

6. Discussion

This study set out to evaluate the long-term impact of short-term international entrepreneurship-focused vocational education and training programs (EVET-CBP) under the ITEC training initiatives implemented at EDII. By focusing on senior government officials, policymakers, researchers, and domain experts, it explored how training outcomes were translated into policy actions, community-level initiatives, and ecosystem development over at least 2 years post-training. The results demonstrate that the program generated multi-level benefits, encompassing individual skill enhancement, institutional strengthening, and systemic change.

The study found significant improvements in participants' entrepreneurial KSAs (Acharya & Chandra, 2019). These findings suggest that the EVET-CBP's blended learning approach, combining classroom sessions, experiential activities, and mentoring, was highly effective in building core entrepreneurial competencies. This aligns with Kolb's experiential learning theory (Kolb, 1993), which emphasisesemphasises that learning by doing fosters

Table 8. Similar entrepreneurship training programs conducted by participants (N=50)

[Question: What is the overall impact on the participants who have attended similar training conducted by you? (ImO)]

Parameter	Frequency	Percentage (%)
Entrepreneurship development (current/future practices)	28	56%
Livelihood/Rural Entrepreneurship/SME	4	8%
Product development (new/existing)	18	36%

Source: Author

Table 9. Areas of training conducted in participants' home countries (N=50)

[Question: Have you noticed any impact of the training/seminar/workshop conducted by you on people in your country? (TrC)]

Parameter	Frequency	Percentage (%)
Product development (current/future practices)	28	0.56
Market assessment and validation	18	0.36
Execution of product/service in the market	4	0.08

Source: Author

deeper, more sustainable knowledge retention (Cope & Watts, 2000).

The descriptive analysis further revealed that participants applied their enhanced KSAs to advance their careers, strengthen entrepreneurship education, and deliver targeted training in their home countries. These outcomes confirm that the program successfully met its objective of building human capital for entrepreneurship promotion (H1).

Beyond individual benefits, the findings show that participants generated tangible community-level and institutional outcomes. Many launched entrepreneurship development programs, introduced new policies, and initiated training modules modeled on their learning at EDII.

The ripple effect of these actions demonstrates how strategically selected participants in leadership and policymaking roles can serve as multipliers of impact. This is consistent with previous research by Martínez et al. (2013) and Lyons and Zhang (2017), which highlights the potential of capacity-building programs to create broad-based social and economic benefits.

ANOVA results confirmed regional differences, with participants from Asia and Africa reporting greater levels of post-program initiatives. This suggests that local context plays a critical role in how international training is absorbed and implemented (Kiseleva et al., 2022).

A participant who is a District Marketing Development Officer of the Ministry of Agriculture, Serenje, Zambia said: "*…the communities are now able to access nutritious products due to value addition to groundnuts, as some cooperatives in the area have acquired peanut butter-making machines that are adding value to groundnuts, also an increase in incomes from farmers due to value addition…*"

In addition, several participants influenced policy changes and led community-level initiatives, demonstrating the program's systemic impact (Ismail, 2018). Most post-training activities focused on product development, market validation, and strengthening the entrepreneurship ecosystem, directly aligning with SDG Goal 4 (Quality Education) and broader sustainable development objectives (ONU, 2022). These outcomes underscore the program's role not only in empowering individuals but also in fostering sustainable entrepreneurial ecosystems (Cohen, 2006).

These descriptive findings complement the hypothesis-driven results (Alvedalen & Boschma, 2017), illustrating how the EVET-CBP achieved multi-level transformation. A participant who is a principal economist at the Ministry of Economic Affairs and International Trade, Harare, Zimbabwe said: "*…this training program has helped me to bring about changes in the livelihood of the people and I am currently in discussion with policymakers and local government to make some changes in the current practice to help develop the entrepreneurship ecosystem for the betterment of our people…*"

The program successfully enhanced individual capacities (H1) (Shane, 2003), generated community and employment outcomes through program implementation (Aldrich & Zimmer, 1986; Greve & Salaff, 2003) and policy actions (H2) (Ács et al., 2014; Isenberg, 2011), and fostered collaborative networks (Jack et al., 2010; Ronald S. Burt, 1980) that promoted sustainable and green business practices (H3) (Tiwari & Pal, 2024). For instance, a social entrepreneur from Makassar, Indonesia, shared: "*…I have passed on this knowledge to the communities I work with, and now they are better able to generate income and improve their livelihoods...*"

Taken together, these findings provide a comprehensive understanding of how the EVET-CBP creates long-lasting impact, moving from personal growth to broader ecosystem development and systemic change.

7. Implications

7.1 Theoretical Contributions

The study contributes to entrepreneurship education literature by demonstrating how knowledge, skills, and attitudes can translate into systemic change when embedded within policy and institutional frameworks. It supports experiential learning theories and extends them by showing how international exposure accelerates innovation and adaptability.

7.2 Practical Insights

For program designers, the findings underscore the need to:

- Include action planning components that encourage immediate application of learning.
- Build long-term alumni networks to sustain collaboration and peer support.
- Integrate monitoring mechanisms for tracking outcomes beyond training completion.

7.3 Policy Relevance

Governments and international agencies can use these insights to develop strategic approaches to participant selection, which is crucial for focusing on individuals in positions of influence to maximisemaximise impact. Capacity-building should be tied to national entrepreneurship strategies and aligned with local development priorities. Funding models should prioritise sustainability, supporting follow-up initiatives and ecosystem growth.

7.4 Link to SDG Goal 4 and Sustainability

The EVET-CBP directly contributes to SDG Goal 4 (Quality Education) by providing inclusive, equitable, and transformative learning experiences for participants from low- and middle-income countries. Indirectly, it supports several other SDGs, including:

- SDG 8: Decent Work and Economic Growth, through employment generation and entrepreneurial ventures.
- SDG 9: Industry, Innovation, and Infrastructure, via new business models and capacity-building.
- SDG 17: Partnerships for the Goals, by fostering international collaborations and networks.

This reinforces the role of entrepreneurial capacity-building as a driver of sustainable development. In summary, the discussion highlights that the EVET-CBP is not merely a training program but a catalyst for systemic transformation. Equipping key stakeholders with the skills, networks, and vision to drive change demonstrates how targeted international interventions can foster resilient, inclusive entrepreneurship ecosystems.

Limitations & Future Research

While the study's sample size is relatively small (n=50), this is inherent to the design and nature of the ITEC programs, which deliberately select a limited number of highly qualified participants per batch. Each participant is positioned to influence policies and practices at a systemic level within their country. Hence, the depth and quality of their contributions provide more meaningful insights than would be possible with a larger, randomly selected sample. For future research, we recommend a longitudinal study incorporating time-series analysis to assess pre- and post-program effects across a broader participant base. This approach could provide deeper insights into the long-term impact of such programs on entrepreneurial knowledge, skills, and attitudes, and better inform the development of targeted training to achieve sustainable impact.

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Sustainability Disclosures as a Determinant of Stock Return: Evidence from an Emerging Economy

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Abstract

Environmental, Social, and Governance (ESG) considerations are becoming integral to corporate strategy and investment decisions as regulatory requirements evolve. This study examines the impact of ESG scores on the stock returns of NIFTY 500 firms using panel data regression. Panel diagnostics—including the Breusch–Pagan LM test and the Hausman specification test—confirm that the fixed-effects model is appropriate for the analysis. The dataset comprises an unbalanced panel of 1,789 firm-year observations for 443 companies during 2014–2023. To address potential endogeneity and dynamic effects, robustness checks were conducted using a dynamic panel Generalised Method of Moments (GMM) estimator. This study measures the influence of the general ESG score and its specific environmental, social, and governance constituents on stock returns. This paper concludes that there is a statistically significant but complex relationship between ESG factors and stock returns. The combined ESG score exhibits a negative association with short-term returns, suggesting that while ESG initiatives strengthen long-term resilience, they impose short-term costs that may reduce immediate stock performance. Among the three ESG pillars, the social factor shows the strongest negative correlation. The effects are mixed between the environmental and governance components as investor sensitivity plays a role in industry-specific sustainability initiatives. These findings indicate that firms must strategically balance ESG integration with financial objectives to maximise investor confidence and long-term value creation.

Keywords: *ESG, Sustainability, Stock Returns, NIFTY 500, India, Panel Regression*

1. Introduction

International organisations - "Sustainability Accounting Standards Board" (SASB) and the "Global Reporting Initiative" (GRI) have worked extensively on global ESG reporting standards. These frameworks aim to provide a set of comparable indicators to help companies consistently report their ESG performance. These standards are used widely around the world, promoting transparency and accountability. Business strategies today are greatly influenced by "Environmental, Social, and Governance" (ESG) factors, shaping how firms run their operations, innovate, and communicate with shareholders. Today, there are no universally accepted standards or measures for assessing and disclosing ESG performance. ESG performance also depends on board characteristics, such as size, independence, and gender, as discussed by Amara and Ahmadi (2024) in their cross-national study of 60 countries. Due to a lack of standardisation, frequent variations in data make it difficult for stakeholders to properly assess and compare businesses. However, efforts are being made to bridge this gap and establish uniform reporting structures. The United Nations Principles for Responsible Investment (UNPRI) makes reports about responsible investment practices. They provide information on how investors worldwide incorporate ESG factors. Their yearly reports show trends, issues, and advancements in responsible investing. "Carbon Disclosure Project" (CDP) gathers and shares environmental information from companies across different geographies. The Task Force on "Climate-related Financial Disclosures" (TCFD) advises companies on how to reveal climate-related risks. The "International Sustainability Standards Board" (ISSB) was founded within the structure of the "International Financial Reporting Standards Foundation" with the objective of preparing the global baseline for "sustainability reporting. These reports help investors to evaluate ESG risks and opportunities within different sectors. Recent developments include the U.S. commitment to reduce greenhouse gas emissions by over 60% by 2035, record investments of $2 trillion in clean technologies in 2024, and advancements in carbon capture technologies like Clime Works, which lead towards stronger climate action to achieve the goal of "net-zero emissions by 2050" to drive transformative technologies across the globe.

The relevance of ESG in India has been growing as firms and regulatory authorities recognise its importance for sustainable development. Financial Reporting is transforming in line with new paradigms with the preparation of the "Business Responsibility and Sustainability Report" (BRSR) issued by SEBI ("Securities and Exchange Board of India"), which has opened the door to such transformations. BRSR contains general disclosures, as well as disclosures about management and process; it contains nine principles, which include ethics, transparency, accountability, sustainability, employee well-being, human rights and environmental protection. To promote accountability and transparency, this is expected to achieve a mandatory disclosure of all ESG actions taken by the top 1,000 listed corporations. This has enhanced India's positioning as one of the first countries in the world to standardise ESG disclosures, thus improving its perceived reputation for sustainable business practices across the globe. And this is reflected in the environment — Indian corporates' ESG reporting has increased by 160% in recent years. This rise is due to increased awareness around how important ESG factors are in driving investor confidence as well as corporate sustainability. With ESG disclosures coming from 50% of businesses in operations, significant achievements have been made in the energy and utilities sectors. This sequence reflects a shift towards sustainable energy sources and permanent ESG commitments. With the initiatives like Green Hydrogen Mission and Renewable Energy expansion in the form of setting up 500 GW target by 2030, India has promised to fulfil the target of "net-zero emissions by 2070".

The main theories in the ESG literature are Social Responsible Investment (SRI) theory (Diener & Habisch, 2021), institutional theory (Lei & Yu, 2024), and stakeholder theory (Yadav & Jain, 2023). Stakeholder theory suggests that companies that work in the best interests of stakeholders will achieve real, enduring success. Stakeholders are given priority, and their true role within the organisation is made clear. The requirement for firms to use their funds ethically is also clarified by corporate governance theory (Boatright, 2017). According to institutional theory, corporations are social entities that function in accordance with established norms, attitudes, and assumptions that reflect rational economic behaviour. Therefore, cultural norms and values are linked to CSR and other accounting procedures. Researchers in sustainability have extensively used institutional theory to examine integrated reporting, identify factors affecting ESG performance, and understand the relationship between social consciousness and CSR. Social responsible investment theory offers a framework for considering not just economic returns but also their effects on social, ethical, and environmental development. More SRI studies would deepen our understanding of ESG investing and its contribution to economic sustainability.

While ESG disclosures are becoming mandatory, managers remain uncertain about their impact on stock performance. Shareholder returns and increased financial stability are correlated with effective governance. In developing countries like India, where strong governance may promote value creation and investor trust, this factor is especially important. ESG integration is now a business requirement rather than an option. International reports, along with India's aggressive initiatives, underscore the importance of ESG for sustainable growth, transparency, and investor trust. Here's how: local and international stakeholders are increasingly prioritising ESG principles, making businesses that follow suit more likely to succeed in the long term and to have a positive influence on society. While several studies have examined the relationship between ESG disclosure and financial performance (Abdi et al., 2022; Li et al., 2024), most research has focused on developed countries. Very little empirical literature is available on whether ESG disclosure is related to the stock returns of Indian companies (Sharma et al., 2020; Maji & Lohia, 2023). In ESG researchers' work, the norms of ESG disclosure may vary across countries, and therefore generalising findings from developed nations to emerging markets is likely tenuous. The literature on this issue is inconclusive, with some research indicating a beneficial effect of ESG disclosure on the firm's performance (Freeman, 2010; Naeem et al., 2022), while others report a negative or null effect (Garcia & Orsato, 2020). This inconsistency stems from the trade-off between the theoretical benefits and costs of ESG disclosure (Li et al., 2024; Wang et al., 2024). Disclosure can, of course, promote transparency and appeal to socially minded investors, but it can also be labour-intensive and expensive. Thus, sharing ESG practices is conditional on whether the benefits outweigh the costs (Zhang et al., 2020).

This paper examined the impact of ESG scores on stock returns for Indian companies in the emerging economy. As previously stated, starting in fiscal year 2022–2023, ESG reporting would be required; however, before this rule, many companies were already voluntarily submitting it. Furthermore, it sought to address the research gap by answering the question: "Do investors consider a company's ESG policies when making an investment decision?" Higher stock returns should, in theory, be correlated with effective ESG factor management. This study contributes to the ESG–financial performance literature in three significant ways. First, it examines ESG performance in India during a period of regulatory transition, during which reporting moved from a voluntary framework to the mandatory Business Responsibility and Sustainability Reporting (BRSR) framework. This makes India a unique emerging-market setting with evolving disclosure norms. Second, the study evaluates heterogeneity in ESG effects by conducting separate cross-sectional analyses for large- and small-cap firms and for carbon-sensitive versus non-sensitive sectors—an approach largely unexplored in prior Indian ESG research. Third, to mitigate endogeneity concerns and strengthen causal inference, the study employs a dynamic panel GMM estimator, which is rarely applied in ESG–return studies related to Indian markets. Together, these elements provide a more nuanced and context-specific understanding of the ESG–stock return nexus in an emerging economy.

2. Theoretical Framework

ESG disclosures and the performance of firms' stock markets can be examined using two prominent theories: stakeholder theory and agency theory. A complete analysis of ESG disclosure literature indicates that firms are increasingly adopting ESG reporting to meet stakeholder expectations and enhance corporate reputation. Stakeholder theory, for instance, is very noticeable in linking ESG with corporate performance. Freeman (2010) noted that companies' ESG policies and practices will enhance overall management and satisfy all stakeholders, thereby increasing the bottom line. Companies acknowledge the importance of transparency in building trust and long-lasting relationships with stakeholders (Li et al., 2024). Information disclosure related to ESG issues is one way for companies to demonstrate adherence to sustainable practices (Aouadi & Marsat, 2016), and companies engage in ESG investments to create value for stakeholders (Behl et al., 2022; Saeidi et al., 2015). Companies can create value in longer run by nurturing trust, transparency and goodwill with their stakeholders.

There are different perspectives in previous studies, and the association between agency theory and ESG is diverse (Del Gesso & Lodhi, 2024). The agency theory argument thus suggests that investments in ESG do not yield returns for the company – the company is engaging in unnecessary expenditures that deliver no return (Schuler & Cording, 2006). All stakeholder theories contradict this agency theory (established by Jensen & Meckling, 1976). The association of principals with agents and the division of ownership and management are two essential tenets of the agency theory. Managers, as agents of owners, are expected to act solely in shareholders' best interests. This results in managerial opportunism, where executives use corporate funds for ESG activities to hide condemnation of subpar financial results. This is frequently called "window dressing." ESG initiatives are implemented to generate favourable press and conceal subpar financial performance including stock market performance. It's important to distinguish between genuine ESG work that build long-term value and "greenwashing" or superficial efforts that are merely for public relations purposes (Gidage, 2024). While traditional agency theory might view ESG as a potential cost (Barnea & Rubin, 2010), a more nuanced perspective recognises its potential to mitigate agency problems and build long-term value for all stakeholders. Together, stakeholder and agency theories provide contrasting views on the financial relevance of ESG activities — the former emphasising long-term stakeholder value creation, and the latter cautioning against potential agency costs.

3. Literature Review

The significance of Environmental, Social, and Governance (ESG) factors has notably increased in recent years for investment decision-making, driven by heightened interest from both investors and regulatory bodies in "socially responsible investing" and "impactful investments. Researchers have examined the dynamics of sustainable finance from various analytical frameworks. In recent times, three principal lines of academic inquiry have provoked contemplation, addressing three distinct dimensions in which ESG influences corporate ESG data, stock valuation, and portfolio performance. ESG is now frequently used to explain why stock returns vary. While some studies (e.g., Shanaev & Ghimire, 2022; Takahashi & Yamada, 2021; Fiskerstrand et al., 2019) find that the relationship is not significant, others (e.g., Luo, 2022; Maiti, 2021) demonstrate that ESG offers considerable explanatory power for stock returns. A prominent research gap exists in the literature: conflicting results on the relationship between ESG and returns despite numerous investigations.

3.1 Positive Association between ESG and Stock Returns

Although the data are ambiguous, the theoretical foundations point to a positive correlation between ESG scores and various measures of corporate performance, including stock returns. ESG has been identified as one of the factors influencing corporate success in numerous studies and has been shown to be positively associated (Nirino et al., 2021; Thomas et al., 2021; Zhang & Lucey, 2022). Maiti (2021) concluded that ESG play positive role in predicting stock returns and suggested three-factor models with market, size and ESG factors over the Fama–French three-factor model. The fluctuations in stock prices are predominantly anticipated via fundamental analysis and technical analysis, one aspect of which involves assessing whether the stock price remains justifiable or undervalued. Fundamental analysis is a methodical examination aimed at determining the intrinsic value of equities by utilising information derived from financial statements. In contrast, technical analysis is the prediction of prices by analysing historical prices. (Greig, 1992; Muhammad & Ali 2018; Hanipah et.al., 2024). As articulated by Trisnowati et al. (2022), the impetus for a corporation to disseminate information about its financial reports to external stakeholders arises from information asymmetry. Specifically, the corporation possesses superior knowledge of its future operational prospects compared to external stakeholders. Data on ESG scores is relevant to any investor performing fundamental analysis. Over the years, scholars have written extensively about how investors judge a firm from an ESG perspective and how this dimension is incorporated into their investment thesis, thereby influencing financials and, more specifically, the stock price. Investors postulate that a superior ESG score correlates with enhanced performance in the equities market. Xu et al. (2023) and Engelhardt (2023) found that ESG scores exerted a markedly positive influence on stock returns during the COVID-19 crisis, with ESG scores not only affecting stock returns but also delivering a more substantial, elevated positive effect on post-crisis stock returns. However, it is essential to consider volatility risk, as Xu et al. (2024) concluded that performance in ESG dimensions influences the volatility of stock prices in publicly traded corporations by diminishing the extent of corporate earnings manipulation and enhancing organisational reputation. There exists empirical evidence (Gavalas, 2024; Kwaning et. al., 2024; Yadav et. al., 2024; Shen, 2024) suggesting that corporations adhering to sustainability criteria –in any form of ESG exhibit superior market performance via firm performance. The scholarly contribution of Gavalas (2024) is anticipated to enhance and expand the current body of knowledge while simultaneously promoting the pursuit of sustainable corporate performance. This investigation reveals a positive correlation between ESG and corporate performance, as indicated by the "market-to-book ratio" and the "Q ratio".

Kwaning et al. (2024) elucidate substantial positive correlations between ESG practices and both organisational performance and valuation using a sample of non-public manufacturing firms and hierarchical regression analysis. In particular, initiatives focused on environmental sustainability positively impact organisational performance and valuation, alongside practices associated with social and governance sustainability. Yadav et al. (2024) utilised a sample of 39 non-financial corporations from the Nifty-50 panel data spanning 2018 to 2021 to investigate the positive correlation between ESG scores and stock returns. The bipolar model formulated by Shen (2024) utilising the Rough Set theory encompasses a total of 8 decision criteria, while the "DEMATEL" ("Decision-Making Trial and Evaluation Laboratory") methodology elucidates the positive interrelationships among fundamental attributes such as financial performance, ESG criteria, and stock returns. The ESG ratings have increasingly emerged as a crucial reference metric within the investment decision-making framework. Habib et al. (2024) has highlighted the role of ESG compliance on the cash holdings by corporates and discussed firms' behaviours in the context of high or low ESG compliances. Nevertheless, discrepancies may occur among various ESG rating agencies when evaluating the same company. Such discrepancies influence investors' perceptions of a corporation's ESG performance, thereby impacting its abnormal stock returns and volatility (Wang et al., 2024; Li & Lai, 2024). Desai (2024) analysed the financial data of with a cross-sectional regression analysis using control variables like the "market-to-book value ratio", "Tobin's Q ratio"; along with main variable as "ESG scores". He concluded that the market value of the sample firms is significantly positively affected by ESG disclosure. In addition, the study examines how carbon sensitivity affects this relationship and finds that, compared with other firms, carbon-sensitive firms exhibit a weaker positive effect on company value.

3.2 Negative Association between ESG and Stock Returns

A negative relationship between ESG and firm performance is also reported by many scholars (Huang, 2022a, 2022b; Shaikh, 2022; Sharma et al., 2019). Kim and Koo (2023) have empirically illustrated the detrimental effect of ESG discrepancies on company valuation and investment decisions. Using a dataset of 851 European stocks from January 2015 to May 2022, Vyletelka (2024) investigates the relationship between aberrant stock returns in the European equity market and fluctuations in ESG scores. The study concludes that, contrary to earlier research on the U.S. stock market, a comparable effect is not evident among equities in Europe. Because ESG ratings, which are currently used to quantify ESG performance, are noisy, traditional regression estimates are biased toward weakening the relationship. Berg et al. (2022) presented two noise-correction approaches to address the issue. Due to global pandemic events, corporate ESG activities are affected. In recent times, world has faced COVID 19 challenges. Demers et al. (2021) used agency theory to explain the inverse link between ESG characteristics and stock market returns. At the expense of shareholder value, management may accomplish its ESG objectives. For instance, during the COVID-19 pandemic, people paid more attention to workers' health and safety, including job searches and consumer demands, which increased businesses' expenses. According to this viewpoint, ESG investments are unnecessary and could endanger shareholders. A study by Angeline et al. (2024) that analysed monthly closing price data from 506 businesses listed on the "Indonesia Stock Exchange" between 2011 and 2018 found no clear evidence that ESG factors affected stock returns in Indonesia. Torre et al. (2020) examined how ESG affects stock returns by analysing the performance of firms in the Euro Stoxx 50 index from 2010 to 2018 using a two-step regression technique. The performance of these companies does not reflect their ESG efforts. The use of panel regression by Meher et al. (2020) to quantify the effect of ESG scores on the returns and volatility of Indian companies led to the conclusion of a negative relationship. The relationship between the stock performance of large-cap European firms and "market capitalisation", "price to book value", "Sharpe ratio", and their ESG score is studied in tandem by Gavrilakis and Floros (2023), who found that the lower the ESG performance, the higher the stock returns.

3.3 Hypotheses Development

After careful analysis of literature and theory, the following hypothesis are framed:

H1: Score of ESG performance is positively associated with stock returns in India.

H2: The score of environmental performance is positively associated with stock returns in India.

H3: The score of Social performance is positively associated with stock returns in India.

H4: The score of Governance performance is positively associated with stock returns in India.

4. Research Methodology

For this paper, Bloomberg's ESG scores were considered: not only the combined score, but also the E, S, and G scores individually. Bloomberg provides extensive ESG data for over 11,500 companies globally, facilitating detailed analysis of corporate environmental, social, and governance performance (Bloomberg, 2023). The measures are grouped into three primary categories: Environment (E), Social (S), and Governance (G). These categories are further divided into ten subcategories. ESG scores were established based on selected 186 metrics. Following the methods of Borokova and Wu (2020), the study engages Bloomberg's linked ESG score for the allure study, further testing the individual E, S, and G scores. The goal is to uncover potential relationships between ESG and stock returns. In the beginning phase, the research replicates Borokova and Wu's regression model, accompanied by modifications, which combined the ESG score and control variables named "market capitalisation", "price-to-book value", "price-to-earnings", and "return on assets". Empirical studies linking ESG and stock returns routinely include profitability (e.g., ROA – Return on Assets), valuation ratios (price-to-book or price-to-earnings) and firm size (market capitalisation) as control variables because these firm characteristics are both strong determinants of cross-sectional expected returns and correlated with ESG indicators. Current operating performance and risk-adjusted cash flow generation are directly reflected in profitability (ROA); companies with higher ROA both attract distinct investor demand and may exhibit systematic differences in ESG adoption or disclosure. Size captures liquidity, analyst coverage and investor attention (larger firms tend to be followed more closely and have different risk/return profiles), while valuation ratios such as P/B or P/E proxy for a firm's growth expectations and relative "glamour" versus "value" status—factors that affect subsequent returns and can confound an ESG–returns relation. Past literature (Kim et al. 2014; Van Heijningen, 2019; Engelhardt, 2021; Liu et al., 2023) account for these variables to isolate the incremental link between ESG measures and stock returns.

4.1 Sampling and Data Collection

This study focuses on NIFTY 500 companies, with ESG scores sourced from "Bloomberg". Following a multi-stage sampling approach that excludes firms with missing data on selected variables and financial firms due to their distinct operating norms (Kumar & Firoz, 2019), the final dataset comprises 443 companies. Data were collected over the past 10 fiscal years, from 2014 to 2023, for in-depth analysis. Both the combined ESG score and individual scores for "Environmental" (E), "Social" (S), and "Governance" (G) parameters were considered. While the BRSR framework became mandatory starting from the financial year 2022–2023, ESG reporting was voluntary in prior years. Although the study spans 10 years (2014–2023), ESG data from Bloomberg is unavailable for all years for 443 firms. Several companies have partial or missing ESG disclosures, particularly in earlier years when reporting was voluntary. After eliminating observations with missing values for any of the required financial or ESG variables, the dataset becomes an unbalanced panel, yielding 1,789 firm-year observations. Unbalanced panels are standard in ESG studies due to heterogeneous reporting practices, and the estimation methods used in this study appropriately accommodate such data structures. The financial data for the selected variables was obtained from the "PROWESS database of the Centre for Monitoring Indian Economy" (CMIE), a widely trusted resource in previous studies on Indian companies. Whereas the ESG score data has been collected from Bloomberg. Table 1 represents the list of variable along with computational method and its sources.

4.2 Model Specification and Estimation Procedure

The financial data collected for this study have been analysed using both descriptive and inferential statistical techniques to examine the factors influencing stock returns. The dependent variable in the model is the stock return (R_{it}) of the *i* stock in the t[th] year. The model specification for panel data regression is as follows:

$$R_{it} = a + \beta_1(Mcap) + \beta_2(P/BV) + \beta_3(P/E) + \beta_4(ROA) + \beta_5 ESG_t + \varepsilon_{it} \quad (1)$$

$$R_{it} = a + \beta_1(Mcap) + \beta_2(P/BV) + \beta_3(P/E) + \beta_4(ROA) + \beta_5 E + \beta_6 S + \beta_7 G + \varepsilon_{it} \quad (2)$$

Mcap represents market capitalisation, value and profitability are captured by the price-to-book (P/BV), price-to-earnings (P/E) ratios, and return on assets (ROA). ESG performance is represented by ESGt, an annual combined score, these variables are commonly considered by investors and analysts. A combined ESG score is utilised, as it is updated at regular intervals. α and β are estimated parameters of the model, and εit is the error term. Moreover, in equation (2) E represents the environmental score S denotes the social score and G represents the corporate governance score individually.

Table 1. Data Variables used in the study

Dependent variable	**Measurement**	**Formula**	**Authors**
Stock return (Rit)	It is the difference of price of two consecutive time periods.	$Rit = \frac{P_t - P_{t-1}}{P_{t-1}} X100$	Baker & Wurgler (2006); Fama & French (1992)
Independent variable			
Environmental Social Governance Score (ESG)	The ESG Combined Score represents a company's overall performance based on its ESG factors. It's calculated using the information reported across these three pillars.	Score derived from ESG data providers based on specific criteria and metrics.	Giese et al. (2019); Friede, Busch & Bassen (2015)
Environmental Score (E)	The environmental score reflects a company's performance specifically within the ecological pillar of its overall ESG rating. It's based on the data reported for that category.	Derived by ESG data providers based on environmental performance metrics such as carbon emissions, resource use, etc.	Maji & Lohia (2023); La Torre et al. (2020)
Social Score (S)	The social score measures a company's performance in the social pillar of its overall ESG rating, based on the information reported for that category.	Derived by ESG data providers based on social performance metrics like labour practices, diversity, and community engagement.	Amel-Zadeh & Serafeim (2018); Velte (2017)
Governance Score (G)	The governance score measures a company's performance in the governance pillar of its overall ESG rating, based on the information reported for that category.	Derived by ESG data providers based on governance performance metrics like board diversity, transparency, and shareholder rights.	Kim & Koo (2023); Chatterji et al. (2016)
Control variable			
Market capitalisation (Mcap)	It is the total value of a company's outstanding shares. It is determined by multiplying the stock price by the total number of shares.	Ln Mcap= LN of (Price per share× Number of shares outstanding)	Fama & French (1992); Titman, Wei & Xie (2004)
Price to Book Value ratio (P/BV)	It is the division of market price and book value	$P/BV = \frac{Market\ price\ per\ share}{Book\ value\ per\ share}$	Fama & French (1992); Greig (1992)
Price to Earnings ratio (P/E)	It is the division of market price and earning per share	$P/BV = \frac{Market\ price\ per\ share}{Earning\ per\ share}$	Greig (1992); Baker & Wurgler (2006)
Return on Assets (ROA)	It is the division of net income by total assets and it measures the efficiency	$ROA = \frac{Net\ Income}{Total\ Assets} x\ 100$	Hanipah et al. (2024); Desai (2024)

To empirically examine the relationships among ESG scores, firm-specific financial variables, and stock returns, panel data techniques are employed, covering 443 firms over 10 years (2014–2023). Given the dataset's structure, it is necessary to first determine the most appropriate panel estimation method by performing a series of diagnostic tests. The initial step involves testing whether the pooled ordinary least squares (POLS) estimator is appropriate, or whether unobserved heterogeneity across firms and time requires a panel-based specification. To this end, the Breusch–Pagan Lagrange Multiplier (LM) test is applied to distinguish between pooled OLS and random effects estimation. The test results reject the null hypothesis of homogeneity, indicating that pooled OLS is not suitable and that unobserved effects are present. Subsequently, the choice between fixed effects (FE) and random effects (RE) is evaluated using the Hausman specification test. The Hausman test examines whether regressors are correlated with the unobserved effects—a key source of endogeneity in panel data models. Across all model specifications, the test results are consistently significant, rejecting the null hypothesis that RE provides consistent estimates. This implies that random effects estimation suffers from endogeneity due to the correlation between explanatory variables and firm-specific unobservables. Accordingly, fixed effects estimation is adopted as the final specification, as it allows for correlation between the unobserved firm-level heterogeneity and the regressors, thereby mitigating endogeneity bias (Wooldridge, 2010; Baltagi, 2001). In addition, period fixed effects are incorporated to capture unobserved time-specific shocks, such as macroeconomic fluctuations or policy changes, which may influence all firms simultaneously. By combining firm-level controls with time effects, the fixed effects model ensures robust, consistent estimates that better capture the dynamics of ESG factors and stock returns in the Indian market context.

4.3 Panel Diagnostics and Model Selection

To ensure the selection of an appropriate panel estimation technique, a series of diagnostic tests were conducted. The Breusch–Pagan Lagrange Multiplier (LM) test was first applied to distinguish between pooled OLS and random effects models. The LM test rejected the null hypothesis of no panel effect, indicating that pooled OLS was unsuitable. Next, the fixed-effects (FE) model was compared with the pooled OLS model using an F-test, which confirmed the presence of significant unobserved firm-level heterogeneity. Subsequently, the Hausman specification test was used to determine between fixed and random effects. The test results were statistically significant, indicating a correlation between the regressors and unobserved firm-specific effects; therefore, the fixed-effects estimator was preferred. Additionally, potential endogeneity concerns such as reverse causality and omitted variable bias were acknowledged. To address these issues, the study employed a dynamic panel Generalised Method of Moments (GMM) estimator as a robustness check, allowing the inclusion of lagged dependent variables and mitigating bias from endogenous regressors. The diagnostics collectively confirm that the fixed-effects model, complemented by GMM estimation, is the most appropriate approach for this dataset.

5. Results and analysis

5.1 Descriptive Statistics and Preliminary Analysis

Table 2. Descriptive statistics

	MCAP	P/BV	P/E	ROA	ESG	E	S	G	STOCK RETURN
Mean	652990.73	6.41	75.72	8.78	48.22	42.87	53.39	50.54	22.41
Median	290311.96	3.89	30.65	6.99	48.34	41.96	53.24	50.51	9.72
Maximum	17800000	100.41	19590.66	77.58	92.49	98.23	96.23	97.35	1013.20
Minimum	3906	0.22	-193.44	-19.31	4.64	0.00	6.29	0.47	-93.14
Std. Dev.	1270000	8.63	538.38	8.16	16.21	23.36	20.03	22.90	71.63

Table 2 represents the descriptive analysis of the data under study; the financial and ESG-related variables provide key insights into the characteristics and dispersion of firms in the dataset. The average market capitalisation stands at ₹652,990.73, with a wide range from ₹3,905.92 to ₹17,800,000, indicating significant variation in firm sizes. The P/BV and P/E ratios exhibit considerable dispersion, with mean values of 6.41 and 75.72, respectively, indicating diverse market valuations. Notably, the P/E ratio has an exceptionally high standard deviation (538.38), suggesting the presence of extreme outliers, including firms with negative earnings or inflated valuations. Similarly, ROA varies widely, with a mean of 8.78%, a maximum of 77.58%, and a minimum of -19.31%, reflecting differences in profitability across firms.

The ESG performance indicators indicate a moderate overall commitment to sustainability, with an average combined ESG score of 48.22. However, the environmental pillar score ranges from 0.00 to 98.23, indicating substantial variability in firms' environmental initiatives. The social and governance pillar scores show similar patterns, with mean values of 53.39 and 50.54, respectively, but with some firms scoring as low as 6.29 and 0.47, reflecting weak governance and social responsibility in some instances. The NSE return demonstrates significant fluctuations, with an average return of 22.41%, but a high standard deviation (71.63), emphasising volatility in stock performance. The overall analysis suggests that firms exhibit heterogeneous financial and ESG characteristics, warranting further inferential analysis to examine the relationship between these variables and stock returns.

5.2 Correlation Analysis

Table 3 displays the correlations between the dependent variable (stock return) and the independent variables in Equation 1. Since all correlation values are below 0.5, there is no significant concern regarding severe multicollinearity

Table 3. Correlation relation analysis of variables in equation 1

	STOCK RETURN	ESG	MCAP	P/E	P/BV	ROA
STOCK RETURN	1.000					
ESG	-0.076***	1.000				
MCAP	0.008	0.350***	1.000			
P/E	-0.068***	-0.016	-0.028	1.000		
P/BV	0.090***	0.0998***	0.013	-0.137***	1.000	
ROA	-0.011	0.176***	0.089***	0.004	0.067**	1.000

*Note: *, **, and *** indicate statistical significance at 10%, 5%, and 1% levels, respectively.*

Table 4. Correlation analysis of variables in equation 2

	STOCK RETURN	MCAP	P/E	P/BV	ROA	E	S	G
STOCK RETURN	1.000							
MCAP	0.008	1.000						
P/E	-0.068**	-0.016	1.000					
P/BV	0.090***	0.099***	-0.137***	1.000				
ROA	-0.011	0.176***	0.004	0.067**	1.000			
E	-0.082***	0.411***	-0.038	-0.011	0.030	1.000		
S	-0.105***	0.464***	-0.029	0.005	0.076***	0.682***	1.000	
G	-0.013	0.134***	-0.012	0.048**	0.065***	0.234***	0.266	1.000

*Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.*

.Table 4 illustrates the correlation among the dependent variable (stock return) and the independent variables, including the individual ESG pillar scores, in Equation 2. Except the social and environmental pillars, all correlation values are below 0.5, indicating no significant multicollinearity among the remaining variables.

5.3 Regression Analysis

Table 5 reports the panel regression (time-fixed) outcome for Equation 1, using NSE 500-listed shares. The table includes key statistics that assess the influence of the independent variables on the dependent variable. The analysis of 443 companies from 2014 to 2023 reveals a nuanced relationship between ESG scores, financial metrics, and stock returns, aligning with and expanding upon existing research. In Model 1 (baseline, without ESG), financial determinants show mixed effects. The Price-to-Earnings (P/E) ratio has a negative and marginally significant effect on returns (–0.009, $p < 0.10$), suggesting that firms with higher P/E multiples tend to yield lower short-term returns. This aligns with Titman et al. (2004), who argue that in markets where growth expectations dominate, profitability-linked ratios may not strongly predict near-term returns. The Price-to-Book Value (P/BV) ratio is positive and statistically significant (0.132, $p < 0.05$), consistent with Fama and French (1992), who highlight that growth-oriented firms with higher P/BV ratios are often rewarded with investor optimism and stronger returns. Meanwhile, Return on Assets (ROA) and Market Capitalisation (MCAP) remain statistically insignificant, indicating that traditional profitability and size factors do not meaningfully drive short-term stock performance in this model.

In Model 2, after including the ESG Combined Score, results become more nuanced. The coefficient for ESG is negative and highly significant ($\beta = –0.373$, $p < 0.01$), indicating that higher ESG scores are associated with lower short-term stock returns. This finding echoes Velte (2017) and Giese et al. (2019), who show that while ESG investments may enhance long-term resilience and risk mitigation, they often involve upfront costs that can suppress near-term profitability. Significantly, the inclusion of ESG slightly improves the model's explanatory power (Adjusted R^2 rises from 0.256 to 0.262), underlining its relevance despite the adverse short-run effect. Similar to Model 1, the P/E ratio remains negative and marginally significant ($\beta =–0.010$, $p < 0.10$), reinforcing the idea that valuation multiples may be poor indicators of immediate returns. The P/BV ratio continues to exert a positive and significant effect (0.125, $p < 0.05$), confirming that growth potential is rewarded by investors. ROA and MCAP remain

Table 5. Panel Regression result of equation 1

Variable	Model 1	Model 2
Constant	39.822**	34.654**
	(17.040)	(17.030)
ESG	–	-0.373***
		(0.098)
P/E	-0.009*	-0.010*
	(0.010)	(0.005)
P/BV	0.132**	0.125**
	(0.059)	(0.059)
ROA	0.000	0.023
	(0.176)	(0.175)
MCAP	-1.410	0.424
	(1.369)	(1.447)
Year Dummies	Yes	Yes
R^2	0.262	0.268
Adjusted R^2	0.256	0.262
Prob. (F-stat.)	0.000	0.000

*Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively* statistically insignificant even after controlling for ESG, further supporting the conclusion that profitability and firm size are not central drivers of short-term returns in this sample.

Overall, the findings indicate that while ESG initiatives may negatively affect short-term returns due to associated costs, they may still provide long-term strategic benefits, consistent with prior literature. At the same time, investors in the Indian market appear to reward growth-oriented firms (higher P/BV), while de-emphasising size and traditional profitability measures when evaluating near-term stock performance.

Table 6 presents the panel regression analysis (time-fixed effects) that investigates the effect of ESG scores on NSE share returns for the period 2014 to 2023. The results of Models 3–6 provide a nuanced understanding of how the individual Environmental (E), Social (S), and Governance (G) pillars of ESG performance interact with firm-level financial characteristics to explain stock returns in the Indian market. Collectively, the models reveal that ESG dimensions exert heterogeneous impacts on investor outcomes, underscoring the importance of disaggregating ESG into its sub-components rather than treating it as a composite index.

Model 3 shows that the Environmental Pillar Score has a negative, statistically significant effect on stock returns ($\beta = -0.264$, $p < 0.01$). This suggests that firms with higher environmental performance may experience reduced short-term returns, potentially because environmental initiatives often require substantial upfront investments in cleaner technologies, energy efficiency, or compliance mechanisms. Such costs may weigh on immediate profitability, even though they generate reputational and operational benefits over the longer horizon. These findings are consistent with Clark, Feiner, and Viehs (2015), who highlight that while

Table 6. Panel Regression result of equation 2

Variable	Model 3 (E)	Model 4 (S)	Model 5 (G)	Model 6 (E+S+G)
Constant	22.472	22.624	40.612**	18.250
	(17.599)	(17.393)	(17.063)	(17.747)
E	-0.264***	–	–	-0.121
	(0.071)			(0.089)
S	–	-0.374***	–	-0.291***
		(0.085)		(0.108)
G	–	–	-0.059	0.017
			(0.066)	(0.068)
P/E	-0.010*	-0.010*	-0.009*	-0.010**
	(0.005)	(0.005)	(0.005)	(0.005)
P/BV	0.118**	0.120**	0.133**	0.116*
	(0.059)	(0.059)	(0.059)	(0.059)
ROA	-0.029	0.002	0.008	-0.014
	(0.175)	(0.175)	(0.176)	(0.175)
MCAP	0.903	1.552	-1.235	1.907
	(1.497)	(1.517)	(1.382)	(1.540)
Year Dummies	Yes	Yes	Yes	Yes
R^2	0.267	0.270	0.262	0.270
Adjusted R^2	0.262	0.264	0.256	0.264
Prob. (F-stat.)	0.000	0.000	0.000	0.000

*Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.*

All three pillar scores (E, S, and G) are included in Model 6, but the combined ESG score is excluded to avoid multicollinearity.

environmental responsibility is increasingly valued by stakeholders, investors in emerging markets often prioritise short-term economic metrics over sustainability investments.

Model 4 demonstrates that the Social Pillar Score has an even more substantial negative effect on stock returns ($\beta = -0.374$, $p < 0.01$), reaffirming the argument that socially responsible activities may be perceived by investors as cost centres in the short run. Social initiatives such as employee welfare, labor rights protections, and community development projects increase operational expenditure without immediately improving financial performance. This result resonates with Friede, Busch, and Bassen (2015), who observed that while socially responsible strategies strengthen stakeholder relationships and resilience in the long run, they may initially depress profitability and market returns. In the Indian context, where investors are often focused on quarterly earnings and near-term growth, these findings suggest a misalignment between the time horizons of social investments and investor expectations.

