

**CAPITAL UNIVERSITY OF SCIENCE AND
TECHNOLOGY, ISLAMABAD**



**The Role of Agile Leadership in Project
Success: Mediating Mechanism of
Employee Resilience and Moderating
Role of Environmental Uncertainty**

by

Mahrukh Akhtar

A thesis submitted in partial fulfillment for the
degree of Master of Science

in the

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CERTIFICATE OF APPROVAL

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of Employee Resilience and Moderating Role of Environmental
Uncertainty**

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(Mahrukh Akhtar)

Abstract

This study investigates the role of agile leadership in driving project success within Pakistani project-based organizations, with employee resilience proposed as a mediating mechanism and environmental uncertainty as a moderating variable. Grounded in Dynamic Capabilities Theory, six hypotheses were developed and empirically tested using a quantitative, cross-sectional research design to identify cause and effect among variables. Data were collected from 275 mid-level employees across project-based SMEs operating in multiple organizations in Pakistan, using a structured questionnaire with validated measurement scales. The data were analyzed using SPSS and Hayes' PROCESS Macro Model 7. Five of the six hypotheses were supported. Agile leadership demonstrated a significant positive direct effect on both project success and employee resilience, and employee resilience had a significant positive effect on project success. However, employee resilience mediated the relationship between agile leadership and project success only conditionally: the indirect effect was significant at low and average levels of environmental uncertainty but became non-significant under high uncertainty, as confirmed by the index of moderated mediation. Correspondingly, environmental uncertainty negatively moderated the relationship between agile leadership and employee resilience, indicating that increasing environmental uncertainty weakens the positive influence of agile leadership on employee resilience. These findings highlight the situational nature of agile leadership effectiveness and underscore the importance of complementing leadership development initiatives with structured resilience-building programs, particularly in high-uncertainty organizational contexts. Future research should employ longitudinal designs to establish causal directionality and examine additional mediating and moderating variables within this framework.

Keywords: Agile Leadership, Project Success, Employee Resilience, Environmental uncertainty, Moderated Mediation, Pakistan.

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Abbreviations

AL	Agile Leadership
DV	Dependent Variable
ER	Employee Resilience
EU	Environmental Uncertainty
IV	Independent Variable
PS	Project Success

Chapter 1

Introduction

1.1 Background of the Study

Agile leadership has become an instrumental model in modern organization management, especially in the context of the fast-changing business environment of volatility, uncertainty, complexity, and ambiguity (VUCA) [Jintian et al. \(2022\)](#) In contrast to the classic hierarchical models, agile leadership focuses on flexibility, adaptability, and collaboration when managing teams and projects. The values of the Agile Manifesto, such as people and interactions first, working solutions first, customer collaboration, and openness to change, are the principles of the agile leadership practices ([Ansari et al., 2024](#)). In developing economies like Pakistan, agile management practices have been studied primarily in IT firms; however, the challenges of project complexity, uncertainty, and leadership competency are not exclusive to the technology sector ([Muhammad et al., 2021](#)).

Agile leadership is characterized by several salient elements, the first of which is adaptability, which describes the ability of the leader to adjust strategies, tactics, and behaviors to changes in the environment and to the needs of stakeholders ([Khan et al., 2024](#)). Empowerment that is characterized by providing the team members with authority to make decisions and exercise freedom to ensure the project life cycle improvements. Collaboration stresses building cross-functional teams and promoting open communication to share information, and the discipline

of project management research and practice has focused on project success over several years, but the definition of success and measurement are still evolving.

Traditionally, time, cost, and scope were the only paradigms to determine the success of a project, as the so-called 'iron triangle.' But even this small-scale vision has been criticized based on not being sufficiently inclusive to the multifaceted nature of project outcomes, as well as the various opinions of the stakeholders. The role of leadership competencies, particularly agile leadership styles, has become a powerful factor of success in a project within dynamic conditions. The information technology (IT) industry is a key driver of efficiency, innovation, and competition in organizations, especially in project-based and knowledge-based settings ([Akkaya & Bagieńska, 2022](#)).

Although agile leadership principles were originally developed for software development, they have since transcended their initial context and are now applied across a diverse range of industries, including healthcare, finance, education, and manufacturing. ([Ncube et al., 2024](#)) The broader application of agile leadership underscores its versatility and relevance in contemporary organizational practices across sectors beyond IT. Successful implementation of IT is challenging due to the rapid pace of technological change, short product lifecycles, and evolving client needs, necessitating effective project management practices, adaptive leadership, and skilled human capital. In developing economies like Pakistan, the IT sector has seen its demand grow at a substantial rate with the support of a high level of digitalization, government support, and opportunities for outsourcing in the world; however, this is surrounded by a high level of environmental uncertainties, including regulatory changes, economic instability, and high competition levels in the world ([Goraya et al., 2026](#)).

Research shows that IT projects are especially prone to uncertainty because they involve complex systems that have interrelated tasks and are continually evolving at technological levels, exposing many risks of cost, time, and scope overruns ([Han & Zhang, 2024](#)). Consequently, effective IT sector implementation increasingly depends on agile leadership approaches, resilient employees, and adaptive project management methodologies to ensure project success in uncertain and dynamic

environments ([Wei et al., 2020](#)).

The concept of employee resilience has taken center stage in research in the field of organizational behavior in the recent past, particularly given the increasing demands of change, and environmental insecurity at the workplace. The aspect of resilience is related to the ability of a person to withstand, recuperate, and change negative circumstances and continuous adversity. The concept has matured, and it currently holds center stage within positive organizational research and human resource management ([Adhiatma et al., 2023](#)). Thirty years of research have seen a sort of agreement over the major findings made concerning employee resiliency. To begin with, more resilient employees work better, have higher levels of satisfaction, and are more engaged.

Resilience provides a buffer against the impact workplace pressure, and, thus, burnout and turnover intentions decrease. The use of interventions that should supplement positive personal resources, which include hope, efficacy, resilience and optimism, which includes hope, efficacy, resilience, and optimism, is effective in increasing resilience at the workplace ([Alqudah et al., 2020](#)). The uncertainty embedded in the environment forces the decision-makers to face a case in which they have little information to project the outcomes of their activity because of uncertain changes in the environment. This construct has the complexity of the multiplicity and diversity of the external factors that organizations have to take into account when making decisions and the dynamism of rapid and unpredicted changes in these external factors. Combined, these dimensions create numerous layers of uncertainty to which organizations have to manoeuvre to remain viable and grow ([Surapto et al., 2024](#)).

The organizations operating under the conditions of uncertainty encounter increased challenges in data obtaining and processing, accurate prediction, and designing strategies. Recent research shows that the twenty-first century has increased uncertainty in the environment due to globalisation, disruptive technological disruption, climate change, and geopolitical instability ([Elhadidy & Gao, 2024](#)). uncertainty of economic policy has been found to exert both positive and negative impacts on corporate environmental behaviour and project management practices, depending

on institutional and governance conditions ([Khan et al., 2025b](#)). Under conditions of high economic policy uncertainty, firms may increase investments in corporate social responsibility and environmental projects when governance mechanisms are strong, as such initiatives help legitimise firms and reduce stakeholder risk perceptions ([Han et al., 2024](#)).

1.2 Gap Analysis

Despite the growing interest in agile leadership as a driver of superior organizational outcomes, most contemporary research has concentrated on the direct effects of agile leadership on performance indicators such as project performance, value co-creation, and stakeholder satisfaction, with few studies examining underlying behavioral mechanisms. For example, recent research shows agile leadership's positive effect on project performance via sequential mediators such as value co-creation and stakeholder satisfaction, but it does not investigate employee psychological factors as mediators in project contexts ([Khan et al., 2025b](#)).

Although leadership research has begun to explore employees' outcomes, such as workplace wellbeing and engagement, under inclusive or emotionally intelligent leadership, these studies focus on well-being or engagement rather than on resilience as a strategic mediator of performance outcomes ([Yang et al., 2025](#)). Meanwhile, resilience research has largely examined leadership that directly targets resilience during crises (e.g., resilient leadership affecting employee resilience), but these studies have been limited to specific industries like tourism and hospitality and do not link resilience to project success outcomes within agile leadership frameworks ([Zaman et al., 2024](#)).

Furthermore, although Environmental uncertainty and dynamism are recognised as important contextual factors in leadership effectiveness, their influence on the mediated process between leadership behaviour and project success remains under-explored. While prior studies on agile leadership in Pakistan have concentrated on the IT sector ([Muhammad et al., 2021](#)), this narrow focus limits the generalizability of findings. Agile leadership principles have transcended their original IT context,

influencing a diverse array of industries, suggesting that the resilience mechanisms linking agile leadership to project success, particularly through employee resilience, may operate consistently across sectors. There is therefore a need to examine these relationships in broader project-based organizational settings beyond IT.

Most studies either focus on how environmental factors shape direct leadership outcomes or examine them in unrelated domains, but not as moderators of psychological mediation effects influencing project success. Thus, there is a clear gap in understanding how agile leadership translates into project success through employee resilience and how Environmental uncertainty conditions this indirect effect. Addressing this gap by integrating resilience as a mediator and Environmental uncertainty as a moderator extend leadership and project management literature by revealing the behavioral processes and boundary conditions through which agile leadership leads to successful project outcomes.

1.3 Problem Statement

While agile leadership is widely recognized as a driver of project success, the behavioral mechanisms explaining this relationship remain under-researched. Specifically, during periods of high environmental uncertainty, projects often suffer from delays and scope creep due to diminished employee well-being. The core problem is that organizations in Pakistan lack a clear understanding of how agile leaders can foster employee resilience to buffer against volatile conditions and how varying levels of environmental uncertainty alter the effectiveness of this resilience-building process.

While the gap was originally identified in IT literature, organizations across multiple sectors face unexpected events, environmental volatility, and uncertainty that demand resilience and adaptive leadership. Project-based SMEs in Pakistan operating across sectors including IT, finance, HR, and administration, therefore represent an appropriate population to examine these mechanisms, as they collectively operate under similar conditions of environmental uncertainty and resource constraints. Without addressing this gap, organizations struggle to design effective leadership interventions that guarantee project success in an unpredictable environment.

1.4 Research Questions

This research answer the following questions:

i. Research Question 1

Does agile leadership have a positive impact on project success?

ii. Research Question 2

Does agile leadership positively affect employee resilience?

iii. Research Question 3

Does employee resilience positively affect project success?

iv. Research Question 4

How does employee resilience mediate the relationship between agile leadership and project success?

v. Research Question 5

Does environmental uncertainty moderate the relationship between agile leadership and employee resilience?

vi. Research Question 6

Does environmental uncertainty significantly influence the moderated-mediation relationship between agile leadership and project success through employee resilience?

1.5 Research Objectives for This Study

Objectives of the study are as follows:

i. Research objective 1

To examine the positive effect of agile leadership on project success.

ii. Research objective 2

To investigate the positive effect of agile leadership on employee resilience.

iii. Research objective 3

To investigate the positive effect of employee resilience on project success.

iv. Research objective 4

To examine how employee resilience mediates the relationship between agile leadership and project success.

v. Research objective 5

To find out how environmental uncertainty moderates the indirect relationship between agile leadership and project success through employee resilience.

vi. Research objective 6

To examine the moderated-mediation effect of environmental uncertainty on the relationship between agile leadership and project success through employee resilience.

1.6 Significance of the Study

This study contributes to agile leadership theory by providing empirical evidence of its effectiveness in bringing about improvements in project success through psychological mechanisms ([Akkaya & Bagieńska, 2022](#)). While previous studies have identified the importance of agile leadership in organizational contexts, this study furthers an in-depth understanding of the means through which these practices of leadership work by building employee resilience and thereby advance theoretical understanding of the processes of leadership ([Zaman et al., 2020](#)).

The microfoundations of organizational dynamic capabilities are better understood by anchoring research in dynamic capabilities theory. Results show how agile leadership practices at both individual and team levels enhance sensing, seizing, and transforming capabilities that help an organization adjust to changes in its environment ([Alrayssi, 2025](#)). This study, therefore, integrates micro and macro perspectives in strategic management research. This research also enhances resilience theory by establishing employee resilience as an important mediating mechanism linking leadership to organizational outcomes. Resilience has generally

been considered a moderator or direct predictor, but this paper outlines its role as a psychological channel through which leadership influences project success and therefore enhances theoretical models of resilience in organizational settings.