Model 5 indicates that the Governance Pillar Score is statistically insignificant ($\beta = -0.059$, $p > 0.10$), implying that governance structures, on their own, do not significantly influence returns in the Indian market. This stands in contrast to findings from developed markets, where strong governance is often associated with reduced risk and improved investor confidence. One possible explanation is that governance standards in India are still evolving, and investors may not yet perceive governance improvements as a differentiating factor unless they are coupled with tangible financial performance. This echoes the inconclusive evidence reported in emerging market studies, suggesting that governance reforms require stronger enforcement and visibility to translate into measurable financial benefits.

In Model 6, which includes all three ESG pillars simultaneously, the Social Pillar Score remains negative and significant ($\beta = -0.291$, $p < 0.01$), while the Environmental Pillar ($\beta = -0.121$, $p > 0.10$) and the Governance Pillar ($\beta = +0.017$, $p > 0.10$) are both insignificant. This suggests that while social initiatives impose measurable short-term costs, environmental and governance dimensions do not have a significant direct effect on returns. The persistence of the Social Pillar's significance even after controlling for the other two dimensions indicates that investors discount firms that invest heavily in social programs, viewing such activities as near-term reductions in distributable profits or growth potential. All three pillar scores (E, S, and G) are included in the specification, but the aggregate ESG score is excluded to avoid multicollinearity.

Turning to firm-level financial variables, several consistent patterns emerge. Across all models, the Price-to-Book (P/BV) ratio is positive and significant (ranging from $\beta = 0.116$ to 0.133, $p < 0.05$), affirming fundamental valuation theories that higher P/B ratios reflect stronger growth expectations and are rewarded with higher returns (Basu, 1977; Fama & French, 1992). The Price-to-Earning (P/E) variable is consistently negative and weakly significant, suggesting that higher reported profitability does not necessarily translate into higher returns. This aligns with the argument of Titman et al. (2004) that in growth-focused markets, investors are more concerned with prospects than with current accounting profitability. Meanwhile, Return on Assets (ROA) is uniformly insignificant across models, further confirming that short-term profitability measures lack predictive power for returns in this context. Across Models 3 to 6, the coefficient for market capitalisation (MCAP) alternates in sign—positive in most specifications (Models 3, 4, and 6) but negative in Model 5—though in all cases statistically insignificant. This indicates that firm size does not exert a consistent or significant influence on short-term returns in the Indian context. This finding diverges from the established Fama–French (1992) size effect observed in developed markets and may reflect the unique dynamics of emerging economies, where both small and large firms are subject to volatility and shifts in investor sentiment.

The models' explanatory power is moderate, with adjusted R^2 values ranging from 0.256 to 0.264, suggesting that ESG factors and firm-level financial metrics jointly account for roughly one-quarter of the variation in NSE returns. While this explanatory capacity is modest, the consistently significant F-statistics (Prob. (F) = 0.000) confirm the overall robustness of the models. The inclusion of period fixed effects further underscores the role of macroeconomic and market-wide shocks in shaping stock performance, indicating that time-specific factors exert a strong influence on returns in addition to firm-specific characteristics.

These findings highlight the evolving role of ESG in investment decision-making. While traditional financial metrics remain crucial, the negative impact of the Social Pillar Score suggests that socially responsible initiatives might be perceived as costly by investors in the short run. This supports the argument that ESG investments require a long-term horizon to realise their full financial benefits (Eccles, Ioannou, & Serafeim, 2014). Future research could examine how different industries respond to ESG performance, offering further insights into sector-specific investor preferences.

5.4 Robustness Check

To test the robustness of the baseline results and address potential endogeneity concerns arising from reverse causality, omitted variables, and the inclusion of lagged returns, alternative panel GMM specifications were estimated. Table 7 below presents the GMM estimates, which confirm the robustness of the baseline results; the aggregate ESG score remained significantly negative, while the disaggregated analysis showed that the Environmental ($\beta = -0.181$, $p < 0.01$) and especially the social pillar ($\beta = -0.276$, $p < 0.01$) consistently reduce short-term stock returns, confirming that social and environmental initiatives impose measurable costs on firms. In contrast, the Governance pillar was insignificant across specifications, indicating weaker or delayed market effects. Importantly, while firm size (MCAP) was negligible in earlier static panel regressions, it becomes consistently positive and highly significant in the GMM framework. This shift suggests that GMM's correction for endogeneity and dynamic bias allows the independent contribution of size to be identified, as larger firms are better positioned to absorb the costs of ESG commitments. The other control variables (NP/E, P/B, ROA) remain insignificant across specifications, indicating that the ESG–return relationship is not confounded by accounting fundamentals. Model diagnostics reinforce these findings: the explanatory power remains stable ($R^2 \approx 0.35$ across models), Durbin–Watson statistics (~2.06–2.07) indicate no serial correlation, and J-statistics confirm instrument validity. Overall, the results are robust across alternative specifications and provide reliable evidence that ESG—particularly the social dimension-negatively influences firm returns in the short run.

Table 7. Panel GMM Estimates – ESG and Firm Returns (2015–2023)

Variable	ESG Combined	Environmental	Social	Governance	All 3 Pillars
C	–19.52	–29.18 **	–28.63 **	–19.62	–31.84 **
	(14.51)	(14.34)	(14.14)	(14.24)	(14.00)
NSE RETURN (-1)	0.043	0.042	0.041	0.047	0.040
	(0.034)	(0.034)	(0.033)	(0.033)	(0.034)
ESG Combined Score	–0.214 ***	–	–	–	–
	(0.078)				
E	–	–0.181 ***	–	–	–0.078
		(0.056)			(0.077)
S	–	–	–0.276 ***	–	–0.229 **
			(0.066)		(0.090)
G	–	–	–	–0.007	0.039
				(0.055)	(0.055)
P/E	–0.017	–0.017	–0.017	–0.017	–0.018
	(0.014)	(0.014)	(0.014)	(0.014)	(0.014)
P/B	0.052	0.047	0.048	0.054	0.045
	(0.106)	(0.104)	(0.103)	(0.106)	(0.104)
ROA	–0.129	–0.165	–0.137	–0.139	–0.149
	(0.143)	(0.139)	(0.138)	(0.138)	(0.138)
MCAP	3.514 ***	4.109 ***	4.618 ***	2.699 **	4.794 ***
	(1.114)	(1.152)	(1.146)	(1.140)	(1.155)
R^2	0.353	0.354	0.356	0.350	0.357
Adj. R^2	0.346	0.347	0.349	0.343	0.349
DW stat	2.07	2.06	2.06	2.07	2.06
Obs.	1348	1348	1348	1348	1348

*Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively. All models include period fixed effects and cluster-robust standard errors.*

5.5 Cross-sectional Analysis Based on the Size of the Firm

Firms were divided into large-cap and small-cap groups based on average market capitalisation (₹634,312 million). Table 8 represents the result of the comparative analysis between small firms and large firms

Table 8. Panel Regression Results for Large cap and small cap companies (2014–2023)

Variable	Large Firms – Model 1 (ESG Combine)	Large Firms – Model 2 (E+S+G)	Small Firms – Model 1 (ESG Combine)	Small Firms – Model 2 (E+S+G)
Constant	100.788	98.984	52.461	42.997
	-70.728	-71.944	-27.07	-27.433
ESG Combine	–0.150	–	–0.414***	–
	-0.215	–	-0.11	–
E	–	–0.136	–	–0.094
	–	-0.206	–	-0.097
S	–	–0.093	–	–0.334***
	–	-0.268	–	-0.116
G	–	0.105	–	0.014
	–	-0.148	–	-0.076
P/E	0.009	0.007	–0.003	–0.003
	-0.01	-0.01	-0.007	-0.007
P/BV	1.092***	1.072***	–0.013	–0.019
	-0.191	-0.193	-0.061	-0.061
ROA	–0.534*	–0.524	0.189	0.116
	-0.316	-0.325	-0.215	-0.217
MCAP	–5.086	–4.960	–1.076	–0.213
	-5.073	-5.322	-2.322	-2.356
Year Effects	Random	Random	Random	Random
R^2	0.339	0.34	0.265	0.267
Adjusted R^2	0.317	0.315	0.257	0.258
F-statistic	15.432***	13.542***	34.346***	30.424***
Prob(F-statistic)	0	0	0	0

*Note: *, **, and *** denote statistical significance at the 10%, 5%, and 1% levels, respectively.*

For large firms, ESG scores—both combined and disaggregated—are statistically insignificant, while the price-to-book ratio remains a strong positive determinant of returns. This reinforces earlier baseline results, which showed that ESG performance had limited explanatory power once financial controls were taken into account. For small firms, the ESG combined score is significantly negative, and the social pillar also negatively affects returns, indicating that socially responsible initiatives are perceived as costly and reduce short-term profitability. This pattern is consistent with the earlier finding of a weak or negative ESG–return link, but shows that the effect is concentrated in smaller firms.

Overall, the results highlight an apparent heterogeneity by firm size: ESG factors are penalised in small firms, whereas in large firms traditional valuation measures such as the price-to-book ratio dominate investor attention. The findings reveal a size-based heterogeneity: ESG performance negatively affects returns in smaller firms, while in larger firms' traditional valuation measures dominate.

5.6 Cross-sectional analysis Based on Carbon Sensitivity

Firms were classified as carbon-sensitive if they belonged to industries with high direct greenhouse gas emissions, such as energy, metals & mining, chemicals, cement, and textiles, while those in low-emission sectors, such as FMCG, healthcare, IT, and financial services, were treated as non-sensitive. Table 9 presents a comparative analysis of carbon-sensitive and non-sensitive firms.

Table 9. Panel Regression Results for Carbon-Sensitive and Non-Sensitive Sectors (2014–2023)

Variable	Carbon-sensitive Model 1 (ESG Combine)	Carbon-sensitive Model 2 (E+S+G)	Non-sensitive Model 1 (ESG Combine)	Non-sensitive Model 2 (E+S+G)
Constant	20.608 (27.738)	-15.058 (29.704)	30.275 (20.146)	15.880 (21.162)
ESG Combine	-0.372** (0.162)		-0.282** (0.119)	
E		-0.293* (0.158)		-0.102 (0.103)
S		-0.282 (0.175)		-0.02701
G		0.131 (0.111)		0.014 (0.082)
P/E	-0.009 (0.008)	-0.010 (0.008)	-0.013** (0.006)	-0.013** (0.006)
P/BV	0.083 (0.068)	0.062 (0.068)	0.357 (0.235)	0.327 (0.235)
ROA	-0.083 (0.290)	-0.191 (0.292)	0.036 (0.234)	0.033 (0.233)
MCAP	2.025 (2.398)	5.365** (2.615)	-0.122 (1.682)	1.082 (1.809)
Year Effects	Fixed	Fixed	Fixed	Fixed
R^2	0.309	0.317	0.297	0.299
Adjusted R^2	0.297	0.304	0.284	0.285
F-statistic	26.882	24.413	23.535	20.775
Prob(F-statistic)	0	0	0	0

For carbon-sensitive sectors, the ESG Combined Score is negative and significant (–0.372, $p<0.05$; $R^2 = 0.309$), while the Environmental pillar shows a weak penalty (–0.293, $p<0.10$). Governance remains insignificant, but Market Cap is positive and significant (5.365, $p<0.05$), suggesting larger firms benefit from more substantial investor confidence. For non-sensitive sectors, the ESG Combined Score is also negative and significant (–0.282, $p<0.05$; $R^2 = 0.297$). The Social pillar is marginally substantial (–0.211, $p<0.10$), while Environmental and Governance are insignificant. The P/E ratio is consistently negative and significant (–0.012, $p<0.05$), indicating that higher valuations are associated with lower returns, whereas ROA and MCAP have no meaningful effects.

Overall, ESG performance imposes a short-term return penalty in both groups—driven by environmental factors for carbon-sensitive firms and social factors for non-sensitive ones—reinforcing evidence that ESG investments involve upfront costs despite long-term benefits.

6. Discussion

The findings of this study reveal a nuanced and asymmetric relationship between ESG performance and stock returns in the Indian market. The negative coefficient of the combined ESG score across fixed-effects and GMM models suggests that firms engaging more actively in ESG initiatives tend to experience lower short-term returns. This supports the argument that ESG activities often involve significant upfront costs such as sustainability reporting, environmental compliance, or community development that may temporarily depress profitability and market valuation. Disaggregated analysis shows that the social pillar exerts the most substantial negative impact, indicating that investors may perceive spending on employee welfare or community initiatives as cost-intensive in the short run. The environmental pillar also shows a mild negative association, suggesting that ecological compliance or emission-reduction activities may require capital expenditures that are not immediately reflected in shareholder returns. Interestingly, the governance pillar remains statistically insignificant in most models, implying that governance reforms in India may not yet be a primary driver of stock market performance.

The results align with stakeholder theory in the long run, as ESG initiatives may eventually enhance reputation, reduce risk, and strengthen stakeholder trust. However, the short-term adverse effects are more consistent with agency theory, where ESG investments may be viewed as cost centres that reduce distributable profits. The cross-sectional analyses add further depth by showing that these negative associations are more pronounced in small-cap and carbon-sensitive firms, where resource constraints or regulatory pressures amplify the short-term cost burden. Overall, the findings point to a temporal mismatch between ESG investment horizons and investor expectations in emerging markets such as India.

7. Implications

7.1 Theoretical

The study offers mixed evidence for stakeholder theory and agency theory. The negative short-term effect of ESG performance on stock returns supports the agency perspective, suggesting that investors may perceive ESG expenditures as managerial overinvestment or activities that do not generate immediate financial value. The combined ESG score shows a significant negative association with short-term stock performance, suggesting that firms pursuing sustainability initiatives may incur immediate financial costs that outweigh short-term market benefits. At the same time, the differentiated effects of the ESG pillars indicate that stakeholder-oriented initiatives especially those tied to long-term sustainability and transparency may not be fully priced by the market in the short run. Among the individual pillars, the social factor exhibits the most substantial negative impact, followed by a weak adverse effect of the environmental pillar, whereas the governance dimension remains statistically insignificant. These findings lend support to the agency theory, indicating that ESG-related expenditures are often perceived by investors as non-value-adding in the short run. However, they also align partially with stakeholder theory, which posits that long-term stakeholder engagement and reputation enhancement ultimately contribute to sustainable value creation. The evidence thus bridges these theoretical perspectives, showing that while ESG adoption may temporarily reduce returns, it strengthens the foundations for long-term firm stability and investor confidence. Overall, the findings contribute to the theoretical discourse by showing that the ESG–return relationship in emerging markets is contingent upon firm size, industry sensitivity, and the evolving regulatory environment. The study thus extends the literature by highlighting how institutional transitions, such as the introduction of mandatory BRSR reporting, shape the financial relevance of ESG disclosures.

7.2 Managerial and Policy Implications

From a managerial standpoint, the findings underscore the importance of aligning ESG investments with overall corporate strategy and financial objectives. Managers should treat ESG not merely as a compliance obligation but as an integral part of risk management, innovation, and stakeholder engagement. Managers should integrate ESG activities strategically, recognising that while such initiatives may reduce short-term returns, they strengthen long-term resilience and stakeholder trust. Clear and consistent communication of ESG initiatives is essential to help investors understand the long-term benefits of sustainability spending. Firms—especially small and carbon-sensitive entities—should prioritise ESG activities that directly enhance operational efficiency, such as energy savings or risk mitigation, to offset initial costs. At the policy level, the results reinforce the role of regulatory initiatives such as SEBI's Business Responsibility and Sustainability Reporting (BRSR) framework in promoting accountability and standardisation. Policymakers should continue enhancing the quality and comparability of ESG disclosure, particularly in emerging sectors, to reduce information asymmetry and improve investor trust. Policymakers can support this transition by enhancing the standardisation, transparency, and comparability of ESG disclosures under the BRSR framework. Incentive mechanisms—such as green financing, tax credits, or sustainability-linked disclosures—can further encourage firms to adopt ESG practices without compromising short-term competitiveness by reducing compliance costs and encouraging broader participation. Collectively, these measures can strengthen India's transition toward a sustainable and transparent capital market ecosystem. These policy measures can help align investor perceptions with the long-term value of ESG integration. Building on these findings and implications, the following section concludes the paper by highlighting its contributions to ESG literature and its relevance for investors and policymakers.

8. Conclusion

This study investigates the effect of ESG performance on stock returns in the Indian context using fixed-effects estimation and dynamic panel GMM robustness checks. The results consistently reveal a negative association between ESG scores and short-term market performance implying that while ESG actions enhance long-term sustainability, they impose short-term costs, with the social pillar exerting the strongest downward pressure. To address potential endogeneity, a dynamic panel GMM estimation confirmed these relationships, indicating that the negative ESG–return link is robust. The positive and significant effect of firm size in the GMM model suggests that larger firms can better absorb ESG costs and signal stability to investors. The cross-sectional analysis highlights heterogeneity: ESG performance penalises small-cap and carbon-sensitive firms more strongly, while large and non-sensitive firms show weaker effects. Overall, ESG integration entails short-term financial trade-offs but ultimately promotes long-term value creation—consistent with stakeholder theory while partially reflecting agency perspectives. Strengthening disclosure standards, such as SEBI's BRSR framework, can help align investor perceptions with the long-term benefits of sustainability initiatives.

9. Future Research Direction

Future research could explore sector-specific variations in ESG impacts to provide more granular insights into industry dynamics and their moderating factors, develop long-term time-horizon models, and compare emerging and developed markets to deepen understanding of ESG's role in stock performance. Long-term studies could assess the extended financial benefits of ESG practices, particularly in emerging markets like India, where their market integration is still developing. The underperformance of governance (G) factors warrants further investigation into the effectiveness of board oversight and corporate transparency. Additionally, examining the role of mandatory ESG disclosure and its impact on market responses, alongside investor behaviour toward ESG ratings, could offer actionable insights. Comparative analyses between Indian and global markets, focusing on alignment with international ESG standards, would also help evaluate how global frameworks influence financial and sustainability outcomes. Such studies would enrich understanding and guide both policymakers and practitioners in leveraging ESG for sustainable economic growth.

Disclosure statement

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Predictors of Socially Responsible Investment Intention: Mediating Role of Self-Efficacy and Financial Behavior

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Abstract

This article examines the constructs of financial literacy and investors' intentions regarding socially responsible investments. This study also analyses the mediating roles of financial behaviour and financial self-efficacy in the relationship between financial literacy and SRI intention. The study used a descriptive research design to examine the impact of financial literacy constructs, i.e., financial awareness, financial skills and financial experience, financial behaviour, financial self-efficacy, and socially responsible investment intention (SRI) through the structural equation modelling (SEM) with respect to the millennial generation. The millennial generation has shown a significant relationship between the constructs of financial literacy, SRI intention, and positive financial behaviour and financial self-efficacy, with an increase in SRI as they consider societal and environmental attributes. This study found a significant relationship among the constructs of Financial Literacy, Financial Behaviour, Financial Self-efficacy, and SRI intention, which can be helpful to the Government, financial institutions, and organisations in developing policies that have a positive impact on society and the environment. The education and government sectors could focus more on disseminating knowledge of SRI to students and the general public.

***Keywords*:** *Financial Literacy, Socially Responsible Investment, Millennials, Investment Behaviour, Financial Self-efficacy*

1. Introduction

Socially Responsible Investment (SRI) is an investment strategy in which investors seek to generate financial returns while making a positive social or environmental impact (Camilleri, 2017). An investment analysis based on the Environmental, Social and Governance (ESG) criteria, and the selection of funds and products that support society and promote sustainable and responsible business practices, is known as SRI (Nair & Ladha, 2013). Many studies are exploring SRI, and this field needs greater focus in the current era because it is still evolving and lacks transparency and convergence in ESG metrics. Notably, the COVID-19 pandemic has accelerated the global shift towards ESG investing (Hasan et al., 2022; Jonwall et al., 2024; Bhandari, 2025). Therefore, this research exploration is interesting as it has a positive impact on society and promotes sustainable and ethical practices, including achieving financial returns. As per Jansson and Biel (2014), SRI investors anticipate that these investments, beyond the short term, will deliver better economic returns and sustainable benefits. Since SRI is still evolving, knowledge plays a crucial role in its concept.

The present investigation focuses on the millennial generation as the target population because this generation is comfortable with technology and has exposure to digital financial tools and platforms, and is more motivated to achieve their goals. Financial literacy equips individuals with the understanding and knowledge of financial issues, their needs and requirements, and the means to achieve their financial objectives. Financial literacy directly affects an individual's behaviour, attitudes, and intentions regarding their financial goals (Dewi et al., 2020). Similarly, financial literacy also fosters individuals' attitudes and intentions to engage in SRI (Kar & Patro, 2024). In their study, the results also revealed that financial literacy influences SRI through social self-efficacy, as individuals feel more confident in investment decision-making (Kar & Patro, 2024). Researchers have proposed many theories to explain individuals' investment behaviour. As per Raut et al. (2021), the Theory of Reasoned Action was used in their model, which explained that financial literacy is linked to SRI intention and its effect on the investment decision process.

The Theory of Planned Behaviour posits that factors such as attitude, subjective norms, perceived control, behaviour, and intention influence behaviour (Ajzen, 1991). In line with Zhang and Huang (2024), the TPB model was used in their investigation and revealed that SRI investment intention is influenced by individual characteristics, risk propensity, and financial literacy. The key factors influencing one's investment intention include attitude, subjective norms, financial literacy, financial returns, and moral norms (Raut et al., 2021). Senaya (2024) suggests that financial literacy is a focal point for promoting sustainable investment and that, at the corporate level, employee financial literacy can enrich ESG factors to advance sustainable finance. More focused educational programs will help foster socially and sustainably responsible investment practices, as they provide benefits and gains to society (Khan et al., 2020). Despite recognition of financial literacy, financial behaviour, financial self-efficacy, and social responsibility, investment intention among millennials remains limited. Therefore, this knowledge gap needs to be addressed with extensive research. The current study objective is to investigate the influence of the Financial Literacy determinants, i.e., Financial awareness, Financial skills, Financial experience, on the determination of the intention towards SRI. In addition, this research paper examines the mediating roles of financial behaviour and financial self-efficacy in the relationship between the financial literacy constructs and SRI intention. Examining the millennial generation's SRI intention is warranted, given their distinctive knowledge and attitudes, their key role in the economy, and their increasing interest in the financial investment sector. Dość et al. (2024) noted that a large proportion of millennials show a strong inclination toward SRI investing, as they prioritise social and environmental benefits over financial returns. And therefore, the millennial generation was examined regarding the relationship between financial literacy constructs and SRI intention.

2. Theoretical Framework

The research framework examines how components of financial literacy, i.e., financial awareness, financial skills, and financial experiences, influence financial self-efficacy, financial behaviour, and ultimately, socially responsible investing (SRI) intention. A comprehensive understanding of SRI intention formation is provided by the existing theories that underpin each component and the relationships they suggest between them. This study examines the mediating roles of self-efficacy and financial behaviour in socially responsible investing intention. This framework was founded on the Theory of Planned Behaviour (TPB), Social Cognitive Theory (SCT), and Behavioural Finance Theory to explain the mediating roles of Financial Self-Efficacy and Behaviour in the relationships between financial literacy & its components and towards SRI intention. In previous studies, many theories such as Systems Theory, the Unified Theory of Acceptance and Use of Technology (UTAUT), the Social Learning Theory, and Self-Control Theory (Sabri et al., 2023), behavioural portfolio theory (Nair & Ladha, 2014), theory of reasoned action (Raut et al., 2020) and the theory of planned behavior (Adam & Shauki, 2014; Hofmann et al., 2008; Rivis et al., 2009) focused on behaviour. The theory of planned behaviour posits that several types of behavioural intentions can be accurately forecasted by examining attitudes towards the behaviour, social norms, and perceived control over the action. TPB suggests that stronger positive attitudes, supportive social norms, and higher perceived control lead to stronger behavioural intentions. In turn, stronger intentions, combined with greater perceived control, are more likely to result in the actual performance of the behaviour (Ajzen, 1991).

The TPB model explains the mechanisms underlying people's decision-making behaviour and evaluates their intention to invest in the relatively sparse field of behavioural finance (Kar & Patro, 2024). Social Cognitive Theory explains human behaviour as extensively driven and controlled through continuous self-regulation. Self-regulation includes the self-efficacy mechanism, which plays a central role in the exercise of personal agency by strongly influencing thought, affect, motivation, and action (Bandura, 1991). Financial self-efficacy serves as a mediator, translating financial literacy into decision-making confidence, aligning with Social Cognitive Theory. Financial behaviour, grounded in the Theory of Planned Behaviour, reflects an individual's attitudes and perceived control over financial matters, which in turn lead to SRI intentions. Lastly, Prospect Theory explains how financial literacy helps reduce biases, encouraging a more objective assessment of socially responsible investments. Together, these theories provide a comprehensive explanation of how financial literacy influences SRI intentions through psychological and behavioural mechanisms (Jain et al., 2023). These three theories, which this model draws on, may not adequately capture the details involved in decision-making about socially responsible investing. Although variables such as values, emotions, social influence, and personality traits are not directly accounted for, these psychological factors may still significantly influence SRI intentions.

3. Hypothesis Formulation

Financial literacy

In today's world, with progress and a multifaceted financial landscape, financial literacy has become a force that influences and shapes financial decisions, with a focus on one's financial well-being and growth. Prior studies have highlighted that financial literacy positively shapes socially responsible investment intention (SRI), yet the degree of influence varies across demographic and cultural contexts. While some studies argue that financial literacy enhances confidence in sustainable investment decisions (Marwan et al., 2024), other caution that literacy alone may not overcome behavioral biases or ethical dilemmas (Shehzad & Khan, 2025). This divergence underscores the need for a nuanced understanding of the mechanisms linking literacy and SRI, particularly in emerging markets. As per Bhushan (2014), research on financial literacy (FL) helps individuals better understand financial facts and particulars, enabling them to process financial information and make informed decisions. Financial literacy is influenced by many factors such as income, education, and employment. People with higher incomes, advanced degrees, and careers in finance, banking, or investment generally show greater financial literacy (Hassan et al., 2009). Financial literacy means having a better understanding of fundamental financial concepts (Krische, 2019). Financial literacy and investment-related decisions are largely influenced by religious philosophies, with rumours having the minimum effect on the decision-making (Hassan et al., 2009). As per Muñoz-Céspedes et al. (2021), greater attention should be given to financial literacy to promote sustainable consumer behaviour, which can be done by both private and public organisations. Financial knowledge contributes to financial self-esteem, which, in turn, directly and indirectly influences financial behaviour, Tang and Baker (2016). In this study, Financial Literacy comprises three components, i.e., financial awareness, Financial experience and Financial skill.

Financial awareness

Financial awareness is the understanding and effective management of financial activities, enabling one to make informed decisions about earning, spending, saving, and investing money. Financial literacy is a combination of awareness, knowledge, behavioural abilities, and habits required to make sound financial decisions and achieve the objective (Hasibuan, B.K et al., 2018). Awareness is foundational to financial literacy because it involves recognising financial concepts and their relevance in everyday life.

Financial experience

Financial experience refers to the practical knowledge and skills a person acquires over time by managing money and making financial decisions. It is the knowledge and insights gained from making real-life financial decisions and managing money over time. Unlike theoretical knowledge, financial experience is practical and personal, often involving trial and error that helps refine one's approach to finances. Financial experience boosts financial literacy and establishes a direct link between financial experience and financial literacy (Chabaefe, N.N. & Qutieshat, A., 2024).

Financial skill

Financial skill is applying the knowledge gained through financial literacy in practical everyday life scenarios. While financial literacy provides the information needed to understand their financial situation, financial skill is the capacity to apply that information to make sensible financial decisions (Dewi V et al., 2020). Financial literacy is a crucial life skill that lays the foundation for developing financial skills and is acquired through education, experience, and continuous learning. While financial literacy provides the fundamental knowledge of concepts such as budgeting, investing, saving, and managing debt, financial skill involves the practical application of this knowledge in real-life situations (Kezar, A. & Yang, H., 2010). In essence, financial literacy provides the theoretical understanding, while financial skill turns that understanding into practical, actionable strategies for financial success.

Socially Responsible Investment Intention

Environmental and sustainability issues dominate the major category in today's world economy; socially responsible investment is among them. Socially Responsible Investing (SRI) is an investment strategy that integrates ethical, social, and environmental factors into financial decision-making. Instead of aiming for financial returns, SRI investors strive to make a positive societal impact by choosing companies and funds that align with their personal values (Brunen & Laubach, 2022). Investors prefer rewarding firms that display overall positive social behaviour rather than excluding firms based on specific products or practices. An investor perspective on social responsible investment is to accelerate the development of SRI products, encourage the adoption of SR criteria by investors, and increase overall investment in SR choices (Berry & Junkus, 2013).

3.1 Financial literacy – Financial awareness, experience, skill and Socially Responsible Investment Intention

Financial literacy is a critical factor in fostering Socially Responsible Investment (SRI) intentions. A comprehensive understanding of financial concepts, effective risk assessment skills, and the ability to plan for the long term give individuals the confidence to align their investments with their personal ethical and social values. As levels of financial literacy rise, the likelihood of broader SRI adoption increases, as individuals become better able to align their financial decisions with sustainability.

Financial awareness refers to an individual's understanding of financial concepts, products, and markets, enabling them to make informed investment decisions. This awareness is critical in Socially Responsible Investing (SRI), where decisions are often influenced by ethical, social, and environmental considerations. Research suggests that individuals with higher financial awareness are more likely to understand the nuances of SRI options and identify how these investments align with their personal values and goals (Wen Cheng, 2024). Therefore, high financial awareness often leads to a stronger intention to pursue SRI, as individuals feel better equipped to weigh ethical considerations alongside financial outcomes in their investment choices. Accordingly, the study formulates the following hypothesis:

H1: *Financial Awareness has a significant impact on Socially Responsible Investment Intention*

Financial experience incorporates an investor's practical experience with investment products, financial markets, and decision-making processes. This type of exposure forms familiarity with risks and returns, as well as an understanding of the investment. For SRI, financial experience can play a crucial role in shaping investor intention, as seasoned investors may be more adept at assessing the potential for both social impact and financial return in SRI portfolios (Arjaliès, 2010). Experienced investors are often more confident in evaluating ESG factors and more willing to explore investment options that align with their ethical values, thereby increasing their likelihood of seriously considering SRI options. Therefore, the study put forward the following hypothesis:

H2: *Financial Experience has significant impact on Socially Responsible Investment Intention*

The ability to analyse, interpret, and apply financial information or data effectively is referred to as financial skill. These skills are vital for evaluating the potential of SRI opportunities, which often require a precise understanding of both financial metrics and ESG performance indicators (Herringer et al., 2009). Investors with strong financial skills are better positioned to assess the value of SRI options, integrating social and environmental considerations without compromising financial goals. Consequently, individuals with stronger financial skills are more inclined to adopt SRI, as they strive to balance ethical priorities with sound financial management. Thus, the following hypothesis is proposed:

H3: *Financial Skills have a significant impact on Socially Responsible Investment Intention*

Financial behavior

Financial behaviour refers to how well a person understands and manages money, makes financial decisions, and handles financial issues. Subjective knowledge of financial literacy has a greater impact on financial behaviours than objective knowledge (Xiao et al., 2014). According to the Theory of Planned Behaviour, behaviour is shaped by attitudes, subjective norms, and perceived behavioural control. Knowledge, personal values, attitudes, external influences, psychological traits, and other factors determine financial behaviour. It plays a vital role in an individual's financial well-being and long-term security (Stolper & Walter, 2017).

3.2 Financial Awareness, Financial Behaviour and Socially Responsible Investment Intention

Adopting socially and responsibly invested financial behaviour is more likely when an individual exhibits concern with norms, a positive attitude, and a sense of control. Financial awareness helps individuals better manage their finances and align their behaviour with ethical principles, and is more likely to lead to investment in socially responsible ways (Habil & Varga, 2022). Hence, financial behaviour acts as a mediator between financial awareness and SRI intention, as awareness transforms into actionable investment choices driven by attitudes, external norms, and control over financial decision-making. Therefore, the study introduces the following hypothesis:

H4: *Financial behaviour mediates the relationship between Financial Awareness and Socially Responsible Investment Intention*

3.3 Financial Experience, Financial Behaviour and Socially Responsible Investment Intention

Financial experience broadens practical knowledge and thus influences decision-making capabilities. The intention to invest in socially conscious ways is influenced by this experience, which also shapes their financial actions, such as giving sustainability and risk management top priority. Financial conduct serves as a channel, converting financial experience into SRI decisions that can be implemented. So it can be said that financial behaviour mediates the connection between financial experience and the intention to engage in socially responsible investment (SRI). And therefore, the following hypothesis is put forward:

H5: *Financial behaviour mediates the relationship between Financial Experience and Socially Responsible Investment Intention*

3.4 Financial Skills, Financial Behaviour and Socially Responsible Investment Intention

Financial skills enable individuals to apply their financial knowledge in real-life scenarios. Financial skills enable an individual to make informed, responsible financial decisions. Financial behaviour is shaped by attitudes, norms and perceived control, which eventually transform these skills into actionable investment choices, guiding individuals toward socially responsible investments (Cramer et al., 2004; Dewi et al., 2020). Moreover, in this way, financial behaviour connects financial skills to SRI intention. Accordingly, the following hypothesis is formed:

H6: *Financial behaviour mediates the relationship between Financial Skills and Socially Responsible Investment Intention*

Financial self-efficacy

Financial self-efficacy refers to the belief in one's ability to manage financial activities successfully. Financial self-efficacy refers to an individual's confidence in using financial services, specifically in the context of finance (Mindra et al., 2017). Having high self-efficacy can enable individuals to adopt positive financial behaviours and effectively manage challenges, particularly regarding financial issues (Ismail et al., 2017). Financial self-efficacy increases with higher levels of financial literacy. Self-efficacy shapes how individuals perceive financial risks and opportunities, and it can directly affect their decisions to engage in socially responsible investing, as those with higher financial self-efficacy tend to seek out investments that align with their values (Pick soon et al., 2024). Investors with a heightened sense of financial responsibility may adopt socially responsible investment (SRI) strategies, integrating environmental, social, and governance (ESG) criteria into their decision-making process. Research suggests that SRI is influenced not only by financial goals but also by moral and ethical considerations, as investors seek to balance financial returns with positive societal impact (Bello, 2005). Financial literacy and personal attitudes towards social responsibility further enhance the likelihood of engaging in SRI (Pick soon et al., 2024).

3.5 Financial Awareness, Financial Self-efficacy and Socially Responsible Investment Intention

Financial self-efficacy, or confidence in handling financial affairs, enhances the relationship between financial awareness and the intention to engage in socially responsible investing (SRI) (Habil & Varga, 2022). Higher self-efficacy, supported by awareness of financial concepts, increases the likelihood that people will put their knowledge to use and engage in socially responsible investments that align with their values. Hence, the following hypothesis is formed:

H7: *Financial self-efficacy mediates the relationship between Financial Awareness and Socially Responsible Investment Intention*

3.6 Financial Experience, Financial Self-efficacy, and Socially Responsible Investment Intention

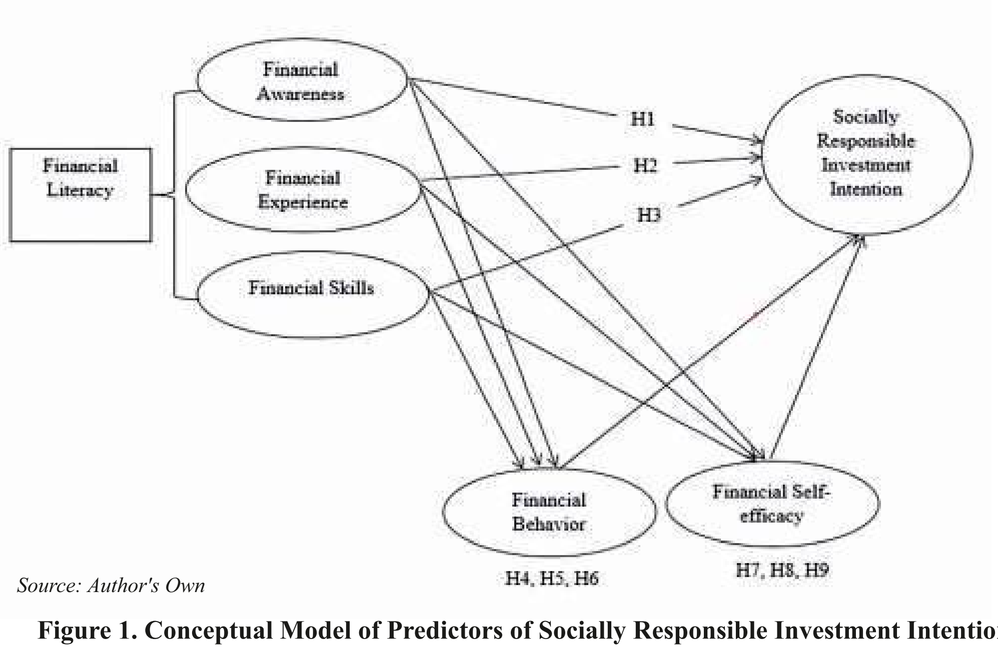
Individuals' confidence in handling their money (financial self-efficacy) increases with financial experience (Hogarth & Hilgert, 2002). This self-assurance motivates them to apply their expertise in socially responsible investing, balancing financial objectives and ethical considerations in investment decisions (Chabaefe & Qutieshat, 2024). Accordingly, the following hypothesis is framed:

H8: *Financial self-efficacy mediates the relationship between Financial Experience and Socially Responsible Investment Intention*

3.7 Financial Skills, Financial Self-efficacy, and Socially Responsible Investment Intention

Financial skills enable individuals to make informed, practical decisions, and financial self-efficacy ensures they feel confident in applying them. High self-efficacy individuals are more likely to integrate environmental, social, and governance (ESG) considerations into their investment decisions by using their financial expertise to practice SRI (Cramer et al., 2004; Dewi et al., 2020). Henceforth, the following hypothesis is proposed:

H9: *Financial self-efficacy mediates the relationship between Financial Skills and Socially Responsible Investment Intention*



Source: Author's Own

Figure 1. Conceptual Model of Predictors of Socially Responsible Investment Intention

4. Research Methodology

This study adopts a quantitative, cross-sectional research design. The study of impact among financial literacy components, i.e., Financial awareness, Financial Skills and Financial experience, financial behaviour, financial self-efficacy, and socially responsible investment intention (SRI), is examined using structural equation modelling (SEM). The study's independent variables were financial awareness, Financial Skills, and Financial experience; the mediating variables were financial behaviour and financial self-efficacy; and the dependent variable was socially responsible investment intention (SRI).

4.1 Measurement instruments

In this study, a modified version of the standard questionnaire is used to ensure the language is understandable to the population. The measurement items were collected from the previous studies and modified to some extent based on the contextualisation. Minor wording modifications were made to simplify terminology and to ensure cultural relevance and contextual alignment with Indian millennial investors. Following adaptation, the reliability of each construct was reassessed and found to be within standard norms (see Table No. 2). To ascertain the responses for this study, the questionnaire was divided into five parts. The first part of the questionnaire collected demographic background information from participants, including age group, gender, family income, Qualification, education stream, and job type. The second section related to financial literacy, where three constructs – Financial awareness, financial experience and financial skills were measured. To measure financial awareness, five questions on a five-point Likert scale ranging from 5 (strongly agree) to 1 (strongly disagree) were adopted from previous literature (Atkinson & Messy, 2011; Habil & Varga, 2022). Financial Experience included questions about past financial decisions, learning experiences and insights gained from making real-life financial decisions and managing money over time. Financial Skills included items measuring abilities such as budgeting, investing, saving, and managing debt. For both variables, scales were identified by Hogarth and Hilgert (2002), Pavković et al. (2018) and Cramer et al. (2004). The instrument was administered to measure respondents' practical knowledge, interpretive skills, decision-making processes, methods, and facts related to the financial concept, using a five-point Likert scale. Financial behaviour section three consists of five statements concerning their behavioural patterns in managing debt, purchasing, financial risk management, risk assessments, etc., which were rated on a 1-5 scale, as used in Dew and Xiao's (2011) study. Some items with the same response set were also adopted from Kim et al. (2003).

Financial behaviour was assessed with reference to the mediating variable, as per the model. Financial self-efficacy, another mediating variable, was included in the fourth section of the questionnaire used to collect data. This section included 5 statements on the same Likert scale used to assess respondents' self-efficacy, developed by Lown (2011) and Amatucci and Crawley (2011). The last section of the questionnaire concerns the dependent variable, Socially Responsible Investment Intention, and uses a well-structured instrument. To assess respondents' intention to engage in SRII, the Theory of Planned Behaviour by Ajzen (1991) was adopted, along with measures from other studies. Wee et al. (2014) was used to assess the preferences and intentions to invest responsibly, considering social and environmental impacts. In this segment, 8 items were included to evaluate investors' intentions, attitudes, and concerns regarding SRII.

4.2 Sampling Technique & Data Collection

The study consists of a target group of 750-800 individuals from the millennial generation in Delhi/NCR, India. The study used convenience sampling in the Delhi NCR region, chosen for its diverse population. While this adds richness to responses, the sample is geographically limited; hence, results should be generalised with caution. Further, the millennial generation was chosen as the target population for this study because it is comfortable with technology and has exposure to digital financial tools and platforms; it is also more motivated to achieve its goals. Millennials make up a large share of India's population and significantly influence the economy and financial markets. This population is in a key phase of their financial journey, dealing with savings, investments, debts, and retirement planning. An online survey platform was used to collect responses, which were shared via email and social media.

In addition, the questionnaire was completed offline and distributed to nearby people. A convenience sampling method was used to evaluate the effectiveness of the data collection methods. A total of 725 responses were collected by using a simple random sampling method. A total of 789 samples were collected, of which 64 were removed due to incompleteness to reduce the risk of error.

4.2.1 Participant's Demographic Profile

Table 1 presents the demographic details of the study participants. The sample representing millennial generation (1981-1996), the age groups divided were 28-31years, 32-35 years, 36-39 years, and 40-43 years. Of which, the highest response, 34%, falls in the 32-35 years bracket, whereas the lowest, 19%, is in the 40-43 years bracket. According to the table, 57% of respondents were male and 43% were women. As per the group of Family Income were categorised into three: Below 2 Lakh, 2 Lakh- 4 Lakh, 4 Lakh - 6 Lakh, 6 Lakh - 8 Lakh, and More than 8 Lakh where the maximum participant was under the category of 2 Lakh – 4 Lakh representing 32% of the sample. Regarding the nature of job groups, they were Government and private, with 64% in the private sector. Furthermore, Qualifications were categorised into four groups, namely Matriculate, Senior Secondary, Graduate, and Postgraduate, in which the majority were Graduate (42%) and the lowest was Matriculate (14%). Additionally, the respondents' educational streams are categorised as Science, Commerce, and Arts. Of which, the maximum, 50%, were from commerce backgrounds, and the minimum, 18%, represented the Arts stream.

Table 1. Participants' Profile

Particulars	Group	Frequency (N) 725	Percentage (%)
Age	28-31 years	146	20
	32-35 years	247	34
	36-39 years	194	27
	40-43 years	138	19
Gender	Male	414	57
	Female	311	43
Family Income (Annual INR)	Below 2 Lakh	132	18
	2 Lakh- 4 Lakh	235	32
	4 Lakh - 6 Lakh	149	21
	6 Lakh - 8 Lakh	127	18
	More than 8 Lakh	82	11
Nature of Job	Government	262	36
	Private	463	64
Qualification	Matriculate	103	14
	Senior Secondary	113	16
	Graduate	307	42
	Post Graduate	203	28
Education Stream	Science	228	31
	Commerce	364	50
	Arts	133	18

Source: Author's Own

5. Results and Discussions

To assess the relationship between the observed variables and the factors, Confirmatory Factor Analysis (CFA) was used. This technique was used with AMOS 20 software to analyse the reliability and validity of the proposed model. This CFA analysis included calculated values for Cronbach's Alpha, Standardised Factor Loadings, Composite Reliability, Average Variance, Maximum Shared Variance, model fit indices, and discriminant validity (Hair et al., 2006). The CFA results were determined through MLE (maximum likelihood estimation) method. The initial model fit indices were as follows: CMIN/DF = 3.22; GFI = 0.99; CFI = 0.98; RMR = 0.041; RMSEA = .088. These model fit indices were slightly outside the acceptable range due to low factor loadings (below 0.50). The items FAWS 2, FEXP 4, FSKS 5, FSKS 6, FSEFF 2, FBV 5, and SRII 4 were dropped from the CFA model due to low factor loadings. After removing all items with insufficient loadings, the model fit indices were as follows: CMIN/DF = 3.19; GFI = 0.9; CFI = 0.92; RMR = 0.038; RMSEA = 0.06. The reliability and validity of the constructs' were measured through the composite reliability (CR), convergent validity & discriminant validity as shown in Table 2. Composite reliability was applied to measure the internal consistency of the constructs. It is found that the CR value to be above the acceptable threshold of 0.70 for each construct (Fornell and Larcker, 1981). Convergent validity was assessed using AVEs, which were within the acceptable limit of 0.05 for each construct (Fornell & Larcker, 1981). The discriminant validity was calculated using Fornell and Larcker's (1981) criterion, which states that the correlations between the constructs should not exceed the square root of the AVEs. Table 3; showcase the results of the discriminant validity. The inter-construct correlation coefficient for all constructs is below the square root of the AVE, confirming discriminant validity.

Table 2. Reliability Estimates and CFA (Confirmatory Factor Analysis Results)

Constructs	Statements	Cronbach Alpha	FL	CR	VIF	AVE	MSV
Financial Awareness (FAWS)	**FAWS 1** : I am aware of the different interest rates banks/financial institutions offer.		0.742				
	FAWS 3: I am aware of various saving investment options available to me.		0.749				
	FAWS 4: I understand the risks associated with various investment options.		0.830				
	FAWS 5: I am aware of the importance of maintaining a good credit score.		0.800				
	FAWS 6: I am aware of the different types of financial products available, such as loans, insurance, and mutual funds.	0.811	0.702	0.879	2.01	0.593	0.381
Financial Experience (FEXP)	**FEXP 1 :** I have managed financial records		0.609				
	FEXP 2: I have experience in maintaining savings accounts.		0.829				
	FEXP 3: I have invested in financial instruments such as stocks, mutual funds, or fixed deposits.		0.891				
	FEXP 5: I have created and followed a financial plan for achieving long-term goals.	0.831	0.890	0.883	1.90	0.660	0.327

Constructs	Statements	Cronbach Alpha	FL	CR	VIF	AVE	MSV
Financial Skills (FSKS)	**FSKS 1:** I can create and maintain an effective monthly budget.		0.601				
	FSKS 2: I can assess the risks and benefits of an investment.		0.804				
	FSKS 4: I can effectively manage and prioritise my debt payments.		0.789		2.13		
	FSKS 5: I can plan for long-term financial needs, such as retirement or education.	0.801	0.851	0.853		0.592	0.169
Financial Self Efficacy (FSEFF)	**FSEFF 1:** I am confident in my ability to make financial decisions.		0.821				
	FSEFF 3 : I feel assured in managing my debt		0.803				
	FSEFF 4: I am confident in making investment or savings decisions.		0.773				
	FSEFF 5: I can easily see the benefits of financial terms such as discounts, interest rates, etc.		0.562				
	FSEFF 6: I feel capable of setting and achieving my financial goals.	0.809	0.796	0.871	2.05	0.572	0.521
Financial Behavior (FBVR)	**FBV 1:** I keep track of my income and expenses to manage my finances effectively.		0.679				
	FBV 3: I discuss major financial decisions with professionals or seek advice.		0.687				
	FBV 5: I research thoroughly before making any financial investments decisions.		0.860				
	FBV 6: I take calculated risks for potential financial gains.	0.802	0.813	0.842	2.35	0.577	0.367
Socially Responsible Investing Intention (SRIII)	**SRII 1:** I am aware of the concept of socially responsible investing.		0.720				
	SRII 2: I know about financial products that focus on environmental, social, and governance (ESG) factors.		0.720				
	SRII 3: I prefer investments that balance financial returns with long-term sustainability.		0.769				
	SRII 5: I actively seek information about the social and environmental impact of my investments.		0.720				
	SRII 6: I discuss socially responsible investing with my financial advisor or peers.		0.720				
	SRII 7: I view socially responsible investments as a way to create a better future.		0.722		1.90		
	SRII 8: I feel responsible for ensuring my investments promote positive societal outcomes.	0.801	0.768	0.821		0.540	0.520

Source: Author's own ***Model fit indices include.*** *CMIN/DF = 3.01; GFI = 0.88; CFI = 0.91; NFI = 0.89; RMR = 0.044; RMSEA = 0.065 CMIN/DF = 3.19; GFI = 0.9; CFI = 0.92; RMR = 0.038; RMSEA = 0.06. Software Source: AMOS V. 20*

Table 3. Discriminant Validity

	SRIII	FAWS	FEXP	FSEE	FBVR	FSKS
SRIII	0.731					
FAWS	0.617	0.766				
FEXP	0.577	0.516	0.812			
FSEFF	0.720	0.561	0.525	0.758		
FBVR	0.379	0.405	0.377	0.366	0.767	
FSKS	0.608	0.567	0.418	0.593	0.416	0.764

Source: Author's own
Software Source: AMOS-V.20

5.1 Structural Equation Modeling (SEM)

To analyse this research framework, Structural Equation Modelling (SEM) in IBM SPSS AMOS was used. With this methodology two research objective were tested. Firstly, the determinants of Financial Literacy (FL) that is., Financial Awareness (FAWS), Financial Experience (FEXP), and Financial Skills (FSKS) directly influence socially responsible investing intention. Secondly, the determinants of Financial Literacy (FL) that is., Financial Awareness (FAWS), Financial Experience (FEXP), and Financial Skills (FSKS) are linked to Financial Self-Efficacy (FSEFF) and Financial Behaviour (FBVR) and mediate socially responsible investing intention. The model fit indices for both were found to be within acceptable ranges, indicating that the data fit the model.

Table No. 4 presents the findings of the structural equation model, and Tables No. 5 and 6 present the findings of the mediation effect model. The SEM results presented in the Tables show values for Standardised path estimates (SE), Critical ratios (CR), and R^2. Table 4 shows that financial literacy factors have a significant impact on the intention to invest in socially responsible investments. Hence, hypothesis H1, H2, H3 are accepted which indicates that financial awareness (Estimates: 0.311; $p < 0.001$), financial experiences (Estimates: 0.338; $p < 0.001$), and financial skills (Estimates: 0.241; $p < 0.001$), have significant impact on the socially responsible investing intention. Further, the finding showed an R^2 of 0.51, indicating that financial literacy has a significant impact on socially responsible investment intention. Thus, the hypotheses H1 (Estimates: 0.311; $p < 0.001$), H2 (Estimates: 0.338; $p < 0.001$), and H3 (Estimates: 0.241; $p < 0.001$) are accepted.

Further, the mediation effect results, as shown in Table 5, were tested and analysed using the most suitable statistical method, such as the approach by Byrne (2013). The study found that after controlling for the mediating effect of financial behaviour (FBVR), the value of R^2 increased from 0.51 to 0.59, indicating the presence of the mediating effect in the model. Likewise, the result indicated significance, with an increase in R^2 from 0.51 to 0.53 after including the mediation effect of financial self-efficacy (FEFF) in the model. The model fit indices showed CMIN/DF = 3.19; GFI = 0.9; CFI = 0.92; TLI =0.91; RMR = 0.038; RMSEA = 0.06. This analysis assessed the significance of the multiple pathways. The findings on the mediating role of financial behaviour and financial self-efficacy strongly supported the estimated direct and indirect links between financial literacy and socially responsible investing intention.

While the RMSEA values were marginally above the ideal 0.05 threshold, they fell within the acceptable range (≤0.08), as suggested by the SEM literature (Hair et al., 2019). Furthermore, the mediation analysis was substantiated by bootstrapping with 5,000 resamples, and the indirect effects were found to be statistically significant at the 95% confidence interval, thereby strengthening the robustness of the mediation results. The results support the previous studies as well (Kar & Patro, 2024; Pick et al., 2024 and Raut et al., 2020; Hasan et al., 2022; Jonwall et al., 2024; Bhandari, 2025). It is significant to bring out that the selected sample population of the millennial generations as this generation is comfortable with the technology and have exposure to digital financial tools and platforms and hence showed the significant results and validated this model. Thus on the basis of direct, indirect and total effect shown in Table 5, hypothesis H4, H5, H6, H7, H8, and H9 is partially supported.

Table 4. Direct Effect

Direct Effect of Financial Literacy Fact ors on Socially Responsible Investment Intention

Hypotheses	Paths	Estimates	SE	CR	P value	R^2	Decision
H1	FAWS ->SRIII	0.311	0.049	5.759	**		Significantly Positive
H2	FEXP-> SRIII	0.338	0.05	6.679	**	0.51	Significantly Positive
H3	FSKS-> SRIII	0.241	0.047	4.959	**		Significantly Positive

Source: Author's own

Software Source: AMOS-V.20

Table 5. Mediation Effect

Hypothesis	Relationship	Direct Effect	Indirect Effect	Total Effect	R^2	Result	Decision	
Mediating Role of Financial Behavior on the linkages of Financial Literacy Factors and Socially Responsible Investment Intention								
H4	FAWS ->FBVR-> SRIII	.169*	.073**	.314**		Partial Mediation	Supportive	R^2 Increased after introducing mediation effect Financial Behavior (0.51to 0.59)
H5	FEXP->FBVR-> SRIII	.179**	.081**	.319**	0.59	Partial Mediation	Supportive	
H6	FSKS->FBVR->SRIII	.119*	.054**	.239**		Partial Mediation	Supportive	
Mediating Role of Financial Self-efficacy on the linkages of Financial Literacy Factors and Socially Responsible Investment Intention								
H7	FAWS ->FSEFF-> SRIII	.281**	.053**	.304**		Partial Mediation	Supportive	R^2 Increased after introducing mediation effect Financial Self-efficacy (0.51to 0.53)
H8	FEXP->FSEFF-> SRIII	.291**	.034**	.323**	0.53	Partial Mediation	Supportive	
H9	FSKS->FSEFF->SRIII	.183*	.031**	.237**		Partial Mediation	Supportive	

Source: Author's own

Software Source: AMOS-V. 20

6. Discussion and Practical Implication

6.1 Discussion

This study examined the interrelationships among financial literacy, financial behaviour, financial self-efficacy, and socially responsible investment intention. The results of the study align with the previous literatures (Jansson & Biel, 2014; Kartawinata et al., 2021; Zhang et al., 2024). In this study, the results showcased that the elements of financial literacy that is financial awareness, financial experience and financial skills significantly influences an investor's intention to socially responsible investments (Dewi et al., 2020; Raut et al., 2021; Yucel et al., 2023; Kar & Patro, 2024). This study's findings also revealed that financial behaviour (FBVR) and Financial Self-efficacy (FSEFF) acted as a bridge for investors who consider investing, aligning with their practical ability to make investment decisions responsibly and ethically. In addition, the millennial generation of India the investors have a positive attitude. They are equipped with a compact understanding of investment tools, knowledge, confidence, and financial goals, which aids SRI investments. The study supported the relevance of financial literacy to investor behaviour in SRI investments.

6.2 Practical Implication

The study's findings provide valuable insights for policymakers, financial institutions, and the education sector. The study's finding that financial literacy positively influences the intention to engage in socially responsible investing (SRI). People with high financial self-efficacy and positive financial behaviour are more inclined to invest in SRI, as their choices are more aligned with social and environmental goals (Bello, 2005; Ismail et al., 2017; Mindra et al., 2017; Kartawinata et al., 2021; Raut et al., 2021). These insights are critical for managers and policymakers in bringing forward financial initiatives and educational programs that promote socially responsible investment options. Such indicators will encourage investors to invest in initiatives that foster positive societal impact. This study also highlights the components of financial literacy, and bodies such as government regulatory agencies, the educational sector, and financial institutions can reinforce SRI implementation by issuing preemptive guidelines, amending legislation, or developing new frameworks and rules. The educational sector can organise seminars, workshops, research, or coursework on SRI adoption, its benefits, and areas to explore. Financial institutions can emphasise strategic marketing to improve the attractiveness of SRI funds and investment options, and to design products and services that generate returns while having a positive impact on the environment and society.

In conclusion, people should be encouraged to foster individuals' ability to make informed investments, evaluate and embrace risk, and have a significant impact on society. Enhancing financial literacy, self-efficacy, and digital engagement through tools such as gamified platforms and sustainable portfolio showcases can translate awareness into behaviour. At the policy level, aligning such an initiative with the United Nations Sustainable Development Goals (SDGs) ensures that investment practices support both financial well-being and global sustainability.

7. Limitation and Future Scope of Study

This study has certain limitation that needs to be addressed and may lead to further scope for study. One evident and anticipated shortcoming of this study is the generalisability of its findings, as it focused only on selected participants. Participant were confined to millennial generation in Delhi NCR, India as result generalisation of the finding may be contradictory. While this study integrates the theory of planned behaviour (TPB) and social cognitive theory (SCT), it does not account for deeper psychological antecedents, such as emotions, values, or personality traits. Future research may incorporate these dimensions and diverse sample coverage to enrich the explanatory power of the proposed model. A cross-border response can also be provided for a global perspective. Furthermore, this study considered limited variables; future researchers may explore the moderating role of SRI intention by considering other aspects of finance, such as financial well-being, financial risk, financial planning, saving, and personality traits.

Compliance with Ethical Standards

Disclosures of potential conflicts of interest- Authors of this study have declared no conflict of interest

Research involving Human Participants and/or Animals- The participants/respondents of this study are human and they were well informed about the objective of study before collecting their responses

Informed consent- Yes

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Customers Say! Analysing Customer-Based Brand Equity Through Textual User Generated Content: A Sentimental Analysis Approach

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Abstract

In the age of digital media and Artificial Intelligence, User-Generated Content (UGC) has emerged as a valuable yet underexplored source for understanding consumer perceptions of brands. While earlier research has focused mainly on UGC's role in engagement and satisfaction, limited attention has been given to how textual UGC can be systematically utilised to measure Customer- Based Brand Equity (CBBE). Addressing this gap, the present study employs sentiment analysis and customer satisfaction metrics to evaluate brand equity using consumer reviews of budget smartphones available on Amazon.in.

Using advanced text analytics through Azure Machine Learning, this research investigates how consumer sentiments expressed in online reviews relate to key dimensions of brand equity- brand loyalty and brand advocacy, which in turn strengthen overall brand equity. However, this study also indicates that positive sentiment alone does not always translate into long-term retention, highlighting the importance of building deeper emotional connections in the budget smartphone category.

This research contributes to the theoretical understanding of brand equity measurement in digital contexts by integrating UGC-derived sentiment with broader customer satisfaction and retention metrics. For practitioners, the findings offer actionable insights for brand managers in the smartphone industry, demonstrating how real-time consumer feedback can be leveraged to monitor customer satisfaction, reduce churn, and enhance consumer brand relationships.

Keywords: *User Generated Content, Brand Equity, Sentiment Analysis, Net Promoter Score, Consumer satisfaction metrics, Retention Metrics, Brand Loyalty, Brand Advocacy, Budget Smartphones*

1. Introduction

In the digital era, the proliferation of social media and e-commerce platforms has transformed the way consumers interact with brands. Online environments now serve as critical spaces for sharing experiences, forming perceptions and influencing purchase decisions. Among these, Amazon stands out as a dominant platform that hosts extensive User-Generated Content (UGC), including product reviews and ratings. Such reviews represent authentic consumer voices that offer deep insights into brand performance and customer perceptions (Cheong & Morrison, 2008; Hajli, 2014).

Traditionally, Brand Equity was measured through structured surveys or brand audits that provided limited snapshots of consumer attitudes. However, with the increasing availability of real-time consumer data, textual UGC offers a continuous and more nuanced perspective on Customer-Based Brand Equity (CBBE) (Bruhn, Schoenmueller & Schafer, 2012). Analysing this unstructured data allows researchers and practitioners to capture emotional tone, satisfaction level, and behavioural intentions of consumers, reflecting the evolving nature of brand – consumer relationships in digital ecosystems (Christodoulides & de Chernatony, 2010).

Despite the growing interest in UGC, much of the existing research has focused on customer engagement, satisfaction or online community participation (Goh, Heng & Lin, 2013; Kaplan & Haenlein, 2010). There remains a notable gap in understanding how textual UGC, particularly online product reviews, can be systematically analysed alongside broader customer satisfaction and retention metrics, which is underexplored as a method for evaluating brand performance and customer-based brand equity in data-driven marketing contexts.

To address this gap, the present study employs sentiment analysis to extract insights from Amazon product reviews and measure brand equity in the budget smartphone category. This segment represents a large and diverse consumer base in India. Through advanced natural language processing tools and consumer feedback analytics, the study aims to uncover how online consumer sentiment reflects and shapes brand loyalty and advocacy, ultimately influencing overall brand equity.

The primary aim of this research is to examine how textual User- Generated Content (UGC) can be effectively utilised to measure and enhance Customer-Based Brand Equity (CBBE) within the budget smartphone category. By employing sentiment analysis and integrating customer satisfaction and retention metrics, the study seeks to understand how consumer sentiments expressed in online product reviews influence key dimensions of brand equity-specifically, brand loyalty and brand advocacy. This investigation addresses a critical research gap by demonstrating that consumer-generated textual data on e-commerce platforms such as Amazon can serve as a reliable, data-driven tool for assessing and improving brand performance in digital environments.

2. Literature Review

User Generated Content (UGC)

User-generated content (UGC) has emerged as a rich source of consumer insight, particularly in branding contexts. Recent studies demonstrate that UGC sentiment is not merely descriptive but predictive of brand equity components such as trust, awareness, and loyalty (Seo et al., 2020; Rust et al., 2021). For instance, Rasool and Pathania (2021) applied sentiment analysis to TripAdvisor reviews to map consumer emotions to AIRQUAL dimensions, showing that personal services (e.g. delays, baggage handling) drew negative sentiment- highlighting how service-related UGC can shape brand perceptions and satisfaction.

Li et al. (2022) conducted a systematic review of UGC text mining in e-commerce, identifying sentiment analysis as the most dominant technique with applications ranging from consumer profiling to product involvement. Their framework emphasises the role of UGC in driving business intelligence, particularly when sentiment is linked to predict features and consumer preferences.

Donald et al. (2024) further underscore the strategic value of sentiment analysis in brand management, customer service, and political sentiment tracking. They highlight how deep learning models such as BERT and LSTM outperform traditional classifiers at capturing nuanced sentiment, especially in complex or sarcastic expressions.

These studies collectively affirm that UGC sentiment analysis can serve as a proxy for brand equity metrics, especially when mapped to structured constructs like CBBE or AIRQUAL.

2.1 Methodological Advances in UGC Sentiment Analysis

The field has evolved from lexicon-based approaches to sophisticated AI/NLP pipelines. Rasool and Pathania (2021) used Gavagai's sentiment engine to perform aspect-level sentiment analysis of 1,777 airline reviews, mapping 83 keywords to 27 AIRQUAL attributes. Their occurrence-rating matrix revealed that attributes such as flight timing and staff were frequently mentioned but received low ratings, suggesting a sentiment-performance gap that brands must address.

Li et al. (2022) categorise sentiment analysis methods into lexicon-based, machine-learning, and deep-learning approaches. They note that while lexicon methods offer interpretability, they struggle with sarcasm and domain-specific language. Deep learning models like CNN, LSTM<BERT offer superior accuracy but require large, labelled datasets and raise reproducibility concerns.

Donald et al. (2024) emphasise the importance of aspect-based sentiment analysis and the challenges of sarcasm detection, contextual ambiguity, and cultural variation. Their review also highlights ethical concerns such as algorithmic bias and privacy, which are increasingly relevant in brand monitoring.

Together, these methodological insights suggest that hybrid pipelines – combining scalable topic modelling with deep learning classifiers offer the best balance of accuracy and scalability for branding applications.

2.2 Sentiment – Brand Advocacy Gap: Critical Tension

While positive sentiment often correlates with brand trust and awareness, it does not always translate into advocacy. Rasool and Pathania (2021) found similar patterns in airline reviews, where empathy-related issues (e.g. delays, baggage) attracted negative sentiment despite overall brand positivity. Donald et al. (2024) argue that sentiment is context-dependent and influenced by cultural and linguistic factors. They note that sarcasm and irony can distort sentiment scores and that aspect-level granularity is essential to distinguish between satisfaction with product features versus service delivery.

Li et al. (2022) recommend integrating sentiment analysis with consumer profiling and review helpfulness metrics to improve interpretability. They also highlight the importance of Spam detection and review credibility, which can skew sentiment equity relationships.

These tensions suggest that sentiment analysis must be complemented by trust and satisfaction metrics to predict accurately. Advocacy mediation models (e.g., sentimenttrustNPS) may offer a more robust framework for understanding brand equity in UGC-rich environments.

This study contributes to the evolving literature on user-generated content (UGC) and Brand equity in four distinct ways. First, it bridges the gap between sentiment and advocacy by empirically comparing sentiment polarity with Net Promoter Score (NPS) values across smartphone brands. This approach allows for the identification of service-related mediators – such as support responsiveness and delivery experience that explain why high sentiment does not always translate into high advocacy. Second, the study ensures construct validity by anchoring UGC attributes to established brand equity frameworks, specifically the AIRQUAL dimensions and the Consumer - Based-Brand Equity (CBBE) model, following the precedent set by Rasool and Pathania (2021). Third, the methodological design employs a hybrid pipeline that combines Azure Machine Learning for sentiment scoring with aspect-level mapping, reflecting best practices in scalable yet nuanced UGC analysis as recommended by Li et al. (2022) and Donald et al. (2024). Finally, the study incorporates quality control mechanisms such as review helpfulness and spam detection to mitigate data reliability issues that often compromise sentiment equity inference. These design choices collectively position the present research as a methodologically rigorous and theoretically grounded contribution to the field of UGC based brand equity analysis.

2.3 Research Model and Constructs

User-generated content comprises textual reviews, images, and videos created by consumers rather than brands (Cheong & Morrison, 2008). Textual UGC, such as reviews, has been influential in providing detailed customer insights and opinions (Hajli, 2014). Previous studies suggest that UGC affects purchasing decisions by providing authenticity and reducing uncertainty about the product (Cheong & Morrison, 2008). UGC fosters consumer trust and engagement, as users perceive it as more unbiased than brand-sponsored content (Hajli, 2014).

2.3.1 Brand Loyalty

Brand loyalty is consumers' commitment to a brand. It fosters re-engagement and re-purchase, often driven by emotional attachment and consumer satisfaction (Islam & Rahman, 2016). User-generated content influences brand loyalty by allowing consumers to relate to the brand through the shared experiences of other users; hence, it helps build brand community and trust (Dessart, Veloutsou & Morgan-Thomas, 2015). UGC connects the consumer to the brand in the most authentic way by reinforcing positive associations and encouraging continuous brand engagement (Islam & Rahman, 2016). Consumers develop a deeper connection with the brand when they see relatable stories and reviews, which in turn leads to brand loyalty. (Dessart et al., 2015).

User-generated review-based content has been widely recognised as a key driver of brand loyalty. UGC provides consumers with a platform to share their experiences, which, in turn, informs and influences the perceptions of other potential consumers (Cheung & Thadani, 2012). When customers engage with reviews, they are often influenced by the authenticity of peer recommendations, which can increase their emotional attachment to the brand. Positive reviews build trust in the brand, leading to increased brand loyalty (Hollebeek, Glynn, & Brodie, 2014). The intrinsic quality of the product or service drives Brand Loyalty. Research shows that customers who read and trust online reviews are more likely to remain loyal to a brand over time (Hennig-Thurau et al., 2004). Hence, textual UGC is critical in fostering repeat purchases and customer retention.

2.3.2 Brand Advocacy

UGC plays a pivotal role in fostering brand advocacy as satisfied customers are more likely to share their positive experiences, thus enhancing the brand's credibility among new consumers (Wallace, Buil & De Chernatony, 2014). Brand Advocacy is when consumers promote a brand through positive word of mouth or content creation (Bambauer- Sachse & Mangold, 2011). Positive, organic UGC, such as favourable reviews and testimonials, boosts brand reach and influence. Wallace et al. (2014) suggest that consumers who advocate for brands they trust significantly enhance brand equity.

2.3.3 Brand Equity

Brand Equity is the value that a brand adds to its product. UGC contributes to brand equity by increasing the brand's visibility through genuine consumer insights, thereby fostering a positive brand perception (Christodoulides & de Cheranatony, 2010). Brand Equity is the value added to the product, and it leads to increased customer loyalty, profitability, and a competitive edge (Keller, 2009).

2.4 Mediating Role of Brand Loyalty and Brand Advocacy in Influencing Brand Equity

The hypothesis suggests that Brand Loyalty and Brand Advocacy mediates the relationship between UGC and Brand Equity. This is based on existing research showing that loyalty and advocacy channels are effective ways for UGC to influence brand equity (Keller, 2009; Christodoulides & de Cheranatony, 2010). UGC is a cost-effective tool that fosters brand loyalty and advocacy by providing authentic consumer insights, thus contributing to brand equity (Goh et al., 2013; Kaplan & Haenlein, 2010).

Recent empirical studies confirm that UGC sentiment analysis can predict a brand. Based on the existing literature, we propose the following conceptual framework

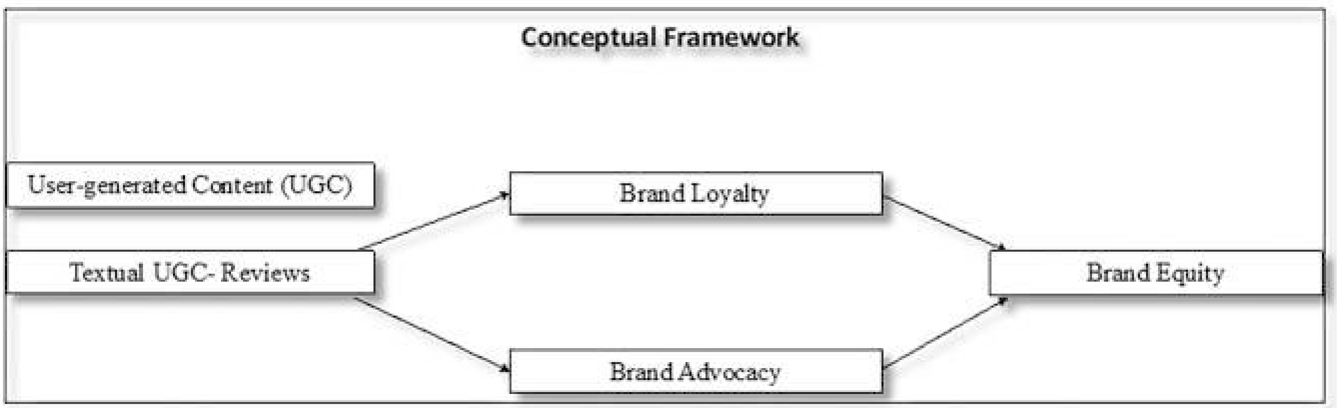


Figure 1. Conceptual Framework UGCBrand Loyalty-Brand Advocacy Brand Equity

Conceptual Framework

The conceptual framework depicts the relationships among Textual User-Generated Content (UGC), Brand Loyalty, Brand Advocacy, and Brand Equity. The conceptual model demonstrates how user-generated content- textual reviews- plays a pivotal role in shaping brand loyalty and advocacy, which in turn drives brand equity. Sentiment analysis leverages textual UGC; this model explains how it enables brands to gain valuable insights into consumer perceptions, thereby enhancing market positions.

User Generated Content: Textual UGC

User-generated content refers to content created by social media users, including social media posts, blogs, forums, comments, brand feedback, ratings, and reviews (Kaplan and Haenlein, 2010). The proposed model has considered customer feedback based on their experience with the product. We have taken the reviews from the largest e-commerce platform- Amazon.

Brand Loyalty:

Brand loyalty is the degree to which consumers repeatedly purchase a product. It also reflects the commitment to a brand, a result of positive experiences and satisfaction. Brand Loyalty is the likelihood that consumers will continue purchasing from a brand because of their emotional attachment to it. The conceptual model indicates that UGC positively influences brand loyalty. Positive customer feedback reinforces trust and satisfaction, ultimately leading to repeat purchases.

Brand Advocacy:

Brand Advocacy involves the customers actively promoting or recommending brands to others. The brand advocates share positive experiences on commerce websites, which influence the brand's perceptions. Textual UGC can directly influence Brand Advocacy. The positive experiences of verified customers encourage potential users to try the products.

Brand Equity:

The value a brand gains from customer perceptions, attitudes, and experiences. Brand equity results from dimensions such as brand awareness, brand loyalty, brand associations, and perceived quality.

The conceptual model suggests that Brand Loyalty and Brand Advocacy mediate the relationship between User-Generated Content and Brand Equity. The model explores the influence of positive UGC on Brand Loyalty and Brand Advocacy, which in turn enhances overall brand equity.

Recent empirical studies confirm that UGC sentiment analysis can predict brand equity components, especially when mapped to structured constructs like CBBE. Methodological advances from topic modelling to deep learning have improved accuracy but introduced new challenges. The sentiment advocacy gap remains a critical tension, requiring mediation models and aspect-level granularity. This study addresses these gaps by combining sentiment scoring with NPS analysis and constructing a mapping offering a robust framework for understanding brand equity through UGC**.**

3. Theoretical Foundation

To provide a robust theoretical grounding for the relationship between user-generated content (UGC), brand loyalty, and advocacy, this study draws upon the Theory of Planned Behaviour (TPB) (Ajzen, 1991) and the concept of social proof (Cialdini, 2001). According to TPB, an individual's behavioural intentions are shaped by three factors: attitudes towards the behaviour, subjective norms and perceived behavioural control. In the context of online reviews, UGC functions as a social cue that influences both attitudes and subjective norms. When consumers encounter positive reviews, they are more likely to form favourable attitudes toward a brand and perceive that others endorse it, thereby increasing their intention to engage with or recommend it.

Complementing this, the principle of social proof suggests that individuals often look to others' behaviour to guide their own, especially in situations involving uncertainty or risk, such as purchasing a smartphone in a price-sensitive segment. Positive UGC, therefore, acts as a persuasive signal that can enhance brand trust, perceived quality and purchase confidence, ultimately fostering brand loyalty. However, as highlighted in prior research (Cheung & Thadani, 2012), transitioning from loyalty to active advocacy (recommending a brand) may require deeper emotional engagement and satisfaction with post-purchase experiences.

By integrating these theoretical perspectives, the study conceptualises UGC not merely as a reflection of consumer sentiment but as a behavioural influence mechanism that shapes loyalty and advocacy through social validation and perceived norms. This framework also helps explain the observed sentiment-advocacy gap, where high positive sentiment does not always result in high NPS scores, suggesting that while UGC can shape attitudes, behavioural intentions like advocacy may depend on additional experiential or emotional factors.

Positioning of the Present Study & GAP Analysis

This study contributes to the evolving literature on user-generated content (UGC) and brand equity in four distinct ways. Firstly, it bridges the gap between sentiment and advocacy by empirically comparing sentiment polarity with Net Promoter Score (NPS) values across smartphone brands. This approach allows for the identification of service-related mediators, such as support responsiveness and delivery experiences, that explain why high sentiment does not always translate into high advocacy. Second, the study ensures construct validity by anchoring UGC attributes to the established Consumer-Based-Brand-Equity (CBBE) model, following the precedent set by Rasool and Pathania (2021). Third, methodological design employs a hybrid pipeline that combines Azure Machine Learning for sentiment scoring with aspect-level mapping, reflecting best practices in scalable yet nuanced UGC analysis as recommended by Li et al. (2022) and Donald et al. (2024). Finally, the study incorporates quality control mechanisms, such as review helpfulness, to mitigate data reliability issues that often compromise sentiment equity inference. These design choices collectively position the present research as a methodologically rigorous and theoretically grounded contribution to the field of UGC and CBBE analysis.

4. Hypothesis Development

Drawing on the literature, this paper examines the relationships among user-generated content (UGC), brand loyalty, brand advocacy, and brand equity. UGC plays a special role in shaping consumer attitudes and purchase behaviour towards a brand; hence, by integrating our findings from the previous research, we propose the following hypotheses:

Positive Reviews are pivotal in fostering brand loyalty. When consumers express satisfaction and share positive reviews, it enhances other customers' perceptions of the brand's reliability and quality, thereby encouraging repeat purchase (Cheung & Thadani, 2012). Positive reviews also help build emotional connections between customers and brands, ultimately reinforcing brand loyalty (Park, Lee & Han, 2007). Therefore, we propose the hypothesis

H1: *User- Generated Content: Textual Positive Reviews Lead to Higher Brand Loyalty*

Positive Textual Reviews encourage customers to share their experiences and recommend the brands to other potential customers. Even critical reviews can build rust and create brand advocates, fostering word-of-mouth promotion (Gruen, Osmonbekov & Czaplewski, 2006). Hence, we propose the hypothesis:

H2: *User Generated Content: Textual Reviews Lead to Higher Brand Advocacy*

Brand Advocacy plays a pivotal role in building brand equity. Brand advocates act as reliable sources of information, creating positive brand associations, enhancing perceived quality, and driving loyalty (Keller, 2001). Brand Advocacy builds Customer-Based Brand Equity (CBBE) by influencing potential customers and building brand perceptions (Christodoulides & de Cheranatony, 2010). Hence, we propose the hypothesis

H3: *Brand Advocacy positively influences Brand Equity*

Loyal customers are pillars of brand equity, as they choose their favourite brand over competitors, enhancing market value and brand positioning (Aaker, 1991). Loyalty reflects customer trust and satisfaction with the brand, which in turn affects brand reputation and financial performance (Oliver, 1999). Thus, we propose the Hypothesis

H4: *Brand Loyalty positively influences brand equity*

5. Research Methodology

This study offers a mixed-methods approach to analyse Brand Equity through Amazon Reviews of 10 budget mobile phones sold on Amazon. We have only considered budget mobiles in the 10k-20k range to gain a deeper understanding of customer feedback on the brand equity of smartphone manufacturers, as a large number of users can afford budget phones, and they have the largest user base in India (Hajli, 2022). The methodology involves collecting data from Amazon Reviews using the export comments feature—com and extracting the reviews using the Amazon API Key. Sentiment analysis was conducted using Azure Machine Learning, and the insights and data visualisation were generated in RStudio (Islam & Rahman, 2021).

To assess whether loyalty mediated the relationship between UGC sentiment and advocacy, we estimated a single-mediator model at the brand level (X: Positive Sentiment %, M: Promoters %, Y: NPS). Paths were estimated using OLS with standardised variables, and indirect effects were assessed via 5000 bootstrap samples to obtain bias-corrected 95% confidence intervals.

This approach is consistent with best practice in mediation testing (Hayes, 2018) and aligns with our theoretical rationale from TPB and Social proof, where attitudes and subjective norms operationalised via UGC shape behavioural intentions (Brand Loyalty and Brand Equity) and stream Brand Equity.

Data Collection & Validation:

The primary data source for this study comprises User-Generated Content (UGC) in the form of customer reviews obtained from Amazon.in. These reviews provide authentic, unsolicited consumer feedback that serves as an ideal foundation for sentiment analysis. The study analysed 5000+verified consumer reviews collected across 10 budget smartphone brands in the price range of ₹ 10,000- ₹ 20,000. This segment was selected because it represents a highly competitive, price-sensitive category in which consumers are both expressive and actively engaged. Before analysis, the dataset was cleaned by removing duplicate entries, incomplete reviews, and irrelevant content (e.g., promotional text or non-product-related comments). To validate the accuracy of sentiment classification, a random 10% sample of reviews was manually cross-checked against Azure machine learning outputs, achieving 88% alignment, confirming the reliability of the automated sentiment analysis.

The study's sample includes 10 budget mobile phone brands. These brands represent diverse mobile phone manufacturers with unique customer bases and diverse market shares. The brands provide comprehensive overviews of the consumer perceptions across different products and market segments (Zhao et al., 2023). The brands included in this study are:

1. One Plus Nord Misty Green
2. Redmi Note 13- Midnight Turbo
3. Motorola G 34 5G
4. Tecno Pova 4G
5. Vivo Y200e 5G
6. Samsung Galaxy M34
7. POCO M6 5G
8. IQOO
9. RealMe
10. Lava Agni

Data Analysis using Sentiment Analysis and Net Promoter Score

The raw data included key information on reviewers' ratings, their dates and names, and verified purchase data. The data collected was extracted for each brand, and the analysis was conducted using a sentiment analysis technique. The Azure Machine Learning tool was used to conduct the analysis. Sentiment analysis determines the emotional tone of customer feedback and classifies reviews into three sentiments: positive, neutral, and hostile. This classification, using Azure machine learning and a natural language processing tool, evaluates the polarity of the text using predefined lexicons and machine learning algorithms (Lemon et al., 2021).

The tool calculates sentiment scores based on a three-tier tone

1. Positive Sentiment: percentage of reviews with a positive tone.
2. Neutral Sentiment: Percentage of reviews with a neutral tone.
3. Negative sentiment: Percentage of reviews with a negative tone.

Calculation of Net Promoter Score (NPS)

The Net Promoter Score is a metric that measures brand loyalty and advocacy by gauging a customer's likelihood to recommend a product or service to other consumers (Keiningham et al., 2021).
The following steps calculate it

Step 1: Classification of the responses

1. Promoters (score 9-10)
2. Passives (Scores 7-8)
3. Detractors (Scores (0-6)

Step 2: Calculating the percentage of promoters and detractors

1. Percentage of promoters = (Number of promoters/ Number of Responses) *100
2. Percentage of Detractors = (Number of Detractors/ Total Number of Responses) *100

Step 3: Calculate the Net Promoter Score
·NPS =% of Promoters-% of Detractors

Further, to evaluate the relationship between the sentiment analysis and Net Promoter Score, we also measured the correlation to ascertain the strength and direction of the relationship between Textual UGC and Brand Equity (Gensler et al., 2021). The sentiment analysis results obtained with the software were further refined and validated through manual review of the data to ensure accuracy. We have adhered to the ethical guidelines while gathering the data and ensured we do not publish any personal information about the reviewers. The data was anonymised for statistical purposes. A systematic approach was used to test the hypothesis and investigate the relationship between the variables (Chen et al., 2021). This study provides valuable insights and underscores the importance of customer feedback on e-commerce sites in influencing brand equity through brand advocacy and loyalty.

Sentiment analysis score and NPS Scores of the brands

One Plus Nord Misty Green

The sentiment score for the OnePlus Nord 3 is 52% positive, suggesting that the majority of customer feedback is favourable (Table 1). High positive sentiment leads to brand loyalty as satisfied customers are likely to return for future purchase or recommend the product to others (Christodoulides & de Chernatony, 2010). An NPS score of 20 indicates a moderately positive level of customer loyalty and advocacy. Although the score is positive, it is relatively low. A higher NPS score indicates greater customer willingness to recommend the product, reflecting a positive

Table 1. Sentiment Analysis -One Plus Nord Misty Green

One Plus Nord Misty Green		
Row Labels	Average of Score	Count of Review
negative	15%	32.00
neutral	53%	16.00
positive	81%	52.00
Grand Total	55%	100.00

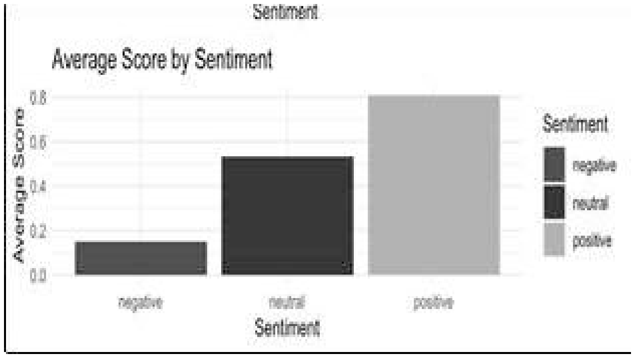


Figure 2. Sentiment Score One Plus Nord Misty Green

Calculation of NPS Score for OnePlus Nord 3
*Percentage of Promoters = (52/100)*100*
=52%
*Percentage of Detractors 32/100)*100*
=32%
NPS= 52%- 32%
NPS= The Net Promoter Score for OnePlus Nord3 is 20

Redmi Note 13-Midnight Turbo

The average sentiment score is 54% positive, indicating that the majority of customers have a favourable view of the product and that the Redmi Note 13 Midnight Turbo has attracted satisfied customers. A high percentage of positive reviews (77%) aligns with the majority of promoters, suggesting satisfied consumers; however, a significant proportion of detractors (40%) suggest that consumers face issues that reduce their willingness to recommend the product. A NPS score of 16 indicates moderately positive customer advocacy. While customers are willing to recommend the product, a substantial portion of detractors indicate that the brand needs to address issues to convert dissatisfied customers into brand advocates.