Environmental uncertainty is also a boundary condition considered in the study to apply the contingency theories of management in establishing that contextual factors play a vital role in determining the effectiveness of management. The results elucidate in what circumstances and at what point agile leadership may be of the highest effect in promoting resilience towards project success. Thus, this paper contributes to methodological breakthroughs in the field of leadership research through moderated mediation modeling that entails conditional indirect effects. This gives a more realistic, full picture of the real organizational phenomena than other models, which consider just a few paths and boundary conditions simultaneously ([Ahmed & Elali, 2021](#)).

The organizations then take the evidence from this research to formulate their evidence-based leadership development programs and stay at the forefront of agile leadership skills ([Akkaya & Bagieńska, 2022](#)). Knowing what particular practices unquestionably make the employee more resilient and the project successful enable focused training initiatives to ensure you receive the most from investments in leadership development ([Adhiatma et al., 2023](#)).

1.7 Foundational Principles of Dynamic Capabilities Theory

Dynamic capabilities, which are the ability of firms to perform existing tasks effectively and the ability of organizations to change their dynamic capabilities in response to changing environmental factors, are characterised by the theory of dynamic capabilities ([Goraya et al., 2026](#)). Dynamic capabilities are defined by three specific functions: sensing, the ability to notice and evaluate opportunities or threats; seizing and mobilising resources to take advantage of and create value from opportunities; and transformative renewal for the purpose of maintaining

evolutionary fitness ([Alnasser et al., 2025](#)). Sense functions are about searching for, scanning, and exploring technological and market opportunities. Agile leaders in this study demonstrate that they are able to sense changes through awareness of changes in the environment; they encourage experimentation and ensure a smooth flow of information between project ([Alqudah et al., 2020](#)). These sensing activities enable early identification of project risks and opportunities, thereby enabling a proactive rather than reactive response. Capturing capabilities involves using resources to pursue opportunities and capture value from them through smart decisions and good execution. Agile managers exercise gripping abilities by giving employees decision-making power, resource flexibility, and a focus on the customer. When employees are resilient, they can carry out such activities even in the face of adversity, thereby increasing the likelihood of project success ([Elhadidy & Gao, 2024](#)).

The agile capability of a business enables it to stay relevant in the shifting markets through the continuous renewal and reconfiguration of its assets and restructuring of the organization. Agile leaders make change more manageable because they inspire employees toward continuous learning, help them adjust to changes, and stand with them during the change. Employee resilience is a significant micro-foundation for organizational transformation because resilient persons cope better with change and can have a greater propensity for organizational renewal ([Hsieh et al., 2023](#)).

This theory of dynamic capabilities applied in the present research framework untangles various fundamental theoretical processes. Agile leadership practices implement dynamic capabilities on a small scale by facilitating the activities to be felt, captured, and transformed. The ability of leaders to be flexible, to empower others, and to work in teams and the desire to learn new things enable organizations to adapt to changes in their environments, a characteristic which increases their dynamic abilities. This theoretical relationship demonstrates that agile leadership is the crucial factor in the adaptation capability of any organization. The dynamic capability theory is only beginning to think about the importance of micro-foundations. They are personal capabilities, processes, and structures that constitute organizational capabilities ([Bouguerra et al., 2023](#)). One of the

fundamental micro-foundations of dynamic capabilities is employee resilience, as resilient individuals have the psychological resources that are prototypical in ensuring successful participation in the sensing, seizing, and transforming activities. Their internal capability of recovering when falling, keeping up with the new circumstances, and sustaining the performance during the pressure conditions affects the dynamic organizational capability ([Chan, 2024](#)).

In terms of dynamic capability, project success can be taken to refer to the use of the capabilities of an organization to pursue strategic goals amidst environmental issues. The success of projects proves that the organization is capable of grasping opportunities and projects and exploiting them through efficient project implementation and probably enriching its possibilities through learning post-project knowledge integration. The dynamic capabilities theory is clear in stating that capabilities' value and structure depend on the environment. Dynamic capabilities must be in highly dynamic and high-paced environments ([Elhadidy & Gao, 2024](#)).

Chapter 2

Literature Review

2.1 Agile Leadership

Agile leadership has been described as a modern paradigm of leadership that is characterised by flexibility, adaptability, empowerment, working in groups, and fast-tracked decision-making in the environment of uncertainty and dynamism. Agile leadership in project-based contexts emphasises the quick responsiveness to the changing requirements, the facilitation of the teamwork, and the alignment of the project activities with the changing organisational and stakeholder demands. Based on this, the concept of agile is a leadership approach that supplements organisational responsiveness and flexibility in dynamic and turbulent business conditions ([Wijesinghe et al., 2025](#)).

2.2 Project Success

Project success is a multidimensional concept, which refers to the extent of achievement of the intended objectives and value generation to the stakeholders by a project. The concept has traditionally been measured by the use of the iron triangle of time, cost, and scope, but modern systems extend this definition to include quality, performance, satisfaction of stakeholders, alignment with the strategy, team

performance, long-term organisational payoffs, and learning outcomes ([Adhiatma et al., 2023](#)).

2.3 Employee Resilience

Employee resilience refers to the behaviorally effective ability of individuals to withstand stress, adapt to change, recuperate after failure and perform well in demanding conditions. It entails emotional stability, cognitive flexibility, problem-solving competence, optimism and persistence despite adversity. Strong employees can handle workload, uncertainty, role ambiguity and unexpected disruptions without a significant drop in motivation or productivity ([Akkaya & Bagieńska, 2022](#)).

2.4 Environmental Uncertainty

Environmental uncertainty is a measure of unpredictability, instability and complexity that the external environment of an organization has. It is due to the high rate of technological changes, market shocks, changes in regulations, economic fluctuations, political instability in the world, and competitive pressures. Therefore, Environmental uncertainty is a condition that is a contextual factor influencing the behaviour of the organization, the reactions of employees and the level of performance of the project ([Yadav & Tripathi, 2025](#)).

2.5 Agile Leadership and Project Success

Agile leadership has become a serious issue of leadership in modern organisations which are working in dynamic and uncertain environments ([Xiufan & Yunqiao, 2025](#)). Agile leadership is about flexibility, teamwork, rapid decision-making and learning versus the hierarchical control and staid planning that is the essence of traditional leadership. Agile leaders encourage flexibility within the process and

also flexibility within the teams to respond on time to changes in the project scope and expectations of the project stakeholders. The current literature emphasises that the concept of agile leadership is more applicable in project-based and knowledge-driven environments, where uncertainty and complexity are natural occurrences (Syamsir et al., 2025).

According to Dynamic Capability Theory, agile leadership is a sensing-and-seizing capability that enables organisations to notice changes in their environment and swiftly move resources to respond appropriately (Uraon et al., 2024a). Agile leaders practise adaptive thinking by keeping a continuous scan of the environment; promoting transparent communication that allows information sharing; empowering and enabling teams to ensure speedy decision-making; conducting iterative planning in order to include feedback and learning; and leveraging collaborative methods that use diversity. Overall, this enhances an organisation's capability of dealing with complexity and uncertainty, thereby setting up projects for success. Project success is a multidimensional concept, which is not limited to the face of the iron triangle of cost, time and scope. Modern studies consider the use of more inclusive measures of success, such as stakeholder satisfaction, quality outcomes, business impact, and long-term organisational value.

The need to be adaptable, to learn and to have effective leadership has become a necessity in such uncertain environments, and therefore project success depends on it and not in the plan set out. The key role associated with leadership is to determine project success by affecting decision-making processes, coordination of the team, and allocation of resources. To support her point, (Tariq et al., 2024). provides arguments that the most important success factors of complex projects are leadership competence (Aggarwal et al., 2025).

In fact, agile leadership can be used to handle uncertainty, especially because it promotes experimentation, feedback, and quick adaptability to emerging circumstances. Recent research establishes that the leadership styles that put into focus flexibility and empowerment lead to positive impacts in a project (Khan et al., 2025a). showed that adaptive leadership also contributes to the overall performance of any project when operating in volatile environments. These results indicate that

the strategies to leadership corresponding with the principles of agility are critical to reaping the sustained success of projects in the contemporary vicissitudes of organisations (Rauniar & Cao, 2025).

Agile leaders are facilitators and not controllers who encourage self-organisation, cross-functional working, and ad hoc problem-solving. This type of leadership is far more consistent with the ethos of agile project management, where responsiveness, subsequent delivery, and customer value are more valued. The empirical observation shows that agile leadership has a positive effect on the performance of the team, innovation, and organisational agility. As an example, (Zhang et al., 2024) discovered that the adaptability of the leadership styles is determinative of the higher project team effectiveness.

A similar result indicated that agile leadership behaviours strengthen the proactive attitude and learning orientation of employees and, therefore, ensure the capacity of organisations to adjust to the rapid change in the environment. Empirical evidence supports the positive relationship between agile leadership and project success across many contexts. Serrador & Pinto (2015) identified a positive relationship between agile practices, as enabled by agile leadership, and project success in 1,002 projects studied and concluded that projects under agile leaders were more likely to succeed by 28% than under traditional leadership. (Udin, 2025). recorded increases of 25-30% in project success rates in organisations implementing agile leadership principles (Akkaya & Bagieńska, 2022). Therefore, all these findings suggest that agile leadership creates the enabling environment to improve project performance through increased adaptability, stakeholder engagement, and team effectiveness (Heidt et al., 2023).

Theoretically, agile leadership improves project success by building organisational sensing capabilities that can notice early opportunities and threats to which proactive responses can be provided (Zaman et al., 2024). Agile leaders enable capacity acquisition by mobilising resources to rapidly restructure the configurations of teams to achieve evolving priorities. These dynamic characteristics enable projects to adapt to new needs, fix problems quickly and remain aligned with stakeholder needs throughout the project life cycle (Heidt et al., 2023).

Environmental uncertainty is an additional factor that contributes to the complexity of project management through increasing the ambiguity of decision-making and compromising the predictability and control systems (Zaman et al., 2024). Organisations in such situations are often required to make strategic and operational choices using incomplete information or information that is fast-changing. This uncertainty places extra cognitive and affective loads on employees, which reduces the effectiveness of dynamic types of command-and-control leadership (Taseer & Ahmed, 2022). As a result, more appropriate styles of leadership in managing the teams in the turbulent environment are those that anticipate adaptability, sense-making, and quick-responding styles. When Environmental uncertainty is present, the employees may either be hampered or boosted depending on the presence of facilitative leadership and behavioral capital. The presence of huge degrees of uncertainty often increases levels of stress, role ambiguity, and emotional exhaustion, which in turn may diminish employee engagement and performance (Uraon et al., 2024a).

Alternatively, uncertainty can also be discussed in terms of a challenge instead of a threat when the employees demonstrate high resilience and work with agile leaders (Udin, 2025). Empirical studies have shown that resilient employees are in a better position to withstand ambiguity, shift priorities and focus in turbulent times, thus making a positive contribution to project continuity and results (Uraon et al., 2024b). There is also the moderation of the relationship between employee resilience and project success by Environmental uncertainty. Under predictable conditions, standard practices and set strategies might be used to get project success without necessarily depending on the dynamic behaviours of employees (Varshney & Varshney, 2025). Instead, when there is a high level of uncertainty, project success is more reliant on the ability of the employees to internalise shocks, overcome failure and improvise solutions. Employees with strong resilience can be regarded as key contributors to keeping the morale of the team alive, dealing with unforeseen disruptions, and making sure that the project goals are achievable in the face of external instability (Wei et al., 2020).

Environmental uncertainty as a moderating factor brings out the situational aspect

of leadership performance. Agile leadership behaviours such as empowerment, open communication, and continuous learning have a greater impact on resilience and project success in periods of uncertainty ([Wijesinghe et al., 2025](#)). Decentralised decision-making in these situations enables the teams to react promptly to arising problems without delays in the procedures. On the other hand, in low-uncertainty settings, the dividends of agile leadership might exist, though not with such a strong emphasis, because predictability decreases the urgency to respond immediately. The other important aspect that has been highlighted in the literature is the importance of agile leadership in sharing knowledge and ongoing learning. Quick decision-making and solving problems through collective learning are necessary in dynamic projects to support timely decisions and innovation ([Chan, 2024](#)).

The agile leaders are proactive in supporting learning loops, retrospectives, and feedback systems that enable the teams to look at their progress and continuously enhance their performance. This learning process makes organisational memory stronger and the long-term adaptability of project teams. Empirical evidence shows that agile leaders in organisations reveal a greater absorptive capacity, which allows them to make better integration of new knowledge and technologies in the project implementation ([Goraya et al., 2026](#)). Agile leadership as well has been associated with increased stakeholder involvement and customer focus in projects. In contrast to the classical leadership paradigms, where the key elements depend on the set plans and the top-down management, agile leaders focus on stakeholder cooperation throughout the project lifecycle.

Agile leaders propose that stakeholders participate in regular reviews and feedback sessions to make sure that the results of the project are in accordance with the expectations of the stakeholders and the demands of the market ([Udin, 2025](#)). This is a cyclic interaction that reduces the chances of project failure and improves the chances of providing value-based results. According to the literature, this kind of collaboration is particularly beneficial in complex projects in which the needs of the stakeholders are varied and constantly changing ([Khan et al., 2025a](#)). What's more, the strategic applicability of agile leadership is also clear, as the role of agile leadership in organisational resilience is discussed ([Kurniawan et al., 2020](#)).

Organisations cannot just react to change in volatile and disruptive environments, but they should also be able to foresee and prepare. Agile leaders are key to creating this resilience as a result of promoting proactive thinking, scenario planning, and swift restructuring of resources (Goraya et al., 2026). Decentralised decision-making introduces quick decision-making by teams that do not need to wait until they receive hierarchical decisions, and this increases the responsiveness and performance of the whole project (Hsieh et al., 2023).

Although the concept of agile leadership is gaining prominence, the literature also has its own problems related to the application of agile leadership. The change towards agile-orientated practices and using them instead of traditional leadership models requires a major change in mindset, organisational culture, and power structures (Hussain & Malik, 2022). The challenges to the successful adoption of agile leadership can be resistance to change, lack of leader training, and the mismatch between the organisational systems and agile values.

The scholars, therefore, emphasise the importance of having leadership development initiatives and favourable organisational structures to fully achieve the agile leadership benefits in project scenarios. Overall, the available body of literature constantly emphasises agile leadership as a key driver of an effective project within a volatile and unstable setting (Onamusi, 2023). Agile leadership can improve the performance of the team, innovation, and organisational responsiveness by encouraging it to be flexible, learn, work together, and involve the stakeholders. These observations give a strong theoretical basis to the analysis of agile leadership as one of the significant factors influencing the project outcomes, which is why it should be considered as one of the main variables in the current study (Kurniawan et al., 2020). The results show that the concept of agile leadership has gained a specific relevance and has become an essential method in modern project-based and knowledge-driven organisations. In the increasing cases of environmental volatility and unpredictability, the classic hierarchical and inflexible leadership paradigms are no longer relevant in handling complexity and rapid change. Agile leadership is a dynamic, adaptive and learning-based alternative which allows organisations to remain competitive and responsive.

Agile leaders prepare the environment to enable teams to experiment and innovate as well as adapt to emerging issues with effectiveness by forging an environment that promotes empowerment, teamwork, quick decision-making, and involvement of stakeholders (Haider & Kayani, 2021). A review of the literature constantly shows that agile leadership increases coordination within teams, fosters behavioral safety, and strengthens organisational adaptability. Its focus on continuous improvement and the recurrent feedback makes sure that project goals are in line with the expectations of stakeholders, regardless of the turbulent environmental conditions. Furthermore, agile leadership fosters the spirit of trust and transparency, which in turn allows the employees to engage in decision-making activities and to make significant contributions toward project deliverables. This decentralised and participative model empowers devotion, motivation, and performance in general.

Theoretically, agile leadership is similar to dynamic capabilities theory, which offers the ability of organisations to feel the changes, get the opportunities, and change resources productively. It functions as an organisational potential that enhances organisational robustness and functioning in unpredictable situations Udin (2025). In turn, agile leadership is not only a management practice but also a strategic necessity of successful long-term projects. As it has a multidimensional influence on workforce behaviour and business performance, agile leadership is a variable factor used as the basis to explain work performance in the modern project setting Uraon et al. (2024a).

All in all, including Environmental uncertainty as a moderating variable offers a more detailed explanation of the ways agile leadership affects employee resilience and project success. It recognises that results of leadership cannot be consistent across situations, but they are also dependent on the external environmental conditions (Yan & Rafiq, 2025). This study provides a more detailed account of project performance in modern organisations that operate in volatile, complex, and unpredictable environments due to the consideration of diverse degrees of uncertainty (Yang, 2025). The proposed hypothesis be:

H1: Agile leadership has a positive influence on project success.

2.6 Agile Leadership and Employee Resilience

Agile management practices create an enabling environment where employees can be more resilient on many levels. Agile management manages a safe place where employees can take risks, admit mistakes and learn from mistakes without fear of punishment. This allows the experimentation necessary to build resilience to take place (Yang et al., 2025).

They give employees the freedom to decide how to do their jobs and make decisions, thereby increasing their confidence and self-efficacy. Agile leaders promote continuous learning via reflection, feedback and knowledge exchange and cultivate cognitive flexibility and problem-solving skills which are critical resilience competencies (Haider & Kayani, 2021). Agile management also focuses on working together to solve problems; this is a means of building social resilience through strengthening relationships, creating support networks and spreading the challenges across teams (Wei et al., 2020). Iterative methodologies provide workers with small problems to overcome regularly, thereby helping them build resilience by providing them with positive experiences of overcoming challenges. Clear communication from agile leaders reduces uncertainty and confusion that can drain resources from employees.

Empowering employees serves to empower them to deal with their problems (Adhiatma et al., 2023). The theoretical research linking leadership to resilience is factually supported in some empirical research. Transformational leadership, which had traits similar to agile leadership, such as articulating a vision and giving individualized consideration, predicted employee resilience; authentic leadership, characterized by transparency and ethical conduct and aligned with agile leadership principles, positively influenced the resilience of employees (Aggarwal et al., 2025). While research investigating agile leadership and its direct effect on resilience is scant, conceptual overlap with well-known leadership styles that enhance resilience provides a strong theoretical basis (Soomro & Khan, 2024).

Employee resilience is critical towards attaining a successful project, especially in uncertain and high-pressure settings. Resilient employees can better cope with

disruption, adjust and maintain performance throughout the project lifecycle. They are capable of staying focused and being proactive, which is a positive addition to the work of a team and project results. Other studies empirically support the positive relation between resilience and performance. Also, stress increases the demonstration of better coordination and problem-solving in resilient teams. Resilience is a highly important human ability in project-based organisations, which have high levels of uncertainty and complexity, and it is required to be accompanied by technical skills and formal project management tools. In these respects, employee resilience is nowadays viewed as one of the determinants of project success ([Akkaya & Bagieńska, 2022](#)).

Moreover, modern literature is increasingly understanding the notion of agile leadership as a conceptual framework that is no longer limited to managerial flexibility but includes mindset, value, and behavioural orientation. The psychological safety that agile leaders should foster is to allow the team members to share ideas, experiment with new ideas and learn about failures without the feeling of any punitive consequences ([Jo & Hong, 2022](#)). This cultural aspect is especially relevant in project contexts where projects frequently have their operations time-constrained, ambiguous, and limited in resources. According to the researchers, agile leaders can allow teams to react to unpredictable issues more efficiently and keep up with the changing project objectives by cultivating trust and open communication ([Chan, 2024](#)).

From a dynamic capability perspective, agile leadership develops transformational capabilities from human resources, which are capable of adaptation and restructuring in light of evolving conditions. Resilient employees, as a manifestation of human capital, embody the adaptive and transformative characteristic the firm needs for its dynamic capabilities ([Alhosani & Ahmad, 2024](#)).

Agile leaders develop an organisation's capability for change and adaptation by developing resilience using psychological safety, autonomy, opportunities to learn, and collaborative practices ([Adhiatma et al., 2023](#)). In that regard, employee resilience represents a vital tool that agile leadership impacts the results of the projects with. Agile leaders do not simply react to environmental change but rather

take the initiative of creating adaptive human capabilities that allow them to cope with the pressure ([Alnasser et al., 2025](#)). Agile leadership improves the ability of employees to take shocks and recover after failures as well as to keep being productive when faced with uncertainty, as it creates autonomy, trust, and constant learning. It converts personal resilience into a team strength that increases team flexibility and the project implementation ([Alqudah et al., 2020](#)).

In a dynamic capability perspective, employees who are resistant to change add resilience capability to the reconfiguring capability of organisations since they allow redistribution of tasks in a quick way, quick problem-solving, and constant realignment of work processes. Moreover, the participation of stakeholders has become a determining factor of success in contemporary projects. The involvement of the stakeholders during the project lifecycle facilitates enhanced clarification of requirements, identification of risks, and management of expectations. Projects with constant communication with stakeholders are better placed to incorporate changes without affecting the overall goals ([Taseer & Ahmed, 2022](#)). It is found in literature that leadership styles that focus on collaboration and transparency have a positive impact on stakeholder satisfaction, which has now emerged as one of the critical dimensions of project success. Lastly, the proactive response of the organisation to risk and complexity is closely linked to the success of projects in unpredictable and dynamic environments ([Trieu et al., 2024](#)).

The dynamic risk management methods become inadequate in such situations, and flexible and learning-oriented methods are required. Its iterative planning and constant feedback in addition to decentralised decision-making, can be facilitated by leadership that helps a team to cope with uncertainty ([Udin, 2025](#)). Taken together, these results confirm the opinion that the success of the project is not being defined only by the technical performance but also significantly depends on the practice of leadership, human factors, and organisational adaptability. This dynamic interpretation of project success presents a powerful theoretical framework on which the effects of agile leadership and project success in modern organisations can be analysed ([Uraon et al., 2024a](#)). Employees that are strong tend to be more open to experimentation, knowledge sharing, and helping their colleagues through

tough stages of projects. Through these behaviours, organisations can have an intuitive feel of the impending threats, capture opportunities, and realign the resources in a better manner, leading to better performance of the project ([Ansari et al., 2024](#)).

More to the point, resilient workers are stabilizing factors when things are rocky in a project environment, and they provide a sense of morale, cohesion, and focus amid disruption. This stabilizing effect reduces the chances of performance breakdown and delays in the project, and this is especially the case in high-uncertainty situations. Subsequently, the effect of agile leadership on the project's success is indirect because resilience transforms the leadership practices into consistent behavioural outcomes on the employee level. According to theoretical arguments and empirical evidence outlined in the above discussion, this study hypothesizes that agile leadership has a positive effect on the resilience of employees, which consequently leads to an increase in the success of the projects ([Cao et al., 2024](#)). Therefore, the following hypothesis is proposed:

H2: Agile leadership has a positive influence on employee resilience.

2.7 Employee Resilience and Project Success

Employee resilience helps projects succeed by making it easier for people to deal with problems, keep up their work under pressure, and adjust to new situations [Tariq et al. \(2024\)](#). Resilient employees exhibit cognitive attributes in the form of constructive evaluation of challenges, proficient problem-solving skills, and a propensity for learning that enable them to manage project intricacies ([Kaya, 2023](#)). They show emotional skills of controlling their emotions, being optimistic, and keeping a positive attitude, which keeps them motivated and productive even when things get tough. Resilient employees exhibit proactive coping and sustained effort with adaptive decision-making that surmounts challenges and propels project advancement.

Since they are adaptable in their work and receptive to new knowledge, resilient individuals are better equipped to deal with changes in project needs. When less

resilient people are slowed down by a lack of resources, staff changes, or changes in their area of work, they continue to be productive. Rather than avoiding risks, resilient workers foster creative problem-solving by investigating novel approaches and learning discovered from mistakes ([Khan et al., 2025a](#)). Moreover, employee resilience reduces absenteeism, fatigue, and plans to leave, which in turn facilitate project continuity, knowledge retention, and team stability for successful projects. Such resilient employees facilitate the atmosphere of the team by promoting optimism, support, and constructive reactions toward obstacles. Group resilience amplifies individual contributions ([Idrees et al., 2024](#)).

More recent studies have been initiated to understand resilience as a mediating variable through which leadership can lead to performance outcomes. The resilience helps the employees to convert leadership assistance and direction into prolonged endeavour and adaptable behaviour [Khan et al. \(2025b\)](#). Resilience is defined in terms of being a behavioral avenue between the behaviour of the leadership and the success of the project in terms of agile leadership. The traditional approach to project success (based on time, cost, and scope) evolved to be a much more multidimensional approach to include things like stakeholder satisfaction, strategic alignment, long-term organisational value, and learning outcomes ([Naim et al., 2024](#)).