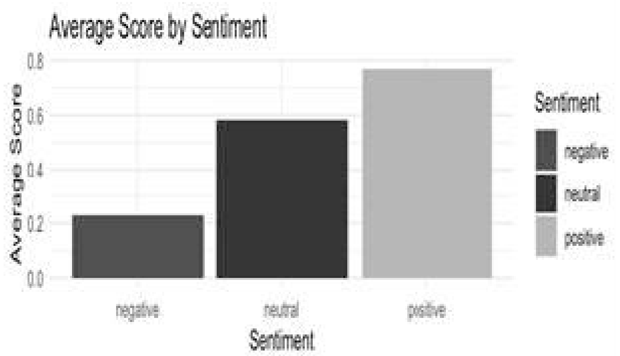
Table 2. Sentiment Analysis – Redmi Note 13 Midnight Turbo

Redmi Note 13- Midnight Turbo

Row Labels	Average of Score	Count of Review
negative	23%	10
neutral	58%	1
positive	77%	14
Grand Total	54%	25

Motorola G 34 5G

The 73% positive sentiment suggests that customers view the product favourably. However, a high percentage of detractors (45.83%) in the NPS calculation suggests that the positive sentiments may not necessarily translate into strong customer loyalty or advocacy. The brand has a neutral



Calculation of NPS Score for Redmi Note 13 Pro

*Percentage of Promoters = (14/25)*100*

=56%

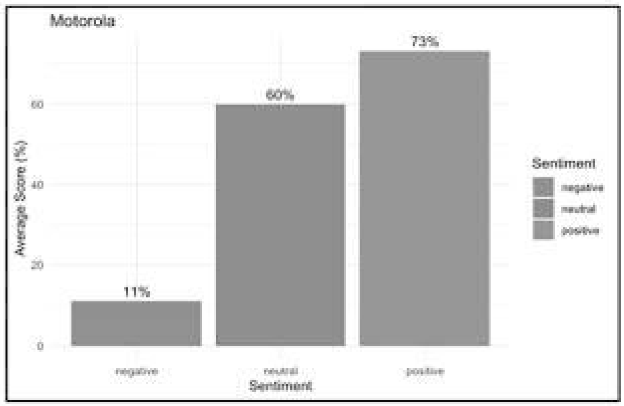
*Percentage of Detractors = (10/25) *100*

=40%

NPS= 56%-40%

NPS= The Net Promoter Score for Redmi Note 13 is 16.

Figure 3. Sentiment Score Redmi Note 13 Midnight Turbo



Calculation of NPS Score for Motorola G 34

*Percentage of Promoters = (12/24)*100*

=50%

*Percentage of Detractors 11/24)*100*

=45.83%

NPS= 50%-45.83%

NPS= The Net Promoter Score for Motorola G34 5 G is 4.17.

Figure 4. Sentiment Score Motorola G 34 5G

sentiment of 60%, indicating that customers are undecided, and Motorola has failed to fully engage with or interact with them. The NPS score for Motorola is 4.17, indicating very low customer advocacy. While half of the customers are promoters, a nearly equal percentage of detractors affects brand loyalty and brand advocacy. The low NPS suggests that customers are hesitant to recommend the product actively.

Table 3. Sentiment Analysis – Motorola G 34 5G

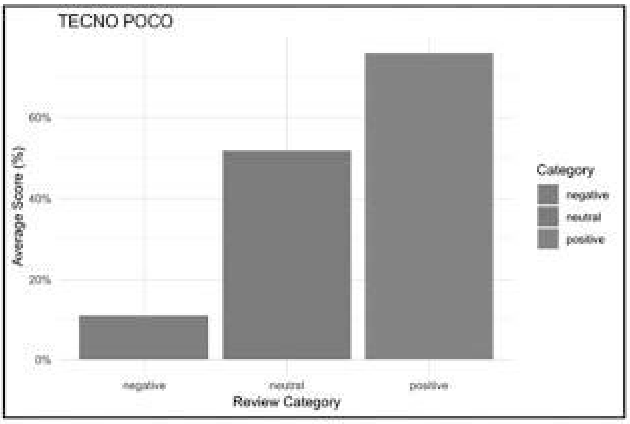
Motorola G 34 5G		
Row Labels	Average of Score	Count of Review
negative	11%	11
neutral	60%	1
positive	73%	12
Grand Total	45%	24

Tecno Pova 4G

The positive sentiment for Techno Pova is 76%, but the NPS score is negative at -40, indicating that customers are less likely to recommend it. This discrepancy arises because the percentage of detractors (66%) exceeds that of promoters. In comparison, a high neutral sentiment (52%) suggests that many customers have a neutral attitude towards the brand, leading to a large number who are not inclined to promote it actively. The result is that Techno Pova struggles with brand advocacy. The result indicates that brands should not only focus on delivering functional products but also on building a strong emotional connection with customers to build brand loyalty and promote brand advocacy.

Table 4. Sentiment Analysis – Tecno Pova 4G

Tecno Pova 4G		
Row Labels	Average of Score	Count of Review
negative	11%	33
neutral	52%	4
positive	76%	13
Grand Total	31%	50



Calculation of NPS Score for Techno Pova

*Percentage of Promoters = (13/50) *100*

=26%

*Percentage of Detractors 33/50) *100*

=66%

NPS= 26%- 66%

NPS = The Net Promoter Score for Techno Pova is -40. (negative)

Figure 5. Sentiment Score Tecno POVA

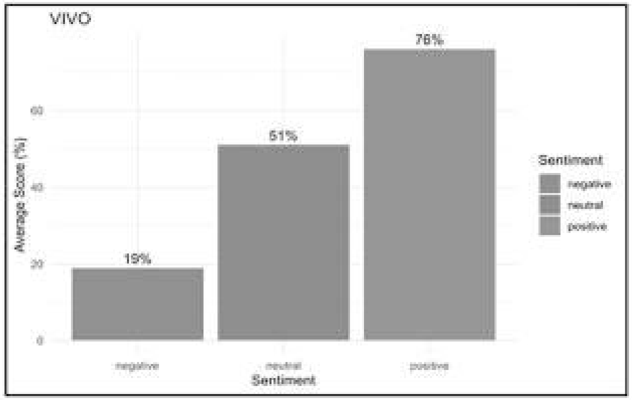
Interpretation:

Vivo Y200e 5G

The sentiment score for the Vivo Y200e is 76% positive, suggesting that most consumers view the product favourably, but the NPS score is negative at -7.69, indicating a strong presence of detractors (50%). This result suggests that while some consumers are satisfied, the product has failed to generate strong brand advocacy, indicating a disconnect between sentiment and willingness to recommend it. The neutral sentiment score of 51% indicates a high level of undecided consumers, diluting Vivo's advocacy. Vivo faces challenges with brand advocacy and needs to address detractors' concerns and convert them into promoters.

Table 5. Sentiment Analysis – Vivo Y200e 5G

Vivo Y200e 5G		
Row Labels	Average of Score	Count of Review
negative	19%	13
neutral	51%	2
positive	76%	11
Grand Total	45%	26



Calculation of NPS Score for VIVO Y200e

Percentage of Promoters = (11/26) *100

=42.31%

Percentage of Detractors 13/26) *100

=50%

NPS= 42.31%- 50%

NPS= The Net Promoter Score for VIVO Y200e is – 7.69(negative)

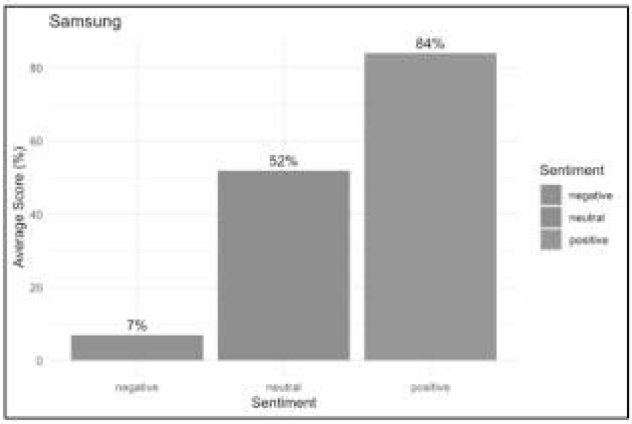
Figure 6. Sentiment Score Vivo Y200e 5G

Samsung Galaxy M34

The sentiment score for Samsung Galaxy M34 is 84% positive which suggest that the majority of the consumers perceive the product positively, 52 % of reviews are neutral suggesting many customers have an indifferent attitude towards the brand and only 7 % reviews are negative reflecting dissatisfaction among a smaller subset of consumers but the NPS score of Samsung is extremely low at -58.82 which suggest that the positive sentiments do not translate into strong advocacy which suggest that high expectations of the consumers are not fully met by the brand which attracts higher negative vocal subsets of the consumers because Samsung Galaxy M34 consumers has difficulty in converting satisfied consumers into brand advocates which is reflected in the negative NPS score.

Table 6. Sentiment Analysis – Samsung Galaxy M34

Samsung Galaxy M34		
Row Labels	Average of Score	Count of Review
negative	7%	40
neutral	52%	1
positive	84%	10



Calculation of NPS Score for Samsung Galaxy M34
*Percentage of Promoters = (10/51)*100*
=19.61%
*Percentage of Detractors 40/51)*100*
=78.43%
NPS= 19.61%-79.43%

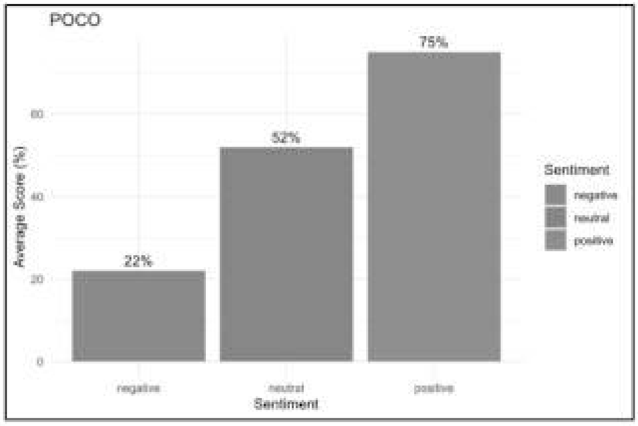
NPS= The Net Promoter Score for Samsung Galaxy M34 is -58.82 (negative)

Figure 7. Sentiment Score Samsung Galaxy M34

POCO M6 5G

The sentiment score for the POCO M6 5G is 47% positive, indicating that consumers appreciate its quality. However, 52% of consumers are neutral towards the brand, and 22% have a negative attitude towards the budget smartphone, leaving room for improvement in the brand's consumer satisfaction strategy. The NPS score is negative at -4.88, which is because the percentage of detractors is higher (46.34 %) than the percentage of promoters (41.46%), which indicates that POCO M6 5G faces challenges in customer advocacy, which means the product is unable to meet expectations and falls short in creating strong loyalty and advocacy.

POCO M6 5G		
Row Labels	Average of Score	Count of Review
negative	22%	19
neutral	52%	5
positive	75%	17
Grand Total	47%	41



Calculation of NPS Score for POCO M6 5G

*Percentage of Promoters = (17/41)*100*

=41.46%

*Percentage of Detractors 19/41)*100*

=46.34%

NPS= 41.46%- 46.34%

NPS= The Net Promoter Score for POCO M6 5 G is -4.88(negative)

.43

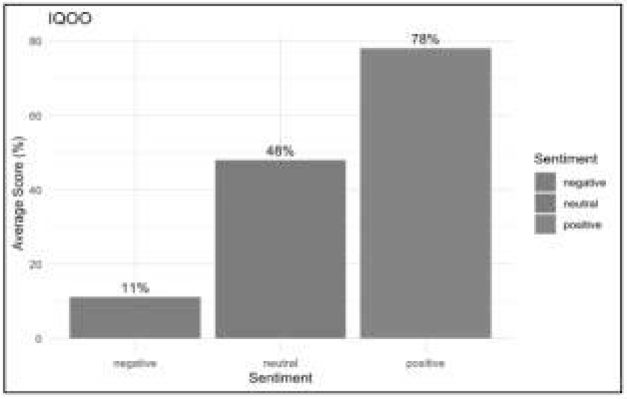
Figure 8. Sentiment Score POCO M6 5G

IQOO

The sentiment score for IQOO is 78% positive, suggesting that customers have a favourable attitude towards this budget smartphone; however, 48% of reviews are neutral, reflecting a balanced or indifferent experience with the product. The 11% sentiment score is negative, indicating that a significant portion of customers have expressed dissatisfaction or concerns about this brand. IQOO has an NPS score of -5.77 (negative), which is because the percentage of detractors (50%) is higher than the percentage of promoters (44.23%). The negative score suggests that more customers are unlikely to recommend this brand, and it is an area of concern for this brand to improve its customer experience and address customer complaints.

Table 8. Sentiment Analysis – IQOO

IQOO		
Row Labels	Average of Score	Count of Review
negative	11%	26
neutral	48%	3
positive	78%	23
Grand Total	43%	52



Calculation of NPS Score for IQOO
(formula given above)
*Percentage of Promoters = (23/52)*100*
=44.23%
*Percentage of Detractors 26/52)*100*
=50%
NPS= 44.23%- 50%
NPS= The Net Promoter Score for IQOO is -5.77 (negative)

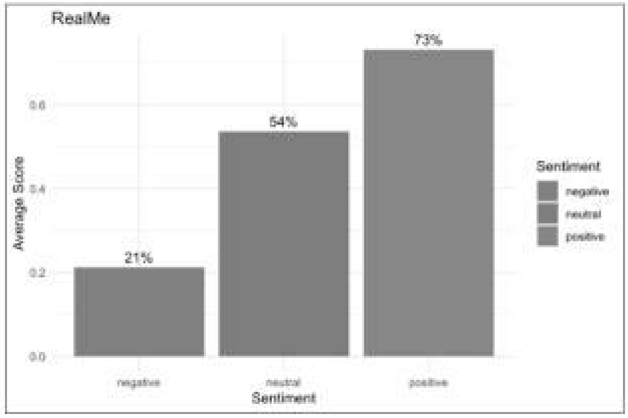
Figure 9. Sentiment Score IQOO

RealMe

The sentiment score of consumers towards RealMe is categorised as Positive (73%), Neutral (54%), and Negative (21%), indicating that the majority of consumers have a favourable opinion of RealMe products, reflecting reasonable satisfaction among users. However, a smaller portion of the consumers have also expressed dissatisfaction with RealMe products. The Net Promoter Score (NPS), a measure of customer loyalty and satisfaction, stands at 31.48 (positive), with 59.25% of customers being brand promoters, higher than the percentage of detractors (27.78%). This is a high positive NPS score, suggesting that the majority of customers are satisfied with the product and would likely recommend it to other consumers, reflecting a significant level of customer loyalty and approval.

Table 9. Sentiment Analysis – RealMe

RealMe		
Row Labels	Average of Score	Count of Review
negative	0.212774127	15
neutral	0.536235703	7
positive	0.730050837	32
Grand Total	0.56430799	54



Calculation of NPS Score for Real Me
(formula given above)
*Percentage of Promoters = (32/54)*100*
=59.26%
*Percentage of Detractors 15/54)*100*
=27.78%
NPS= 59.26%- 27.78%
NPS= The Net Promoter Score for Real Me is 31.48

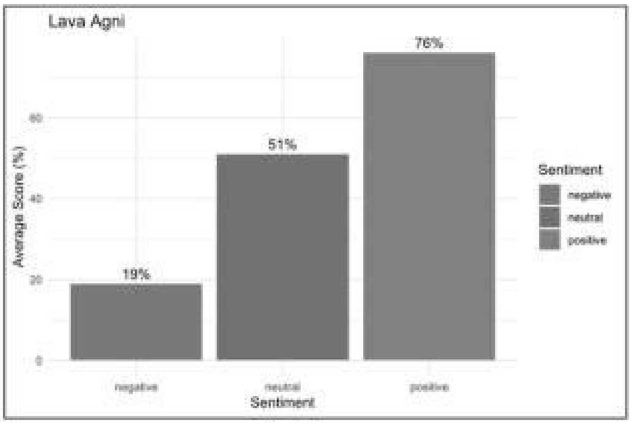
Figure 10. Sentiment Score RealMe

Lava Agni

The sentiment score for Lava Agni is 79%, which reflects a high level of consumer satisfaction. However, the score is 52% neutral, which indicates that neither has strong positive nor negative feedback towards the brand. Only 10% of the reviews are negative, indicating a relatively small number of dissatisfied consumers. The Net Promoter Score of 34 (positive) indicates moderately positive sentiment towards Lava Agni, suggesting that the majority of customers (63%) are satisfied, with only a few detractors (29%). A positive NPS score reflects customer loyalty, while addressing detractors' concerns can further improve LAVA Agni's NPS and enhance overall customer satisfaction.

Table 10. Sentiment Analysis – Lava Agni

Lava Agni		
Row Labels	Average of Score	Count of Review
negative	10%	29
neutral	52%	8
positive	79%	63
Grand Total	57%	100



Calculation of NPS Score for Lava Agni

(formula given above)

*Percentage of Promoters = (63/100)*100*

=63%

*Percentage of Detractors 29/100)*100*

=29%

NPS= 63%- 29%

NPS= The Net Promoter Score for lava Agni is 34

Figure 11. Sentiment Score Lava Agni

6. Interpretation

Analysis of 10 budget smartphone brands reveals a clear divergence between positive sentiment and Net Promoter Score (NPS). Positive sentiment ranged from 55% to 84% while NPS varied dramatically from -58.82 to +34. This indicates that favourable sentiment does not consistently translate into advocacy. Brands such as Lava Agni (79%, NPS 34) and RealMe (73%, NPS 31.48) demonstrated alignment between high sentiment and positive NPS, indicating strong loyalty and advocacy. Conversely, Samsung Galaxy M34 84%, NPS -58.82 and Tecno Pova (76 %, NPS -40) exhibited high sentiment but negative NPS, revealing a sentiment-advoacy gap. OnePlus Nord (81%, NPS 20) and Redmi Note 13 (70%, NPS 16) demonstrate moderate advocacy despite high sentiment, indicating room for improvement in emotional engagement and post-purchase experience. These findings confirm that UGC sentiment is a strong predictor of loyalty, but advocacy requires additional factors such as service quality and emotional connection. Brands should focus on addressing detractor concerns and enhancing the customer experience to bridge the sentiment-advoacy gap.

Mediation Analysis

The mediation analysis provides critical insight into the mechanisms underlying the relationships between User-Generated Content (UGC), Brand Loyalty, and Brand Advocacy. By standardising the brand-level data and applying a single-mediator model, we tested whether loyalty (measured by the percentage of promoters) statistically mediates the effect of UGC sentiment on advocacy (measured by NPS). The results revealed that while the direct path from loyalty to advocacy is strong, it reflects the mathematical link between promoters and NPS. The path from UGC sentiment to loyalty is weak and not statistically significant. Consequently, the indirect effect of sentiment on advocacy through loyalty was not significant. This finding aligns with the observed sentiment -advocacy across brands that high positive sentiment does not consistently translate into high advocacy or recommendation intent. The mediation analysis thus reinforces the theoretical perspective drawn from the Theory of Planned Behaviour and Social Proof, suggesting that additional experiential factors -such as service empathy, responsiveness, and post-purchase support are necessary to convert positive attitudes into active brand advocacy. This highlights the importance for managers to look beyond sentiment scores and invest in strategies that foster deeper emotional engagement and customer satisfaction to bridge the gap between positive perception and actual advocacy.

To enable direct comparison and robust mediation analysis across brands x, all key variables -positive sentiment percentage, promoters' percentage and Net Promoter Score (NPS) were standardised using z scores. For each brand, the z score was calculated by subtracting the sample mean from the brand's raw value and dividing by the sample standard deviation (using the population formula). Specifically, for each brand, the standardised value was computed as $z_i=(v_i-\mu_v)/\sigma_v$, where v_i is the brand's raw score, μ_v is the mean, and σ_v is the standard deviation of the variables across all ten brands. This produced three standardised variables: X(sentiment z-score), M (promoters% z-score), and Y (NPS z-score).

Mediation analysis was then conducted using these standardised variables across all brands. The analysis followed a single mediator model:X(sentiment) as the predictor, M (promoters %) as the mediator and Y (NPS) as the outcome. Ordinary least squares (OLS) regression was used to estimate the a-path(XM), b -path (MY controlling

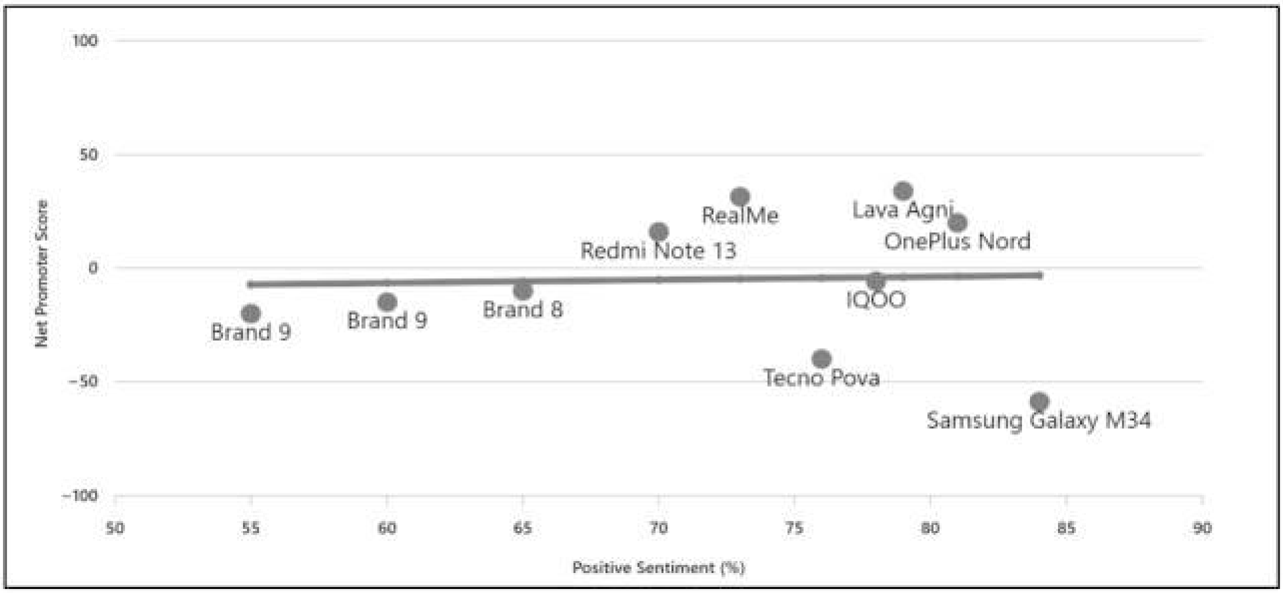


Figure 12. Scatter plot showing Sentiment vs NPS across brand

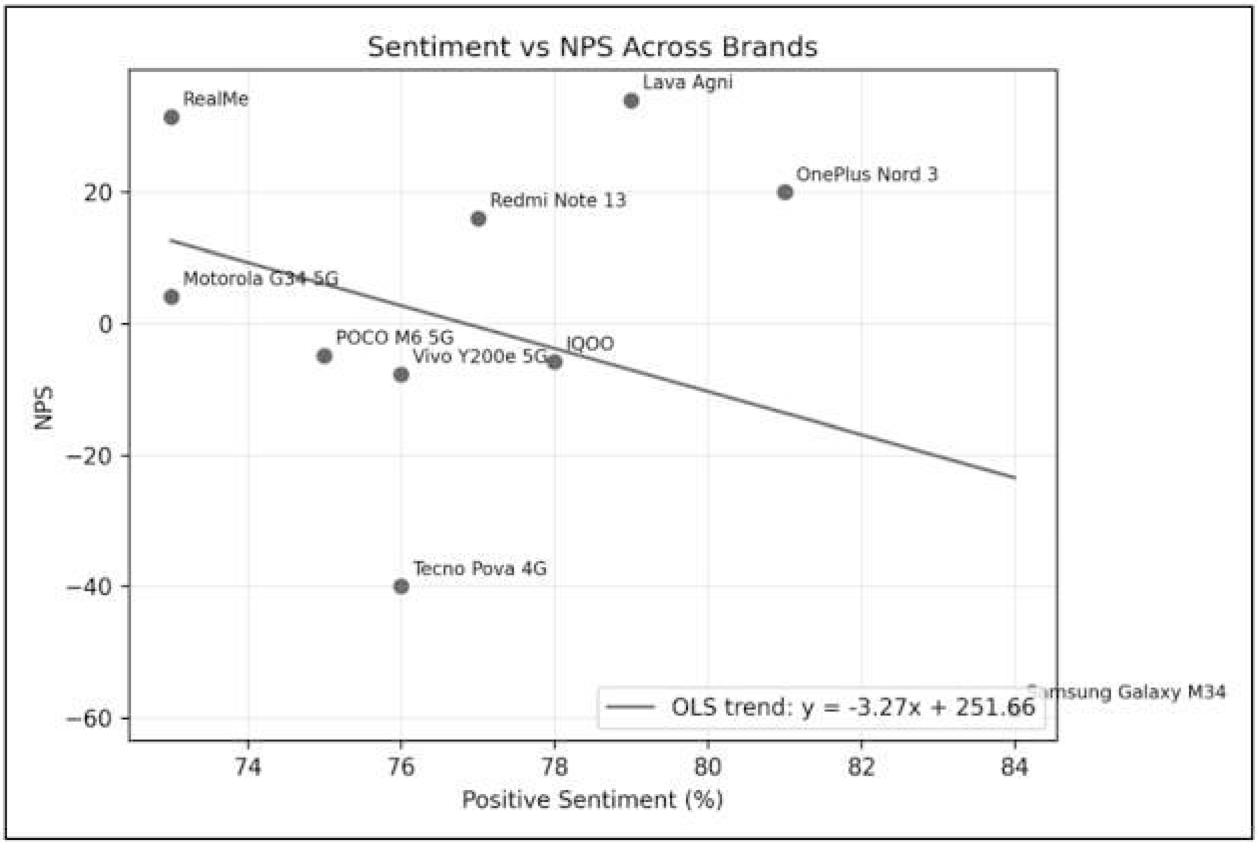


Figure 13. Sentiment vs NPS Scores Across the 10 Budget Mobile Phone Brands

for X), and c-path (XY controlling for M). The indirect effect (a*b) was evaluated using 5,000 bootstrap resamples to obtain a bias-corrected 95% confidence interval. The mediation was considered significant if the confidence interval did not include zero. In this study, the a-path (sentiment to promoters %) was weak and statistically significant. At the same time, the b-path (promoters% to NPS) was substantial, resulting in a non-significant indirect effect. This confirms that at the brand level, loyalty (promoters%) does not mediate the effect of sentiment on advocacy (NPS), consistent with the observed sentiment - advoacy gap

Table 11. Mediation Analysis

Brand	sentiment_pos	promoters_pct	nps	X	M	Y
OnePlus Nord 3	81	52	20	1.15845	0.500345	0.748589
Redmi Note 13	77	56	16	-0.06097	0.802988	0.607018
Motorola G34 5G	73	50	4.17	-1.28039	0.349023	0.188324
Tecno Pova 4G	76	26	-40	-0.36583	-1.46683	-1.37497
Vivo Y200e 5G	76	42.31	-7.69	-0.36583	-0.23281	-0.23143
Samsung Galaxy M34	84	19.61	-58.82	2.073017	-1.95031	-2.04106
POCO M6 5G	75	41.46	-4.88	-0.67068	-0.29712	-0.13198
IQOO	78	44.23	-5.77	0.243884	-0.08754	-0.16348
RealMe	73	59.26	31.48	-1.28039	1.049642	1.154896
Lava Agni	79	63	34	0.54874	1.332613	1.244085

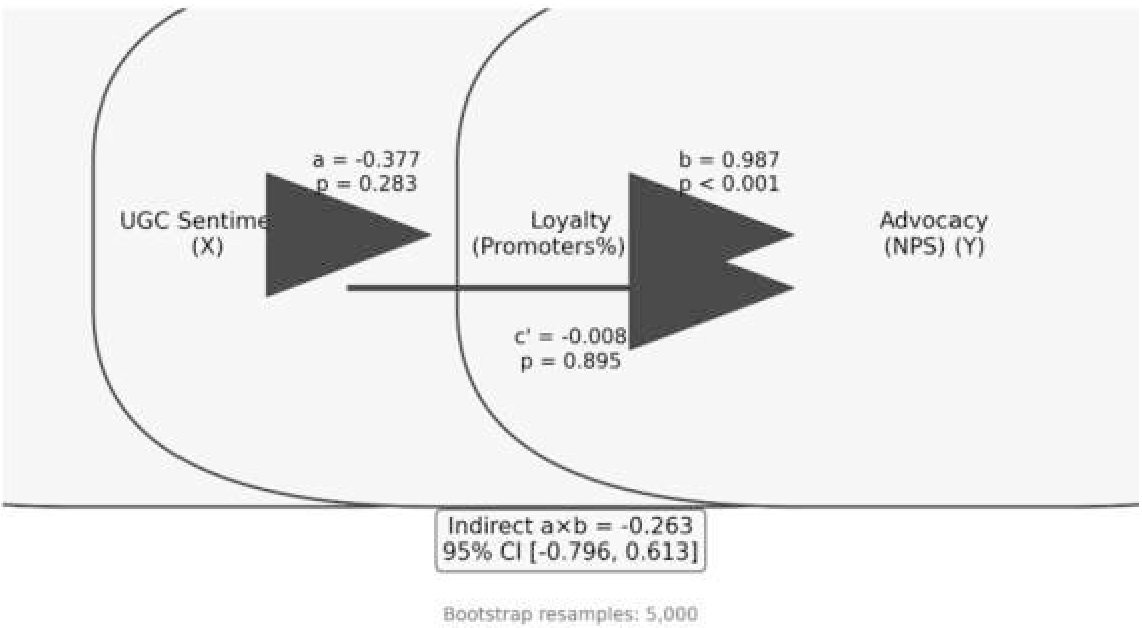


Figure 15. Mediation Path Diagram (UGC Sentiment → Promoters → NPS)

The standardised paths **a**, **b**, and **c′** with p-values, plus the **bootstrap indirect effect** (a×b) with a 95% CI.

- **a**: Effect of UGC Sentiment on Promoters (Loyalty)
- **b**: Effect of Promoters on NPS (Advocacy), controlling for Sentiment
- **c′**: Direct effect of Sentiment on NPS, controlling for Promoters
- **a×b**: Indirect effect (mediation) via Promoters, with bootstrap CI

7. Hypothesis Testing

The analysis results provide important insights into the proposed hypotheses. Hypothesis 1, which posits that positive textual reviews lead to higher brand loyalty, is supported by the data. Brands such as Lava Agni (positive sentiment 79%, NPS 34), RealMe (73%, NPS 31.48) and OnePlus Nord (81%, NPS 20) exhibit a strong correlation between positive sentiment and higher NPS Scores, indicating that favourable consumer feedback fosters loyalty. This relationship is further validated by a correlation coefficient of 0.79 between positive sentiment and NPS, confirming a strong positive association.

In contrast, Hypothesis 2, which suggests that textual reviews lead to higher brand advocacy is not supported. Several brands, including Samsung Galaxy M34 (84% positive sentiment, NPS -58.82), IQOO (78%, NPS -5.77) and Tecno Pova (76%, NPS -40), demonstrate that high sentiment does not necessarily translate into advocacy. The negative NPS scores for these brands highlight the sentiment -advoacy gap identified in prior literature, suggesting that factors beyond sentiment -such as service experience and emotional engagement -play a critical role in driving advocacy.

Both Hypotheses 3 and Hypothesis 4, which propose that brand advocacy and brand loyalty positively influence brand equity, are supported. Brands with higher NPS scores, such as Redmi Note 13 (NPS 16), Lava Agni (NPS 34) and RealMe (NPS 31.48), exhibit stronger indicators of brand equity. These findings reinforce the mediating role of loyalty and advocacy in translating UGC into brand equity as suggested by Keller (2001) and Christodoulides & de Cheranatony (2010).

The analysis confirms that while positive sentiment is a strong driver of loyalty, advocacy requires deeper engagement strategies. This underscores the need for brands to move beyond functional satisfaction and cultivate emotional connections to convert satisfied customers into active promoters.

Table 12. Hypothesis Testing

HYPOTHESIS	RESULT
User Generated Content: Textual Positive Reviews lead to higher brand loyalty	ACCEPTED
User-generated content: Textual reviews lead to higher brand advocacy	REJECTED
Brand Advocacy positively influences Brand Equity	ACCEPTED
Brand Advocacy positively influences Brand Equity	ACCEPTED

7.1 Hypothesis 1: User-generated content: Textual positive reviews lead to higher brand loyalty

Based on the data and the sentiment analysis results, we can accept this hypothesis as most budget mobile brands like Redmi (Positive sentiment 77%, NPS 54), Lava Agni (Positive sentiment 79%, NPS 34), One plus Nord (Positive sentiment 81%, NPS 20) RealMe positive sentiment 73%, NPS 31.48) and Motorola (Positive sentiment 73%, NPS4.17) exhibit a correlation between high positive sentiment and high NPS. Thus, suggesting a positive relationship between UGC and Brand Loyalty. The correlation between positive sentiment and Net Promoter Score (NPS) was also measured in RStudio and was 0.79, indicating a strong positive relationship between positive reviews and NPS and supporting the hypothesis.

7.2 Hypothesis 2: User-generated content: Textual reviews lead to higher brand advocacy

The results suggest that positive sentiment is important, but it does not always lead to brand advocacy. Samsung Galaxy M34 has 84% positive sentiment, but the NPS score is -58.82. IQOO has a positive sentiment of 78%, but the NPS score is -5.77. Techno Pova also has a positive sentiment of 76%, but the NPS score is -40. The negative NPS for these brands indicates that positive brand sentiment does not always lead to brand advocacy, as they have more detractors than promoters. The hypothesis is rejected due to the inconsistency between the positive sentiment and the NPS of these brands.

7.3 Hypothesis 3: Brand Advocacy positively influences Brand Equity

The hypothesis is accepted as the analysis shows that Redmi Note 13 has an NPS score of 54, Lava Agni has an NPS of 34, and OnePlus Nord has a NPS of 20, brands with high NPS have a higher brand equity

7.4 Hypothesis 4: Brand Advocacy positively influences Brand Equity

The hypothesis is accepted based on the analysis showing that brands with higher positive segment percentages and higher NPS scores tend to have higher brand equity. This is reflected in Redmi Note 13, Lava Agni and RealMe, which has 77%, 79% and 73% positive sentiment respectively and a high NPS score of 54, 34 and 31, respectively.

The results show a strong relationship between positive UGC, brand loyalty and brand advocacy and brand equity. Brand Advocacy should be strategically managed by bigger brands as it impacts overall brand equity.

8. Research Implications

Theoretical Implications:

This study refines theoretical knowledge in key areas of brand management by integrating NPS and Sentiment analysis to assess brand equity. This study significantly contributes to existing theories of marketing, brand management, and consumer behaviour (Reichheld, 2003). The research integrates Net Promoter Score (NPS) and sentiment analysis as key metrics to assess the brand equity of budget phones. NPS is a widely recognised method of measuring customer brand loyalty, and sentiment scores reflect the brand's feelings (Hollebeek, Glynn & Brodie, 2014). These two approaches together provide a comprehensive framework to measure brand equity (Keller, 2001). This research bridges a gap in the literature by identifying and validating the significant role of user-generated content, particularly textual reviews, in shaping brand equity. This research highlights the importance of consumer voices and opinions for brand equity (Cheung & Thadani, 2012). The study provides a distinct impact analysis of promoters, passives, and detractors on brand equity; this differentiation enhances theoretical understanding of customer loyalty and offers actionable insights for brand managers. The research study suggests that active engagement with customer feedback enhances brand equity (Oliver, 1999). While this study focuses only on budget smartphones, the results and tools can be applied to other product categories to understand the interplay among UGC, NPS, and Brand equity (Park, Lee, and Han, 2007). The holistic contribution of this study demonstrates the value of integrating different data available on e-commerce sites to understand brand equity. The measurement framework, which includes NPS and sentiment analysis, captures the attitudinal and emotional dimensions of consumer behaviour. Hence, this study will provide a robust foundation for research on brand equity dimensions (Keller, 2009).

Managerial Implications:

The findings of this study provides several important implications for both academicians and research practitioners in the field of marketing and brand management. The significant impact of user generated content on brand equity emphasises the need for actively engaging with the consumers and encouraging positive reviews and testimonials (Hajli et al., 2022). Encouraging consumers to share their product experiences on commerce helps in enhancing the brand loyalty and consumer trust (Islam & Rahman, 2021). This study helps to understand the correlation between high NPS scores and positive sentiments which fosters customer loyalty and brand advocacy (Lemon et al., 2021). Further Brands with moderate and negative NPS scores can benefit from identifying the root causes of consumer dissatisfaction and implement targeted strategies to improve customer brand equity (Huang et al., 2020). Hence companies should focus on delivering exceptional consumer experiences to convert the satisfied consumers into brand promoters (Gensler et al., 2021).Thus, encouraging customers to share their experiences and addressing the negative reviews can significantly contribute to enhance the brand equity (Zhao et al., 2023).

Understanding the drivers of brand equity can help the companies differentiate themselves from their competitors. Brands can use the insights from this study to benchmark their performance against the competitors and identify the areas for improvement, by focusing on factors that contribute to increasing the brand advocacy and brand loyalty (Chen et al., 2021).

9. Limitations of the Study

This study provides valuable insights into the relationship between Net Promoter Score (NPS), Sentiment Analysis and Brand Equity but there are some limitations to this study, Firstly, the reviews for the brands which are fetched for the study may not be representative of the entire consumer base. Some satisfied or dissatisfied consumers do not post the product feedback (Hajli, 2014); thus, a larger and diverse sample could provide more accurate results (Tirunillai & Tellis, 2012). Secondly this study is limited to the data available from the Amazon reviews which may not have captured the entire spectrum of the customers across diverse e commerce platform (Islam & Rahman, 2016).

Different industries may have unique factors influencing brand equity, this study solely focuses on the budget smartphone which may limit the generalizability of the findings to other products and categories (Cheung & Thadani, 2012), other factors influencing the brand equity are not captured in this study (Dessart, Veloutsou & Morgan -Thomas, 2015). The accuracy of the sentiment analysis can also vary which can impact the reliability of sentiment scores used in this study (Cheong &Morrison, 2008).

This study assumes that the NPS is a valid and reliable measure of brand equity. The scores are calculated based on the proportion of promoters and detractors and it may not fully capture the complexity of the brand loyalty and advocacy (Keiningham et al., 2007). This study also has a temporal limitation as the data collected represents a specific point of time and changes in product quality, customer service and other market related factors and conditions can impact the relevance of this analysis (Hajli, 2014).

Future Research Directions:

This study gives a more nuanced understanding of the role of consumer feedback on brand equity however future researchers can delve into understanding the factors which enhance customer loyalty and satisfaction (Reichheld, 2003). Future researchers can address the limitations of the study and collect data from a larger and more diverse sample of customers across multiple e-commerce platforms to enhance the generalizability of the findings (Keller, 2001). More in-depth research can be conducted by combining sentiment analysis with qualitative methods such as content analysis and interviews to gain deeper insights into customer perceptions (Hollebeek, Glynn & Brodie, 2014). Future studies can also include longitudinal studies to track changes in NPS, sentiment and brand equity over time to identify customer buying trends and patterns (Oliver,1999). Additional brand equity metrices such as brand awareness, perceived quality, brand associations can also be explored to have a more comprehensive understanding of the brand equity (Aaker, 1991). NPS can also be used to gauge the CLV (customer lifetime value or repeat purchase trends in further studies (Reichheld, 2003).

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Comparative Analysis of User Sentiment And Thematic Patterns of Mobile Fitness

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Abstract

The introduction of mobile fitness applications has transformed the definition of digital health engagement, yet sustaining user participation in the long term remains challenging. In this way, apps are the key to digital health ecosystems today, and long-term consumer retention is not easily achieved. The paper follows a netnographic research design, including thematic analysis and NVivo-based sentiment analysis to examine the degree of satisfaction and dissatisfaction as determinants of users' continued use of mobile-based fitness platforms. User feedback is reviewed through the churn and customer satisfaction theories to determine its influence on retention and attrition. The critical user experiences described in the review include usability, inclusivity, technical reliability, and cost transparency, with a combination of sentiment and thematic analyses and netnography. The results indicate that convenience, customisation, and community support are likely to lead to satisfaction, which, in turn, leads to loyalty. Unsatisfied customers tend to leave the platform due to hidden costs, complexity, and unavailability. The study, conducted by the researcher, determines the causes of abandonment of such sites by linking levels of satisfaction to post-adoption behaviour. It also offers pragmatic suggestions for improving monetisation transparency, designing multifunctional features, and creating accessible user experiences that reduce drop-off and encourage longer engagement. All in all, fitness apps may be helpful in public health, provided that accessibility and continued use are guaranteed.

***Keywords**: Fitness App, Digital Health, Sentiment Analysis, Thematic Analysis, User Experiences, User Reviews, Netnography, User Engagement.*

1. Introduction

The increased popularity of social media has enabled individuals to share their views through websites such as Facebook and Twitter. Scholars have become interested in examining the emotions behind these concepts; however, the number of such perspectives is so large that a human-based approach is impossible, and one must resort to computers. Fitness and exercise are becoming increasingly popular as ways for people to maintain their health and take advantage of the convenience of home training in a fast-paced, technologically advanced society. The fitness facilities should continue to introduce digital solutions, especially after the COVID-19 pandemic, to help grow and change the way users engage with the facilities. All these digital changes have affected the management of sports facilities, the provision of services, and communication between facilities and customers (Torrente et al., 2021). Fitness tracker apps which include customised training assistance, tracking, and guided exercises have become very popular in this scenario. Nevertheless, the user cannot easily select the most appropriate app, as there are many available. Overall, two categories of mobile fitness apps can be distinguished: freemium with paid and free content, and free-to-use apps. Both types are widely used worldwide, with millions of downloads and passionate user communities. Clients often leave lengthy reviews of these services, providing insights into the strengths and weaknesses of free and freemium business models. This paper will analyse the pros and cons of mobile fitness applications and compare and assess user sentiment as reflected in the applications' reviews. Specifically, it discusses the impact of these factors on the user experience, including inclusivity, technical stability, content quality, and ease of use. Consumer sentiment analysis is an effective tool for understanding these dynamics because it provides a systematic way to capture views from social media, product ratings, and customer comments. Natural language processing (NLP) is also referred to as opinion mining, the ability to classify an opinion as positive, negative, or neutral (Liu, 2022; Agarwal et al., 2015; Rathee & Singh, 2025). Marong et al. (2020) state that sentiment analysis is becoming an increasingly popular tactic used by companies to understand how their customers feel, enhance customer satisfaction, and make strategic decisions. This research employs thematic and sentiment analyses to identify common themes in user reviews and highlight the features of fitness apps that users find most beneficial and problematic. The developers should have advanced insight into users' responses to develop their platforms accordingly. The insights can help potential users choose fitness applications. Even though these apps are prevalent, few studies have examined consumer attitudes across free and freemium models using a combination of netnography, sentiment analysis, and thematic analysis. Past research has primarily focused on either adoption, usage, or effectiveness of apps; the research has failed to investigate satisfaction and dissatisfaction in relation to loyalty and attrition. Sentiment analysis has become more sophisticated, detecting multi-dimensional emotional responses, and has offered businesses an understanding of customer expectations, service discontinuities, and areas for improvement (Shivaprasad & Shetty, 2017). Also, sentiment analysis is used for broader strategic purposes, such as brand reputation management and improving communication strategies based on empirical consumer feedback (Zhao et al., 2016). The current study will fill these gaps through a systematic review of user ratings of free and freemium mobile fitness applications. It will demonstrate the effects of user satisfaction and dissatisfaction on continued use and dropout using netnographic, sentiment, and thematic methods. In this paper, a netnographic approach, supplemented by sentiment and thematic analyses, is used to fill this gap by studying users' experiences. Surveys are usually limited to expressing intentions, but netnography enables the researcher to study the realism of online interaction, yielding a more nuanced analysis. The research paper will analyse user satisfaction and dissatisfaction with mobile fitness apps and the impact of these sentiments on subsequent use or abandonment of these applications. A combination of computational and qualitative approaches will be used. It is based on the churn theory of discontinuance (explaining how technical, financial, or usability issues cause a discontinuance) (Keaveney, 1995; Liu, 2022) and on the theory of customer satisfaction (meeting and exceeding expectations increases loyalty, and a lack thereof results in disengagement) (Oliver, 1980). Although the theories are widely applied in e-commerce and telecommunications (Marong et al., 2020), they are not used in mobile fitness apps. This Study helps bridge this gap by analysing the role of consumer feedback in satisfaction, dissatisfaction, and churn likelihood in online fitness networks.

2. Literature Review

Technology and Sports

The trend towards fitness centre apps is gaining popularity as users can plan exercise sessions, monitor their performance, and learn about new programs, events, and offers. In the future, the use of fit centre apps could alter customer behaviour (Chang et al., 2023). New technologies are widely utilised by individuals in the field of health and fitness. Over the last couple of years, technology has transformed the businesses of sports centres, increasing the benefits for sports customers and operators. In mid-quantum rugby league, Gallbett and Gahan (2016) noted the use of technology, such as GPS devices, to monitor players' positions and assist coaches in managing their workloads during practice and games. This reduced the risk of player injury and enhanced performance. The use of digital technologies considerably transformed the way individuals organise, monitor, and participate in the field of fitness. Mobile fitness applications have enabled users to manage workouts, monitor individual progress, and receive real-time updates on workouts and programs. Such technological innovations have impacted the types of users and the way sports and fitness facilities organise and deliver their services. The transition to digital platforms accelerated at the start of the pandemic, when many people considered using fitness apps because gyms and outdoor spaces were closed. These apps have therefore become essential in promoting physical activity and maintaining long-term fitness. Recent data indicate that the COVID-19 pandemic accelerated the world's embrace of digital sports and fitness technologies, and that fitness apps are among the most downloaded mobile apps (Angosto et al., 2023). These platforms are becoming interactive forms of communication, making the organisation and users feel more personalised and engaged.

Effectiveness of Fitness Apps

Applications offer a wide range of features and cover various facets of users' social and personal lives. The adoption of telematics applications and advanced medical information systems is one of the key areas that have contributed to reducing healthcare expenses and facilitating the availability of medical services (Kao et al., 2017). Mobile apps have become crucial in the twenty-first century, helping people embrace healthy lifestyles. Fitness applications have high potential to succeed because they can train large populations to adopt healthy behaviours at minimal operational cost, despite some physicians being cynical about their protocols and recommendations (Blackman et al., 2013; Liu & Avello, 2021). Angosto et al. (2023) report that the literature on the use of these applications has also increased exponentially, with more than 22,000 participants in Asia, Europe, and North America. Throughout their research, they concluded that fitness apps can increase physical activity levels, provided they include features such as goals, self-monitoring, and social support.

Nevertheless, these tools are not practical for everyone, and their effectiveness is influenced by several individual characteristics, including age, health awareness, and self-efficacy. Reminders, community support, and progress tracking are among the features users use to adhere to their routines. Although such apps can inspire short-term behavioural changes, there is still no easy way to maintain long-term compliance. Factors such as technical soundness, individualised recommendations, and the availability of appropriate exercise intensities also influence continued use of the apps or their cessation.

User Engagement and Loyalty

A study analysed 15 fitness apps to determine levels of GPS tracking, workout planning, and success measurement (Kranz et al., 2013). It has touched on the way fun, social interaction, and long-term motivation can be used to enhance user engagement. One way to measure a person's intention to use a mobile fitness application is through behavioural intention (Fishbein & Ajzen, 1975, p. 288; Yoganathan & Kajanan, 2014). Although such applications may be practical at promoting behaviour change, they have little effect on long-term compliance. Zhou et al. (2021) demonstrated that technological characteristics are predictive of user engagement and use of a given technology, providing valuable insights for professionals keen on promoting long-term app usage. According to recent studies, engagement is not limited to utilitarian metrics such as ease of use but also includes hedonic and social effects. The key components of UTAUT2, such as perceived enjoyment, habit, and social influence, would be important for predicting continued use. The practice of satisfaction is also a mediating variable between functionality and loyalty, and it is important to note that apps need to strike a balance between practical and emotional features (Angosto et al., 2023).

User Review and Sentiment Analysis

The conclusions of the study will assist designers in understanding how users feel when using apps to run and how to improve them to make workouts better (Byun et al., 2023). A deeper insight into the role of the fitness influencer in their followers' online behaviour would yield new ways to encourage more people to engage in physical activity through peer pressure, just as marketing campaigns can change consumer behaviour (Vickey & Breslin, 2017). These apps are already satisfied with their users, who are ready to provide both positive and negative responses. Online reviews are a rich source of information about users' experiences with fitness applications. Users can freely express contentment, annoyance, and recommendations for different features. Sentiment analysis assists the researcher in organising these opinions into positive, negative, or neutral categories, which are significant concerns and include subscription problems, a lack of inclusivity, and technical issues. Spontaneous reviews are more candid than surveys, as issues that would not be elicited during a survey are more likely to surface. According to Angosto et al. (2023), spontaneous consumer feedback is rarely utilised in the study of fitness apps, and most publications rely on survey data on intentions. Thus, sentiment analysis of online reviews is a helpful addition, as it can reveal issues such as subscription problems, inclusivity concerns, and technical failures that may have been overlooked in questionnaires.

User Reviews and Thematic Analysis

According to sentiment analysis, the theme analysis of user reviews has proven to be a valuable tool for identifying the aspects of fitness applications that users are attracted to or want to be further developed. Alqahtani and Orji (2020) identified information, affordability, frequent updates, user interface design, and the usefulness of community support as important themes through a thematic analysis of user reviews of fitness applications. Such themes would help offer insights to potential consumers and to app developers to enhance performance and assist them in making better decisions. Angosto et al. (2023) observed that there are more than 40 external factors related to adoption and continued use, including innovativeness, health consciousness, and subjective norms. Nonetheless, the factors that consistently predict long-term engagement have not yet been agreed upon; thus, the relevance of the qualitative method, including thematic reviews of user feedback, for accounting for contextual variations across populations remains unclear. Analysis of user comments can be conducted as themes to detect patterns in app experiences. Aspects often discussed by users include instruction, affordability, update frequency, accessibility, and supportive communities.

3. Theoretical Perspectives

The literature indicates that the Technology Acceptance Model (TAM) has remained the basis of research on mobile fitness applications, and its perceived usefulness and perceived ease of use constructs have been identified as influential determinants of intention to adopt (Davis, 1989). Nonetheless, more recent research has expanded the theoretical background to incorporate frameworks such as UTAUT, UTAUT2, TRAM, and ECM, and to include factors such as social influence, hedonic motivation, and habit (Angosto et al., 2023). Notwithstanding these developments, Customer Satisfaction and Churn Theories are not used extensively. These views play a crucial role in explaining not only adoption but also discontinuation and attrition, offering a more holistic perspective on user behaviour in digital fitness ecosystems. To fill this gap, this study will integrate these theories with a netnographic approach to explain patterns of satisfaction and disengagement. The literature also shows that mobile fitness applications are often examined through adoption models. However, there is a lack of studies that focus on the relationships between authentic user experiences derived from impromptu online ratings and both satisfaction and dissatisfaction. Also, Customer Satisfaction Theory and Churn Theory have not been applied in this area, even though they are effective in elucidating phenomena in industries such as e-commerce and telecommunications (Marong et al., 2020; Liu, 2022). To close these gaps, this paper uses a netnographic methodology that integrates sentiment analysis with thematic analysis of user feedback to analyse the relationship between satisfaction and dissatisfaction and the continued usage and dropout rates of mobile fitness apps. This critical review of the literature lays the groundwork for the following study, which will examine user reviews of two fitness apps: Nike Training Club and FitOn Workout and Fitness Plans. Building on existing studies, this study offers a detailed analysis of the strengths and weaknesses of these apps, along with helpful advice for users and developers on how to use them.

Objective of the study

1. To analyse and compare user sentiments regarding Nike Training Club and FitOn Workout and Fitness Plans.
2. To identify key thematic patterns in user feedback using netnography.
3. To contribute to digital marketing and consumer behaviour research by integrating qualitative and sentiment analysis techniques.

4. Methodology

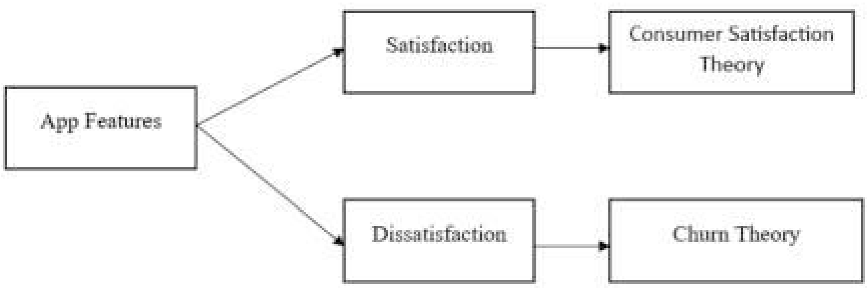
This has resulted from the development of marketing concepts, leading to much literature that comprehensively addresses customer behaviour (Bhattacharyya & Dash, 2020). The methodologies used include quantitative (Spandagos & Ng, 2018), qualitative (Hosseini & Ghalamkari, 2018), or a combination of both (Zander et al., 2018). The paper employed a netnographic research design to collect the authentic user experiences with mobile fitness applications. User reviews from the Google Play Store and the App Store were collected between June 2023 and December 2023 to ensure the data was up to date. It gathered 5,000 reviews by searching for phrases such as 'fitness app', 'workout', and 'home workout'. Following this, such assessments were carefully screened to eliminate advertisements, unnecessary details, spam and bot comments. All verified reviews were saved as .txt files and imported into NVivo 14. Sentiment analysis enabled us to understand users' feelings in their comments and to construct visual representations, such as word clouds and frequency patterns. The research has used inductive thematic analysis to help the researcher develop a deeper qualitative understanding of the data, enabling the researcher to derive topics from the data. The coding followed the traditional steps of thematic coding, which included familiarisation with the data, initial coding, identification of patterns, review of categories, and definition of themes in accordance with the established qualitative guidelines (Braun & Clarke, 2006). NVivo was used to organise coding, while theme development was controlled by a human. It compared a few reviews to ensure that the real meaning of the user replies was captured by automated coding. To enhance methodological rigour, inter-coder reliability was assessed using two independent coders who analysed and compared a sample of coded data. Any differences have been addressed in the study to ensure the final themes are credible and trustworthy.

App Selection Criteria

The App Store (iOS) and Google Play (Android) are the first places to search when choosing an app. Appropriate keywords related to fitness apps were used to gather the data, including: fitness app, workout, workout at home, live fitness class, and fitness and workout plan. Numerous applications in Google Play and the App Store were found with this first search. The list was further reduced to the most applicable and popular applications in the research paper using the exclusion criteria. To filter out applications with fewer than 1,000 user ratings, applications that are not in English, and applications with descriptions that do not seem to relate to fitness. By focusing on apps relevant to the research and those with a large user base, it is possible to develop a more realistic profile of what users experience in fitness apps. FitOn Workout and Fitness Plans and Nike Training Club were selected based on their characteristics and user ratings. There is a likelihood that the study factored in users' ratings of reputable, popular apps, as these were the top-performing fitness apps in the market.

5. Conceptual Framework of the study

The conceptual framework that will lead to this study is shown in Figure 1. The model is based on the Theory of Customer Satisfaction (Oliver, 1980) and the Churn Theory (Keaveney, 1995) and demonstrates how aspects of mobile fitness app features influence user satisfaction and dissatisfaction, including usability, inclusivity, transparent pricing, and technical stability. Satisfaction will lead people to use and remain loyal, while dissatisfaction can result in disengagement and churn. This model highlights the two-fold influence of positive and negative experiences on post-adoption behaviours and has gone beyond the past studies that have primarily concentrated on adoption models, including TAM and UTAUT. By incorporating consumer experiences into this theoretical framework, the study lays the groundwork for examining how user reviews manifest value creation and the risk of attraction in digital fitness ecosystems.



Source: Author's Own

Figure 1. Conceptual Framework

Data Collection

After selecting the apps, we gathered user reviews from them using the exportcomments.com platform. The goal was to collect a large number of reviews for a detailed analysis. The data included 5,000 user reviews, focusing on Nike Training Club and FitOn Workout and Fitness Plans, the two apps selected for our comparative study.

Table 1 shows the fitness apps and their cumulative review counts. The primary applications, FitOn Workout and Fitness Plans, as well as Nike Training Club, were selected based on popularity and ratings. Some other apps were also included to provide a broader view of user ratings in the fitness app market. This is a complex data collection method that can help guarantee the accuracy and representativeness of the study, and will provide worthwhile data on the attitudes and experiences of users of these apps.

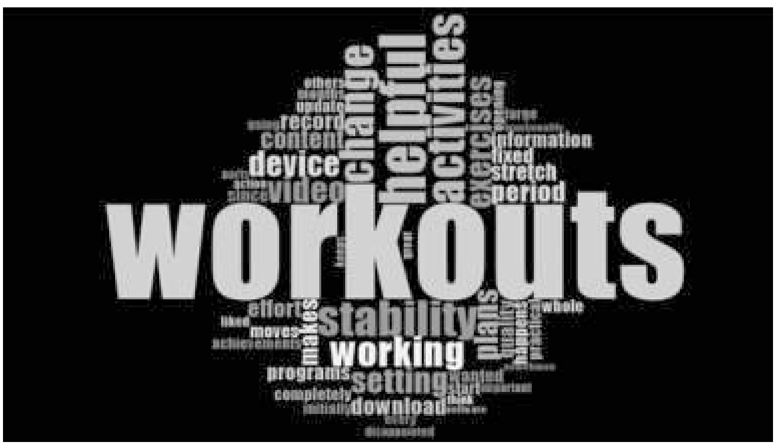
6. Results

Word Cloud creation of the Nike Training Club App

NVivo 14 was used to create a word cloud (Fig. 2) in the study to determine the most common phrases in a text corpus. The most popular topic was workouts, with 2.03% of the text, indicating that fitness and health were the main priorities. The highly positive attitude towards the topic was expressed through the "Workout" attitude (1.75%). Such words as found (0.83%) and helpful (1.65%) implied the contents of positive experiences and recommendations, whereas "great" (0.82%) indicated the satisfaction of users. The reading tree chart (Fig. 3) vividly shows words emphasising workouts, helpfulness, and activity at the top. This word cloud analysis provides insights into the text's dominant themes and emotions, enhancing comprehension of its meaning and implications.

Table 1. Sample Apps, Supported Platforms, and Total Reviews Sources: ForbesHealth.com

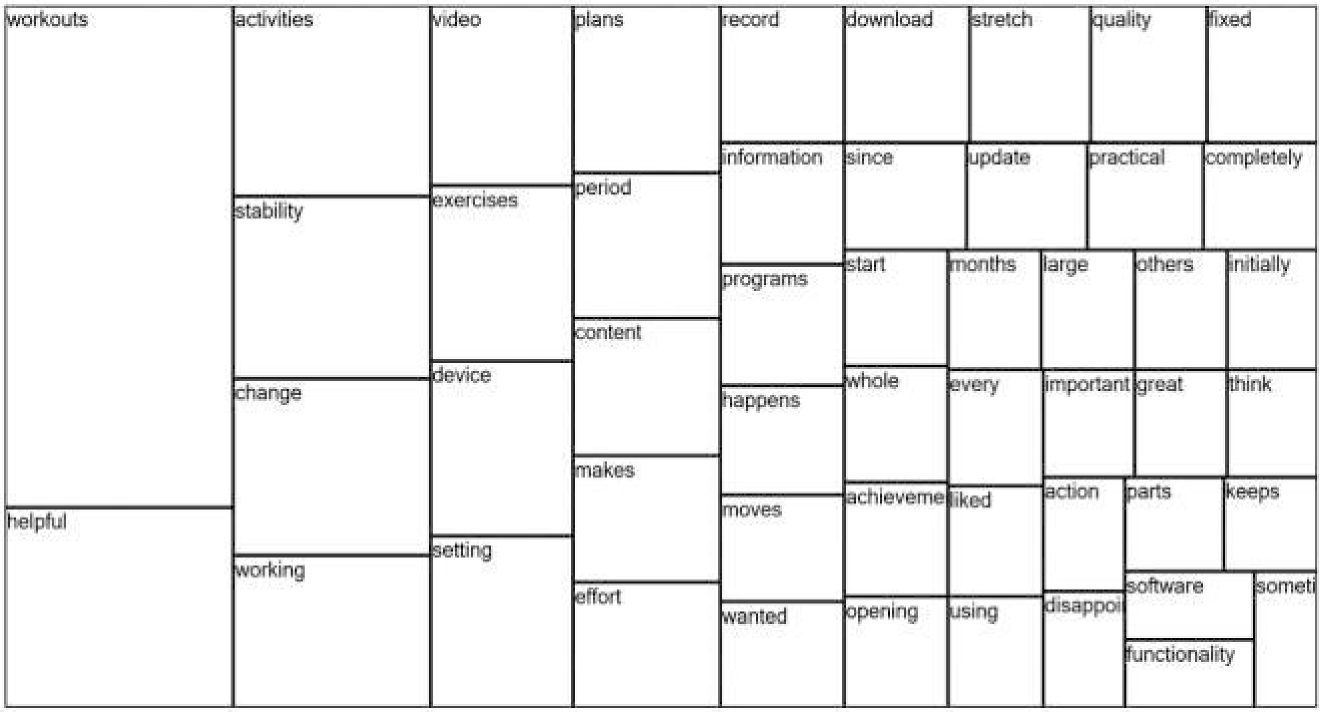
S.No.	App Name	Platform	Total number of reviews	Ratin	App Category
1	Nike Training Club	App Store & Google Play Store	346000+	5.0	Free App
2	FitOn Workout and Fitness Plans Workout & Fitness Plans	App Store & Google Play Store	942000+	4.8	Freemium
3	GymShark Training	App Store & Google Play Store	212000+	4.5	Free App
4	Adidas Training	App Store & Google Play Store	145000+	4.3	Freemium
5	Workout for women	App Store & Google Play Store	502000+	4.0	Freemium
6	Freeletics: HIIT Fitness Coach	App Store & Google Play Store	244000+	4.2	Freemium
7	30-days Fitness at homes	App Store & Google Play Store	54200+	4.7	Free App



Source: Author's Own

Figure 2. Word cloud of Nike Training App

Figure 2. Word cloud of Nike Training App

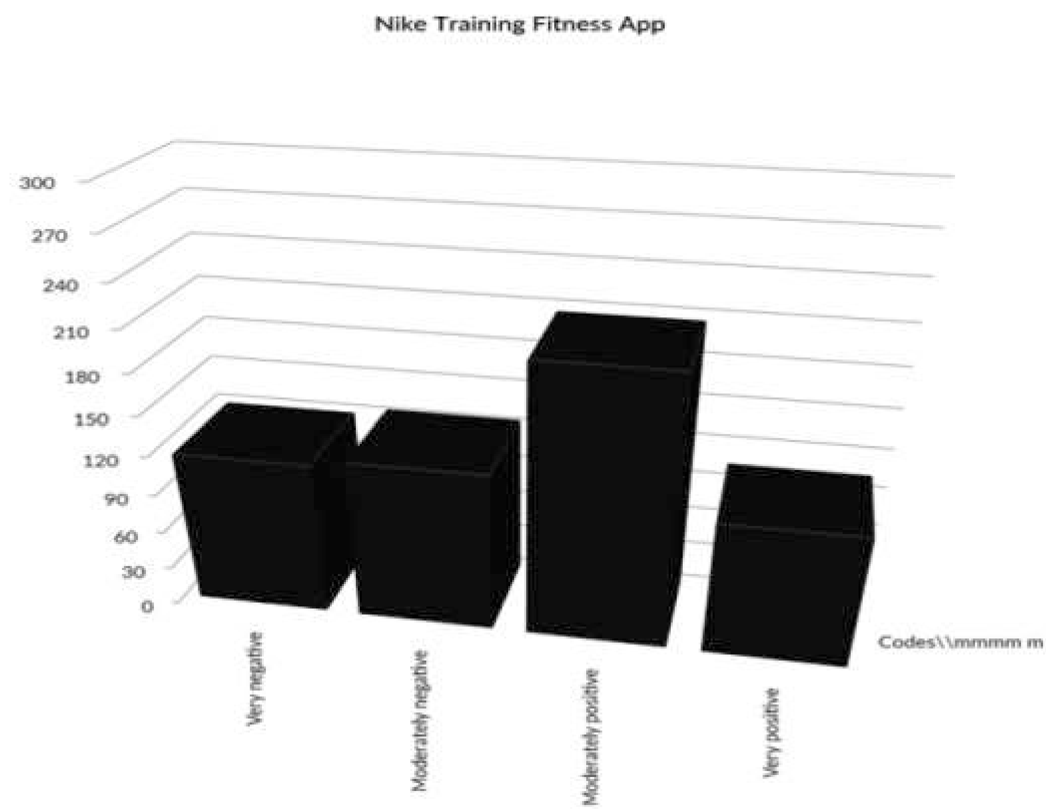


Source: Author's Own

Figure 3. Word Tree of Nike Training App

Nike Training Club App

When conducting sentiment analysis of the Nike Training Club application (Figure 4), a free fitness app used in NVivo 14, we found that users' positive sentiment was predominant. In particular, the most widespread sentiment was moderate, with 344 cases, indicating that users tend to find value and satisfaction in the fitness services offered through the app. Moreover, the number of very positive sentiments was at least 150, which once again underscores that the application can generate very positive user reviews. The positive sentiments were higher than the negative sentiments, even though the number of positive sentiments was lower than the number of negative sentiments, with 1037-210 and 1037-205, respectively, in the positive and negative categories. This means the app does a great job of marketing fitness and workout plans, with negative feedback from a minority, suggesting areas for improvement. The user reviews of the Nike Training Club app indicate a range of opinions, as shown in Table 2. Others complained of frequent technical problems, including app failures and difficulty logging in to their accounts; others appreciated the selection of workouts and the trainers' assistance. The resulting dislike often leads to dissatisfaction and disruption of exercise activities; therefore, technical stability is crucial to reducing churn and improving satisfaction. In general, our sentiment analysis provides insight into how users perceive the Nike Training Club app and how developers can leverage its strengths and improve in certain areas.



Source: Author's Own

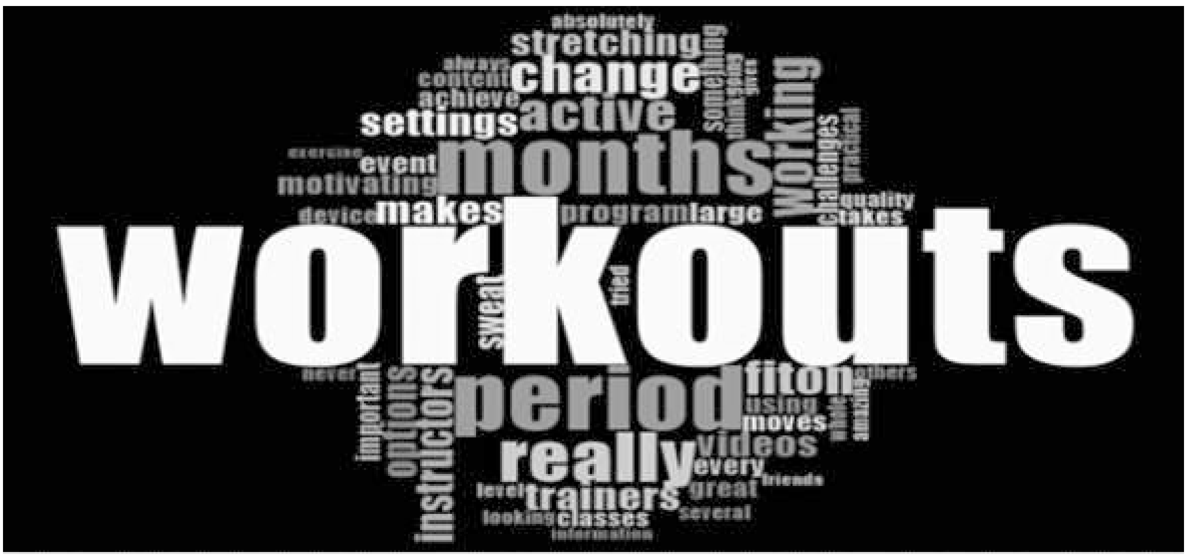
Figure 4. 3D Sentiment graph of the Nike Training App

Table 2. Sample result of Sentiment Analysis of Nike Training Club App

Ref	Comment	Emotion
1	"App is garbage. The workout just stopped playing over and over again. If I hit pause to let it load, when I hit play again, it went back to the beginning So disappointing. I'm at the gym just sitting here not knowing what to do and feeling super discouraged now."	Very Negative
2	"I hate the update. I had used this every time I went to the gym and had favourite workouts. Then they updated and deleted all prior workouts. I really wish they had just let people keep their saved favourites from before. The updated workouts all have parts that are embarrassing to do in a regular gym as an out -of-shape person. Also, it is hard to select a workout since you can't see what moves it has before you start."	
3	"I love this app from the formats to the trainers and their programs. On the other hand, lately it has been lagging pretty badly as of 7/25/23. Blank screen when opening, so I've had to uninstall and reinstall. Still login issue in November 2023. The app doesn't respond when I try to log in. Why does it keep logging me out?"	Moderately Negative

4	"The workouts and interface is nice but it's completely useless because it crashes every time I want to do the next workout in a program. I don't want to get dressed in my workout clothes, get out my mat and weights, only to have to find a different workout because the app won't work. This happened to me with Nike Run Club a year ago. Since both apps become unusable at random, I can't keep using them."	
5	"I love the workouts, the tracking, and the guidance. Only reason its not 5 stars is because it keeps glitching! Ill do one of their workouts, and then it won't add it to my activity. and the only way to add it, for the entire time I did it, is if I just keep it open playing on my phone. Also, when I add an outside-the-app activity, it glitches when inputting the details, and I have to restart the app. If these glitches were fixed it'd be 5 stars"	Moderately positive
6	"Definitely a lot of options. Personally, I prefer really tough workouts. While most of them are challenging. Even the longest advanced ones don't leave you fully burned out. That's my personal preference though. However, there are enough workouts, including quick ones, that make it easy to slip in a workout every day if you want. The trainers are eng aging if a bit over the top, but they do a good job of explaining things."	
7	"I LOVE this app! All the workouts are completely free, thr narrator is helpful and her reminders to breathe are nice, as thats easy to forget. I just started one of the plans, and it's very nice that you can move things around. I gave the app 4 stars because this app would be perfect if it could track heart rate. Or have a spot to input heartrates into a graph."	Very Positive
8	"The Nike Training Club app is a game - changer. Firstly, it's completely free no hidden costs or subscriptions. The range of options is nearly limitless, allowing you to start at an easy level and progress, or dive into challenging body progression exercises that will enhance your core strength and stability. Having tried several paid apps, I can confidently say that NTC surpasses them by two to three levels in terms of quality and effectiveness."	

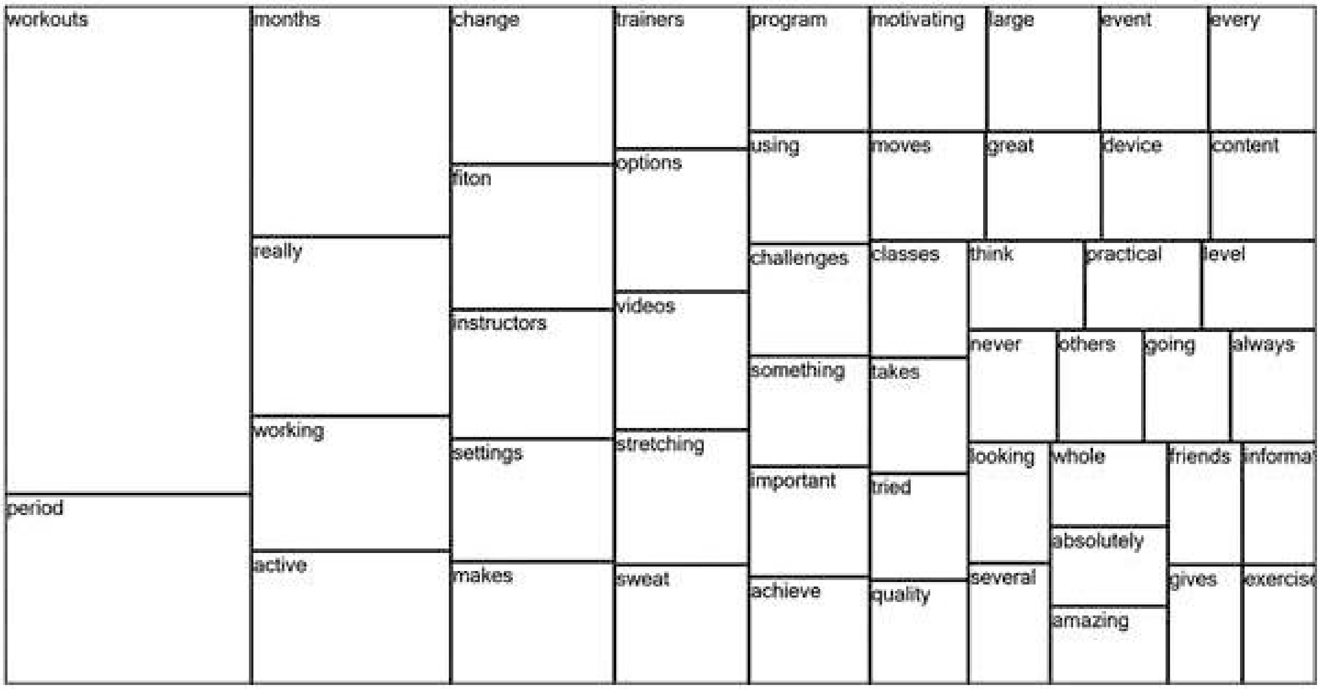
Source: Author's Own



Source: Author's Own

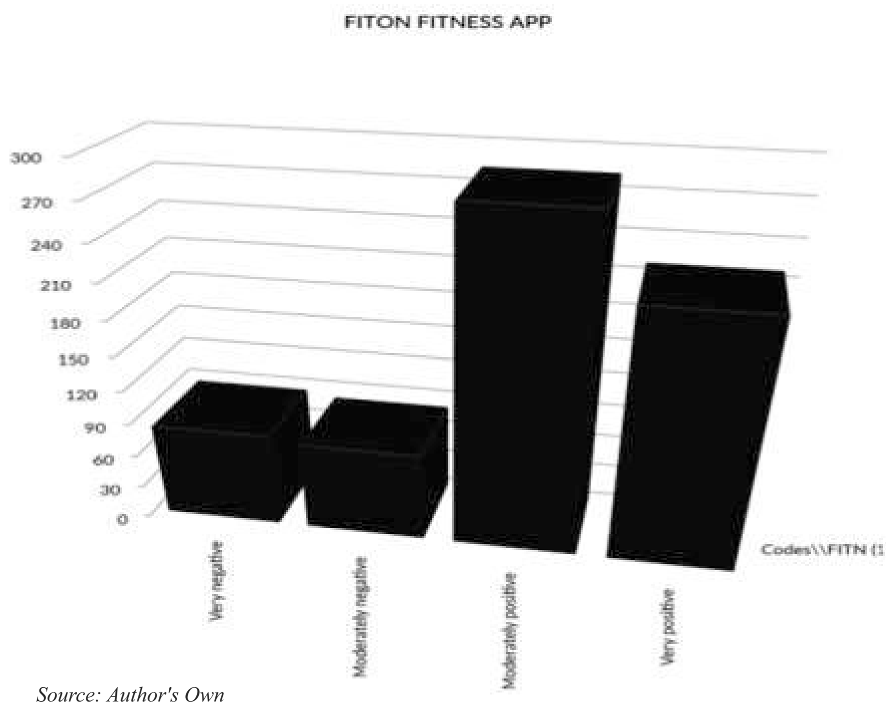
Figure 5. Word Cloud of FitOn Workout and Fitness Plans App

Figure 5. Word Cloud of FitOn Workout and Fitness Plans App



Source: Author's Own

Figure 6. Word tree of Fit On Workout and Fitness Plans App



Source: Author's Own

Figure 7. 3D Sentiment graph of the FitOn Workout and Fitness Plans App

This research employed NVivo 14 to conduct a word cloud analysis (Fig. 5), focusing on the most prominent terms within a text corpus related to the FitOn Workout and Fitness Plans, a freemium app. It is worth noting that the text dedicated to Workouts accounted for 2.27%, indicating that this aspect is the key point of discussion for the app. Another common word was the premium percentage (0.22), which can be seen as confirmation of the significance of the freemium side of the application. Moreover, terms such as helped (0.56%), recommend (0.23%), and download (0.46%) proved interesting. These words probably indicate user experience related to the app's premium content and functionality, as well as the way it is obtained. Workouts, periods, and months are evidently shown at the top of the word tree chart (Fig. 6). These terms dominate, highlighting how user sentiment and user experience can be of great importance in a freemium app, and this can shed light on the perceived value and benefits of the application as well as the level of user satisfaction.

The sentiment analysis of the FitOn Workout and Fitness Plans app (Figure 7), which operates via in-app purchases and is based in the Fitness and Live classes, was conducted in this paper using NVivo 14 and uncovered a subtle range of user experiences. It is important to note that moderately positive sentiments (462) indicate that users enjoy aspects of the app, particularly the types of workouts and fitness content. At the same time, the number of moderately negative sentiments (131) indicates problems with certain users, which should be addressed through potential suggestions. The presence of Very negative (133) sentiments can sometimes indicate deep dissatisfaction, and targeted work should be undertaken to make users more satisfied. Nonetheless, very positive attitudes are (355) more focused on the possibility that the app will provide valuable and enjoyable fitness content. Table 3 presents a similar combination of views on the FitOn Workout and Fitness Plans app. The main complaints included subscription fees, limitations on premium content, and device integration issues, though customers liked a wide range of workouts, trainers, and free content. These challenges not only influenced the values they were assigned but also created dissatisfaction, which would later lead to a stall. These findings indicate the role of functionality and pricing clearance in driving long-lasting engagement. Such a sentiment analysis will provide a comprehensive perspective on how users perceive the product and help developers identify strengths and areas for improvement in a free and freemium purchase model.

Table 3. Sample result of Sentiment Analysis of FitOn Workout and Fitness Plans app

Ref	Comment	Emotion
1a	"Subscribed to FitOn Workout and Fitness Plans pro through website or app, but neither Google nor FitOn Workout and Fitness Plans have a record of subscription. My card was closed, and I have a new number for the same account, which is great because I wasn't planning to renew. But FitOn Workout and Fitness Plans keeps trying to charge an invalid card. You'd think after 2 or 3 times they'd f igure it out. I want to remove said card and stop subscription but neither option is available."	Very Negative
1b	"Steps don't sync. Samsung watch users are like second -class citizens. I pay for premium yet can't compete in challenges because the app does n't accurately sync steps. Frustrating to say the least. May cancel and find an app that can integrate with my watch so I can accurately track and measure progress towards goals."	
2a	"The exercises are great for most who are in great health. There are a few low-impact workouts that are more suited for those with limited mobility or joint impairment/pain. (Not many) The app itself stopped counting my steps. (not the first time it has happened) Removing the app and reinstalling doesn't work. I need the app to count my steps for the November challenge."	Moderately Negative

2b	"I used to love this app. It has a variety of workouts and trainers. The trainers seem to all be engaging and knowledgeable. There is a free version. I've gotten stronger and healthier with this app. The most recent update requires you to accept notifications to pick workouts in advance. It no longer shows your completed workouts. It stopped working on my old tablet altogether. I'm really disappointed. I will look for another app."	
3a	"I love this app, but I WISH there was a way to exclude a certain type of workout. I can't stand barre or pilates. I made sure these weren't selected as types I enjoy. But whenever I start or refresh my program, these are ALWAYS in my mix. You can just add another workout to your week and skip that one, but the whole reason I like the automatic programming is that I don't want to sift through a bunch of workouts to replace it. It's the biggest painpoint for me. Otherwise great app."	Moderately positive
3b	"The app is good, but it's definitely lacking. The recipes are sometimes missing ingredients but it's in the instructions to use. The recipes don't tell you how much to eat or any nutrition facts. You would have to use a separate app to input food to figure it all out yourself. The workouts are good, and there are quite a few of them. I don't like that you already pay for the app but to actually get classes you have to pay more. I'm not super impressed. You pay for premium but it doesn't seem premium	
4a	"This app is AWESOME (disclaimer: I haven't used it as often since I started going to in -person fitness classes). There is so much free content, and the real instructors are fantastic. I love that I can do workouts with my friends. There is no reason to try any other fitness app, FitOn Workout and Fitness Plans is hands down the best content, best variety, and best value for the money (FREE!)."	Very Positive
4b	"The free content is really solid stuff. At this point I've done maybe 6 classes. 3 of the classes absolutely kicked my butt. It was so good I implemented some of the exercises and format into treatment sessions with my own patients (I'm a physical therapist). The other 3 classes were were rated as less intense and more restorative which was absolutely on point. I've implemented the short cool -down routines before bedtime, and they are perfect. So many good things about this app."	

Table 4. Negative Themes and the corresponding categories of the Nike Training Club

NEGATIVE	CATEGORY
Loading Issues	Technical issues
App crashes	
Connectivity	
Short sessions	Video content and quality
Ineffective for specific goals	
Unwanted features and speed	
Misconception about workout goals	Narration
Fast narrations	
Lack of fitness guide	

App Source: Author's Own

7. Thematic Analysis

Negative Themes and the Corresponding Categories – Nike Training Club App

These subthemes provide a deep understanding of the specific problems and user preferences related to the Nike Training Club app's technical issues, video content and quality, content pacing, and narration. Developers can use these insights to improve and refine the app's functionality and content to better meet users' needs and expectations.

Positive Themes and the Corresponding Categories – Nike Training Club App

These thematic areas highlight the Nike Training Club app's positive features (Table 5) and subthemes, including user satisfaction and effectiveness, content quality, accessibility, and workout impact. Fitness and training apps are useful because users appreciate the app's functionality, customisation options, and non-intrusive design. Users gave positive feedback, thanking the Nike Training Club app for being available for free without any usage restrictions.

Negative Themes and the Corresponding Categories – Fit On Workout and Fitness Plans App

With the FitOn Workout and Fitness Plans app, there has been a mixed user feedback (Table 6). The disappointments consist of the desire to have more available content, emphasis on high-quality services, and high prices of membership, which are not affordable to a large number of users. To make the matters worse, there is no free trial option. The user experience has been impeded by technical problems (crashes and malfunctions of apps). Many people have also been unhappy with poor customer service, which is reflected through refund issues and lack of good treatment of subscription problems. The above-mentioned problems indicate the issues of content access, technological performance, and user support that FitOn Workout and Fitness Plans will have to resolve to enhance customer satisfaction and retain its place in the fitness app market.

Table 5. Positive Theme and the corresponding categories of Nike Training Club App

POSITIVE	CATEGORY
Different Workouts	App Effectiveness And Impact
Time Requirements	
Workout Plans	
Easy To Navigate	Ease Of Use & Accessibility
User - Friendly Interface	
Suitable For Beginners	
Easy To Use	Variety Of Features
Videos Categories	
Live And Recorded Videos Programs	

Source: Author's Own

Table 6. Negative Theme and the corresponding categories of FitOn Workout and Fitness Plans App

NEGATIVE	CATEGORY
Technical Glitches	Technical
App Crashes	
Performances Problems	
Limited Free Content	Overemphasis On Premium Content
Premium Subscription Prompts	
Premium Paywall	
Dissatisfaction With Fitness Guided	Inaccurate Fitness Goals
Lack Of Fitness Guides	
Misconception About Workout	

Source: Author's Own

Positive Themes and the Corresponding Categories – FitOn Workout and Fitness Plans App

The themes users highlighted in their reviews of the FitOn Workout and Fitness Plans app include several positive aspects (Table 7). They value the quality of guided workouts, as they are varied and educational, helping alleviate stress, achieve workout goals, and support overall health and well-being. The ease of use and usefulness of the application have been successful, as have continuous updates, which represent a current enhancement. The premium subscription is an attractive investment for many users who may opt for the lifetime package or appreciate the quality content, exercise plans, self-development potential, and lifestyle modifications it offers. These themes underscore how the app enhances users' experiences and health by providing high-quality, convenient content and continuous updates.

8. Discussions of the study

Implications of the study

The study contributes to knowledge in the areas of theory and management, as well as the social facet of the consumer experience with mobile fitness applications. Theoretical Implications: The study provides an analysis that integrates the Customer Satisfaction Theory (Oliver, 1980) and the Churn Theory (Keaveney, 1995), demonstrating that perceived fairness, trust, and functional benefits affect long-term participation in fitness programs. The review analysis showed that the majority of complaints were related to subscriptions, technical issues, and differences between free and paid content, which were frequently the cause of dissatisfaction. These results demonstrate that post-adoption behaviour is more important than initial adoption by applying satisfaction and churn models that have historically been used in e-commerce and telecommunications (Marong et al., 2020; Liu, 2022) to the poorly examined domain of fitness applications. Furthermore, the paper focuses on the multi-dimensional value (functional, emotional, and relational) co-created by the consumer who is a digital player in health ecosystems (Gronroos & Voima, 2013; Vargo et al., 2017), which is consistent with the recent findings (Chen et al., 2025; Thi et al., 2025) highlighting the importance of intrinsic motivation and enjoyment to be developed as a factor of retention.

Managerial Implications

In terms of management, the results indicate that attracting customers is not sufficient to retain them. The tests indicate that technical stability, price transparency, inclusion in fitness programs, and proportion of free and premium features are relevant factors that determine further use. Community support and personalisation increased loyalty and satisfaction, whereas the primary causes of churn were subscription issues, hidden charges, and app bugs. These findings align with recent research demonstrating that responsiveness and trust may be viewed as elements of service quality that promote engagement (Wang et al., 2025) and that incentive systems (Faizah et al., 2024). Therefore, iterative design patterns must be grounded in developers' user feedback to ensure transparency, social inclusiveness, and the technical accuracy of the features. By doing so, organisations in more competitive digital markets have an opportunity to win consumer loyalty, reduce attrition, and build brand trust.