The modern-day organisations are volatile and competitive, and the traditional iron triangle is not enough to reflect the whole gamut of expectations that come along with the current-day projects ([Ahmed & Elali, 2021](#)). The success of the project has now grown to not only effective delivery but also to the impact of the project as far as organisational performance, innovation ability, and prolonged competitiveness ([Onamusi, 2023](#)). Due to the increasing dynamism of project environments, adaptability, team coherence, and behavioral preparedness become methods of leadership more significant in attaining successful projects.

The success of the project in the larger perspective can help in better assessing the role of leadership and human factors on the project performance ([Adhiatma et al., 2023](#)). Along with the leadership and adaptability, the recent literature highlights an essential role of human and relational factors in deciding a project's

success. The engagement of the team, the quality of communication and mutual understanding of project participants are becoming the key factors of successful project results. People do execute projects and not plans alone, and hence the social dynamics among the project teams play a major role in performance. Empirical evidence indicates that empowered teams, supported and with psychological safety, exhibit increased commitment and problem-solving ability that consequently leads to an increase in the success of the project (Surapto et al., 2024). The other key point of focus in modern-day research is the conformity between the project aims and organisational strategy. Strategically aligned projects have higher chances of providing long-term returns and organisational growth other than short-term deliverables. This strategic view sees the success of projects as a continuous process and not as a one-time success on project closure.

According to scholars, the successful projects ought to be able to bring forth the learning outcomes, enhance the organisational capabilities and present a platform of future initiatives. In turn, post-project benefits realisation and knowledge transfer are becoming a part of the project success evaluation (Tariq et al., 2024). These theoretical statements are also supported by empirical evidence from project contexts (Soomro & Khan, 2024). In the study, the resilience of team members was positively related to project performance, particularly in projects that were complicated and uncertain, and it was reported that employee resilience predicts project team effectiveness by developing enhanced problem-solving and adaptability. Seen from a dynamic capability perspective, resilient employees are transformative capabilities enabling organisations to rearrange resources and adapt to dynamic circumstances, hence directly enabling project success (Goraya et al., 2026). Based on the above discussion, employee resilience is a key behavioural and psychological resource that directly contributes to the success of a project, especially in an unstable and uncertain project environment.

Employees with resilience can continue the same level of performance during uncertainty, disruption, and workload pressure, hence reducing the risk of delay and performance failure in the project. Their adaptive thinking facilitates the positive reaction to the unexpected challenges, rearrangement of priorities and

ongoing concentration on project goals, which is very critical towards achieving timely and quality project outputs (Uraon et al., 2024a). Regarding teamwork, team efficiency and coordination can be enhanced by the resilient members of a team, and this enables the project teams to operate well even when the pressure is high. Strong teams have shown more ability to share workloads, sustain each other through tough times and overcome challenges together (Soomro & Khan, 2024). This teamwork sustenance guarantee continuity, stability, and efficient resolving of problems, thus raising the project performance. Empirical studies have continued to demonstrate that highly resilient teams have better performance, innovation and stakeholder satisfaction, particularly in high-risk and uncertain project environments (Surapto et al., 2024).

Employee resilience is one of the microfoundational aspects within the context of the Dynamic Capacity Theory that allows organisations to restructure resources and processes in line with environmental alterations. Strong employees promote organisational dexterity by being open to change, learning from failures, and assisting in quick problem-solving processes. The capabilities enable projects to stay on track with the changing stakeholder expectations and external requirements, hence raising the chances of a successful project in the long run (Tariq et al., 2024).

Put as a combination, both the theoretical reasoning and the empirical data indicate strongly that employee resilience can be the driving force of the project success. Through flexibility, continued work and efficiency in work, resilience has a direct impact on better project performance (Uraon et al., 2024a). Therefore, the proposed hypothesis would be:

H3: Employee resilience has a positive influence on project success.

2.8 The Role of Employee Resilience as a Mediator

Employee resilience is expected to be a mediator in the relationship between agile leadership and project success because it is a key mechanism through which

leadership influences project outcomes [Varshney & Varshney \(2025\)](#). Resilience among employees has received considerable attention as an important behavioral resource that helps individuals to overcome misfortune, come out of failure, and perform well in the face of pressure ([Akkaya & Bagieńska, 2022](#)). In turn, employee resilience can be viewed as one of the determining factors of how leadership practices affect the outcomes of the project. This view promotes the addition of resilience of the employees as a mediator variable, which explains how agile leadership can be translated into long-term project success in unstable and uncertain organisational contexts ([Alrayssi, 2025](#)). The concept of employee resilience has become one of the critical behavioral resources in modern organisational studies, particularly in project-based settings with uncertainty and pressure.

Resilience is a vital skill in project-based working conditions, which may be marked with crashes of deadlines and shifting requirements, as well as unexpected difficulties. Strong employees have a flexible nature, are emotionally controlled, can solve problems, and have long-lasting motivation despite uncertainty or workload variations ([Uraon et al., 2024a](#)). According to emerging evidence, leadership practices are important in influencing resilience through the impact of behavioral safety, autonomy, learning opportunities, and social support. The use of agile leadership to foster employee resilience as a mediating variable would offer an understanding of how agile leadership is converted into better project results by developing human strengths and adaptive capabilities ([Zaman et al., 2020](#)).

The term 'employee resilience' is the ability of an individual to deal with stress, adjust to change, and overcome misfortune and still perform ([Uraon et al., 2024a](#)). Resilience is a key behavioral service, which helps employees to be effective under pressure in the context of project-based environments that are characterised by tight deadlines, high workloads, and uncertainty ([Varshney & Varshney, 2025](#)). Resilience also helps employees to handle stress and adapt to changing needs, overcome disappointments, and persist in performance during hardships.

Resilience in a dynamic project environment with tight deadlines and high rates of change is one of the major predictors of both individual and team performance. The literature underlines that resilience is not only an innate personality trait

but rather a programmable ability that is influenced by the leadership behaviours, the organisational culture and the work-enabling environments. Empowerment, psychological safety, learning opportunities, and social support significantly increase the ability of the employees to cope with uncertainty in a constructive way. Strong workers perceive problems as learning challenges instead of threats, thus developing problem-solving skills, emotional stability, and initiating action. In addition, resilience reduces burnout, enhances engagement, and reinforces partnership as well as maintaining productivity. Resilient teams are more cohesive and flexible and sustain continuity even in cases where disruptions occur in the team unpredictably. This in a project context translates to increased efficiency, innovation and accomplishment of goals.

Theoretically, Dynamic Capabilities Theory sees resilient employees as micro-foundations of organisational adjustability, which facilitate the reorganisation of work and shock-absorbing capacity and responsiveness opportunities to support the sensing, seizing, and transforming capabilities of an organisation. Employee resilience, therefore, serves as a behavioral process that connects the performance outcomes with the leadership practices and thus is of critical importance in the continuity and effectiveness of the project in turbulent environments. A study has found that the more robust the employee is, the higher his engagement, problem-solving skills, and perseverance in problematic circumstances ([Onamusi, 2023](#)). Resilience is no longer viewed as a personal characteristic but can be fostered and enhanced with the help of organisational support, leadership behaviours, and work climate.

Moreover, the existing literature highlights the beneficial impact of resilient employees on individual and team-level delivery in a project setting [Adhiatma et al. \(2023\)](#). The ability to rebound fast enables project teams to maintain momentum and prevents erosion of performance in the event of the occurrence of unforeseen factors ([Ahmed & Elali, 2021](#)). Leadership plays a central role in employee resilience development in that it creates the work environment and supplies the resources required. Supportive leadership behaviours, which include open communication, recognition, and empowerment, strengthen the confidence and coping mechanisms

of the employees. In particular, agile leadership supports resilience by fostering autonomy, trial and error, and constant feedback; in other words, it helps to perceive the problems as learning opportunities instead of threats ([Akkaya & Bagieńska, 2022](#)).

Agile leaders can make their employees more adaptable to change and motivate them to work within the challenging project conditions by helping create a mindset of behavioral safety and shared responsibility. In addition to that, resilience has been empirically associated with enhanced cooperation, decreased burnout, and increased commitment among project teams. Strong employees tend to be proactive in problem-solving and be supportive of colleagues when they are undergoing tough stages of the project. Agile leadership approaches enhance employee resilience by facilitating behavioral safety, providing autonomy, encouraging learning, and enabling collaboration ([Alnasser et al., 2025](#)).

By being more resilient, employees are able to cope with project issues and maintain their performance levels when experiencing stress, as well as adapt to novel situations, which all support the achievement of project success ([Tariq et al., 2024](#)). In terms of the dynamic capability approach, this mediating relationship depicts how agile leadership develops transformative capabilities and employee resilience that the organization uses to achieve strategic goals and project success in dynamic environments.

Agile leaders perceive the need for flexible human capital and seize opportunities to develop employee competencies by deploying supportive methodologies. The resilience of employees originating from this constitutes a transformed resource base with an enhanced adaptive capability. This human capital transformation directly influences project success because it enhances problem-solving, adaptability, and performance consistency ([Khan et al., 2024](#)).

[Cao et al. \(2024\)](#) presented perceived organisational support as a mediator in relationships between leadership behaviours and employee resilience. Although research directly investigating agile leadership, employee resilience, and project success is scarce, the findings from analogous leadership styles offer an empirical basis for the suggested mediation. The mediation theoretical framework hypothesises

that agile leadership does not have a direct impact on ensuring project success but works through the idea of reinforcing employees' competencies, hence aiding in effective project execution (Xiufan & Yunqiao, 2025). Resilient employees function as the intermediary link between remote leadership practices and final project results (Zaman et al., 2024). Even the best agile leadership practices may not lead to project success if employees aren't resilient enough to handle challenges and keep up their performance. On the other hand, leaders who successfully build employee resilience create long-lasting competitive advantages that make projects successful in a variety of situations.

The mediating role of employee resilience taken together results in more delicate knowledge of how agile leadership can lead to the success of the project. Although agile leadership can be able to set strategic direction and fluid structures, it is employee resilience that translates the leadership practices into long-term performance. Strong employees are more resilient, meaning that they have more ability to handle pressure, learn to succeed, and are motivated to continue with the project lifecycle. Regarding the dynamic capability, the resiliency of the employees forms a very important microfoundation that enables organisations to redesign and mobilise human resources to react to the environmental instability (Yahia Marzouk & Jin, 2022).

Agile leadership improves such a microfoundation by creating an environment that facilitates autonomy, trust and continuous learning and increases the capacity of the employees to handle uncertainty. Resilience, in its turn, serves as the medium through which leadership-based capabilities be converted into tangible project deliverables (Yan & Rafiq, 2025). Additionally, the mediation model emphasises the fact that the effectiveness of the leadership depends on the behavioral preparedness of employees to address challenges. Without resilience, the well thought-out agile leadership practices can neither produce the desired project outcomes (Yang et al., 2025) nor foster a positive and productive work environment. On the other hand, resilience in employees can be a stronger tool to promote adaptability, problem-solving, and performance consistency in the case of agile leadership. In this relation, employee resiliency is an essential mediating factor between agile leadership and

project success (Yunpeng & Zaman, 2024). Thus, the subsequent hypothesis is posited:

H4: Employee resilience mediates the relationship between agile leadership and project success.

2.9 The Role of Environmental uncertainty in Moderation

Environmental uncertainty describes how the external conditions, including the market forces, rivalry conduct, technology alteration, and any policy changes, are unpredictable and imprecise to comprehend (Yadav & Tripathi, 2025). The high Environmental uncertainty is an obstacle to the organization in that it increases the uncertainty in the accuracy of the planning, information limitation, and strategic adjustments.

In that case, the leadership styles that focus on flexibility, rapid decision-making, and constant sensing be particularly useful (Alrayssi, 2025). Environmental uncertainty is thus a significant contextual force that determines the effectiveness of agile leadership and the processes that structure it to act on employee behaviour and project results (Alnasser et al., 2025). Through the ethical lens of Environmental uncertainty as a moderating variable, the research takes into consideration the fact that the leadership and resilience effects might vary with the amount of turbulence existing outside the organisation, and this method provides a more detailed description of the performance of the projects in turbulent environments (Uraon et al., 2024a).

Leadership acts as one of the contextual variables that brings in the aspect of employee resilience. Agile leaders develop conducive environments where behavioral safety, autonomy, and continuous learning thrive, which leads to the acquisition of resilience (Khan et al., 2025a). Agile leaders can use the openness to communication and experimentation to make employees see the difficulties as learning opportunities instead of threats (Alqudah et al., 2020). There is empirical evidence that connects

adaptive leadership behaviours with resilience. The researchers discovered that supportive leadership can alleviate stress and improve the coping abilities of employees ([Hassan et al., 2025](#)).