Table 7. Positive Theme and the corresponding categories of FitOn Workout and Fitness Plans App

POSITIVE	CATEGORY
Workout Styles and Options	App Effectiveness And Impact
Relaxing Workout	
Free Fitness Option	
Suitable For Beginner	Ease Of Use & Accessibility
User -Friendly Interface	
Easy To Navigate	
Varies Workout Options	Variety Of Features
Easy To Use	
Fitness Sessions As Needed	

Source: Author's Own

Social Implications

In addition to theory and practice, the findings also have great importance to society. Fitness applications are being sold as a community health source and a marketplace. When subscription models are more supportive of premium users, users' affordability and inclusivity concerns highlight the risk of digital exclusion. These gaps must be bridged to ensure equal access to digital health services, particularly across socioeconomic segments. Policymakers and health professionals should regard user-generated comments as a vital source of evidence for digital health strategies. This will enable these platforms to promote a healthy lifestyle change and improve the well-being of the general population (Blackman et al., 2013; Valcarce-Torrente et al., 2021). The results show that user satisfaction is strongly related to simple navigation, customised content, and assistive features of a user interface, which aligns with the known tenets of technology adoption theory of perceived usefulness and ease of use.

Meanwhile, users' anxieties about subscriptions, surreptitious pricing, and limited access reveal concepts that many people frequently discuss in gratification-based approaches, in which values and perceptions of equity determine the recurrence of use. Although the study recognises the limitations of the data set size, the limited scope of the research to two applications, and the lack of demographic features, it also stresses the possibility of context bias. Since most reviews are written by English-speaking users, local and linguistic variations may not be well represented, limiting the generalizability of the results. These theoretical connections and contextual limits provide a stronger interpretation of the study and place the findings in a more precise context in the extant debate on digital fitness engagement.

9. Conclusion

By using netnographic and sentiment analysis on user-created reviews, this study can enhance our understanding of how consumers interact with mobile fitness programs. The paper crosses the threshold of the digital health technologies realm, extending the Customer Satisfaction Theory and Churn Theory to the issue, and presents how problems such as subscriptions, technical issues, and inclusion challenges influence customer satisfaction and churn. In so doing, it acknowledges the complex nature of consumer value in digital ecosystems and adds to the discussion on post-adoption behaviour. Despite these contributions, the study has weaknesses. First, the analysis was restricted to the reviews of two popular fitness applications, which may not be a sufficient sample of the diversity of user experiences across platforms and/or cultures. Second, the demographic and contextual information that would contribute to better interpretation is constrained by the use of publicly available reviews. Netnography cannot fully substitute longitudinal or experimental studies, in the context of defining causal relationships, as it provides information about actual users' opinions. These limitations present new opportunities for further research. Comparative analyses would provide a more detailed picture of client experiences by covering a broader set of applications, both regional and international. The longitudinal designs would facilitate the recording of variations in the churn behaviour, loyalty and satisfaction over time. Sentiment analysis combined with demographic or psychographic data can also be used to gain additional insights into how age, gender, or cultural background affect user participation. Lastly, a review of the possibilities of new technologies, such as AI-based customisation and gamification, to reduce attrition could provide fruitful directions for practice and theory. To sum up, the research provides theoretical, managerial, and social understanding of the nature of satisfaction and churn in mobile fitness apps and outlines future research opportunities to advance the area of study.

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Systematic Review of Factors Impacting Performance in Family and Non-Family Firms and Future Research Agenda

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Abstract

Family businesses are fundamental to the world's economy, and their management and control styles decisively distinguish them from non-family firms. The varying objectives driving their business strategies result in strikingly different performance outcomes. This paper aims to systematically review the literature on the performance of family and non-family firms using the PRISMA framework. A comprehensive analysis of 97 scholarly papers collected from the Scopus and Web of Science databases has been conducted. The study follows a TCCM framework to address key research questions and identifies significant avenues for future research, particularly focusing on strategic factors impacting performance. This research highlights inconsistencies in the definition of family firms and advocates a multi-theoretical approach to understanding family firm behaviour. The study emphasises the importance of family influence in ownership, governance, and management, significantly shaping their strategic direction and preserving family values and legacy for future generations.

In contrast, non-family firms succeed through strong corporate governance and effective resource management. The paper also stresses the importance of strong governance controls and of qualitative factors that impact firms' performance. Additionally, it calls for an investigation into stakeholder engagement, risk management, innovative strategies, and CEO identity, advocating for a comprehensive approach to advance research in this area.

Keywords: *Corporate Governance, Family Firm, Non-family Firm, Performance, Agency Theory, Stewardship Theory, Resource-Based View, Socioemotional Wealth, Chief Executive Officer, Family Involvement, Family Ownership, Board*

1. Introduction

Family businesses are considered to be the oldest (Colli, 2003) and the most prevalent (Nordqvist & Melin, 2010) form of business worldwide. They hold significant importance in the global economy (Munoz-Bullon & Sanchez-Bueno, 2011). The difference in management and control systems, along with the unique connection between family and business, sets family firms apart from non-family firms (Miller and Breton-Miller, 2006). Their main aim is to preserve their control and identity (Gomez-Mejia et al., 2007) for the intergenerational transfer of business (Berrone et al., 2012). They are concerned with maintaining the family image, which acts as a catalyst for effective monitoring, rather than other large shareholders (Cheng, 2014).

Several factors influence the performance of family and non-family firms. Family firms typically emphasise long-term goals and intend to preserve the family business for future generations. Compared with family firms, non-family firms believe that short-run profits and shareholder wealth are more important. This performance disparity is also linked to governance structures, risk-taking behaviours, family values, Chief Executive Officer (CEO) identity, innovation strategies, succession planning, crisis management, and cultural, legal and national aspects. Research indicates that family firms tend to prioritise values over profits, exhibit greater resilience, and are less inclined to pursue risky projects. Additionally, the varied definitions of what constitutes a family firm—encompassing ownership, management, and governance—further affect performance. Understanding these differences is crucial in today's evolving business landscape, as well as in understanding the underlying family-firm heterogeneity (Chua et al., 2012; Andersson et al., 2018).

From a theoretical perspective, both agency and stewardship theories are significant in understanding the performance of non-family-run businesses. However, in a family firm, the Socioemotional Wealth (SEW) approach seeks to unify the two divergent theories of agency and stewardship. Until now, family firms have evolved mainly independently (Chrisman, 2019). SEW calls for integrating the two distinct theoretical perspectives to achieve a comprehensive, in-depth understanding of family firm governance and performance. The theoretical framework is thus essential for understanding why family firms outperform or underperform non-family firms, depending on their governance structure, goals, management style and practices, and resource utilisation.

A comprehensive synthesis that critically reviews the key internal and external factors affecting both family and non-family firm performance is currently lacking, which represents a significant gap in the literature. A systematic review was therefore necessary to integrate diverse findings, highlight recurring themes, and provide a robust, evidence-based overview of the factors that drive their performance. Prior research has focused mainly on publicly held firms in developed countries, often within specific sectors, limiting the broader applicability of the findings. Furthermore, the inconsistency in defining what constitutes a family firm introduces significant ambiguity in family firm studies. To effectively address these key issues, we conducted a systematic literature review of 97 articles published between 2003 and 2024, retrieved from major academic databases, including Scopus and Web of Science. The review systematically applies the theories-characteristics-contexts-methods (TCCM) framework, as propounded by Paul and Rosado-Serrano (2019), to identify relevant research questions presented in Table 1 below. This comprehensive approach lays the groundwork for future research and provides meaningful insights.

2. Research Methodology

The study undertakes a systematic review process that aims to minimise bias and error and to help understand the existing gaps in the literature. This paper adopts the PRISMA Framework (Moher et al., 2009) to conduct a systematic literature review.

Table 1. Research Questions

S.No.	Research Question
Theory	RQ 1: What theoretical lens can effectively reveal the difference between a family firm and a non-family firm?
Context	RQ 2: How has interest in the global context evolved?
	RQ 3: In what type of organisations were the studies conducted?
	RQ 4: How can literature shape and enhance understanding of global practices?
Characteristic	RQ 5: What essential features distinguish a family firm?
	RQ 6: What key factors will steer future research in comprehending the differences in performance between family and non-family firms?
Methodology	RQ 7: What research methodologies have been used in examining the family and non -family firm performance, and how have methodologies evolved?

Source: Author's own work

Table 2. Criteria of Inclusion and Exclusion of Journal Articles

	Criteria
Inclusion	1. Subject areas: Business, Management, Accounting, Economics, Econometrics, Finance, Social Science, Arts and Humanities 2. The journal articles written in English only 3. Peer review papers 4. Original research articles that answer the research questions
Exclusion	1. Conference paper, book chapter, book, editorial, letter 2. Review paper, systematic literature review paper, meta -analysis

Source: Authors own work

PRISMA comprises four steps: Identification, Screening, Eligibility and Included (Figure 1).

2.1 Identification

For a systematic review, a search strategy was developed to identify relevant literature, tailored to two databases: Scopus (564 papers) and Web of Science (1833 papers). So, the initial hits retrieved before duplicates were removed and screening were 2397 records from both databases. Boolean operators "AND" or "OR" were applied to identify the relevant articles. The search terms used were the following: Family and Non-family Business Performance, Family and Non-family Firm Performance, Family vs Non-family Firm Performance, Family vs Non-family Business Performance, Family Owned and Non-family Firm Performance, Family Owned and Non-family Business Performance, Family Controlled and Non-family Firm Performance, Family Controlled and Non-family Business Performance, Family Managed and Non-family Firm Performance, Family Managed and Non-family Business Performance.

We did not set a specific time frame to include all the relevant papers. Table 2 outlines the inclusion and exclusion criteria for our literature search. Papers were refined on these criteria to form a final dataset aligned with our research questions. The search included studies from Europe, the EU, the US, the UK, China, Australia, Asia, and Africa.

2.2 Screening

During the initial screening, titles were checked to remove 1592 duplicates. Thereafter, the remaining 805 titles, along with their abstracts, were thoroughly studied to examine articles on family and non-family firms. Throughout the review process, the quality and relevance of the literature are ensured. Based on abstract and title screening, 685 records were excluded.

2.3 Eligibility

After the screening, we were left with 120 articles, which were carefully reviewed to identify those deemed irrelevant to the research objectives and for which the full text was unavailable. This resulted in the exclusion of another 23 articles.

2.4 Included

In this last stage, only 97 articles were retained for the final analysis. The selected articles were critically appraised by carefully examining aspects such as the theoretical frameworks, research designs, and their contributions to the research.

The systematic, step-by-step coding procedure was followed to categorise information. Initially, each article was assessed to extract information regarding the theoretical framework, sample, methodology, and findings. Descriptive codes were then assigned to capture recurring themes, including agency costs, stewardship behaviour, the family's unique intangible resources, family ownership, SEW preservation, and long-term orientation. These codes were organised into broader categories representing governance, behavioural, and resource-based dimensions, which were synthesised into higher-level themes aligned with Agency Theory, Stewardship Theory, the Resource-Based View (RBV), and Socioemotional Wealth (SEW) perspectives. This process facilitated the identification of patterns that explain the diverse performance outcomes observed between family and non-family firms. Key factors influencing performance were categorised into internal factors—such as family values, generational stage, ownership structure, corporate governance mechanisms, and CEO identity—and external factors, including risk, crises, innovation, technology, and regional, cultural, legal, and political influences. This approach, therefore, integrated multiple theoretical perspectives to illustrate how internal family attributes and external influences shape firm performance differently for family and non-family firms.

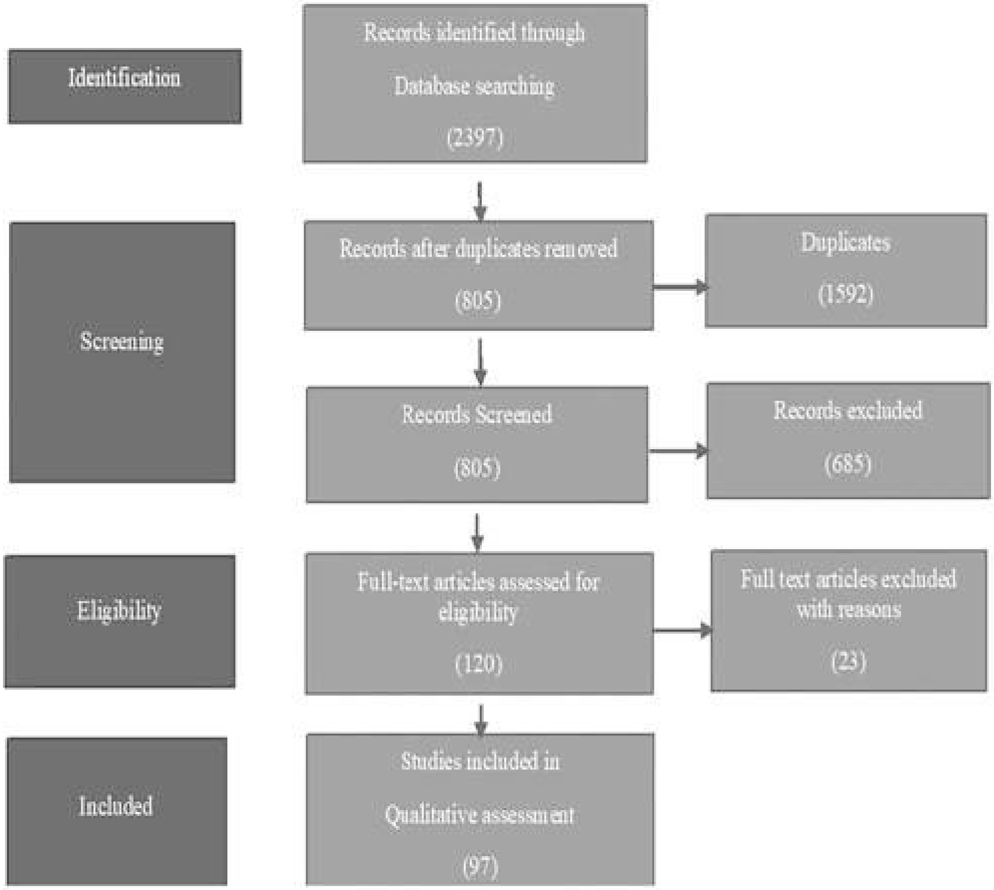

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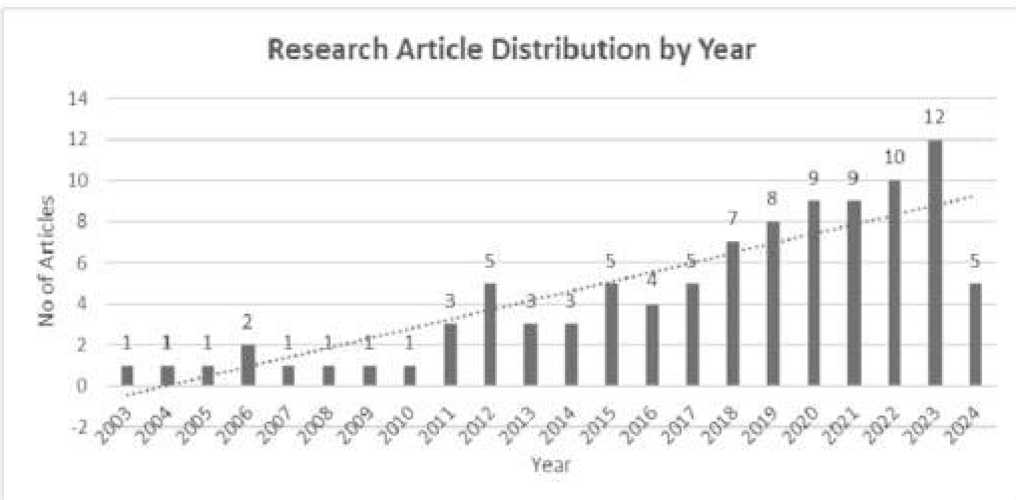
Figure 1. The PRISMA Framework for Systematic Review



Source: Author's own work

Figure 2. Research Article Distribution by Year

3. Descriptive Analysis- Characteristics of articles reviewed

3.1 Bibliographic source of articles reviewed A total of 97 articles were published in 63 journals, including prominent ones such as the Journal of Family Business Strategy and the Journal of Business Ethics. Before 2011, only 9 articles were published, as family firms were not recognised as a distinct category. However, from 2011 onward, there was a significant increase, with 88 articles published, reflecting growing interest in family business research. Family firms, which evolve over generations to preserve SEW, are increasingly prevalent worldwide, driving substantial research in this area.

3.2 Research design of journal articles

(1) Country, Sector and Type of Firms (RQ 2, RQ 3 and RQ 4)

Figure 3 illustrates that scholarly research on the performance of family and non-family firms has been widely contributed to by authors affiliated with more than 33 countries spread across several continents. It shows that most studies were conducted in Europe, particularly in Spain, Italy and Portugal, with 26 publications, which accounts for more than 26% of all publications in this area. This is because these countries have higher ownership concentration and family shareholding due to their legal systems originating from French civil law (Garcia-Ramos et al., 2015). There is a significant presence of family-controlled firms in these countries (Merino et al., 2014; Miralles-Marcelo et al., 2014), followed by the US with approximately 8% engagement. Contrastingly, Asia presents a diverse research landscape, with notable contributions from key players, where India leads at 5%, followed by Taiwan and China at 3%. The scale of studies in these countries indicates an evolving interest in family firm research. Surprisingly, India has fewer studies, despite a legacy of family-run firms that have enhanced the country's economic growth. This is not only regrettable but also disappointing.

Furthermore, Figure 4 provides an overview of research in countries categorised as developed, emerging, and underdeveloped (RQ 2). It is evident that, out of 97 articles, more than 70% were based on developed countries, 21% on emerging countries, 3% on underdeveloped countries, and 5% on a global sample. While much impactful research originates from developed countries, it is also important to acknowledge that several emerging countries, such as China, India, Malaysia, South Africa, Mexico, are making significant contributions to this area. In addition, the most dominant sector in the studies is manufacturing sector due to the presence of a large number of firms in such sector, followed by studies covering multiple industries, excluding the financial sector (RQ 3). Very few studies have focused on services and specialised industries, such as agriculture, fishing, and nautical tourism. Lastly, in the majority of studies, listed public firms in several countries have been taken for the study (RQ 4), thus largely ignoring the importance of privately held firms and cross-country analysis.

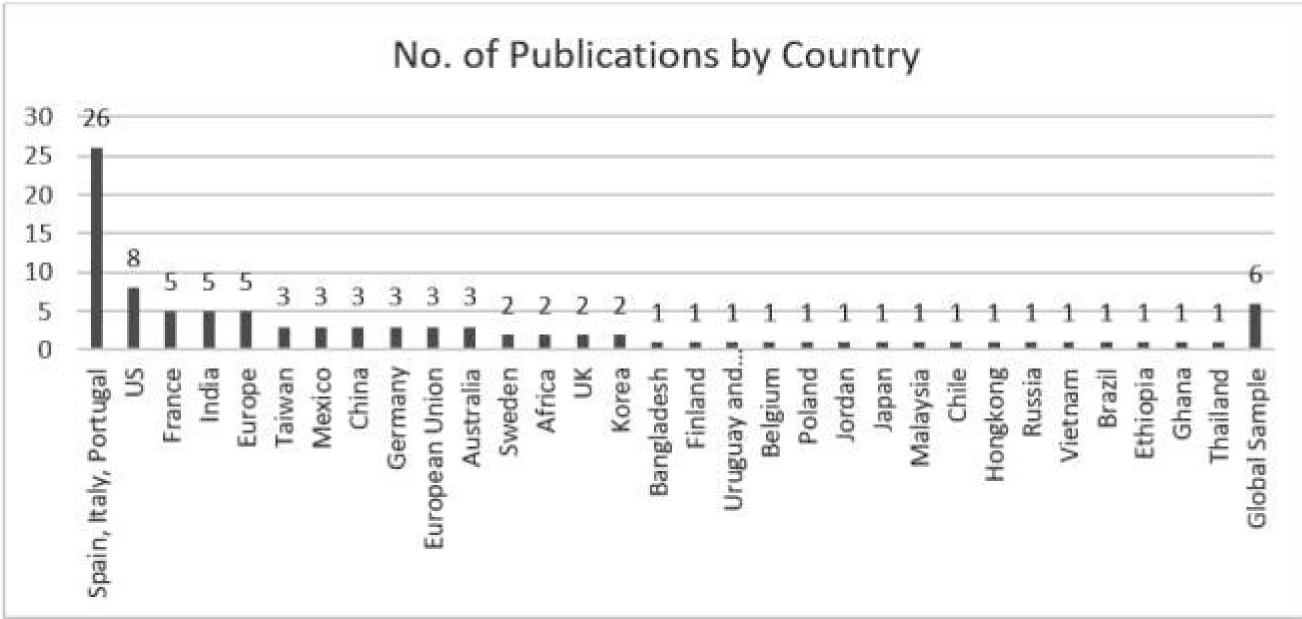
(2) Type of Study

As per Table 3, the majority of papers reviewed have utilised secondary data from various sources such as business information publisher (Belgium), Amadeus, Reuter's, Prowess (India), Bloomberg, Morningstar's DatAnalysis, Compustat, DataStream, Thomson One, Thomson Gale, Thomson Corporation, Taiwan Economic Journal, Worldscope, Dun and Bradstreet, BoardEx and other archival databases, company websites, stock market website and annual reports of companies. Very few journal articles have conducted primary research through surveys via email, personal interviews, computer-assisted telephone interviews or structured questionnaires.

(3) Methodology (RQ 7)

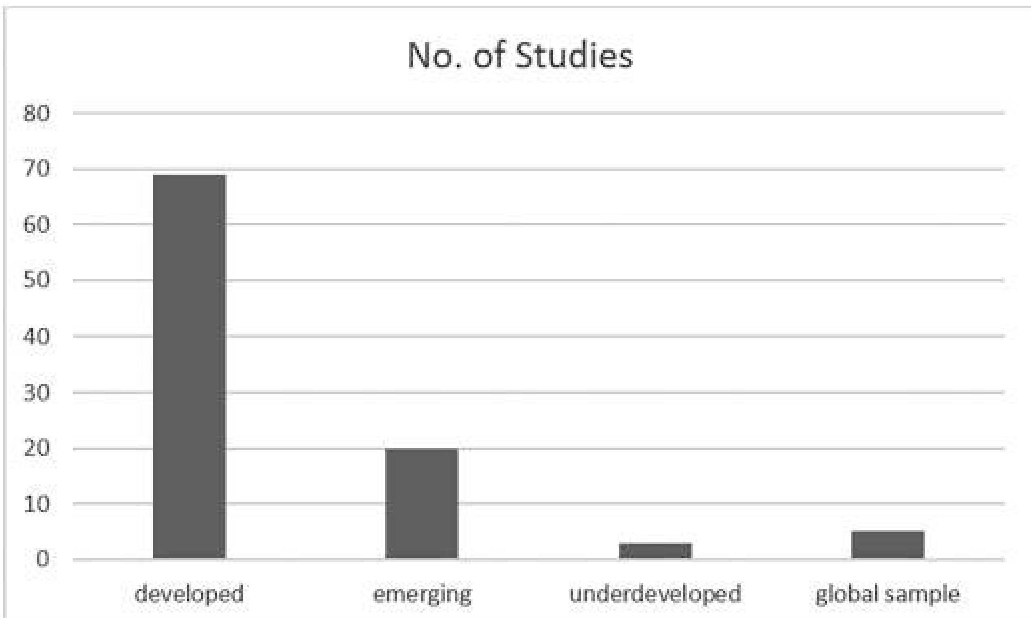
The analysis reveals the predominance of empirical studies that widely use quantitative methods (Table 3). Over 85% of empirical studies have used panel data regression models. The most dominant ones are fixed-effect, random-effect, and ordinary least squares (OLS). Although 2-Stage Least Squares (2SLS), Limited Information Maximum Likelihood Instrumental Variables regression (LIML IV), 3-Stage Least Squares (3SLS), and Heckman 2-Stage Correction are emerging but important methods for correcting endogeneity, lagging independent and control variables are also important methods for correcting endogeneity. Nevertheless, the System Generalised Method of Moments (GMM) has gained importance in dynamic panel data estimation, with over 13% of studies, as it not only addresses endogeneity caused by omitted-variable bias but also by simultaneity and dynamic relationships. Less common approaches used in studies for analysis include Tobit, Probit, Bayesian regression, Generalised Least Squares, Quantile regression, Propensity Score Matching, Data Envelopment Analysis, Coarsened Exact Matching, the Mann-Whitney U test, and ANOVA.

While less common, qualitative methods complement quantitative studies by uncovering important organisational and governance contexts. In 3 survey-based studies, the 5-point Likert Scale has been employed. For the analysis of primary data, only 8 studies have used Structured Equation Modelling (SEM) and Partial Least Squares-SEM (PLS-SEM).



Source: Authors own work

Figure 3. Research Article Distribution by Country



Source: Authors own work

Figure 4. Regional Distribution of articles into developed, emerging, underdeveloped and global samples

Table 3. Methodology Used

Methodology	Approaches
Empirical:	
Panel Data Regression Models (Dominant)	Fixed Effect Random Effect Pooled OLS
Less Common Approaches/Models	Tobit Regression Probit Regression Quantile Regression Bayesian Regression Generalised Least Squares Weighted Least Squares Regression Logistic Regression Data Envelopment Analysis Exploratory Factor Analysis Growth Models Event Study Models Independent t-test Mann-Whitney U Test Anova
Methods of Correcting Endogeneity	System GMM 2SLS 3SLS LIML IV 2 Stage Residual Inclusion Heckman 2 Stage Model Lag of Independent Variables Lag of Control Variables Propensity Score Matching
Qualitative:	SEM and PLS-SEM

Source: Authors own work

(4) Variables

Table 4 lists key dependent, independent, and control variables from previous research on firm performance. Authors have used Return on Asset (ROA), Return on Equity (ROE) and growth as accounting-based performance measures. Tobin Q, stock return, and profitability ratios were used as market-based performance measures. The market-to-book ratio was also frequently employed. Among the independent variables, board size, board member independence, gender diversity on the board, and CEO duality were the most significant. The ownership structure, particularly concentrated family ownership, and the business's generational stage were also notable factors. Control variables such as firm size, age, liquidity, leverage, institutional ownership, and risk significantly affected performance. Interaction variables were created by combining the family dummy with other independent variables to assess their effects on performance.

Table 4. List of important variables

Variables	Records
Corporate performance variables (Dependent variables)	
ROA	40
Tobin q	25
Growth	22
ROE	20
Profitability Ratios	12
Corporate Social Responsibility Performance	12
Stock Market Return	9
Market-to-Book Ratio	7
Environmental Performance	4
Innovation Output	4
Liquidity Ratios	3
Solvency Ratios	3
Independent variables	
Independence of Board Members	14
Size of Board	12
CEO Duality	12
Gender Diversity on the Board	11
Ownership Structure	9
Generational Stage	3
Control variables	
Year	37
Ownership Structure	27
Firm Size	28
Firm Age	23
Growth	20
Board Size	17
Leverage	16
Board Independence	14
Industry	13
Risk	6
Liquidity	5
CEO Duality	3

Source: Authors own work

4. Thematic Results

The results for three research questions are presented in the following sections:

4.1 Family Firm Definition (RQ 5)

As of now, no universal definition of family firms has emerged, leading to ambiguity in categorising them by family ownership, which can range from as low as 5% to over 50%. This lack of clarity affects empirical results, policy recommendations, and managerial practices. Research indicates that when family ownership exceeds 50%, families tend to rely less on outside ownership, thus preserving family values and potentially increasing firm value despite less formal control. At moderate ownership levels (around 20%), family firms often perform well due to their long-term focus and effective reduction of agency costs. In contrast, those with only 5% family ownership may perform poorly by prioritising SEW. At the same time, this low level still positively influences performance through measures of corporate governance and the integration of family interests with organisational-level interests. Additionally, family management and governance also affect firm performance, highlighting the need for a clear definition of family firms.

4.2 Theoretical Framework (RQ 1)

Table 6 summarises the theoretical perspectives of the reviewed articles. According to agency theory, non-family firms face agency conflicts due to the separation of owners' and managers' interests, leading to traditional agency costs, a notion also supported by recent studies (Santos et al., 2022; Gomez-Mejia et al., 2022). Resolving these conflicts can enhance firm performance. Conversely, stewardship theory suggests that when managers of non-family firms act in the company's best interests, performance improves.

Family firms, influenced by both agency and stewardship theories, operate under the SEW approach (Pittino et al., 2021; Garces-Ayerbe et al., 2022). While they may face owner-manager conflicts, especially with non-family managers, they also exhibit stewardship behaviour as family members prioritise the business's longevity (Miller & Breton-Miller, 2006). The SEW approach highlights those aspects that are non-financial like family legacy, significantly impacting decisions (Gomez-Mejia et al., 2007; Berrone et al., 2012). Therefore, agency, stewardship, and SEW theories are interlinked in family firms, influencing management practices and overall performance.

Research consistently shows that the performance of family and non-family firms yields mixed results, which can be better understood through an integrated theoretical lens. From the perspective of agency theory, family firms often have reduced agency costs, which can lead to better performance. However, this advantage can come with entrenchment risks, due to the dominance of family control, which may also result in the appointment of relatives to key positions regardless of their qualifications. Stewardship theory suggests that family members tend to act as stewards of the business, with their intrinsic motivation and long-term orientation enhancing commitment and the firm performance. However, a lack of accountability and

Table 5. Family firm definitions

The most prominent definitions of the fa mily firm	Records
Insider and employees or family (promoters) own >=20% equity or 20% of voting rights, and at least two individuals with the same surname are involved in management and/or board	17
Family owns >=5% of equity, and a family member is invo lved in management and/or board	16
Family group actively involved as controlling owner or participates in management and/or board	10
Family owns >=10% of equity, or where the founder or a family member is CEO/Chairman	10
Family owns >=25% of equity, and a family member is involved in management, or where an individual/family member owns at least 25% of voting rights	7
Family owns more than 50% of equity, and family members manage 50% of businessbers, and family succession is also there, or when familymembers own more than 50% of equity, and at least two board members share the same last name	6
Family owns > 25% of equity, or if family owns < 25% of the equity, then family is represented either at the executive level or the supervisory level of the board	4
Family owns >=50% of equity, and a family member is involved in management, or more than one family member is engaged in management or board	6
Family is the largest shareholder, and at least one family member is on the board of the firm and/or management, or Family is actively involved in ownership, management and control	3
Individual or family controls >51% of voting rights or controls more than 50% of the voting rights of the second largest shareholder, and at least one family member is a director or officer	2

Source: Authors own work

potential emotional favoritism can lead to underperformance. According to the RBV, unique resources of family firms, such as trust, social capital, family values, and reputational assets, can create a competitive advantage. Nonetheless, excessive dependence on these resources may hinder innovative capabilities. Lastly, the SEW approach indicates that family firms often prioritise non-financial goals, which can strengthen family image and loyalty. However, this focus may also limit their risk-taking ability and flexibility. Therefore, these diverse perspectives help explain why the performance of family firms can vary widely across different contexts, ownership structures, leadership styles, and generational stages.

Table 6. The theoretical framework of studies

Theory	Records
Agency Theory	54
SEW	32
Resource-Based View Theory	11
Stewardship Theory	11
Stakeholder Theory	7
Resource Dependency Theory	7
Upper Echelons Theory	5
Institutional Theory	3
Behavioural Agency Theory	3
Theory of Action Regulation	2
Glass Cliff Theory	1
Goal Systems Theory	1
Contingency Theory	1
Theory of Intellectual Capital	1
Critical Mass Theory	1
Role Congruity Theory	1

Source: Authors own work

4.3 Strategic Factors Impacting the Performance of Family and Non-family Firms (RQ 6)

In the current section, we have examined several strategic factors, internal, which are firm-specific and external, impacting the performance of family and non-family firms at the global level. The existing body of research on this topic remains in a state of development that encompasses significant, non-significant and neutral findings. Specifically, certain studies suggest that family firms perform better than non-family firms, suggesting that preservation of SEW, supported by long-term orientation of family members, enhances its positive image and focus on non-economic aspects of business, along with economic motives, improves its performance. Conversely, other research highlights that family firms underperform non-family firms as SEW preservation may lead family members to avoid taking profitable, risky decisions to transfer the business to future generations, which negatively impacts their performance. Additionally, some studies find no significant difference in the performance of both types of firms, indicating that results may vary considerably depending on the country's institutional context and firms' specific requirements. The detailed findings, along with theoretical underpinnings, are given in *Appendix 1*.

(1) Internal Factors

(a) Role of family values and generational stage of family business

Families focus more on preserving family values, negatively impacting their performance (Miralles-Marcelo et al., 2014; Vieira, 2014; Ramirez & Romero, 2018; Sanchez-Marin et al., 2019; Terron-Ibanez et al., 2019; Moreno Menéndez & Casillas, 2021). They practice altruism and nepotism at the stake of profitable business growth strategies (Ferrer et al., 2020). They are also characterised by a low degree of formalisation (Esparza-Aguilar et al., 2016; Cuadrado-Ballesteros et al., 2017; Andersson et al., 2018; Bello-Pintado et al., 2019). A study by Ruiz Jimenez (2015) found that high organisational value in family firms positively impacts their performance than in non-family firms. The formal system of management control in a family firm also enhances its performance (Acquaah, 2013). Additionally, research by Memili et al. (2015), Poletti-Hughes and Williams (2019) and Minola et al. (2022) suggests that family firms pass businesses to future generations to preserve SEW and create value at any generational stage to avoid losing SEW (Chou and Shih, 2020).

(b) Ownership structure

Family-owned businesses with dominant ownership stakes often show positive performance (Chrisman et al., 2004; Barontini & Caprio, 2006; Galve-Gorriz & Salas-Fumas, 2011; Martin-Reyna & Duran-Encalada, 2012; Erbetta, 2013; Saidat et al., 2019; Pacheco, 2019; Hegde et al., 2020; Buchanan et al., 2023). However, some argue that high family involvement with increased growth and size can negatively impact performance due to control-enhancing measures (Kotey, 2005), entrenchment (Chahine, 2007), the SEW motive (Labelle et al., 2018; Jin et al., 2021), and reluctance to dilute ownership for fundraising (Pang & Liu, 2021). Singal and Singal (2011) suggested that family ownership does not affect performance, but concentrated ownership does. In contrast, non-family firms usually have dispersed ownership, which can influence their performance (San Martin-Reyna & Duran-Encalada, 2012).

(c) Corporate governance mechanisms

Corporate governance mechanisms like board size, independence, CEO duality, and gender diversity influence the firm's performance. Larger boards tend to benefit family firms by reducing agency costs (Ibrahim & Samad, 2011), while Saidat et al. (2019) believe it harms family firm performance. Some studies find that independent directors negatively impact the family firm's performance, as families may prioritise control (Setia et al., 2009). Vieira (2018) also supported the same. Nevertheless, a larger level of board independence might improve the performance of a family firm in cases when a family CEO is appointed as the chairman of the board (Garcia-Ramos et al., 2015). A few other authors also support larger board independence as they reduce agency problems (Rubino & Napoli, 2020), ensure transparency and promote long-term business decisions (Mesnik et al., 2023; Padungsaksawasdi & Treepongkaruna, 2024). Likewise, in a non-family firm, larger board independence positively impacts performance as it helps reduce agency problems in a scattered ownership structure (Martin-Reyna & Duran-Encalada, 2012), helps monitor the board (Garcia-Ramos & Garcia-Olalla, 2014), protects shareholders against management self-interest (Saidat et al., 2019), is more concerned with ethical aspects of the firm (Veltri et al., 2021) and also leads to effective monitoring (Gavana et al., 2024). Family firms where the CEO is also the chair of the board often perform better than non-family firms due to stewardship behaviour (Rubino et al., 2017). However, this structure can also lead to harming the interests of minority stakeholders, negatively affecting performance (Lam & Lee, 2008; Ibrahim & Samad, 2011; Kim and Lee, 2018; Padungsaksawasdi and Treepongkaruna, 2024). Some studies suggest that female board members may harm performance due to perceptions of unsuitability for leadership roles (Tran et al., 2023), while others argue that they enhance performance by being valuable resources (Vieira, 2018), supporting family control over board decisions (Islam et al., 2023), introducing discipline (Padungsaksawasdi & Treepongkaruna, 2024); being sensitive (Gavana et al., 2024) and legitimate (Abdelkader et al., 2024). Mubarka and Kammerlander (2022) found that board gender diversity has less impact on family firm success due to a generally lower level of diversity. Overall, strong corporate governance measures positively impact performance (McGuire et al., 2012; Aldamen et al., 2020). Others include audit committee characteristics (Al-Okaily & Naueihed, 2020), CEO attributes (DasGupta & Pathak, 2022), debt level (San Martin-Reyna & Duran-Encalada, 2012; Setia et al., 2009), busy directors (Rubino et al., 2017) and CEO gender (Nekhili et al., 2018; Kickul et al., 2010) that impact firm performance.

(d) CEO identity in a family firm

Appointment of a family CEO in a family firm positively impacts their performance than a non-family firm. This is because family CEOs are better equipped to understand their family business and demonstrate stewardship behaviour (Anderson & Reeb, 2003). Moreover, having a family CEO leads to better CEO compensation monitoring, which further enhances the performance (Sanchez-Marin et al., 2020). Furthermore, Domenico et al. (2023) examined how a Family CEO who also serves as chairperson plays a significant role in both family management and control, contributing to improved performance in family firms. However, some studies, like those by Miralles-Marcelo et al. (2014) and Ortiz and Castel (2024), argue that a family CEO may lack professional competence, negatively impacting performance. Additionally, the performance difference may be negligible as both types of firms can rely on control-enhancing devices (Barontini & Caprio, 2006).

(2) External Factors

(a) Risk and financial crisis

Non-family firms generally outperform family businesses (Kota & Singh, 2016). Family firms prioritise long-term survival, often sacrificing profitable investments (Terron-Ibanez et al., 2019), taking fewer risks (Tang et al., 2017; Beji et al., 2021; Gomez-Mejia et al., 2022), making less frequent acquisitions (Bouzgarrou & Navatte, 2013) and floating initial public offers (Croci et al., 2022). However, during economic downturns, family firms show greater resilience due to their long-term strategies (Amann & Jaussaud, 2012; Skare & Porada-Rochon, 2021; Jarchow et al., 2023). Eckey and Memmel (2023) confirm that during the times of COVID-19, the performance of family firms was better, whereas Patel (2024) examined that the performance of a family firm is not significantly different from a non-family firm during the pandemic, as both faced similar pressures.

(b) Responsible business conduct

Family firm depicts stronger environmental (Rubino & Napoli, 2020; Garces et al., 2022) and social responsibility (Yu et al., 2015; Liu et al., 2017; Xu et al., 2022; Rehman et al., 2023; Battisti et al., 2023). Family firms align their long-range interests with strategic stakeholders, benefiting more than non-family firms focused primarily on external concerns (Neubaum et al., 2012). However, Labelle et al. (2018) and Guedes et al. (2022) postulated that preserving SEW can lead to lower performance. Additionally, maintaining business ties (Lee, 2019), adopting internationalisation strategies (Fernández-Olmos et al., 2016), and promoting community welfare (Randolph, 2019) are vital for enhancing family firm performance.

(c) Advancement in terms of technology, innovation, knowledge utilisation and intellectual capital

The impact of technology adoption on performance is more significant for family firms than non-family firms (Gargallo Castel & Galve Górriz, 2017). Innovation benefits both types of firms (Ramirez-Aleson & Fernandez-Olmos, 2020; Nika & Bashir, 2023). Family firms often diversify to enhance survival (Munoz-Bullon & Sanchez-Bueno, 2012). Additionally, knowledge utilisation (Crick, 2006; Chirico *et al.*, 2021; Duong et al., 2022) and efficient intellectual capital (Acuña-Opazo & González, 2021) are crucial for better performance and positively affect financial success, particularly in family businesses. However, excessive family involvement can harm the performance (Pittino et al., 2021).

(d) Regional, cultural, legal and political factors

Family firms thrive in strong place-based cultures (Kim et al., 2020) and are influenced by regional factors (Santos et al., 2022) and government policies (Cai et al., 2023). Non-family businesses benefit from legal factors and national culture (Dow & McGuire, 2016; Martin & Nadine, 2023). Family firms often prioritise building political connections to preserve SEW over immediate benefits (Lee, 2019). Additionally, the implementation speed of market reforms affects the performance of both types of firms differently (Banalieva, 2015).

5. Limitations

This current research has a few limitations. Firstly, it reviewed journal articles from two databases only, excluding conference papers, working papers, and books that may contain valuable insights. Secondly, the search was limited to keywords, abstracts, and titles, potentially missing key articles. Lastly, as the reviewed articles underwent a rigorous process, cross-references were not considered. Despite these limitations, the study highlights important research gaps.

6. Future Research Agenda

This paper systematically reviewed the previous literature and developed themes for further research (Refer to Table 7).

Table 7. Future Research Themes

Research Themes	Research Questions
Expansion of family firm definition	Role of varying degrees of family control and involvement of family owners with non-family managers.
Advancement of theoretical foundation	Integrating agency theory, stewardship theory and SEW approach while advancing the resource -based view theory and exploring principal cost theory.
Alternative performance metrics	Relevant quantitative measures and the importance of non -financial metrics like employee retention, customer satisfaction, social and environmental performance.
Effectiveness of corporate governance measures and family firm variables	Changes in board composition according to family control dynamics, impact of leadership style, CEO identity, succession planning, family generational involvement, regional and cultural influences along with other key moderating variables between governance and firm performance.
Leveraging innovative capabilities and building effective stakeholder relationships	Family firms' innovation propensity and their use of external connections including collaboration with the international community and stakeholder engagement compared to non -family firms with professional management.
Risk and crisis management	Risk mitigation and pursuing growth strategies by family firms, especially in debt -laden sectors. Comparing the risk actions, management practices and decision-making process of family versus non-family firms for addressing crises as compared to non-family firms?

Source: Authors own work

7. Discussion

It is evident from the previous literature that family and non-family firms experience different types of agency costs. Consequently, various corporate governance mechanisms function differently in addressing these agency conflicts and affecting performance. Besides the well-known agency and stewardship theories of corporate governance, the SEW approach has made a significant contribution in explaining performance differences. Other prominent theories include stakeholder theory, resource dependency theory, and upper echelons theory. Contradictory findings have emerged regarding the impact of the SEW approach on the performance of family firms. Critics of the SEW approach argue that family firms focus on preserving their values, image and reputation, with the intention of passing the business to future generations (Miralles-Marcelo et al., 2014; Vieira, 2014; Ramirez a & Romero, 2018; Sanchez-Marin et al., 2019; Terron-Ibanez et al., 2019 and Moreno-Menéndez & Casillas, 2021). Thus, may inadvertently compromise their performance as they are more inclined towards avoiding taking risks to protect the family legacy, thus limiting growth and diversification. Conversely, proponents of the SEW approach contend that family firms prioritise long-term survival, which leads them to pursue both economic and non-economic goals (Memili et al., 2015; Poletti-Hughes & Williams, 2019 and Minola et al., 2022). This dual focus helps them to achieve superior performance as compared to non-family firms, which are often more short-term oriented. Thus, the discussion with respect to SEW remains ongoing and somewhat unexplored.

Several studies have also investigated the interest alignment versus entrenchment hypothesis within the framework of agency theory to understand the variations in performance associated with different ownership structures. Authors supporting the interest alignment hypothesis argue that a significant degree of family involvement in ownership strongly aligns the interests of owners and managers, which reduces agency cost and enhances overall business performance through better decision-making and long-term strategic planning (Chrisman et al., 2004; Barontini & Caprio, 2006; Galve-Gorriz & Salas-Fumas, 2011; Martin-Reyna & Duran-Encalada, 2012; Erbetta, 2013; Saidat et al., 2019; Pacheco, 2019; Hegde et al., 2020 and Buchanan et al., 2023). On the other hand, advocates of the entrenchment hypothesis contend that concentrated family ownership can negatively affect performance, as family members may tend to prioritise their personal gains and exploit the interests of minority shareholders (Chahine, 2007 and Labelle et al., 2018). As such, the debate between these two hypotheses offers important insights into how varying ownership structures can influence corporate governance and overall organisational effectiveness.

Findings with respect to an array of corporate governance mechanisms have also been very interesting, as they play a critical role in significantly impacting family and non-family firm performance. Literature signifies that larger boards interfere with the SEW motive of family firms, negatively impacting the performance (Saidat et al., 2019). Conversely, other studies reveal that larger-sized boards help in reducing the agency conflicts between family block holder-minority owner that leads to better family firm performance (Ibrahim & Samad, 2011). With respect to the impact of board independence, previous studies reveal a negative performance impact in the case of family firms to preserve family control (Setia et al., 2009 and Vieira, 2018), while few other studies reveal a positive impact as they reduce managerial opportunism (Garcia-Ramos et al., 2015), solve agency problems (Rubino & Napoli, 2020) and promote transparency (Mesnik et al., 2023). As non-family firms are exposed to owner-manager conflict, larger board independence helps in resolving such conflicts, leads to better board monitoring and protects them from managerial self-motives. In respect of CEO duality in family firms, stewardship theory comes to the rescue as it has a positive impact on performance (Rubino et al., 2017). However, this situation can also lead to tunnelling of resources by a family member for their private gains that may harm the performance (Lam & Lee, 2008; Ibrahim & Samad, 2011; Kim & Lee, 2018; Padungsaksawasdi & Treepongkaruna, 2024). In line with Upper Echelons Theory, gender diversity also impacts the firm's performance (DasGupta & Pathak, 2022). A negative impact can also be created as women are found unsuitable for holding leadership positions (Tran et al., 2023). Nevertheless, according to critical mass theory, when women's representation reaches a particular threshold, they create a significant positive impact (Tran et al., 2023 and Islam et al., 2023). Other studies supporting the positive results advocate the resource dependency theory as women on the board are a valuable resource (Vieira, 2018 and Padungsaksawasdi & Treepongkaruna, 2024), are generally more sensitive than men, which aligns with Stewardship Theory (Gavana et al., 2024) and are legitimate (Abdelkader et al., 2024). Additionally, audit committees in family firms are present to just maintain the legitimacy in line with preservation of SEW, while in non-family firms, audit committees, through effective monitoring, reduce agency costs (Al-Okaily & Naueihed, 2020). Low debt level in family firms is consistent with the long-term perspective that harms their performance (San Martin-Reyna & Duran-Encalada, 2012). However, Setia et al. (2009) argue that a high debt level in family firms is supposed to protect the interests of minority shareholders. Busy directors, on the other hand, although they are a resource but negatively impact the family firm's performance (Rubino et al., 2017). Women CEO also drives family firm performance as they can recognise opportunities (Kickul et al., 2010) but according to Nekhili et al. (2018), female CEO do not fit well in this role as they are less task-oriented. Thus, by prioritising effective governance, firms can secure their future success and drive sustainable growth.

Furthermore, regarding CEO identity in family firms, family CEOs tend to act as stewards (Anderson and Reeb, 2003), demonstrate better monitoring of CEO compensation (Sanchez-Marin et al., 2020), and when they also serve as chairpersons (Domenico et al., 2023), they have a positive impact on performance. On the other hand, the family CEO, in pursuit of SEW concerns, tends to harm the firm's performance. Nonetheless, some studies suggest that performance differences may be marginal in light of effective control-enhancing devices (Barontini & Caprio, 2006).

As previously discussed, family firms that prioritise long-term survival in line with the SEW approach are generally risk-averse (Tang et al., 2017; Beji et al., 2021; Gomez-Mejia et al., 2022). This reluctance is reflected in their tendency to sacrifice profitable investments (Terron-Ibanez et al., 2019), undertake less acquisitions (Bouzgarrou & Navatte, 2013) and issue fewer initial public offers (Croci et al., 2022). Family firms are often considered to be more crisis resilient as compared to non-family firms as they aim to preserve SEW (Amann & Jaussaud, 2012; Skare & Porada-Rochon, 2021; Jarchow et al., 2023 and Eckey & Memmel, 2023). However, some studies indicate that both types of firms face similar challenges during a crisis, and they tend to follow similar strategies in alignment with the convergence theory of isomorphic pressure (Patel, 2024).

Family firms often depict responsible business conduct, which is evident in their stronger environmental (Rubino & Napoli, 2020; Garces et al., 2022) and social responsibility (Yu et al., 2015; Liu et al., 2017; Xu et al., 2022; Rehman et al., 2023; Battisti et al., 2023) performance. This leads to aligning their long-range interests as described by the SEW approach with those of strategic stakeholders (Neubaum et al., 2012). Contrastingly, Labelle et al. (2018) pointed out that there may be instances when managers may tend to overinvest as a strategy to entrench their positions. Additionally, family firms' desire to preserve SEW can sometimes harm the family firm's performance. Additional factors, such as maintaining business relations as a key resource (Lee, 2019), implementing internationalisation efforts (Fernández-Olmos et al., 2016) and actively promoting community welfare (Randolph, 2019) to increase their reputation, image and ensure long-term survival to preserve SEW, also improve family firm performance compared to non-family firms.

Family firms are known for their long-term orientation, so they tend to adopt technology faster (Gargallo Castel & Galve Górriz, 2017). As far as innovation efforts are concerned, both types of firms engage in acquiring knowledge (Ramirez-Aleson & Fernandez-Olmos, 2020) and increasingly adopt an entrepreneurial approach (Nika and Bashir, 2023), which ultimately improves performance.

Family firms often diversify their operations to improve their chances of survival (Munoz-Bullon & Sanchez-Bueno, 2012). Furthermore, effectively utilising the knowledge, in accordance with the resource-based view (Crick, 2006; Chirico et al., 2021; and Duong et al., 2022), along with effective possession and management of intellectual capital (Acuña-Opazo & González, 2021), play a crucial role in enhancing performance. These factors positively impact financial success, especially in family businesses. However, with the intense involvement of family, knowledge utilisation may not always be beneficial for them (Pittino et al., 2021).

Moreover, family firms thrive in strong place-based cultures as these cultures provide them with a resource-based competitive advantage (Kim et al., 2020). Furthermore, family firms are also influenced by regional factors (Santos et al., 2022) and government policies, which align with institutional theory. Non-family businesses also benefit from institution-based legal factors and national culture (Dow & McGuire, 2016 and Martin & Nadine, 2023). Family firms often prioritise building political connections to preserve SEW over immediate benefits (Lee, 2019). Additionally, the implementation speed of market reforms, consistent with the institution-based view, affects the performance of both family and non-family firms differently (Banalieva, 2015). The body of research on this subject is still developing and thus presents a range of findings.

Significant contributions have been made by several authors in this field across various economies. Across the European continent, two strong, conflicting views on SEW exist. The first perspective advocates that family firms prioritise family values and maintenance of family legacy as an essential component of SEW preservation, which assures good financial performance. Conversely, the opposing viewpoint asserts that SEW preservation can constrain family members from availing themselves of profitable, risky opportunities, limit growth, and lead to the appointment of family CEOs who are predominantly focused on maintaining control rather than driving success. Many countries in Northern and Latin America assert that family firms generally outperform non-family firms, particularly in preserving the SEW and in possessing the necessary resources, such as appointing a professional CEO and managing financial capital.

Additionally, effective corporate governance mechanisms play an essential role in improving family firm performance. Further, in Australia, non-family firms typically perform better, as family firms often face owner-owner agency conflict, and their desire to preserve SEW can lead to underperformance. In contrast, studies of family firms in Asia argue that the alignment of owner-manager interests, along with a high level of family involvement in ownership and management, contributes to better performance than non-family firms. In emerging economies like South Africa, non-family firms tend to thrive as family firms focus more on preserving SEW to maintain the family image and reputation instead of earning more profits and market return. However, the underdeveloped African economies such as Ghana and Ethiopia, the positive aspects of SEW preservation are more widely recognised. As for other developed economies such as Japan, Russia, and Korea, conflicting findings have been observed regarding the performance of family versus non-family firms.

The robustness of findings on performance differences between family and non-family firms is mixed and context-dependent. Additionally, they are sensitive to methodological preferences, theoretical frameworks and country-specific institutional environment. While some studies indicate that family firms, with their long-term orientation and stewardship perspective, often outperform non-family firms, this trend is not consistent across all samples and methodological designs. The relationship between family involvement and firm performance varies based on factors like accounting measures, market-based metrics, and contextual elements such as the generational stage of the firm, industry type, and institutional development. Furthermore, studies based on agency theory and SEW yield differing results depending on how ownership and managerial control are defined. Non-family firms, on the other hand, often excel in innovation-driven industries and perform better on market-based measures, although they may lag in accounting-based measures. Therefore, these variations highlight the importance of industry dynamics and ownership structures. Ultimately, more longitudinal and contextual research is needed, along with methodologically diverse studies to clarify the stability and generalizability of these performance findings.

Early studies which indicate that family firms often outperform non-family firms, this advantage is attributed to families prioritising the preservation of family values, experiencing reduced agency conflict, and maintaining a long-term orientation. However, a substantial body of evidence suggests that family firms may underperform when they limit innovation, restrain growth, and lack professionalism. A few studies reveal no significant performance differences between family and non-family firms, suggesting that factors such as the generational stage of the family business, ownership and governance structures, and regional and cultural influences, along with crisis and risk management actions also shape performance outcomes. The inconsistent findings stem from diverse theoretical frameworks. Family firms frequently encounter Type II agency conflicts between majority family shareholders and minority shareholders. Stewardship theory posits that family managers act as stewards, motivated by the desire to promote the family legacy and long-term value creation. RBV theory suggests that family firms possess unique resources that can facilitate growth. However, these same resources may hinder growth if the firms are reluctant to take risks. Lastly, the SEW approach indicates that family firms pursue both economic and non-economic goals. While this pursuit can reinforce stability and stewardship behavior, it may also discourage innovative actions and risky behaviors to preserve the family's image and values. Thus, each theoretical perspective provides insights into the conflicting findings regarding family firm performance, highlighting how family dominance can both enhance and hinder outcomes.

A synthesis of the literature indicates that performance results depend on balancing economic motives with the preservation of SEW, as well as on the ownership, governance, and management structures of family and non-family firms. Despite progress in this field, several gaps remain that could advance future research. Researchers are encouraged to adopt a multi-theoretical approach and utilise diverse methodological designs to capture the interplay of economic, non-economic, and SEW dimensions in shaping family firm performance and explaining the difference with non-family firm performance outcomes.

8. Conclusion

This research critically reviews the financial outcome of both types of enterprises, i.e. family and non-family and reveals non-uniformities in family firm definition. The study also draws attention towards the need to explore alternative theories. It emphasises the need to enforce strong controls of corporate governance and considers qualitative variables that can have a profound impact on the performance of both types of firms. There is a need for further investigation of stakeholder engagement, risk mitigation, innovative strategies and CEO identity. Overall, the review emphasises the need for a holistic and nuanced approach in advancing the current research.

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Appendix 1

Author and Year	Country	Findings/Results	Theoretical Underpinnings
Anderson & Reeb (2003)	US	Family firms significantly perform better than non-family firms. Family CEO improves performance. Excessive family control hurts performance.	Agency Theory: Concentrated family ownership reduces agency conflict, thus limiting minority shareholder expropriation and managerial entrenchment. Stewardship Theory: family members act as stewards. SEW: With rising levels of family ownership, family performance begins to decline as they prioritise preserving family values.
Chrisman et al. (2004)	US	Both family and non-family firms perform similarly in terms of short-term sales growth. Both family and non-family firms' strategic planning has a significant impact on performance. The board has no significant relation to performance.	Agency Theory: Absence of agency conflict due to the presence of family in ownership and management. Thus, agency cost control mechanisms like strategic planning and the board have less or no role to play.
Kotey (2005)	Australia	No significant difference in the performance of family and non-family firms. In terms of growth and export, non-family firms perform better.	Agency Theory: Due to the absence of owner-manager conflict, families focus on long-term survival and stability as opposed to short-term profits and growth, which improve their performance.
Crick et al. (2006)	UK	No significant difference in the performance of family and non-family firms.	Resource-Based View: Regardless of ownership, family firms hire experienced outside CEOs who help them implement strategic choices and compete globally.
Barontini and Caprio (2006)	Europe	No significant difference in the performance of family and non-family firms.	Agency Theory and SEW: Family control is associated with majority-minority owner conflict, but they are also focused on the long-term survival of the firm.
Chahine (2007)	France	The family's large blockholders ownership hurt performance.	Entrenchment Hypothesis: Large family shareholdings exploit minority shareholder interest.
Lam and Lee (2008)	Hongkong	CEO duality hurts family firm performance as compared to non-family firms.	Agency Theory: Due to CEO duality, minority interests are expropriated. Stewardship Theory: CEO duality reduces information asymmetry in non-family firms.

Setia-Atmaja et al. (2009)	Australia	Family firms have higher dividend payout as compared to non-family firms. Less independent boards in family firms to retain control	Agency Theory: Family firms face owner-owner conflict and expropriate minority shareholder interests.
Kickul et al. (2010)	Russia	No significant difference in the performance of family and non-family firms.	Resource-Based View: Both financial and social capital are necessary for firm performance. Family firms have strong social ties within family groupings, which helps them gain access to resources such as finance, contacts, and knowledge.
Galve-Górriz and Salas-Fumás (2011)	Spain	Family firms are generally more productive but encounter growth constraints. Despite having efficiency advantages, their profitability matches that of non-family firms due to competitive equilibrium.	Institutional Theories: Institutional factors define the observed differences between family and non-family firms as they have their own way of addressing the conflicts arising from preferences for profitability and control.
Ibrahim and Samad (2011)	Malaysia	Average firm value is lower in a family firm than in a non-family firm. Corporate governance mechanisms have a significant impact on the performance of a family firm as compared to a non-family firm. For both family and non-family firms, the corporate governance mechanisms such as board size, board independence and CEO duality have a significant impact on agency cost.	Agency Theory: Due to owner-owner conflict in a family firm, there may be conflict between family welfare and firm performance. Therefore, family firms are more sensitive to the agency costs control mechanisms and corporate governance mechanisms as compared to non-family firms.
Singal and Singal (2011)	India	No significant difference in the performance of family and non-family firms.	Agency Theory: It is the alignment of the interests of owners with managers that improves the firm's performance, and not the presence of family ownership.
Amann and Jaussaud (2012)	Japan	During and after the crisis, family firms performed significantly better than non-family firms.	Organisational Resilience Theory: Family firms can mobilise their resources during and after the downturn and thus explain better performance than non-family firms. Moreover, they enjoy a sound financial structure than non-family firms, which makes it easier for them to recover better. Agency Theory: No owner-manager conflict in a family firm. Stewardship Theory: Family members act as stewards and adopt long-term perspectives.

San Martin -Reyna and Duran -Encalada (2012)	Mexico	Family firms (concentrated ownership) performance is better than non-family firms (dispersed ownership). In family firms, greater shareholder participation and affiliate directors' participation lead to higher firm performance.	Agency Theory: Alignment of owner-manager interests in family firms. Thus, they have an efficient agency cost-reducing mechanism leading to better performance than non-family firms.
Neubaum et al. (2012)	US	As the concern for employees increases, performance also increases in case of non- family firms. Being attentive to both internal and external stakeholder, improves performance in both family and non-family firms. Family firms when match concern for their employees with concern for environmental stakeholders can benefit more than non-family firms. Family firms gain competitive advantage over non-family firms as by having more concern for employees, the demand of external shareholders is often met.	Stakeholder Theory: Owing to this theory, by being attentive to the key stakeholders, firms can benefit. The clan-like behaviour of family firms makes them concerned for both employees and environmental stakeholders, which benefits them more than non-family firms.
McGuire et al. (2012)	US	Family firms are less likely to engage in socially detrimental activities. Strong corporate governance might put performance pressure and promote risky social policies when family control is dominant. However, it potentially reduces the risk of negative social performance both in family and non-family firms.	Resource Dependency Theory, Instrumental Stakeholder Theory and SEW: Family firms' desire for succession and maintenance of family control, goodwill and prestige make them avoid socially risky actions.
Muñoz-Bullón and Sánchez -Bueno (2012)	EU	Family firms perform better than non-family firms when they engage in joint product and international diversification.	Agency Theory and Resource-Based View: Families seek to avoid business risk as family ownership reduces principal-agent conflict to improve the firm's survival, thus engaging in diversification activities that enhance the firm's performance.
Erbetta et al. (2013)	Italy	Family firms show superior performance.	Agency Theory: Reduced owner-manager conflict in family firms creates a performance advantage.

Acquaah (2013)	Ghana	Family firms improve performance by implementing interactive control systems through learning, building relationships and trust.	SEW: Family firms focus on preserving family values and prioritise long-term survival.
Bouzgarrou and Navatte (2013)	France	Family-controlled acquirers perform better than non-family-controlled acquirers. At different levels of family control, the relationship between family control and performance changes.	Agency Theory: Alignment of owner-manager interest. Compared to low or high levels of family control, at the intermediate level of family control, the risk of dilution is very pronounced, which leads to a positive impact of family control on acquisition performance.
García-Ramos and García-Olalla (2014)	Spain, Portugal and Italy	An increase in the number of independent directors is associated with lower performance for family firms as compared to non-family firms.	Agency Theory and Alignment Hypothesis: More alignment of the interests of owners and managers in the case of family firms than in non-family firms, which calls for fewer independent directors.
Vieira (2014)	Portugal	Family firms do not significantly outperform non-family firms.	Agency Theory: Alignment of owner-manager interest, and they may pursue actions that serve family interest, maximise their own utility instead of maximising shareholders' wealth.
Miralles-Marcelo et al. (2014)	Portugal and Spain	Better accounting and market performance of family firms than non-family firms. Superior performance holds only for small and old family firms. Family CEO does not impact stock market performance but financial performance is influenced by the type of CEO.	SEW: The family's desire to preserve and perpetuate the SEW assures the good financial performance. Smaller family firms have more concentrated ownership, so they are mainly concerned about the preservation of family values and continuity of business. Older family firms are long-term oriented since they want to pass on the business to future generations. Family CEO aims to increase non-economic utility more than the financial performance, while an external CEO is more efficient in managing the family business.

Memili et al. (2015)	US	First-generation family firms are comparable in value creation to non-family firms but superior in value appropriation. Later-generation family firms are inferior in value creation and have no advantage in value appropriation.	Drawing upon the resource-based view and knowledge-based view, value creation and appropriation in family firms differ according to their generational stage, with a focus on SEW.
Ruiz Jiménez et al. (2015)	Spain	Organisational harmony in a family firm enhances its performance.	Management by Value: Family firms depict value-based management in terms of participation, building trust and climate.
Yu et al. (2015)	Taiwan	Family firms outperform non-family firms in terms of Corporate Social Responsibility (CSR).	SEW: Family firms prioritise preserving their reputation, thus adopting socially responsible behaviour.
Banalieva et al. (2015)	China	Family firms perform better under gradual reforms as compared to non-family firms, which thrive under rapid reforms.	Institution-Based View: Focus on the speed of reforms that influences the firm performance in transitioning economies.
Garcia-Ramos et al. (2015)	Europe	Independent directors improve the performance in non-family firms as compared to family firms. In case of family firms, the generational stage and leadership structure moderate the relation between independent directors and firm performance.	Agency Theory: Independent directors monitor management that reduce agency costs. SEW: The impact of board independence on firm performance depends on the identity of the large shareholders. Family firms are guided by the SEW approach, whose priority is to preserve family values and the business for future generations.
Fernández-Olmos et al. (2016)	Spain	Family firms exhibit a non-linear relation in the internationalisation-performance link.	Agency Theory and SEW: Being family-dominated, their desire to preserve family control and avoid risk, simultaneously followed by a preference to have a long-term orientation, explains the non-linear relation.
Kota and Singh (2016)	India	Non-family firms have significantly higher performance than family firms.	SEW: Family firm behaviour to protect the family values and legacy, limit growth and diversification.

Esparza-Aguilar et al. (2016)	Mexico	A negative impact is created on the performance of family firms due to less use of accounting and financial information and less formalized implementation of the Management Control System than non-family firms.	Agency Theory: Lack of formal systems of control increases agency cost, negatively impacting performance.
Dow and McGuire (2016)	Global Sample	Performance of family firms is significantly lower compared of non-family firms, but positive outcomes arise in light of minority shareholder protection and cultural contexts.	Institutional-Based View: The legal context and the national culture influence the performance implications of family firms.
Rubino et al. (2017)	Italy	The effect of busy directors is different in both family and non-family firms. Board size positively affects the value in non-family firms as compared to family firms. CEO duality in family firms increases their value in contrast to non-family firms. An independent director has no impact on both types of firms. Females on the board negatively impact value in both types of firms.	Resource Dependency Theory: Busy directors act as valuable assets that bring expertise and business contacts with them; however, in family firms, they might be less effective as they spend less time with each firm, shirk responsibility and might feel overworked. Agency Theory: Since agency costs are more in non-family firms so the board members are more vigilant in monitoring the management operations. Stewardship Theory: CEO duality is bad for non-family firms as they may expropriate the company's assets for their own benefit, but good for family firms as it leads to strong leadership and better decision making. Agency Theory: Independent directors do not ensure better monitoring of the CEO. Female directors on the board might lead to over-monitoring and disagreements.
Gargallo Castel and Galve Górriz (2017)	Spain	Family firms perform better than non-family firms.	SEW: Preference to promote loyalty and trust, depict long-term orientation.
Liu et al. (2017)	US	Family firms have higher CSR performance.	SEW: Desire to preserve socio-economic wealth, family firms engage more in CSR-based activities.

Tang et al. (2017)	Global Sample	Comparing both short-run and long-term performance, family firms outperform non-family firms.	Agency Theory: Alignment of owner-manager interest. Family firms outperform non-family firms in terms of performance when they acquire another firm. SEW: Family firms benefit more from acquisitions than non-family firms, as they are more concerned about incentive efficiency and undertake only those fewer acquisitions that create value.
Cuadrado-Ballesteros et al. (2017)	Global Sample	Family firms have lower Corporate Social Performance (CSP). Findings support the mediation impact of the ethical code.	Agency Theory and SEW: Family firms, being characterised by a lower degree of formalisation than non-family firms, rely on an informal code that negatively impacts the CSP.
Kim and Lee (2018)	Korea	Family firms' CSR performance is low as compared to non-family firms. The family CEO further lowers the CSR performance.	Agency Theory: Majority-Minority conflict in family firms. Entrenchment Hypothesis: Family CEO expropriate minority shareholders' wealth at the expense of personal gains.
Meroño-Cerdán et al. (2018)	Spain	Innovation in family firms leads to stronger performance effects. Family firms' risk aversion indirectly impacts performance through innovation.	SEW: Family firms, along with economic goals, pursue non-economic goals to preserve their wealth, which leads them to invest in innovation projects. This non-economic pursuit also determines their attitude towards risk, which influences innovation decisions.
Labelle et al. (2018)	Global Sample	Inverse U-shaped relation between family control and CSP.	Agency Theory: Managers may overinvest in CSR activities to engage in stakeholder-friendly decisions as an entrenchment strategy. SEW: Families invest more in CSR activities to preserve their image, identity and reputation. But, to optimise the balance between SEW preservation and financial performance, CSR initiatives change with the level of family control.

Ramírez and Romero (2018)	Spain	Family firms always have a significant and negative impact on required return in both pre- and post-crisis periods as compared to non-family firms, but in respect of obtained return, family firms only have a positive and significant impact post-crisis. This lower required rate of return in family firms than in non-family firms leads to a difference in value creation.	SEW: Family firms pursue economic objectives in addition to the non-economic objectives. The level of family involvement in terms of ownership and management also impacts the firm's performance in terms of value creation differently.
Andersson et al. (2018)	Sweden	Family firms show higher profitability than non-family firms.	Resource-Based View: Family firms hold tacit knowledge, which helps develop and maintain their business.
Nekhili et al. (2018)	France	The appointment of a female chair negatively impacts the accounting performance. However, a woman CEO boosts the market-based performance. Hiring women on the board chair position is more valuable for family firms than non-family firms. As compared to family firms, female CEO performs better in non-family firms.	Contingency Theory of Leadership: Women-led firms will perform better or worse in comparison to their male counterparts will depend on whether they are holding the CEO position or that of the chairman. Women on a chair is more likely to use transformational leadership style. A woman CEO is more likely to be a transactional leader.
Vieira (2018)	Portugal	Family firms perform better than non-family firms due to concentrated family ownership and the presence of females on the board.	Agency Theory: Family ownership aligns the conflicting interests of owners and managers. Stewardship Theory: Family managers act as stewards and prioritise long-term orientation.
Saidat et al. (2019)	Jordan	Board size has a negative relation with performance for family firms and in the case of non-family firms, there is no systematic relation between the two. A positive relation was found between board independence and performance of non-family firms; however, a negative relation with market performance, but insignificant with accounting performance in family firms, was found. Negative and significant relation was found between ownership concentration and market performance but insignificant with accounting performance for family firms but for non-family firms, the relation is insignificant with both. CEO duality has a positive relation with performance in case of both family and non-family firms. For both family and non-family firms, a higher level of local investor ownership leads to higher performance. A positive and significant relation was found between foreign ownership and	SEW: The larger board size indicates interference in the company's affairs and the problem of maintaining control. Agency Theory: Independent directors act in the best interest of the shareholders. In a family firm, independent directors may not be truly independent as they are often family appointed. Ownership structure plays a significant role in reducing the severity of agency costs, particularly in family firms. Domestic ownership facilitates better management oversight. Foreign investors are able to monitor the firm's operations more effectively. CEO duality is an efficient corporate governance mechanism.

Randolph et al. (2019)	Poland	Family owners, by pursuing family objectives, reduce the firm's performance. Family owners, by pursuing community objectives, improve firm performance. Pursuing both family and community objectives improves family firm performance.	SEW: Family firms prioritise preserving their family values, which comes at the cost of employing less deserving family CEOs. However, when benefiting community stakeholders, they increase their reputation, enhance employee attitude and improve performance. Goal System Theory: Pursuing multiple goals fulfils both non-economic objectives and financial performance
Terrón-Ibáñez et al. (2019)	Spain	Family firms underperform non-family firms in several economic and financial indicators.	SEW: Family firms prioritise preserving their family values and pursue non-economic goals.
Bello-Pintado and Garcés -Galdeano (2019)	Uruguay and Argentina	The ability and opportunity bundle of Human Resource Management (HRM) practices has a positive effect on family firm performance.	Resource-Based View: Family firms employ professional managers, leading to formalization of HRM practices. SEW: Family firms allow non-family employee engagement to preserve SEW and maintain the family business and legacy.
Poletti-Hughes and Williams (2019)	Mexico	Family firms enjoy high value and tolerate higher levels of risk than non-family firms. This difference becomes more important in the case of high-value and high-risk tolerant firms, and also becomes positively associated with cash ownership of controlling families. Firms undertake performance hazard risk even though it could result in financial duress. Family firms undertake a higher level of venturing risk, which helps them to pursue substitute strategies in case their performance falls short of target. At higher levels of family ownership, the observed value/risk effect becomes all the more important with the aim of preserving SEW rather than value maximisation.	SEW: Family firms aim to preserve SEW and thus tend to involve themselves both in governance and management with the objective to pass on the business to future generations, thereby increasing value. The value of the firm increases when they incorporate good corporate governance mechanisms.
Sánchez-Marín et al. (2019)	Spain	Non-family firms pursue formalised HRM practices, which benefit them more than family firms.	SEW: Family firms' motive to preserve family control and non-economic goals such as trust, loyalty, and family values.

Lee (2019)	Taiwan	Greater negative impact of political ties on the performance of family firms than non-family firms. A greater positive impact of business ties on the performance of family than non-family firms.	SEW: Family firms are more willing to sacrifice the benefits in exchange for building political connections to preserve SEW. Resource-Based View: Business ties ensure better health of the company and its overall well-being, thus contributing to society.
Pacheco (2019)	Portugal	U-shaped relation between family involvement in management and firm performance.	Agency Theory: A high level of family involvement in management causes entrenchment and nepotism, leading to ineffective performance. Stewardship Theory: A higher level of family management beyond a certain level enhances performance as they act as stewards to protect family values and commit to long-term goals.
Ramírez-Alesón and Fernández -Olmos (2020)	Spain	Family firms successfully utilise the imported intermediate inputs, which leads to their better performance than non-family firms. Importing intermediate inputs has a positive impact on process innovation performance for both family and non-family firms, but not for product innovation performance.	Stewardship Theory: The family understands the business well, and the family members act as stewards of the firm. SEW: Family firms focus on long-term value maximisation. Knowledge-Based View: Product innovation might not be useful as it relates more to firm-specific demand variations or satisfaction of customers' needs. However, process innovation makes the production process efficient, leading to efficiency gains.
Kim et al. (2020)	EU	Family firms exhibit a lower tendency to lay off employees than non-family firms, which not only enhances CSP but also post-layoff performance. This relation is stronger in places with low population.	Resource-Based View: Family firms have a strong place-based culture that provides resource-based competitive advantages in such a way that people working in the firm feel deeply connected to the place of work, which inherently makes them care about their impact on society.
Aldamen et al. (2020)	Australia	Before and during the Global Financial Crisis (GFC), family firms placed a higher positive weight on earnings than book value (balance sheet) as compared to non-family firms. However, when good governance is in place, family firms shift weight from earnings to book value.	Value Relevance Theory: It is easier to manipulate earnings than the balance sheet numbers in times of crisis. SEW: Family firms are aimed at preserving their SEW rather than maximising the firm's value.

Ferrer et al. (2020)	Spain	HRM Practices do not drive performance in family firms, while they have a stronger relation with performance in non-family firms .	SEW: Family firms are guided by the duality of objectives (economic and non-economic). An increase in family value implies an increase in firm value, so they are not encouraged to pursue HRM practices but are more concerned about having emotional values of altruism and nepotism.
Al-Okaily and Naueihed (2020)	UK	Audit committee characteristics are significantly and positively related to the performance of non-family firms and insignificantly related to the performance of family firms. Family involvement in business does not moderate the relation between audit committee effectiveness and performance.	Agency Theory: In non-family firms, the audit committee, through effective monitoring, help mitigate conflicts between shareholders and managers. SEW: In the case of family firms, audit committees are adopted just to maintain legitimacy, as they have their own unique way of controlling and monitoring to maintain their legitimacy.
Chou and Shih (2020)	Taiwan	Family firms succeeded by a family chairman and an outside individual hired as a CEO tend to exhibit a lower level of diversification than non-family firms, as family controlling shareholders tend to exercise more strict oversight of diversification decisions of such outside managers; however, they achieve higher value than non-family firms.	SEW: The family CEO in a family firm creates higher value than the non-family firm as he undertakes better and careful diversification activities under the supervision of a family.
Sánchez-Marín et al. (2020)	Spain	The CEO compensation monitoring process is higher in non-family firms than in family firms. Among family firms, an increase in family involvement and the presence of a family CEO is associated with a decrease in CEO compensation monitoring, which is linked to stronger firm performance compared to non-family firms. So, CEO compensation monitoring is not effective in family firms.	SEW: The level of contractual relation based on physical bond and emotions between owners and managers helps in understanding the differences in the level of CEO compensation monitoring process in both family and non-family firms and their potential impact on firm performance.

Rubino and Napoli (2020)	Italy	Better environmental performance in a family firm than non-family firm. An independent board in a family firm enhance monitoring and improves performance	SEW: Family firms prioritise preserving family reputation and legacy, thus driving environmental investment. Agency Theory: An independent board reduce managerial entrenchment and improves performance
Hegde et al. (2020)	India	U-shaped relation between family ownership and performance.	Agency and Entrenchment vs Alignment Hypothesis: High level of ownership concentration can cause alignment of family and shareholder interests, reducing agency conflict But it can also cause expropriation of minority shareholder interest.
Beji et al. (2021)	France	Family boards are less diverse than non-family board, which negatively impact their CSR performance.	Resource-based View Theory: Family firms are constrained in terms of external resources as they generally employ family members as directors to ensure their control, even though they may be less qualified.
Škare and Porada-Rochoń (2021)	Europe	Family firms perform better than non-family firms during and in times of crises. Family firms also outperform non-family firms during the boom phase.	SEW: Family firms establish effective prioritising governance policy to protect shareholder and stakeholder interests in the long term as compared to non-family firms.
Moreno-Menéndez and Casillas (2021)	Spain	Family firms display lower growth than non-family firms in terms of sales. Both firm age and firm size moderate the firm-growth relation. Family firms display positive growth in terms of the number of employees than non-family firms.	SEW: Family firms have a long-term orientation and are more concerned about preserving their SEW. SEW is complemented by the resource-based view of the family firms. Employees are an important input for attaining organisational goals.
Chirico et al. (2021)	US	Family firm franchisor achieves lower performance than non-family firm franchisors. Family firm franchisors build stronger relationships with franchisees and provide more training to them than non-family firm franchisors. Older and larger family firm franchisors achieve the largest level of performance as compared to non-family firm franchisors.	SEW: Family firms believe more in developing long-term relationships as compared to non-family firms and thus are more committed to allocating extra resources to their franchisees. Resource-Based View: As family firms age and grow, they develop specific learning processes which strengthen the value-creating potential of the resources shared with the franchises, thus improving performance.

Veltri et al. (2021)	Italy	Family firms exhibit a lower CSP score than non-family firms. Female directors in family firms negatively affect CSP, but this is not significant as compared to non-family firms. Independent directors are less significant in affecting the CSP of family firms than non-family firms.	SEW: Family firms are more concerned about the preservation of their SEW and family control. Thus, they are not affected by the reputational pressure to achieve good CSP. Family firms do not give importance to gender diversity on the board. Independent directors require information for supervision, but the family executive may be unwilling to share the same with them, thus not significantly affecting the CSP of family firms.
Pang and Liu (2021)	China	There are significant differences in the impact of venture capital investment on the performance of family and non-family firms. In the case of family firms, venture capital has negative effect on performance than non-family firms. In addition, the degree of family control has a positive moderating impact on the negative impact of venture capital on the performance of family firms.	Agency and Control Rights Theory: Venture capital financing in family firms is influenced by the heterogeneity of the degree of control of family firms, which may affect the growth performance of the firm. Power dynamics in family firms are different from those of non-family firms.
Pittino et al. (2021)	Italy	Intense involvement of family members in the governance of family firms operating in a district negatively impacts their performance. The industry's technological paradigm, combined with family involvement and location in the district, negatively impacts the firm's performance.	SEW: To preserve family control, family firms with intense involvement of family members cause a problem of over-embeddedness, negatively impacting performance.
Jin et al. (2021)	Korea	Family firms underperform non-family firms. In times of stability, inside CEO reduces the negative family firm performance.	SEW: Family firms focus more on non-economic goals than economic factors. Contingency Theory: Family firm performance is contingent on leadership position and the stability of the business.
Acuña-Opazo and González (2021)	Chile	The impact of the value of intellectual capital on family firm performance is stronger than on non-family firms.	Theory of Intellectual Capital: The possession and management of intangible capital, such as human, structural and financial capital, becomes a competitive advantage factor for family firms.

Santos et al. (2022)	Portugal	Family firms are larger in size and older than non-family firms, which creates a positive impact on their performance. Northern location shows good performance as companies in this region are better managed. Ownership has an indirect impact on firm performance, viz liquidity, size and age. There is a small negative indirect impact of firm location via size to prevent it from offsetting the direct positive impact of features of northern firms on performance.	Dynamics of tourism destination and its competitiveness impact both family and non-family firms differently.
Duong et al. (2022)	Belgium	The relation between the use of knowledge from universities and research institutes is stronger for family firms than for non-family firms.	Knowledge-Based View: Use of science-based sources helps family firms more as compared to non-family firms and thus helps in obtaining novel ideas.
Garcés-Ayerbe et al. (2022)	Spain	Financial benefits from environmental investment are significantly positive for family firms than for non-family firms.	SEW and Resource-Based View: In family firms, the integration of both SEW and natural resource-based view helps in achieving competitive advantage, which leads to better financial performance of the firm.
Minola et al. (2022)	Europe	Family Small and Medium Enterprises (SMEs) with a higher degree of family ownership are likely to achieve high growth as compared to those family SMEs where a high % of shares are held by non-family owners.	SEW: A high degree of family control implies a greater need to preserve the family business for transferring the business to future generations. So, they place a high value on firm growth.
DasGupta and Pathak (2022)	India	Education and regional affiliation of the CEO positively impact family firm performance. Religious affiliation of the CEO impacts performance when moderated by education.	Upper Echelons Theory: Community-based characteristics of the CEO affect firm outcomes.
Gomez-Mejia et al. (2022)	Sweden	The relation between risk-taking and firm performance is moderated by family control under distressed situations but not under non-distressed situations.	SEW: Family firms undertake risky projects to respond to distress, ensuring their survival in the long run, but in non-distressed situations, they extract lower returns from undertaking limited risk to protect their SEW.
Mubarka and Kammerlander (2022)	Germany	Boards of family firms are less diverse than non-family firms. Following an increase in diversity, there is no significant difference in the performance of family firms and non-family firms.	SEW: Family firms do not benefit from diverse boards more than the non-family firms, as SEW concerns outweigh diversity benefits.

Ettore et al. (2022)	EU	The performance of family firms declines after an Initial Public Offer (IPO) relative to non-family firm IPO issuers.	SEW: Due to long-term orientation, family firms, after diluting their stake in IPO, believe that their performance is going to decline, which increases the need for more non-economic benefits.
Xu et al. (2022)	Ethiopia	Family firm invests more in CSR, improving performance.	SEW: Due to long-term orientation, family firms invest more in CSR.
Guedes et al. (2022)	Portugal	Family firms engage in less servitization, which negatively impacts their performance as compared to non-family firms.	SEW: Desire to preserve SEW, reduce the family firm's willingness to servitize, i.e. collaborate externally
Eckey and Memmel (2023)	Germany	Family firms outperform non-family firms, especially in a crisis period.	Agency Theory: Alignment of owner-manager interest reduces agency cost. SEW: Due to long-term orientation, family firms are crisis resilient.
Atiqa et al. (2023)	Global Sample	Family firms have lower CSP as compared to non-family firms in the presence of strong country-level shareholder rights.	SEW: Preserving family control to transfer business to future generations. Strong shareholder rights do not differentiate between majority family owners and minority shareholders, so they can pursue their own decisions at the cost of other shareholders.
Martin and Nadine (2023)	Europe	The negative effect of tenure diversity is stronger in high masculinity cultures in family firms. Family firms can better leverage the gender diversity in high-masculinity cultures	Upper Echelons Theory: Not only do community-based characteristics of CEO affect firm outcomes, but also the degree of masculinity, i.e. the national culture which emphasises achievement, status and financial reward for success.
Domenico et al. (2023)	Italy	Family firms derive greater benefits from non-family CEO duality than non-family firms.	SEW: Bridges the gap between conflicting agency costs and stewardship benefits from CEO duality.
Buchanan et al. (2023)	Finland	Family firms outperform non-family firms.	Agency Theory and SEW: Family firm reduces agency cost and prioritises long-term orientation.
Svenja et al. (2023)	Germany	Family firms outperform non-family firms, especially during a crisis, and this is more pronounced with increasing family ownership.	Agency Theory and SEW: Family block owners reduce agency cost and prioritise long-term orientation.

Nika and Bashir (2023)	India	Innovativeness and proactiveness have a significant positive effect on family firms as well as non-family firm financial performance. However, risk-taking has a significant positive effect on non-family firms' performance only. Entrepreneurial Alertness significantly mediates the innovation and performance link in family firms.	Entrepreneurial Orientation (EO): The three EO dimensions-innovativeness, proactiveness and risk-taking dimensions strongly predict financial performance but differ in their impact. Theory of Action Regulation: More alert Entrepreneurs take quick actions and explore new ideas that improve performance.
Battisti et al. (2023)	Global Sample	Family firms have higher CSR performance than non-family firms. Advertising intensity reduces the positive effect on CSR.	Stewardship Theory and SEW: Managers act as stewards and prioritise firm goals over their own gain. Also, family firms prioritise non-economic goals and preserve SEW, which motivates them to undertake CSR activities. Advertising strategies weaken the CSR performance, as it may dilute the environmental outcomes due to greenwashing and miscommunication.
Tran et al. (2023)	Vietnam	Significantly negative effect of gender diversity on family firm performance. Positive curvilinear relation between females on top management teams and performance in family firms.	Upper Echelons Theory: Due to family ownership and control, the managerial discretion of leaders in the top management team is subdued. Critical Mass Theory: Minority representation, when it reaches a particular threshold, becomes an influential body.
Islam et al. (2023)	Bangladesh	Female director has a significantly positive impact on family firm performance, while foreign directors have on non-family firm performance. The presence of at least three female directors is required to have a significantly positive impact, and a single foreign director is required to create a positive impact.	Agency and Resource Dependency Theory: Diverse boards provide effective monitoring and bring social and human capital. Critical Mass Theory and Tokenism: Presence of at least three women directors on the board, while even one foreign director on the board can create meaningful influence.
Mesnik et al. (2023)	Brazil	Board independence has a significantly positive impact on family firm performance, but a negative impact when CEO duality exists.	Agency Theory: Independent directors reduce dominant family owner-minority owner conflict, but CEO duality undermines their effectiveness in monitoring, which could lead to expropriation of the firm's resources at the hands of family shareholders.