Agile leadership also encourages resilience since it allows employees to engage in decision-making and problem-solving. The feeling of ownership and power empowers employees by increasing their confidence and capacity to react positively to misfortune. By implication, leadership agility may be considered a key agent of resiliency in project teams that work in uncertainty. Environmental uncertainty is an additional factor that contributes to the complexity of project management through increasing the ambiguity of decision-making and compromising the predictability and control systems ([Alhosani & Ahmad, 2024](#)). Organisations in such situations are often required to make strategic and operational choices using incomplete information or information that is fast-changing. This uncertainty places extra cognitive and affective loads on employees, which reduces the effectiveness of dynamic types of command-and-control leadership. As a result, more appropriate styles of leadership in managing the teams in the turbulent environment are those that anticipate adaptability, sense-making, and quick-responding styles ([Alrayssi, 2025](#)).

When Environmental uncertainty is present, the employees may either be hampered or boosted, depending on the presence of facilitative leadership and behavioral capital. The presence of huge degrees of uncertainty often increases levels of stress, role ambiguity, and emotional exhaustion, which in turn may diminish employee engagement and performance ([Ansari et al., 2024](#)). Alternatively, uncertainty can also be discussed in terms of a challenge instead of a threat when the employees demonstrate high resilience and work with agile leaders. Empirical studies have shown that resilient employees are in a better position to withstand ambiguity, shift priorities, and focus in turbulent times, thus making a positive contribution to project continuity and results ([Elhadidy & Gao, 2024](#)). There is also the moderation of the relationship between employee resilience and project success by Environmental uncertainty. Under predictable conditions, standard practices and set strategies might be used to achieve project success without necessarily

depending on the dynamic behaviours of employees. Instead, when there is a high level of uncertainty, project success is more reliant on the ability of the employees to internalise shocks, overcome failure, and improvise solutions. Employees with strong resilience can be regarded as key contributors to keeping the morale of the team alive, dealing with unforeseen disruptions, and making sure that the project goals are achievable in the face of external instability ([Goraya et al., 2026](#)).

Environmental uncertainty as a moderating factor brings out the situational aspect of leadership performance. The behaviours of agile leadership, like empowerment, open communication, and continuous learning, have more significant impacts on resilience and project success in cases of uncertainty when it is high ([Alnasser et al., 2025](#)). Decentralised decision-making in these situations enables the teams to react promptly to arising problems without delays in the procedures. On the other hand, in low-uncertainty settings, the dividends of agile leadership might exist, though not with such a strong emphasis, because predictability decreases the urgency to respond immediately ([Uraon et al., 2024a](#)). All in all, including Environmental uncertainty as a moderating variable offer a more detailed explanation of the ways agile leadership affects employee resilience and project success. It recognises that results of leadership cannot be consistent across situations, but they are also dependent on the external environmental conditions ([Alqudah et al., 2020](#)). This study provides a more detailed account of project performance in modern organisations that operate in volatile, complex, and unpredictable environments due to the consideration of diverse degrees of uncertainty ([Hassan et al., 2025](#)).

One of the most effective contextual determinants that influence organisational behaviour and project outcomes is Environmental uncertainty. It is a term that is used to refer to the instability and uncertainty of external factors, which include market uncertainty, technological shocks, regulatory shocks, economic shocks, and competitive shocks. Organisations operating in environments that are very uncertain find it difficult to predict the future and come up with consistent long-term strategies ([Pires et al., 2023](#)).

Environmental uncertainty also enhances the ambiguity in decision-making processes and puts heightened pressure on the leaders and the employees. Conventional

management strategies that are planning-focused are becoming less effective with the external circumstances that are changing fast. Adaptive leadership styles, flexible models, and resilient workforces are, thus, necessary in order to maintain performance. The uncertainty can either demoralise or motivate performance depending on the levels to which the organisations react (Uraon et al., 2024a). Empirical studies possess findings that portray that uncertainty acts as a limiting condition that determines the nature of the relationships between leadership, employee behaviour and project outcomes. The value of adaptability and responsiveness increases in periods of high uncertainty, and routine-based practices can be sufficient in stable settings (Adhiatma et al., 2023).

Therefore, the Environmental uncertainty acts as a moderator of the ability of leaders to translate into the successful performance of projects. In the light of the dynamic capabilities theory, uncertainty increases the significance of sensing, seizing, and transforming capabilities. Where the internal capabilities are in line with the environmental demands, organisations have a better chance of attaining sustainable success. In this regard, Environmental uncertainty is a challenge as well as the definition of the importance of agile leadership and resilient human capital in a strategic context (Teece et al., 1997).

Generally, the approaches of defining Environmental uncertainty as a contextual determinant would provide a deeper insight into the situations where leadership and behavioral resources shape the success of projects in modern organisations. Agile leadership has become a leadership principle in organisations that have to deal with a high rate of change, uncertainty, and technological upheavals (Onamusi, 2023). The agile leadership philosophy is based on flexibility, collaboration, and empowerment, as it leaves the strict hierarchical system behind and focuses on flexibility, iterative learning, and decentralised decision-making (Xiufan & Yunqiao, 2025). Agile leaders promote experimentation, allow teams the freedom to be, and keep the project activities in step with stakeholder requirements. This type of leadership promotes the capacity of an organization to feel and react to the emergent issues, which is why it is especially applicable to the project-related environment where the requirements are changing quite often. Over time, as projects become

more speedy, innovative, and resilient, agile leadership has been identified as a necessary factor in enhancing the project performance and responsiveness at an organisational level ([Alrayssi, 2025](#)).

Environmental uncertainty is expected to condition the relationship between agile leadership and employee resilience, and through that path the indirect effect of agile leadership on project success. Dynamic Capabilities Theory holds that the relevance of dynamic capabilities is contingent on environmental conditions: under stable and predictable circumstances, ordinary competencies and established routines are sufficient for adequate performance, whereas the sensing, seizing, and transforming activities that constitute dynamic capability confer advantage only when the environment is uncertain ([Zaman et al., 2024](#)).

At the organizational level, therefore, the value of agile leadership as a capability rises with environmental uncertainty. This organizational-level logic does not extend automatically to the individual-level mechanism through which agile leadership operates in the present model. Employee resilience is a personal resource held by individuals, and its development depends on the cognitive and emotional capacity employees have available to absorb and act on leadership support. These demands draw on the same personal resources that the resilience-building process depends upon, so beyond a certain level of turbulence the demands placed on employee resources grow faster than agile leadership practices can replenish them ([Yadav & Tripathi, 2025](#)). Two propositions therefore need to be held apart. Agile leadership remains valuable and by the dynamic capabilities argument, increasingly valuable as uncertainty rises, and its direct effect on project success is expected to hold. What is expected to weaken is the specific pathway that runs through employee resilience. The a-path from agile leadership to employee resilience is attenuated when uncertainty is high, and because the indirect effect is the product of that path and the path from employee resilience to project success, the indirect effect is attenuated with it. This distinction is what separates H5 from H6, and it explains why both carry a negative sign while the direct effect hypothesised in H1 remains positive. We expect Environmental uncertainty to affect the relationship between agile leadership and project success in the direction of strengthening the effect

under high uncertainty. The basic idea of dynamic capability theory is that the relevance of dynamic capabilities depends on the environmental contingencies, and these capabilities do not matter in conditions of low uncertainty ([Zaman et al., 2024](#)). That is, dynamic capabilities matter only when uncertainty is high; under stable and predictable conditions, ordinary competencies and routines suffice for adequate performance. It is only in uncertain environments that dynamic capabilities relating to activities of sensing, seizing, and transforming confer a competitive advantage ([Taseer & Ahmed, 2022](#)).

Agile leadership embodies dynamic capabilities that yield enhanced value in contexts of significant Environmental uncertainty, as adaptive practices become important in managing unpredictability. When there is little uncertainty and the environment is stable, project requirements stay pretty much the same; technologies are well-known, and it is possible to do tasks well using planning. In such circumstances, the incremental benefits of agile leadership practices may be limited because dynamic management strategies are sufficient. However, under conditions of high uncertainty, with requirements that are continuously changing, quickly changing technologies, and the fast obsolescence of rigid plans, agile leadership practices are extremely valuable ([Yadav & Tripathi, 2025](#)).

Empirical research supports the moderating effects of Environmental uncertainty on the relationships between leadership and outcomes. It showed that environmental dynamism positively moderated the relationship between transformational leadership and organisational innovation. Specifically, a variance in innovation was explained by leadership in dynamic contexts, but in stable conditions, it was found that where the environment is uncertain, strategic flexibility plays an even more significant role in a company's success ([Zaman et al., 2020](#)). In such cases, flexibility had strong effects, though in stable contexts, it had weak effects, demonstrating that adaptive practices explained the variance in project success for projects with a great deal of uncertainty but only for projects that had little uncertainty. The results show that when Environmental uncertainty rises, adaptive leadership becomes increasingly crucial. Agile leadership offers adaptable thinking, iterative planning, and empowering behaviours that help projects deal with evolving

needs, new technology, and altering stakeholder expectations when it's unclear what happens (Aggarwal et al., 2025).

Agile leadership's innate capacity to adjust and prioritise learning satisfies the needs of unexpected situations, resulting in better performance outcomes. However, the added complexity and potential inefficiencies of agile approaches would not be rewarding in stable environments (Ahmed & Elali, 2021). From the dynamic capability perspective, Environmental uncertainty provides contingencies on when dynamic capabilities have value and when ordinary capabilities suffice. Agile leadership is therefore at an advantage over competitors in situations that call for rapid changes and rapid responses because its ability to sense an opportunity and seize it provides the necessary edge. Organisations operating in uncertain environments that apply agile leadership achieve greater project success because their adaptive capacity aligns with environmental demands (Akkaya & Bagieńska, 2022). The proposed hypothesis would be:

H5: Environmental uncertainty moderates the indirect relationship between agile leadership and project success through employee resilience, such that the mediating effect of employee resilience is weaker when the uncertainty is high.

The findings from the literature reviewed above indicate that environmental uncertainty can not only affect the direct link between agile leadership and employee resilience, but it may also impact how much employee resilience translates to project success as a result of agile leadership. When there is high uncertainty, complexity, and pressure, the capacity of employees to translate agile leadership to resilient employee behaviours and project results may diminish.

The indirect pathway from agile leadership to project success, via the employees' resilience, therefore may change depending on the level of an environmental uncertainty. This study, then, suggests that environmental uncertainty is a boundary condition of the indirect effect of agile leadership on project success through employee resilience, building upon the existing relationships among the study variables, which is grounded on the Dynamic Capabilities Theory. A boundary condition of this kind is formally expressed as a moderated-mediation hypothesis (Hayes, 2018).

Recent empirical work has begun to test environmental uncertainty explicitly as a boundary condition on leadership-driven indirect effects.

[Yu & Xiang \(2024\)](#) examined organizational resilience as a mediator between transformational leadership and team innovation performance and found that this indirect relationship became significantly stronger when environmental uncertainty was introduced as a moderator, suggesting that resilience-based mechanisms are more consequential precisely when the environment is volatile or unpredictable. Similarly, work on agile leadership in crisis settings has shown that agile leaders' quickness, flexibility, and collaborative orientation strengthen followers' emotional stability and, through this, organizational resilience, with the effect being especially pronounced during periods of disruption and uncertainty rather than in stable conditions.

On the outcome side, a parallel body of research supports treating environmental conditions as moderators of the path to project success. Studies on project managers' personality and project success have shown that external environmental factors, including political, economic, and social conditions, moderately influence how individual and team-level traits translate into successful project outcomes, with the strength of these relationships shifting depending on the level of environmental turbulence present ([Hussain & Malik, 2022](#)).

Likewise, research grounded in project contingency theory emphasizes that projects inherently operate within dynamic and uncertain environments, and that a project's success depends substantially on the extent to which managers and teams adapt to environmental unpredictability rather than relying on fixed, context-independent practices.

Taken together, this literature suggests that both the leadership-to-resilience link and the resilience-to-success link are context-dependent, providing theoretical justification for expecting environmental uncertainty to moderate the overall indirect effect of agile leadership on project success through employee resilience, such that the strength of this indirect pathway differs significantly across levels of environmental uncertainty. Based on this, the following hypothesis is suggested:

H6: Environmental uncertainty significantly moderates the mediation relationship between agile leadership and project success through employee resilience (moderated-mediation).

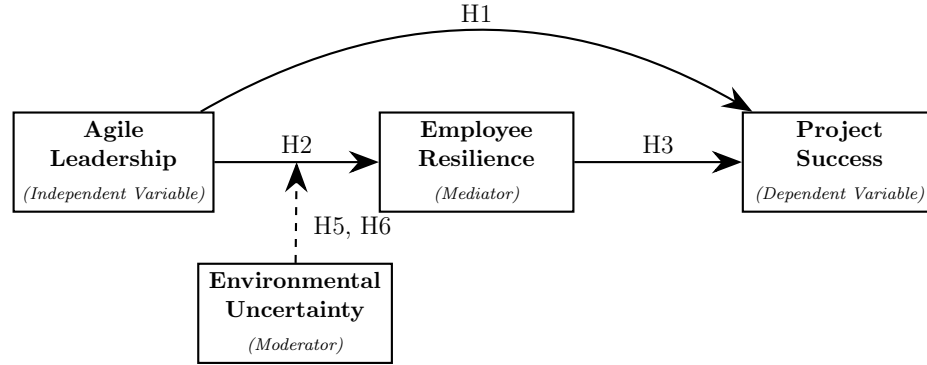


FIGURE 2.1: Research Model

2.10 Summary of Proposed Hypothesis of the Study

H1: Agile leadership has a positive influence on project success.

H2: Agile leadership has a positive influence on employee resilience.

H3: Employee resilience has a positive influence on project success.

H4: Employee resilience mediates the relationship between agile leadership and project success.

H5: Environmental uncertainty moderates the indirect relationship between agile leadership and project success through employee resilience, such that the mediating effect of employee resilience is weaker when the uncertainty is high.

H6: Environmental uncertainty significantly moderates the mediation relationship between agile leadership and project success through employee resilience (moderated-mediation).

Chapter 3

Research Methodology

3.1 Research Design

3.1.1 Type of Study

The current study is quantitative, where it tries to test cause-and-effect relationships between agile leadership, employee resilience, Environmental uncertainty, and project success ([Khan et al., 2025b](#)). The research takes into account both the direct and indirect relations, besides the conditional effects. The data were collected using project-based organisations that are active in Pakistan.

3.1.2 Philosophy of Research and the Quantitative Research

The philosophy of research supports the understanding of the way of knowledge generation and interpretation. The choice of research philosophy depends on the assumption that a researcher has about the nature of reality and the connection between knowledge and the visible phenomena.

The research philosophy in this study is positivist. Positivism assumes knowledge to be based on observable and measurable facts, and it stresses objective reality and empowers the theoretical assumptions to be tested empirically using statistical

methods. According to this philosophy, hypotheses are formulated using the existing literature, and quantifiable data are used to test the hypothesis (Abid et al., 2025). The current study is deductive in nature. Hypotheses for the study were formulated based on the established theories of leadership and organisational behaviour and were then tested empirically through statistical testing. The quantitative research methodology was chosen, as it allow gathering data about a significant number of respondents and allow statistical confirmation of correlations between variables. Quantitative methods guarantee objectivity, reliability, and generalisability of results (Saunders et al., 2011).

3.1.3 Research Design

In the current study, the research design adopted is a survey-based research design. The main data collection instrument is the structured questionnaire. The survey was selected on the basis that it is suitable for testing the theoretical relationships between multiple variables and allows one to collect standardised responses over a large sample (Hair Jr et al., 2019). Such a design would be useful in performing statistical tests like correlation, regression, mediation, and moderation.

3.1.4 Quantitative Research

The study is quantitative in nature. The research results rely on numerical data collected by use of the standardised measurement scales. The answers have been noted on a 5 point Likert-type scale and have been analysed with the help of statistical programmes SPSS and Process Hayes (2012). The proposed hypotheses were tested using different statistical methods, such as descriptive statistics, correlation analysis, regression analysis, mediation analysis, and moderation analysis and then further analyzed through Process by Hayes model 7.

The type of research suitable for this study was quantitative since it allows for measuring the strength, direction, and significance of connections between agile leadership, employee resilience, Environmental uncertainty, and project success.

3.1.5 Cross-Sectional Study

The research is cross-sectional. The respondents were only sampled at one time, as opposed to a long time being used. The use of cross-sectional studies is useful when variables are being studied across a particular period of time ([Sekaran & Bougie, 2016](#)). The design was appropriate since it was time and resource-saving and enabled effective analysis of the proposed research model.

3.1.6 Unit of Analysis

The unit of analysis for this research is the individual employee. Specifically, the respondents are people working in small and medium-sized businesses (SMEs) that complete their work through projects in Pakistan. Mid-level employees are chosen because they handle daily project operations while sitting below top management. They connect senior leaders with the regular staff ([Memon et al., 2020](#)). So each survey shows one person's actual experience with leadership, resilience, and project success at work.

The people surveyed held different project roles, such as project managers, human resource staff, IT professionals, finance managers, and administrative support staff. These roles were chosen because they cover the planning, technical, and support parts of a project. Also, these workers report directly to and work closely with the leaders being studied. Limiting the study to project-based SMEs in Pakistan ensures that workers can clearly see leadership actions and feel environmental changes directly without heavy corporate layers getting in the way.

3.1.7 Population

This research study population is the mid-level organization employees in project-based organizations in Pakistan. These organizations exist in dynamic environments where the leadership practices and uncertainty outside determine project success. Both online and physical survey techniques of data collection were used. Data were collected through both paper-based and online distribution channels. A total of 227

paper questionnaires were physically distributed across project-based organizations, of which 127 valid responses were received. In parallel, an online survey link was circulated through social and professional platforms, yielding a further 148 responses. Combined, 375 questionnaires were distributed, and 275 valid responses were obtained, consistent with the sample which was 73.3% response rate reported in Section 3.1.8.

The respondents were guaranteed confidentiality and anonymity to make them tell the truth and got signed approval stating:

You are invited to participate in this research study conducted for academic purposes. Your participation is entirely voluntary, and you may choose to withdraw from the study at any time without any negative consequences.

All information provided through this questionnaire will be kept strictly confidential and will be used solely for academic and research purposes. Your responses will remain anonymous, and no personally identifiable information will be disclosed or used in any form.

There are no right or wrong answers. Participants are requested to provide honest and accurate responses based on their knowledge and experience. The data collected will be analyzed in aggregate form only. By completing and signing this questionnaire, you confirm that you have read and understood the above information and voluntarily agree to participate in this research study.

The chosen organizations are the ones that represent different industries with different degrees of Environmental uncertainty. Although the research gap was identified in the IT literature, data were collected from project-based SMEs across multiple sectors in Pakistan. This decision was informed by evidence that agile leadership principles have transcended the IT sector and are now applied across healthcare, finance, education, and manufacturing ([Ncube et al., 2024](#)).

Furthermore, SMEs across sectors face environmental uncertainty, volatility, and the need for organizational resilience, making a cross-sector sample theoretically appropriate for testing the proposed moderated mediation model.

3.1.8 Sampling

In this study, a non-probability sampling method specifically convenience sampling was used to collect the data (Sekaran & Bougie, 2016). Convenience sampling was chosen because a complete sampling frame of project-based organisations and their employees was unavailable: some organisations restricted access and others raised confidentiality concerns. The resulting limitation on generalisability is acknowledged. The targeted respondents were SME organization workers who were engaged in the project implementation and management procedures. This specific demographic was selected because middle-level workers act as the critical bridge between strategic planning and tactical execution within project lifecycles. Their direct involvement provides a comprehensive perspective on both operational challenges and managerial decision-making.

An priori power analysis was conducted using G*Power version 3.1.9.7 to determine the minimum sample size required for this study. Using the F-test family (Linear Multiple Regression: Fixed Model, R^2 deviation from zero), with an effect size (f^2) of 0.10, significance level (α) of 0.05, statistical power of 0.95, and eight predictors, the minimum required sample size was 236 respondents. This analytical approach allows for a rigorous examination of boundary conditions, confirming that the indirect influence of agile leadership on project success via employee resilience depends significantly on varying levels of environmental uncertainty. Consequently, the empirical findings offer robust statistical validation for the theoretical framework established in this research, reinforcing the critical necessity of adaptive management capabilities in modern project environments.

3.2 Instruments

3.2.1 Measures

In the current study, a structured questionnaire that is based on a five-point Likert format was used. The instrument used measurement scales that were borrowed

from previously validated studies, hence guaranteeing reliability and validity. Every construct was operationalised with known tools that were reported in previous studies ([Abid et al., 2025](#)). In order to determine the reliability, a reliability test was done, and all the scales had good reliability coefficients.

The data were collected via the different questionnaires, and all the items were measured on a five-point Likert scale, where 1 (strongly disagree) to 5 (strongly agree). The variables that were used in this study were agile leadership, employee resilience, Environmental uncertainty, and project success. The questionnaire also included four demographic variables to gather the background variables of the respondents. These were variables of gender, age, qualification, and occupation. The set of demographic data eased the control-variable analysis in the hypothesis testing process ([Hair Jr et al., 2019](#))

3.2.2 Agile Leadership

Agile leadership was measured using the scale developed by ([Parker et al., 2015](#)). The scale consists of 8 items (AL1–AL8), each rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The items were designed to capture the multidimensional nature of agile leadership, encompassing a manager's intrinsic capacity to manage change effectively.

The ability to perceive the organization as a fluid and adaptive system; recognition of the limitations of external control in favor of self-organization; continuous environmental scanning; reliance on autonomous teams as primary problem-solving mechanisms; critical thinking in response to emergent and unexpected challenges; appropriate responsiveness to self-organized team outcomes; and the proactive removal of obstacles impeding team goal attainment.

3.2.3 Project Success

Project Success was assessed using an 8-item scale (PS1–PS8) adapted from ([Wu et al., 2019](#)). All items were rated on a five-point Likert scale ranging from

1 (Strongly Disagree) to 5 (Strongly Agree). The scale operationalizes project success as a multidimensional construct encompassing both process-oriented and outcome-oriented criteria.

Specifically, the items evaluate the extent to which a project was completed within the stipulated time frame and allocated budget; the degree to which quality standards were upheld throughout project execution; the prominence accorded to health and safety; the fulfilment of environmental performance; the satisfaction of project team members with the implementation process; the level of client satisfaction with project delivery; and the extent to which the project generated measurable commercial value for the organization.

3.2.4 Employee Resilience

Employee Resilience was operationalised using the validated scale developed by (Näswall et al., 2015). The scale comprises 9 items (ER1–ER9) rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). The scale was selected for its strong psychometric properties and its ability to capture resilience as a dynamic, behavioral construct at the individual level.

The items collectively assess an employee's capacity to collaborate effectively in the face of unexpected workplace challenges, generate adaptive solutions under difficult conditions, adjust to organizational changes, seek collegial support when confronted with adversity, maintain composure during periods of workplace difficulty, derive learning from mistakes and setbacks, proactively pursue solutions in stressful work situations, recover promptly from disruptive events, and modify work approaches in response to evolving demands.

3.2.5 Environmental uncertainty

Environmental uncertainty was measured using the 15-item scale (EU1–EU15) developed by (Pires et al., 2023). All items were rated on a five-point Likert scale ranging from 1 (Strongly Disagree) to 5 (Strongly Agree). This scale was adopted

on account of its comprehensive and multidimensional coverage of Environmental uncertainty as experienced at the organizational level.

The items span three principal dimensions: technological and product dynamism, which encompasses the rapid obsolescence of products and technologies as well as the intensity of research and development activity within the industry; market and competitive unpredictability.

It reflects diversity in customer buying behaviours, the nature of competitive forces, and the breadth of product lines; and organizational survival threats, which address pressures arising from the scarcity of labor and material resources, intense price and quality-based competition, product differentiation challenges, and constraints imposed by legal, political, economic, and social responsibility requirements.

TABLE 3.1: Scales Summary

Variables	Scale Source	Items
Agile leadership	Parker & Pathak (2015)	8
Project Success	Wu & Zuo (2019)	8
Employee Resilience	Näswall (2015)	9
Environmental uncertainty	Pires et al. (2023)	15

3.2.6 Statistical Tools and Techniques

To calculate means, standard deviations, and minimum and maximum values of the variables being studied, descriptive statistical analysis was done. These descriptive statistics provide a preliminary description of the distribution and central tendency of the discussed constructs. The following regression analyses were done to determine how the independent variables affected the dependent variable. In order to test both mediation and moderation effects at the same time, the PROCESS Macro Model 7 ([Hayes & Preacher, 2014](#)) was used. This model allows estimating direct, indirect (mediating), and conditional (moderating) effects simultaneously using a single system of analysis. The confidence intervals of the

indirect and moderated mediation effects were obtained by bootstrap resampling techniques. Therefore, bootstrapped confidence intervals of 95% for indirect and moderated mediation effects were estimated using 5000 bootstrap resamples.