Cai et al. (2023)	China	Inverted U-shaped relation in a family firm between the frequency of new policy framework and firm performance in an emerging industry.	Institutional Theory: Institutional environments encompassing different policy instruments create differing impacts for family and non-family firms.
Patel (2024)	US	No significant difference in the performance of family and non-family firms during the crisis.	Convergence Theory of Isomorphic Pressure: Both types of organisations, family and non-family, tend to follow similar strategies and converge in their responses in times of universal crisis.
Gavana et al. (2024)	Europe	Family firm performance is significantly influenced by gender diversity on the board, which reduces as board tenure increases, while in the case of non-family firms, performance is influenced by board independence and gender diversity.	Stewardship Theory: Women on the board bring sensitivity towards stakeholder needs and implement environmental CSR initiatives. Agency Theory: Long board tenure results in lowering the effectiveness of board independence, which inhibits environmental performance. SEW: SEW in family firms provides internal directors with the long-term vision of environmental investment, lowering the effect of board independence in family than non-family firms.
Padungsaksawasdi and Treepongkaruna (2024)	Spain	Gender diversity, board size, independence and tenure positively impact family and non-family firm performance, while CEO duality in both the firms creates a negative impact on CSR.	Agency Theory and Expropriation Hypothesis: Family firm and CEO duality reduce CSR investments as they prioritise preservation of family interests over stakeholders and lead to expropriation of the firm's resources. In a non-family firm, CEO duality reduces board independence, due to which CSR activities are used for their own benefit. Resource Dependency Theory: Board diversity brings resources; balances stakeholder interests and supports CSR initiatives.

Ortiz and Gargallo-Castel (2024)	Spain	Innovation negatively impacts the performance of non-professionalised family firms as compared to non-professionalised non-family firms. No significant difference exists between professionalised family and non-family firms.	SEW: Owner-managed family firms prioritise preserving family control, which limits innovation. Agency Theory: Professionalisation reduces agency conflict and SEW-related limitations.
Abdelkader et al. (2024)	South Africa	Short-term orientation significantly mediates the association between board gender diversity and environmental, social and governance performance. However, the effect of board gender diversity on short-term orientation is lower in family firms.	Role Congruity Theory of Prejudice: Female directors are less suited for leadership roles. In family firms, female directors are more likely to make decisions that align with the long-term orientation of the family.

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Analysis of Organisational Culture Profiles for Construction Supply Chains: Evidence from Lagos State, Nigeria

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Abstract

This study empirically examines the organisational culture profiles of construction supply chains in Lagos State, Nigeria, assessing different cultural attributes among contractors and subcontractors. Amidst increasing competition and the need for collaborative efficiency, this research highlights the importance of cultural alignment in enhancing performance and decision-making across the construction supply chains. Using a quantitative methodology and survey data from 275 construction firms, the study applies Cameron and Quinn's Competing Values Framework (CVF) to categorise cultural profiles, revealing a dominance of clan and market cultures. Clan culture, characterised by flexibility, cohesion, and internal focus, was most prevalent, fostering a supportive environment conducive to team collaboration and creativity. Market culture also emerged as influential, emphasising goal orientation and competitive drive. The findings suggest that a balance between clan and market cultures may enhance operational resilience and adaptability. The study contributes valuable insights for construction managers in Lagos State, advocating for strategies that align cultural practices with organisational goals to optimise supply chain performance.

Keywords: *Organisational culture; Supply chain; Construction supply chain; Supply chain performance; CVF*

1. Introduction

The construction sector is vital to infrastructure and economic growth, but faces challenges due to fragmentation and specialisation (Heri, 2024; Mehdi-Riazi et al., 2020; Omoraka, 2020). This fragmentation stems from firm size, geographic spread, and the dominance of small firms, resulting in inefficiencies and poor performance. Stakeholders' lack of cooperation forces the sector to work hard to improve performance and navigation amid current market conditions (Kuo et al., 2022). Several studies highlight the importance of integrating practices and collaboration schemes with supply chain members as the most effective solution (Omoraka, 2020; Tiwari, 2021). However, many factors hinder the integration of practices and collaboration, including organisational culture. An integrated organisational culture is crucial for improving supply chain performance. Supply chain integration promotes partnerships, builds trust, and optimises processes to enhance performance (Ghufran et al., 2022).

Paais and Pattiruhu (2020) posit that organisational culture is a key factor influencing efficiency, communication, and employee satisfaction, and that it has gained attention across disciplines. In the construction sector, organisational culture is even more vital. In addition to fostering team integration, Xinyu (2023) suggests that a culture must support external relationships and effective decision-making productivity. The orientation of organisational culture toward sustainability is increasingly promoting innovation, resilience, and adaptability. These are the qualities essential for the growth and survival of construction firms, especially those in developing economies like Nigeria (Olaleye et al., 2024).

While prior studies discuss the advantages of organisational culture and supply chain integration, there is a knowledge gap regarding how an improved culture can overcome structural disintegration and poor chain flow in the construction sector of an emerging economy. Strategic challenges affecting the construction industry in Lagos State, according to Ogunde et al. (2016), include the following: The Lagos construction industry relies on numerous small, scattered firms across the State, and these impact construction project supply chain interactions internally and externally. Due to the highly complex fragmentation and collaboration issues in construction supply chains, further research is needed to identify the organisational culture that can promote better supply chain performance.

Supply chain performance optimisation in construction is under-researched, hindering efforts to address inefficiencies caused by fragmented supply networks. (Oriade et al., 2021). Especially in Lagos State, Nigeria, the construction supply chain is shifting towards a focus on competitive advantage and the consolidation of organisational culture among firms. Therefore, the goal of this study is to empirically examine the organisational culture profiles of construction supply chains in Lagos State, Nigeria, and highlight the importance of cultural alignment in enhancing performance and decision-making across supply chain networks.

2. Literature Review

2.1 Introduction to Organisational Culture in Construction

Emerging trends in research on construction project management are focusing on organisational culture as a driver of innovation and performance in supply chains (Hong et al., 2022). The consolidation of ownership along construction supply chains due to increasing levels of competition means that construction managers are increasingly being called upon to nurture a shared culture if cohesion in supply and management is to be achieved, namely, towards facilitating internal and external relationships, which cross the supply chain spectrum (Ghufran et al., 2022). This becomes particularly relevant in fragmented industries like construction, where operations span multiple companies and organisational activities, and involve distinct cultural practices.

Historically, construction culture was believed to influence individual behaviours, not the influence of entire organisations (Cooke & Rousseau, 1988). However, research indicates that organisational culture has ramifications for groups, thus shaping collaborative practices, and improving productivity and performance (Shehzad et al., 2023). The role of culture in fostering a collective organisational identity is vital in supply chain settings, where successful partnerships depend on shared values, communication norms, and collaborative methods of project delivery (Paris et al., 2020). Hence, culture becomes a structural hinge with real use and leverage, rather than merely a soft tool that helps ensure improvements across dispersed chain operations.

Definitions of organisational culture are proliferating, often characterised as a collection of values and attributes. The first, early cultural definitions tie into the study of anthropology; modern management theory addresses this under the general heading of "brown" programming of the mind, which differentiates between groups, informs their interactions and decisions, and guides their standards within an organisation (Weisgrau et al., 2023). In construction, these dependent variables allow firms to operate in unison, which is requisite for interfacing through project partnerships' highly dynamic, cross-boundary nature. This is especially salient when considering the temporary yet goal-oriented nature of construction supply chains, which necessitates that firms rally together to meet project objectives within time- and resource-limited constraints (Hong et al., 2022).

2.2 Profiles of Organisational Culture: A Competing Value Framework (CVF)

The CVF is a significant theoretical framework for understanding the different dimensions of organisational culture. Originating from Cameron and Quinn's work (Cameron & Quinn, 2011), the CVF theory is valuable for identifying four primary cultural profiles in organisations: Clan, Adhocracy, Market, and Hierarchy (Alharbi & Abedelrahim, 2018). Collectively, the profiles describe a particular set of values and practices that influence organisational processes. These profiles highlight a balance between competing values, as organisations must manage internal versus external focus and stability versus flexibility to create effective cultural frameworks. The CVF theory remains widely accepted for its structured approach, adaptability, and its role in promoting an organisation's overall cultural understanding and effectiveness (Carlgren & BenMahmoud-Jouini, 2022; Wijethilake et al., 2023).

Over the years, the CVF has been recognised as one of the most popular and reliable methods for evaluating organisational effectiveness. It consists of two central dimensions: flexibility (discretion) versus stability (control) and internal versus external focus (Cameron & Quinn, 2011; Carlgren & BenMahmoud-Jouini, 2022). The flexibility (discretion)-stability (control) axis, a central component of CVF, defines the organisational priority between adaptability and consistency. Organisations oriented towards flexibility often foster innovation and rapid change, which are essential in dynamic industries. In contrast, those valuing stability, i.e. control, prioritise order and control, which is particularly beneficial for industries requiring predictable outputs (Alharbi & Abedelrahim, 2018). The other axis in CVF, internal versus external focus, categorises organisations based on whether they prioritise internal values or market-driven external forces. Internally focused organisations emphasise maintaining and optimising their existing culture, while externally focused organisations prioritise competitiveness and adaptation to external conditions (Carlgren & BenMahmoud-Jouini, 2022). Hence, the presence of four distinct cells (quadrants) in the CVF housing separates organisational profiles. Each quadrant is tagged as clan, hierarchy, market, or adhocracy cultures. Each culture profile reflects specific values, structures, and management practices, forming a comprehensive model for understanding and categorising organisational culture (Alharbi & Abedelrahim, 2018).

First, clan culture is in the top-left quadrant. It is more inward-looking, that is, internally focused, and is highly empowered and supported by a flexible work culture that promotes collaboration, teamwork, and support (Cameron & Quinn, 2011; Osman et al., 2023). Here, employees are loyal and free, and a sense of belonging leads to stronger organisational cohesiveness and shared values. Loyalty and tradition are defined as job satisfaction and organisational success because they imply that employees' loyalty to the organisation is tied to their adherence to its goals. Second, at the top-right quadrant is adhocracy culture. It is also supported by flexible work, which promotes collaboration, but it is externally focused and characterised by low formalisation. This type of culture stresses the organisational idea of an open, idea-driven work structure (Naranjo-Valencia et al., 2016). The study by Naranjo-Valencia et al. (2016) further posits that this type of culture is typically characteristic of fast-paced industries that rely on innovativeness, flexibility, and agility, such as technological start-ups and research institutions. Adhocracy organisational culture encourages risky behaviour and, at the same time, embraces risk-taking to generate new ideas.

The third cultural profile is market culture, located at the bottom-right of the quadrant. The market culture type focuses externally; it emphasises stability and control (Cameron & Quinn, 2011). Market culture is typically characteristic of highly competitive organisations, where key performance indicators include profit levels, market share, and the strategies achieved. Managers in these settings are result-oriented, and organisational effectiveness parameters are closely monitored to drive competitiveness (Kumar et al., 2016; Osman et al., 2023). This is because market culture promotes high tension, and employees are expected to deliver high results by meeting performance standards aligned with market needs; therefore, it is widely implemented in industries that require competitiveness, including the technology and finance fields (Kumar et al., 2016). Last, hierarchy culture is considered internal and self-oriented, embracing stability and power over all. It is also located at the bottom-right of the quadrant. This type of culture is typically found in companies where the essence of their processes necessitates routine, bureaucratic structures and regimes (Kumar et al., 2016). Hierarchy is important in organisations that require stable operations, as it enables the orderly transmission of instructions, the receipt of results, and the evaluation of performance through established procedures. Hierarchical culture is more common in large organisations and government organisations to ensure operational stability and reduce risk (Kumar et al., 2016).

2.3 Organisational Culture and Supply Chain Collaboration

Culture defines the manners of interacting with other organisations, including communication and negotiation, which are important factors in collaboration (Oham & Ejike, 2024). Culture can often be a force of integration, helping ensure that the goals of different stakeholders align and that everyone is on the same page. A lack of proper culture in a construction supply chain results in a lack of unity of purpose, inadequate information sharing, and inefficient workflow. Firms with congruent organisational cultures are well positioned to enter into partnership relationships, build trust, and facilitate the coordination of activities, thereby enhancing organisational performance (Oham et al., 2024). In addition, Kumar et al. (2016) posit that aligned cultures facilitate product innovation, flexibility, and organisational resilience, helping mitigate project- and market-related issues and other market-related risks. Cultural fit is vital for promoting cooperation, regardless of the method used, and for improving performance and durability within the business, thereby enhancing competitiveness at the industry level.

2.4 The Organisational Culture of Construction Companies

Based on Hong et al. (2022), organisational culture can be described as "the emergent outcome of carrying on negotiations of the values and their meanings and the admissible conduct with members of an organisation and its environment. This vision aligns with construction industry trends to facilitate coordination and work across different project settings (Riley & Clara-Brown, 2020).

The business environment has been characterised by increasing complexity in recent years; competition from international players, fluctuating customer needs and expectations, and scarcity are among the challenges that define it (Carlgren & BenMahmoud-Jouini, 2022; Osman et al., 2023). Hevi (2022) examined organisational culture in relation to firm competitiveness in Ghana's service industry. Their findings establish that culture is central to business performance, regardless of the type of culture.

It is of prerequisite importance that the organisational culture of both the partnering organisations and the particular project be harmonised. For effective achievement of the goal, the partnering organisations must have a matched culture (Carlgren & BenMahmoud-Jouini, 2022). According to Osman et al. (2023), construction firms may not have much influence on external challenges, but can use organisational culture to confront poor performance. Resources of firms with the same cultural identity can be used to respond to any external challenges (Osman et al., 2023). Coelho et al. (2022) emphasised the need for construction firms of diverse structures with varying goals to pull resources together under similar cultural values to achieve better results. Hence, organisational culture, in particular, determines the quality and process standard practices in construction organisations.

In Nigeria, there is an emerging understanding of the role of organisational culture in positively impacting construction projects. A review of the literature shows that there are global studies on the topic, but studies from Nigeria highlight the distinct challenges and cultural parameters within that setting. The findings of Akade (2017) show how organisational culture affects project delivery in Nigeria, demonstrating that cultural elements can minimise project duplication and increase the efficiency of project delivery.

3. Research Method

A quantitative research methodology was used to examine organisational culture in construction supply chains in Lagos State, Nigeria. For this reason, the quantitative method was preferred because it allows for the poll of participants from different industry sectors and enables the quantification of cultural characteristics across the supply chain. Consequently, survey research methodology was applied during data collection to establish the behaviours, values, attitudes, and assumptions of organisational culture in the construction industry. Despite this, the method facilitated a structured assessment of these cultural dimensions, which is critical for generalising findings across the population. A literature review was conducted to benchmark the area of unknown knowledge and to establish the corresponding research objective. Thereafter, a survey instrument was developed to contact the construction.

The study population is construction companies with operations based in Lagos State, Nigeria. The directory of the Federation of Construction Industry, FOCI (FOCI, 2020), was relied upon for construction companies in Lagos State. The FOCI directory is one of the most reliable databases in the study area. According to the FOCI directory, only 47 construction companies have active registrations in Lagos State (FOCI, 2020). These 47 companies are tagged the focal companies (main contractors). Due to the lack of a database of subcontractors and suppliers in the study area, the snowball sampling technique was used to select 188 subcontractors and 188 suppliers. This process established the upstream supply chain network for a construction project, with a ratio of 4 subcontractors to 4 suppliers to the main contractor. Hence, the total sample size for this research is 423.

The questionnaire contained closed-ended questions organised under demographic details and organisational culture profiles. The organisational culture of construction supply chains in the study area was assessed using the Organisational Culture Assessment Instrument (OCAI) developed by Cameron and Quinn (2011). This psychometric tool was developed based on CVF theory and includes a 24-item scale to establish organisational culture profiles. It identifies the dominant characteristics, leadership, employee management, organisational member links, strategic approach, and success factors of an organisation's culture by comparing it to the four cultural types. The OCAI scales in the questionnaire were scored on a five-point Likert scale to facilitate statistical analysis of the results. This tool is commonly used in the construction management field, and the validity is guaranteed by several studies (Coelho et al., 2022; Osman et al., 2023; Wijethilake et al., 2023).

To increase response rates, an administration method was used. The researchers personally administered the questionnaire and answered any questions participants had. Descriptive and inferential statistical evaluations were done using Statistical Package for the Social Sciences (SPSS). Specifically, the mean score is one of the statistical tools used in the generalised Cochran-Mantel-Haenszel test. It is applicable when the response levels are measured on an ordinal scale was used. Standard deviation was used in this research to measure the spread of the normal distribution of organisational culture variables. It indicates the distance between a data point and the mean (Bhandari, 2022).

Furthermore, the Kruskal-Wallis H–test was used to assess the direction of opinions of main contractors, subcontractors and suppliers. The Kruskal-Wallis H–test is a non-parametric test used on a non-normally distributed dataset. Again, the influence of respondents' overall general information on organisational culture was tested using a one-way ANOVA at the 0.05 level of significance. These techniques were adopted in several organisational culture literature (Coelho et al., 2022).

4. Results

4.1 Response Rate

A data-checking exercise was done to validate the accuracy and relevance of the data used in this research. The questionnaire copies retrieved during the data-checking exercise were also visually checked for completeness and missing data. Only a few cases of missing values in variables and cases were detected and removed from the retrieved questionnaires. Of the 423 copies of questionnaires administered, 284 were returned. Nine (9) non-engaging and incomplete copies of the questionnaire included missing values across variables, and cases were outrightly expunged from the process. A total of 275 participating construction companies were involved. The collected data were assessed for normality. Since the dataset is small, the Shapiro-Wilk test was applied, and the data were found to deviate significantly from normality ($p<0.05$). In addition, the dataset's skewness and kurtosis indicated a non-normal distribution.

Table 1 shows the response rate and distribution of the construction supply chains surveyed. Out of the leading contractors' group, 100% (47 firms) responded to the questionnaires. This is not a surprising occurrence given that the main contractors are the focal group in this study.) This 100% retrieval of the distributed questionnaire from main contractors was made possible through personal interaction with the right source in this group, who identified their subcontractors and suppliers, enabling a 100% return rate in usable format. The subcontractor groups and suppliers received response rates of 138 (73.4%) and 90 (47.9%), respectively. The overall response rate found through this process was 65.0%. Despite the time and cost, a face-to-face questionnaire survey was used for this research, which helped increase the achieved response rate. This is because the right contact persons in the target construction companies are identified personally.

Table 1. Survey Return Rate

Questionnaire	Main contractors	Sub-contractors	Suppliers	Total
Distributed	47	188	188	423
Retrieved	47	138	90	275
Response Rate (%)	100.0	73.4	47.9	65.0

4.2 Sample and Sample Representativeness

Table 2 reveals the general characteristics of the respondents and respondents' companies in the supply chain sampled for this research. For the Respondents' management levels, the distribution showed that at least 55% (152) were in executive management. Approximately 45% of the respondents surveyed were administrative/top managers in the firms surveyed. This is a clear indication that they are likely informed about the developments in their company's sustainability strategies. Regarding the company's size, this study used three organisational sizes: small, medium, and large construction firms. The size of the company showed that 57% of the companies in this research are medium-sized construction companies. Eighty-three of the respondents are small construction companies, which is slightly more than 30%, and 13% are large construction companies. Additionally, the characteristics of the companies surveyed by year in business indicate that the average age of the construction firms in this study was approximately 15 years. Lastly, regarding years of work experience, the respondents had been employed in the industry for an average of 14.7 years; all of them would undoubtedly have developed a strong appreciation for the industry.

Table 2. General Information of the Respondent

Information	Requestion	%
Management levels of respondents		
Executory/Middle Manager	152	55.3
Administrative/Top Manager	123	44.7
Total	**275**	**100.0**
Size (no. of employees)		
Small companies (1 – 49)	83	30.2
Medium companies (50 – 249)	156	56.7
Large companies (250 and above)	36	13.1
Total	**275**	**100.0**
Years in business		
1 – 10	105	38.2
11 – 20	114	41.5
21 – 30	35	12.7
31 – 40	16	5.8
41 – 50	4	1.45
51 – 60	1	0.36
Total	**275**	**100.0**
Average = 14.7		
Years of work experience		
1 – 5	75	27.3
6 – 10	92	33.5
11 – 15	58	21.1
16 – 20	35	12.7
21 – 25	6	2.18
26 – 30	5	1.82
31 – 35	4	1.45
Total	**275**	**100.0**
Average = 10.01		

Table 3. Cross-Tabulation of Participating Firms and Supply Chain Members

Size (no. of employees)	Main contractors		Sub-contractors		Suppliers	
	Frequency	**%**	**Frequency**	**%**	**Frequency**	**%**
Small firms (1 – 49)	0	0.0	3	2.2	80	88.9
Medium firms (50 – 249)	37	78.7	109	79.0	10	11.1
Large firm (250 and above)	10	21.3	26	18.8	0	0.0
Total	**47**	**100.0**	**138**	**100.0**	**90**	**100.0**

Table 3 presents the Sample Representativeness of the respondents. The construction industry employs millions of people every year. Following the rebasing of the Nigerian economy, the construction sector's employment was estimated at 6,913,536 people. The identified population for this research included small, medium, and large-sized firms from the main contractor, subcontractor, and supplier sectors. From the bias noted above, one can quickly see from Table 3 that the respondents sampled for this research are suitable. The figure also showed that the data provided favours medium firms. This means that more than half of the actual respondents in this study are medium-sized construction firms of 50-249 employees. As suggested by Oham et al. (2024), to control potential bias that could render the research process invalid, the implementation of research design remedies and test statistics remedies for CMV should be adopted. For this reason, this study pre-tested, rigorously reviewed, and revised the data collection instrument through senior colleagues and industry experts.

Finally, all the variables in the sustainable supply chain management and organisational culture constructs were placed under different sub-sections of the questionnaire. This was suggested by Oham and Ejike (2024) to achieve and increase the psychological and methodological dissimilarities. This is one of the potential research bias-solving methods (i.e. research design remedies) that have been adopted in the previous construction management literature.

4.3 Organisational Culture Profiles of the Surveyed Respondents

As a tool for culture assessment, the respondents in this research were required to rate the set of statements that articulated the six elements of cultural dimensions, which encompass the dominant characteristics of a component, strategic focus, organisational bonding, management of people, leadership within the organisation, and measures of success (Cameron & Quinn, 2011). This procedure helped determine the respondents' predominant culture: the Clan Culture, Adhocracy Culture, Market Culture, or Hierarchy Culture. This approach was in line with previous work in the organisational culture literature (Hevi, 2022).

Respondents from main contractors, subcontractors, and suppliers were free to express their views and perceptions of organisational culture within their respective companies using a five-point Likert scale. The mean score and standard deviation of each dimension of the organisational culture profiles were computed. When two or more of the dimensions had the same mean score, the dimension with the lowest standard deviation was given an important rank of one. Subsequently, the statistics for the Kruskal-Wallis H-Test were obtained, providing insights into the views of leading contractors, subcontractors, and suppliers. Below are the results of the analysis for each organisational culture profile.

Clan Culture. The mean scores of the six dimensions of the clan culture ranged from 3.68 to 4.02. This revealed that the dimensions (of clan culture profile) are considered by the surveyed respondents as important variables in the clan culture in the supply chain network. While management employees (mean score = 4.02) and organisational glue (mean score = 4.00) were the top 2 dimensions that characterised their companies' behaviour, dominant characteristics (mean score = 3.68) ranked last (see Table 4 for details). Furthermore, the main contractors, subcontractors, and suppliers unanimously rated management employees and dominant characteristics as first and last, respectively. The overall average mean score within the three groups is 3.93.

Further analysis shows that the overall results of the Kruskal-Wallis (K-W) H-test indicate that there is no significant difference in the opinions of the supply chain networks regarding the dimensions of the clan culture of their organisations ($H = 1.318, p = 0.517$) (see Table 4). Clan

Table 4. Organisation Culture Profiles of Construction Companies

Profile	Main Contractors (n=47)			Sub contractors (n=138)			Suppliers (n=90)			Overall (n=275)			
	Mean	Std. Dev.	Rk	Mean	Std. Dev.	Rk	Mean	Std. Dev.	Rk	Mean	Rk	K-W H	*p*-value
Clan Culture	***3.8***			***3.96***			***3.89***			***3.93***		***1.318***	***0.517***
Management Employees	3.98	0.707	1	4.04	0.849	1	4.04	0.993	1	4.02	1	1.320	0.517
Organisational Glue	3.98	0.794	2	4.04	0.841	1	3.99	1.000	3	4.00	2	0.280	0.870
Strategic Emphasis	3.91	0.929	3	4.01	0.801	3	4.01	0.906	2	3.98	3	0.410	0.814
Organisational Leadership	3.79	0.832	5	4.01	0.867	3	3.88	1.015	4	3.89	4	2.298	0.317
Criteria of Success	3.91	0.929	3	3.94	0.844	5	3.80	0.974	5	3.89	4	0.838	0.658
Dominant Characteristics	3.55	0.996	6	3.70	0.923	6	3.79	1.011	6	3.68	6	2.141	0.343
Adhocracy Culture	***3.79***			***3.87***			***3.62***			***3.78***		***5.661***	***0.059***
Organisational Leadership	3.79	0.832	3	4.01	0.837	1	3.74	0.978	1	3.85	1	5.336	0.069
Strategic Emphasis	3.85	0.691	2	3.88	0.787	3	3.68	1.004	2	3.80	2	1.849	0.397
Organisational Glue	3.72	0.743	5	3.95	0.804	2	3.57	0.937	3	3.75	3	9.526	**0.009***
Dominant Characteristics	3.91	0.803	1	3.78	0.820	5	3.53	1.008	5	3.74	4	4.880	0.087
Criteria of Success	3.77	0.813	4	3.78	0.826	5	3.67	0.972	3	3.74	4	0.388	0.824
Management Employees	3.70	0.720	6	3.81	0.788	4	3.52	0.986	6	3.68	6	4.453	0.108
Market Culture	***3.93***			***3.96***			***3.83***			***3.92***		***0.654***	***0.721***
Organisational Leadership	4.04	0.779	1	3.99	0.875	1	4.01	0.930	1	4.02	1	0.117	0.943
Dominant Characteristics	3.96	0.721	2	3.97	0.845	4	3.86	0.966	2	3.93	2	0.338	0.844
Management Employees	3.85	0.751	6	3.93	0.821	5	3.86	1.055	2	3.88	3	0.580	0.756
Criteria of Success	3.91	0.803	3	3.99	0.828	1	3.73	0.992	5	3.88	3	3.267	0.195
Organisational Glue	3.91	0.803	3	3.99	0.788	1	3.70	0.930	6	3.87	5	5.958	0.051
Strategic Emphasis	3.87	0.824	5	3.86	0.766	6	3.80	1.030	4	3.84	6	0.009	0.995
Hierarchy Culture	***3.74***			***3.83***			***3.70***			***3.77***		***1.699***	***0.428***
Strategic Emphasis	3.83	0.761	2	3.91	0.818	2	3.84	0.923	1	3.86	1	0.577	0.749
Organisational Leadership	3.77	0.890	3	3.93	0.789	1	3.72	0.983	3	3.81	2	2.966	0.227
Dominant Characteristics	3.85	0.834	1	3.85	0.879	3	3.67	0.899	4	3.79	3	2.245	0.325
Organisational Glue	3.74	0.793	4	3.83	0.854	4	3.74	0.931	2	3.77	4	0.419	0.811
Management Employees	3.62	0.874	6	3.80	0.847	5	3.61	1.002	6	3.68	5	2.806	0.246
Criteria of Success	3.66	0.891	5	3.68	0.879	6	3.63	0.867	5	3.66	6	0.052	0.974

*Key: Std. Dev. - Standard Deviation, Rk – Rank, Ave.- Average, K-W H – Kruskal-Wallis H Test *p<0.05* culture (human relations system) is a culture profile that emphasises human commitment and internal maintenance with flexibility (Cameron & Quinn, 2011). This culture allows employees/subordinates to work together as a team, with “loyalty and tradition,” in determining the organisation's performance (Nukic & Huemann, 2016).

Adhocracy Culture. Table 4 also revealed the ranking for each of the six dimensions of the adhocracy culture of the supply chain members involved in this research. The mean scores across the three groups ranged from 3.52 to 3.91, indicating that most of the cultural dimensions are recognised as significant by the respondents. While the subcontractors and suppliers ranked organisational leadership in first position with mean scores of 4.01 and 3.85, respectively, the main contractors ranked dominant characteristic in first position with a mean score of 3.91. Overall, organisational leadership ranked 1st with a mean score of 3.85, followed by strategic emphasis with a mean score of 3.80, and organisational glue in 3rd place with a mean score of 3.75. "Management employees" was ranked 6th, with the lowest mean score of 3.68. In addition, the overall average mean score of adhocracy culture is 3.78.

The overall K-W H-test revealed that, except for 1 (out of 6) cultural dimension in the adhocracy culture profile, there is no statistically significant difference in perceptions among main contractors, subcontractors, and suppliers. Thus, the statistically significant cultural dimension is organisational glue. The difference here could be attributed to differences in the services provided by the groups. This kind of culture is characterised by the open-system phenomenon, in which employees are given the freedom to operate and even make decisions (Igo & Skitmore, 2006). This adhocracy culture is oriented toward adaptation and expansion; it is externally focused, flexible, and individual (Cameron & Quinn, 2011).

Market Culture. Similarly, in Table 4, the main contractors, subcontractors, and suppliers unanimously ranked organisational leadership as the dominant culture with mean scores of 4.04, 3.99, and 4.02, respectively. While 'dominant characteristics' was ranked 2nd by main contractors and suppliers, subcontractors ranked it fourth. The overall mean score of market culture is 3.91. Furthermore, the K-W H-Test results revealed no statistically significant difference in the opinions of the main contractor, subcontractors, and suppliers involved in this research. ($H = 0.654$, $p = 0.721$). Market culture, described as a rational goal system, tends towards goal-setting such as high profitability, productivity, market share, or economic performance (Igo & Skitmore, 2006).

Hierarchy Culture. In a hierarchical culture, the analysis in Table 4 indicated that the ranking of the total mean scores for the six cultural dimensions ranged from 3.66 to 3.86. This signifies that the six dimensions are significant as rated by the respondents. The top 3 ranked dimensions with high ratings in this hierarchical culture are strategic emphasis, organisational leadership, and dominant characteristics, with their mean scores of 3.86, 3.81, and 3.79, respectively. Furthermore, the K-W H-Test indicated no significant difference in the opinions of the supply chain networks regarding the dimensions of the hierarchy culture of their organisations ($F = 1.699$, $p = 0.428$).

According to Allen and Bennett (2010), a Kruskal-Wallis test was conducted to check for statistically significant differences in the six cultural dimensions of hierarchy culture type (i.e. dominant characteristics, strategic emphasis, organisational glue, management of employees, organisational leadership and criteria of success) among the supply chain partners in the research. For instance, the first analysis tested whether there is a difference across the four cultural types (i.e., clan, adhocracy, market, and hierarchy). The independent variables, in this regard, are the supply chain partners' roles, and the dependent variables are cultural dimensions.

In another development, this research used the descriptive analytical tool developed by Cameron and Quinn (2011) to generate and display the overall organisational culture profiles of the construction companies involved in this survey. This route is commonly used to report on organisational culture using the CVF theory. Figure 1 provides a comprehensive picture of the companies' cultural profiles, as explained by the CVF. The analysis revealed that “Clan Culture” (overall mean score = 3.93) dominates in the construction companies and their supply chain networks (Figure 1). This is not surprising as clan culture is commonly visible in a very friendly workplace where organisations are held together by loyalty. Aside from the “clan culture”, “market culture” (overall mean score = 3.91) also displayed a reasonable dominance in the construction companies.

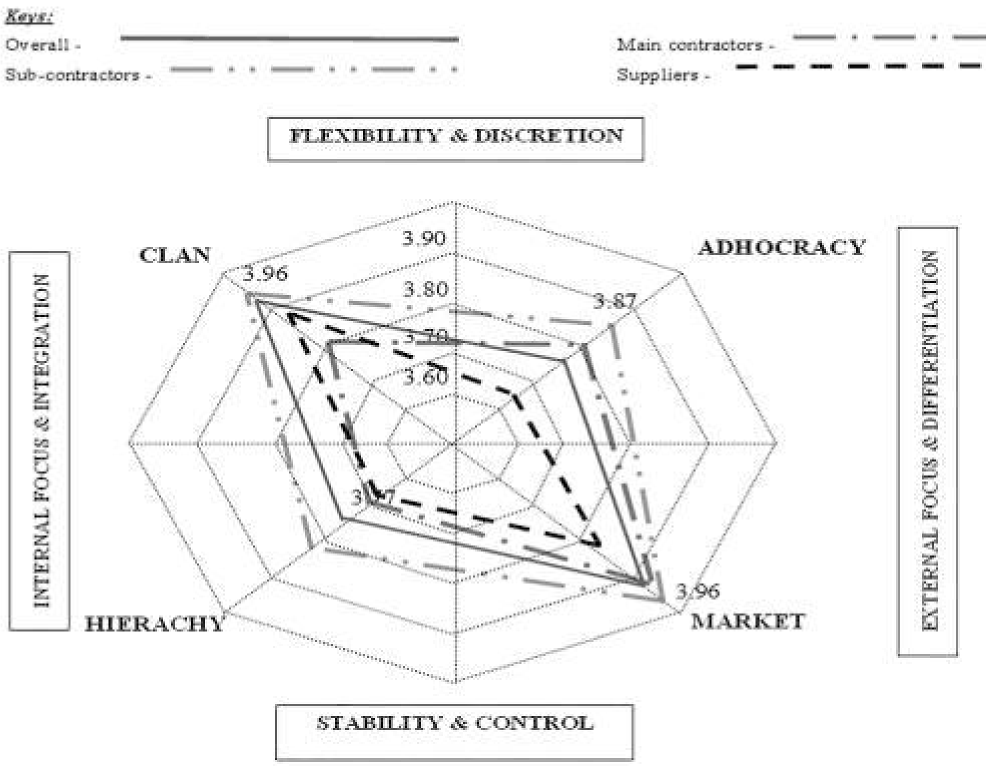

Figure 1. Organisational Culture Profiles of Construction Supply Chain Partners

Specifically, differences exist among the culture profiles of main contractors, subcontractors, and suppliers in construction supply chains within the study area, as shown in Figure 1. This is because all companies will possess varying degrees of values, beliefs, and artefacts, but the predominant ones within a period are used to classify organisational culture type. Figure 1 indicates that the leading contractors in the study area displayed a prevalence of market culture (mean score = 3.93), followed by clan culture (mean score = 3.80). The main contractors surveyed are medium- to large-sized, privately owned construction companies.

Figure 1 is a graphical representation of the means calculated from Table 4. It is used to compare the average results obtained from the competing values framework (CVF) developed by Cameron and Quinn (2011). This graphical representation is commonly used to report organisational culture analyses based on the CVF (Nukic & Huemann, 2016).

Therefore, the patterns of culture profiles predominantly exhibited a market culture type. Market culture is externally positioned, emphasises goal setting, and emphasises stability and control. Privately owned companies are profit-oriented. In the market, culture leaders are hard drivers and market penetration and share are used to determine success (Gupta, 2011). In the subcontractors' category, both clan culture and market culture are the most prevalent culture types (mean score = 3.96 each). The suppliers have clan culture as the most dominant culture (mean score = 3.89), followed by market culture (mean score = 3.83). Unsurprisingly, a predominant clan culture may be appropriate for the suppliers. Clan culture is internally focused, with a strong emphasis on flexibility and discretion. Employees' loyalty and commitment are emphasised, and employees are sensitive to customers.

The influence of respondents' overall general information on organisational culture was examined using a one-way ANOVA at the 0.05 level of significance. Table 5

Table 5. One-way ANOVA of General Information of Respondents Against Culture

General information variables	ANOVA	Clan	Adhocracy	Market	Hierarchy
Management level	*F*	0.393	0.826	4.732	0.393
	Sig.	0.675	0.439	0.010*	0.676
Company size	*F*	1.462	3.068	0.196	0.914
	Sig.	0.225	0.028*	0.899	0.434
Years in the construction	*F*	1.658	1.404	1.636	1.378
business	*Sig.*	0.160	0.233	0.165	0.242
Years of working experience	*F*	0.798	1.856	1.996	1.216
	Sig.	0.527	0.119	0.095	0.304

summarises the results of the one-way ANOVA. Surprisingly, while some general information about the companies and respondents (e.g., management level and company size) has a significant effect on organisational culture, general information about the respondents does not. General information about the respondents (such as years in the construction business and years of work experience) does not significantly affect the results of this research.

5. Discussion and Implications of Findings

The purpose of this research was to examine the organisational culture profiles of construction supply chains in Lagos State, Nigeria, and highlight the importance of cultural alignment in enhancing performance. The findings of this research clearly show that there are varying cultural profiles among the construction companies in the study area. This can be justified by the industry's fragmented nature. However, the overall culture profile is the clan culture, followed by market culture. Precisely, the results established that the companies surveyed are predominantly clan-oriented and market-oriented. This implies that construction supply chains in the study area are driven by an integrated approach of clan and market cultures (Wijethilake et al., 2023). Clan culture is characterised by internal focus (maintenance) and flexibility. It emphasises human relations and adopts flexible operating procedures, focusing on internal relationships, and the work environment is conducive, with little pressure from superiors; decisions can be taken without much recourse to the “power that be”. Market culture is externally focused on resources and tends toward goal setting and getting. These findings are in line with the studies by Coelho et al. (2022) and Nukic and Huemann (2016), which found that clan culture is preferred to foster better performance through team cohesiveness and high employee morale. Clan culture is an atmosphere that works against confrontational attitudes synonymous with the construction industry.

This research contributes both to theory and practice. Theoretically, this research extends the knowledge of organisational culture in the Nigerian construction supply chains. It also indicates that clan culture can be integrated with market culture to improve supply chain performance. The presence of strong clan and market cultures is a focus of this research. In practice, the results highlight the importance of balancing clan and market cultures to enhance performance and decision-making for supply chain managers across supply networks. Evidence suggests the need to pay attention.

6. Conclusion

This research aimed to examine the organisational culture of construction companies in the study area. Based on a quantitative analysis of the collected data, this research found that the prevailing cultural profile of construction companies in Lagos State, Nigeria, is a clan-oriented culture (combination of decentralisation and internal focus). This clan culture emphasises internal focus and integration, and is also flexible and decentralised. It indicated that construction companies emphasise human relations as an important core value. This finding reaffirmed the contention that any management strategy intended to improve organisational performance should align with the organisation's culture. This implied that construction managers in the supply chain, with the intent of implementing specific strategies, should foster a culture that promotes those strategies. The findings from this research can be used to better understand the culture that best suits the organisation's environment. Moreover, understanding the organisational culture helps engage more easily with supply chain partners. Therefore, this research recommends that the culture of construction companies in the study area's supply chains shift toward aligning clan-oriented culture with market-oriented culture, fostering employees who are more competitive, perfectionistic, and strategic. Cultural orientation has been found to influence the supply chain performance. Hence, a better understanding of organisational culture should equip supply chain managers in construction companies with the required management style and decision-making knowledge.

While this research provides an empirical analysis of the organisational culture, it has some noteworthy limitations. It should be borne in mind that, despite the widespread use of CVF theory, its inherent limitation is the difficulty of balancing competing values in a fast-changing environment. Therefore, future research should explore other theoretical perspectives. In addition, this research was limited to construction supply chains in Lagos State; future research should widen the scope to other States of the Federation. Moreso, future research should empirically examine the effect of organisational culture on supply chain performance. Finally, for in-depth analysis and generalisation, future research should adopt a mixed-methods design. This will give a broader understanding of organisational culture.

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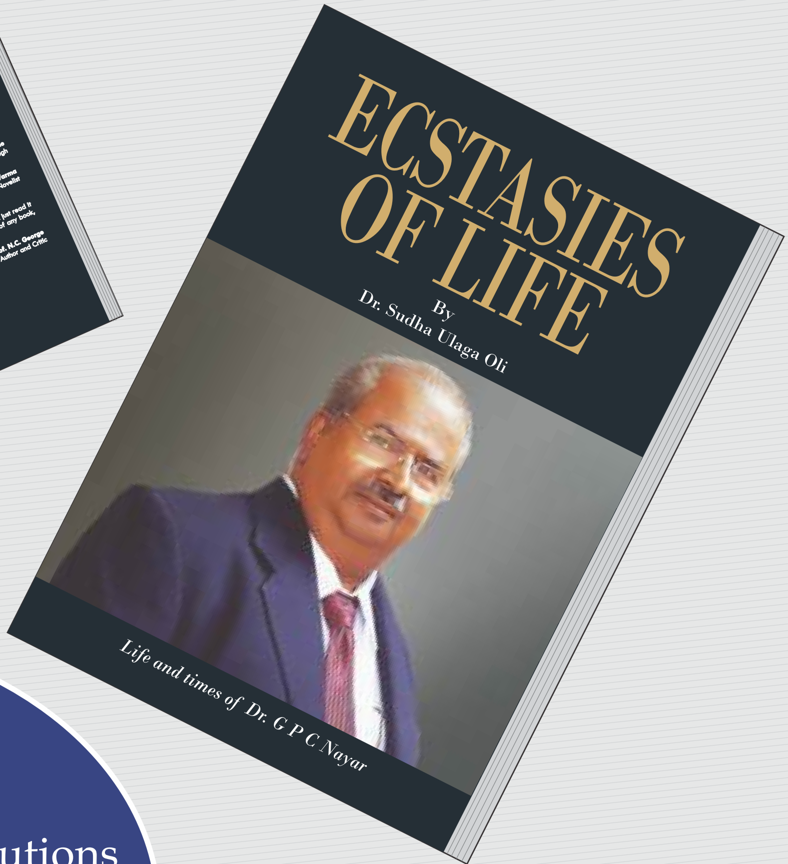

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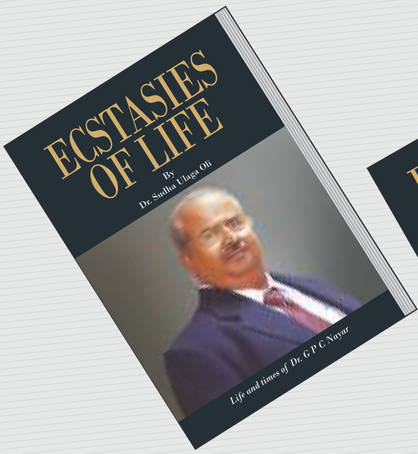

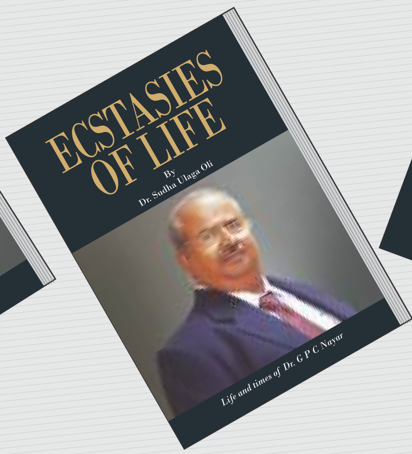

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