3.2.7 Pilot Testing

Before carrying out the data collection on a large scale, pilot testing is a wise methodological measure that is intended to reduce possible flaws and make the measurement tools easier to interpret. A pilot study consisting of about fifty questionnaires that were administered to respondents was conducted in the current study in order to establish how well respondents understood individual items and the general structure of the instrument. The pilot test results indicated that the scales were clear, understandable, and appropriate enough to be used in further analytic processes. There were no significant changes that were required. In addition, the reliability measures that were derived in the pilot phase supported the suitability of the measurement scales to the subsequent general data collection process.

3.3 Reliability Analysis of Scales Used

Reliability refers to the same measurement value on repeat occasions. The use of Cronbach's alpha was used to measure internal consistency reliability. An alpha value of 0.70 and above is considered to be acceptable. In the present study, the results of the calculated alpha included agile leadership (0.70), project success (0.72), employee resilience (0.71) and Environmental uncertainty (0.81). These scores indicate high reliability and confirm that the elements of any of the constructs are very much interconnected. Furthermore, these robust internal consistency coefficients demonstrate that the measurement scales maintained a high degree of homogeneity and dependable psychometric stability throughout the data collection process. Consequently, the data collected possess the requisite dependability required to proceed with advanced structural equation modeling.

TABLE 3.2: Scales Reliability

Variables	No of Item	Cronbach's Alpha
Agile Leadership	8	0.70
Project Success	8	0.72
Employee Resilience	9	0.71
Environmental uncertainty	15	0.81

3.4 Sample Characteristics

The demographic factors that were encompassed in this study were gender, age, education, and occupation. The sample characteristics are given below:

3.4.1 Gender

Although efforts were made to ensure diversity, the majority of respondents were male employees. As shown in Table 3.3, 73.1% of respondents were male, and 26.9% were female.

TABLE 3.3: Frequency by Gender

Gender	Frequency	Percentage	Cumulative
Male	201	73.1	73.1
Female	74	26.9	100.0
Total	275	100.0	

3.4.2 Age

The data on the ages were stratified into ranges in order to make respondents more comfortable. The greatest proportion of the participants (52.7%) was in the range 18-25 years, as shown in Table 3.4. About 32.7% were aged 26-35, 12.4% were between 36 and 45 years, 1.5% were 46-55 years, and 0.7% were 55 and above.

TABLE 3.4: Frequency by Age

Age	Frequency	Percentage	Cumulative
18–25	145	52.7	52.7
26–35	90	32.7	85.5
36–45	34	12.4	97.8
46–55	4	1.5	99.3
55+	2	0.7	100.0
Total	275	100.0	

3.4.3 Qualification

Qualification is an important demographic factor that has an impact on professional competence. Table 3.5 illustrates that the majority of participants held a Bachelor's degree, accounting for the largest proportion of the sample at 62.2%. The second largest group consisted of Master's degree holders at 15.6%, followed closely by those with Intermediate-level education at 15.3%. A smaller proportion of respondents held an M.Phil. degree at 5.8%, while PhD holders represented the smallest group at 1.1%. Overall, the educational profile of the sample indicates a predominantly graduate-level workforce, which is consistent with the mid-level professional roles targeted in this study. This educational composition also has implications for how respondents may perceive and respond to environmental uncertainty.

TABLE 3.5: Frequency by Education

Education	Frequency	Percentage	Cumulative
Intermediate	42	15.3	15.3
Bachelors Degree	171	62.2	77.5
Masters Degree	43	15.6	93.1
MPhil	16	5.8	98.9
PhD	3	1.1	100.0
Total	275	100.0	

3.4.4 Occupation

Table 3.6 presents the occupational distribution of the 275 respondents included in this study. The vast majority of participants worked in Business/Commercial roles (IT, Marketing, Sales) consisting of 36.4% of the sample, which is 100 respondents. This was followed closely by those in managerial positions (project managers, finance managers) at 32% of the sample, which is 88 respondents, and support roles (HR, Admin, Support staff) making up 26.5% of sample, which is 73 respondents. Finally a smaller minority of the sample 5.1% of the sample which is 14 respondents were employed in the healthcare sector.

TABLE 3.6: Frequency by Occupation

Occupation	Frequency	Percentage	Cumulative
Business/Commercial	100	36.4	36.4
Managerial	88	32	68.4
Support	73	26.5	94.9
Healthcare	14	5.1	100.0
Total	275	100.0	

Chapter 4

Results

4.1 Data Analysis

The chapter outlines the empirical results of the investigation. The data were analysed using SPSS version 26. The findings are brought out in a systematic manner that begins with descriptive statistics and then moves to discussing the control variables' analysis.

4.2 Descriptive Statistics

Descriptive statistics for all variables in the study are shown in Table 4.1 with means and standard deviations. For the key constructs from the SPSS output, the mean for Agile Leadership (AL_Mean) was 3.33 (SD = 0.76), for Project Success (PS_Mean) 3.39 (SD = 0.76), for Employee Resilience (ER_Mean) 3.41 (SD = 0.73) and for Environmental Uncertainty (EU_Mean) 3.00

This suggests that all of the primary constructs of the study are at moderate to moderately high levels. Below are the descriptive statistics for all study variables. This suggests that all of the primary constructs of the study are at moderate to moderately high levels. Below are the descriptive statistics for all study variables.

The descriptive statistics for all study variables are presented in Table 4.1 below.

TABLE 4.1: Descriptive Analysis

Variables	N	Min	Max	Mean	Std
AL	275	1.00	5.00	3.33	0.76
PS	275	1.00	5.00	3.39	0.76
ER	275	1.00	5.00	3.41	0.73
EU	275	1.00	5.00	3.00	0.75

4.3 Control Variables

The control variables were analyzed to determine the statistical significance of the effect of demographic factors on the dependent variable, which is project success. A one-way ANOVA was used to analyze the differences across gender, age, education (qualification), and occupation. The analysis revealed that gender ($p = .795$), age ($p = .132$), and occupation ($p = .119$) did not have a statistically significant influence on project success ($p > 0.05$). However, education demonstrated a highly significant effect on project success ($F = 5.484, p < .001$).

Because educational background significantly influenced the dependent variable, it was included as a covariate in the subsequent moderated mediation analyses to ensure it did not confound the main relationships being studied. Additionally, the findings indicate that demographic characteristics did not uniformly affect project success. While gender, age, and occupation showed no statistically significant differences, the significant effect of qualification suggests that participants' educational backgrounds may play an important role in determining project success.

TABLE 4.2: One-way ANOVA

Control Variables	F	Sig. (p-value)
Gender	0.07	0.79
Age	1.79	0.13
Qualification	5.48	0.00
Occupation	1.97	0.11

4.4 Correlation Analysis

A Pearson correlation test was used to test the direction and the strength of the relationship between Agile Leadership (AL), Project Success (PS), Employee Resilience (ER), and Environmental uncertainty (EU). The outcomes found that Agile Leadership has a positive and significant relationship with Project Success ($r = .476, p < 0.01$), thus indicating a good positive association. Employee Resilience also shows a statistically significant positive correlation with Agile Leadership ($r = .485, p < 0.01$), which implies that the higher the degree of agile leadership behaviours, the higher the resilience of the employees. Equally, Employee Resilience shows a positive relationship with Project Success ($r = .499, p < 0.01$). Environmental uncertainty indicates a significant negative correlation with Project Success ($r = -.376, p < 0.01$), Agile Leadership ($r = -.494, p < 0.01$), and Employee Resilience ($r = -.511, p < 0.01$).

TABLE 4.3: Correlation Analysis

Variables	AL_Mean	PS_Mean	ER_Mean	EU_Mean
AL_Mean	1			
PS_Mean	.476**	1		
ER_Mean	.485**	.499**	1	
EU_Mean	-.494**	-.376**	-.511**	1

4.5 Regression Analysis

This study has used regression analysis to establish the predictive effect of independent variables on the dependent variables taking into consideration the mediating and moderating elements. To test the direct, mediating, and moderated effects, Hayes used the PROCESS Macro (Model 7) to bootstrap the impact.

Hypothesis 1: Agile leadership has a positive influence on project success.

The regression results indicate that agile leadership exerts a direct, statistically significant, and favorable effect on project success. The unstandardized coefficient

was 0.31 ($SE = 0.06, p < .001$), demonstrating that higher levels of agile leadership directly correspond with greater project success. Because the 95% confidence interval [0.19, 0.42] does not include zero, this relationship is strongly validated. Consequently, Hypothesis 1 is supported.

Hypothesis 2: Agile leadership positively affects employee resilience.

The data reveals a highly significant, positive link between agile leadership and the resilience of employees. With a coefficient of 0.32 ($SE = 0.05, p < .001$), it is clear that agile leadership substantially enhances how resilient employees are. The statistical significance of this finding is corroborated by the 95% confidence interval [0.22, 0.43], which strictly excludes zero. Thus, Hypothesis 2 is supported.

Hypothesis 3: There is a positive influence of employee resilience on project success.

The analysis indicates that employee resilience have a statistically significant effect on project success. The positive coefficient of 0.36 ($SE = 0.06, p < .001$) paired with a 95% confidence interval of [0.25, 0.48] indicates that having a more resilient workforce actively contributes to the successful completion of projects. Therefore, Hypothesis 3 is supported.

Hypothesis 4: Agile leadership has a mediating relationship with project success through employee resilience.

PROCESS Model 7 was used to examine the mediating role of employee resilience in the relationship between agile leadership and project success. The bootstrapped indirect effect was 0.04 (BootSE = 0.03) with a 95% bootstrap confidence interval ranging from -0.02 to 0.09. Since the confidence interval includes zero, the indirect effect is not statistically significant. Therefore, employee resilience does not significantly mediate the relationship between agile leadership and project success. Accordingly, Hypothesis 4 is rejected. These statistical outcomes clearly demonstrate that employee resilience fails to serve as a transmission mechanism linking agile leadership practices to successful project delivery in this empirical model. Furthermore, the inclusion of zero within the interval confirms the absence of any reliable indirect pathway across the evaluated conditional levels. Consequently, the hypothesized explanatory role of workforce resilience within this moderated

mediation architecture remains unsupported by the empirical evidence.

TABLE 4.4: Direct and Indirect Effects

Direct Effect	B	S.E	P	LLCI	ULCI
AL → PS	0.31	0.06	0.00	0.19	0.42
AL → ER	0.32	0.05	0.00	0.22	0.43
ER → PS	0.36	0.06	0.00	0.25	0.48
Indirect Effect	B	S.E	P	LLCI	ULCI
AL → ER → PS	0.04	0.03		-0.02	0.09

4.6 Moderation Analysis

The moderation analysis was performed using Hayes' PROCESS Model 7 to determine the existence of environmental uncertainty that moderates the relationship between agile leadership and employee resilience. The interaction term (AL × EU) was included to measure the moderation effect. The interaction effect was significant and negative ($B = 0.17$, $SE = 0.03$, $p < .001$, 95% CI = 0.19 to 0.41). This negative coefficient implies that employee resilience is less positively affected by agile leadership as uncertainty in the environment increases.

Conditional indirect effects analysis further supports this. The indirect effect of agile leadership on project success through employee resilience is strongest at low levels of Environmental uncertainty (Effect = 0.20, 95% CI = 0.09 to 0.32), moderate at middle levels (Effect = 0.10, 95% CI = 0.05 to 0.17), and much weaker at high levels (Effect = 0.03, 95% CI = -0.01 to 0.09). Notably, at high levels of environmental uncertainty, the 95% confidence interval crossed zero [-0.01, 0.09], indicating that the indirect effect of agile leadership on project success via employee resilience becomes statistically insignificant. This provides strong evidence for Hypothesis 5, demonstrating that severe environmental turbulence neutralizes the mediating benefits of employee resilience. The index of moderated mediation is -0.10 with a 95% confidence interval of -0.18 to -0.03. Since the confidence interval does not contain zero, the hypothesis of moderated mediation is strongly supported.

TABLE 4.5: Moderation Effect

Moderator Variable : Environmental uncertainty	B	S.E	LLCI	ULCI
Int-1 (AL $\times$ EU)	-0.29	0.06	-0.41	-0.17

4.6.1 Moderated-Mediation Analysis

To examine whether the indirect effect of agile leadership on project success through employee resilience depends on environmental uncertainty, a moderated mediation analysis was conducted using 5,000 bootstrap samples. The results revealed a significant index of moderated mediation ($\beta = .10, SE = .03, 95\% CI - .018, .03$). This confirms that the strength of the indirect pathway linking agile leadership to project outcomes via employee resilience varies depending on the level of environmental uncertainty present in the organizational environment. Specifically, the mediated relationship becomes more pronounced as environmental turbulence increases, highlighting that supportive and flexible leadership plays an even more critical role when external conditions are unpredictable.

TABLE 4.6: Moderation and moderated mediation effect

Effect	B	S.E.	LLCI	ULCI
Index of moderated mediation	0.10	0.03	-0.18	-0.03

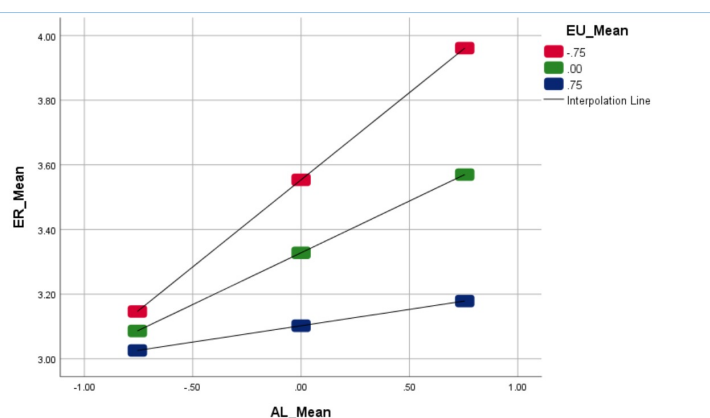


FIGURE 4.1: Mod Graph

4.7 Summary of Hypothesis Accepted and Rejected

TABLE 4.7: Summary of Hypothesis Accepted and Rejected

Hypothesis	Statements	Results
H1	Agile leadership positively influences employee resilience.	Accepted
H2	Employee Resilience positively influences Project Success.	Accepted
H3	Employee resilience mediates the relationship between agile leadership and project success.	Rejected
H4	Employee resilience mediates the relationship between agile leadership and project success.	Rejected
H5	Environmental uncertainty moderates the indirect relationship between agile leadership and project success through employee resilience, such that the mediating effect of employee resilience is weaker when the uncertainty is high.	Accepted
H6	Environmental uncertainty significantly moderates the mediation relationship between agile leadership and project success through employee resilience (moderated-mediation).	Accepted

Chapter 5

Discussion and Conclusion

The current chapter explores the findings of the empirical research concerning the theoretical framework and the empirical studies analysed in Chapter 2. The hypotheses are developed upon the premise of the scholarly arguments and empirical data described above ([Akkaya & Bagieńska, 2022](#); [Zaman et al., 2020](#)) The study is based on the Dynamic Capabilities Theory, which argues that agile leadership directly positively affect project success and indirectly, whereas the Environmental uncertainty act as a moderator between them. The hypotheses are discussed below.

5.1 Research Question 1

Does agile leadership have a positive impact on project success?

5.1.1 Discussion for Hypothesis 1

H1: Agile leadership has a positive effect on project success.

The findings confirm that agile leadership exerts a significant and positive direct effect on project success in Pakistan's project-based organizations. This aligns perfectly with an established stream of literature showing that in volatile and uncertain environments, empowering and adaptive leadership styles act as critical drivers of project performance [Kurniawan et al. \(2020\)](#).

Viewed from the perspective of Dynamic Capabilities Theory Teece et al. (1997), these results illustrate that agile leadership operates as a sensing-and-seizing capability at the organisational level. Agile leaders proactively respond by continuously scanning the external environment, identifying emerging opportunities and threats, and mobilising resources.

In project-based settings, where adaptive decision-making, stakeholder alignment, and iterative planning are central to successful delivery, this capability proves exceptionally valuable.

Regarding novelty, empirical evidence specifically positioning agile leadership as a direct predictor of project success within Pakistan's project-based sector remains limited, even though the positive link between leadership and project performance is broadly documented in general management literature. For instance, while prior research by Khan et al. (2025b) investigated agile leadership and project performance through sequential mediators like value co-creation and stakeholder satisfaction, it did not examine the direct pathway modelled here. Consequently, by providing a direct empirical test of this relationship in a developing-economy, project-based context, the present study extends the literature beyond technology-centric and Western settings.

From a sectoral standpoint, rapid technological change, evolving client expectations, and intense competitive pressure characterise the IT and project-management sector in Pakistan (Goraya et al., 2026). Agile leadership's focus on iterative delivery, cross-functional teamwork, and flexibility is particularly well-suited to ensuring projects remain responsive to stakeholder needs, within scope, and on track in such an environment. For organisations in Pakistan seeking evidence-based frameworks for leadership development in project-intensive industries, this finding offers direct practical guidance.

5.2 Research Question 2

Does agile leadership positively affect employee resilience?

5.2.1 Discussion for Hypothesis 2

H2: Agile leadership has a positive effect on employee resilience.

The empirical results establish a strong positive relationship between agile leadership and employee resilience. This is consistent with analogous empirical evidence and conceptual arguments indicating that individual-level resilience is cultivated by leadership styles characterised by continuous learning, autonomy, and psychological safety ([Adhiatma et al., 2023](#)).

Grounded in Dynamic Capabilities Theory, this finding highlights the micro-foundational role of human capital. By providing an environment that empowers employees to adapt, experiment, and recover from setbacks, agile leaders develop the transforming and sensing capabilities of their teams. A hallmark of agile leadership is psychological safety, which reduces the cognitive threat response to failure, thereby allowing employees to build emotional stability and problem-solving capacity both key components of resilience [Näswall et al. \(2015\)](#).

In terms of novelty, within a project-based sample, this is among the first studies to empirically test the direct effect of agile leadership on employee resilience using a validated resilience scale [Näswall et al. \(2015\)](#). While transformational leadership has been linked to resilience in broader organisational contexts and resilient leadership has been studied in the hospitality and tourism sector ([Zhang et al., 2024](#)), no prior study has specifically tested if agile leadership as an operationalised construct predicts employee resilience in a developing-economy, project-based setting. Thus, this study provides the first direct empirical evidence of this linkage within the Pakistani IT and project management sector.

Sectorally, the Pakistani volatile project environment imposes significant psychological demands on employees due to frequent scope changes, resource constraints, and tight deadlines ([Goraya et al., 2026](#)). Explaining the strong coefficient observed in this study, agile leadership's emphasis on iterative feedback, regular reflection, and shared decision-making directly counteracts these stressors. By distributing decision authority and encouraging peer support networks, agile leaders help insulate project professionals from burnout, ensuring sustained emotional and cognitive

resources even when external project parameters fluctuate unpredictably.

5.3 Research Question 3

Does employee resilience positively affect employee project success?

5.3.1 Discussion for Hypothesis 3

H3: Employee resilience is positively related to project success.

The results validate that employee resilience is a significant positive predictor of project success. During periods of disruption, resilient employees adapt to shifting project demands, maintain performance under pressure, and contribute to team cohesion, all of which are critical determinants of successful project delivery ([Tariq et al., 2024](#)).

Within Dynamic Capabilities Theory, resilient employees act as transformative micro-foundations, enabling organisations to sustain momentum, rearrange resources, and recover from setbacks without suffering performance loss ([Bouguerra et al., 2023](#)). Their psychological capital—encompassing resilience, optimism, efficacy, and hope ([Alqudah et al., 2020](#)) results in consistent, adaptive behaviour throughout the project lifecycle.

This finding contributes to the existing literature through its context and measurement specificity. While resilience is known as a predictor of individual job performance, this study is among the first to directly link individual-level employee resilience (measured via the validated EmpRes scale) to multidimensional project success within a Pakistani project-based sample. Furthermore, employing a multidimensional project success measure ([Wu et al., 2019](#)) that incorporates team satisfaction, environmental performance, commercial value, and client satisfaction alongside the traditional iron triangle enriches this empirical contribution. In Pakistan's IT and project management sector, environmental pressures often lead to employee stress, and human capital serves as a primary competitive resource

([Adhiatma et al., 2023](#)). Therefore, this finding highlights the strategic importance of resilience as a workforce capability by demonstrating how organizations must strategically leverage human adaptability to navigate unpredictable market.

5.4 Research Question 4

How does employee resilience mediate the relationship between agile leadership and project success?

5.4.1 Discussion for Hypothesis 4

H4: There is a mediation effect of agile leadership on project success through employee resilience.

The mediation analysis does not support employee resilience as a mediator in the pathway from agile leadership to project success. The bootstrapped indirect effect had a 95% confidence interval of, which includes zero, indicating that the indirect effect is not statistically significant. Because agile leadership continues to exert a significant direct effect on project success even when employee resilience is included in the model, the results suggest that agile leadership influences project success primarily through pathways other than employee resilience, at least as captured by this cross-sectional design. Accordingly, Hypothesis 4 is not supported.

Theoretically, this advances our understanding of the psychological mechanisms driving performance outcomes through leadership. While previous research often treated the leadership-performance relationship as a direct one, this study illustrates that part of this effect is transmitted through the workforce's psychological transformation ([Varshney & Varshney, 2025](#)). In terms of Dynamic Capabilities Theory, agile leadership 'seizes' the chance to develop human capital, while resilient employees 'transform' these developmental inputs into sustained project performance.

The novelty here is substantial. To the author's knowledge, no previous empirical study has tested employee resilience as a mediator between agile leadership ([Parker](#)

et al., 2015) and multidimensional project success (Wu et al., 2019) within a moderated-mediation framework. The non-significant finding itself is informative: it suggests that in this sample, agile leadership's benefits for project success are not primarily channelled through resilience, pointing future researchers toward other candidate mechanisms (e.g., psychological safety, team learning, trust).

5.5 Research Question 5

Does Environmental uncertainty moderate the relationship between agile leadership and employee resilience?

5.5.1 Discussion for Hypothesis 5

H5: Environmental uncertainty moderates the indirect relationship between agile leadership and project success through employee resilience, such that the mediating effect of employee resilience is weaker when the uncertainty is high.

The moderated mediation analysis shows that the positive effect of agile leadership on employee resilience is significantly weakened by environmental uncertainty. The moderated mediation hypothesis is accepted because the indirect effect of agile leadership on project success through employee resilience is not constant but systematically varies across levels of environmental uncertainty, and the index of moderated mediation confirms this variation is statistically significant and does not occur by chance. When environmental uncertainty is low, agile leadership most effectively cultivates employee resilience, which in turn meaningfully enhances project success, whereas as uncertainty intensifies, this mediating pathway progressively weakens until it becomes negligible under high uncertainty conditions. This pattern of conditional indirect effects satisfies the theoretical and empirical requirements for accepting a moderated mediation hypothesis, confirming that environmental uncertainty acts as a genuine boundary condition on the psychological mechanism through which agile leadership delivers its benefits to project outcomes. The acceptance is further reinforced by the theoretical logic of dynamic

capabilities theory, which predicts that the value of adaptive capabilities diminishes when environmental demands outpace an organization's capacity to respond, a proposition this study validates at the individual level by demonstrating that extreme turbulence constrains the resilience-building process that agile leadership otherwise sustains.

This introduces an important contingency: when the external environment is relatively stable, agile leadership is most effective at building employee resilience and thereby enhancing project success. Under conditions of high environmental turbulence, the beneficial effects of agile leadership on resilience are constrained, indicating that high uncertainty creates emotional and cognitive demands that leadership support alone cannot fully buffer. This result is theoretically grounded in Dynamic Capabilities Theory, which posits that the value of dynamic capabilities is itself contingent on environmental conditions ([Teece et al., 1997](#)). In highly dynamic environments, even strong dynamic capabilities may fall short because the rate of change outpaces organisational adaptation. The moderating role of environmental uncertainty in this study operationalises this theoretical proposition at the micro-level of individual resilience.

In terms of novelty, integrating environmental uncertainty, project success, employee resilience, and agile leadership into a moderated mediation model represents a new contribution to both project management and agile leadership literature. While previous studies examined environmental uncertainty as a direct moderator of leadership outcomes ([Yahia Marzouk & Jin, 2023](#)), its role as a boundary condition specifically moderating the indirect (mediated) pathway from agile leadership to project success via employee resilience has not been tested before. Methodologically, using Hayes' PROCESS Model 7 to estimate conditional direct and indirect effects simultaneously within one model represents an advance over studying mediation and moderation in isolation.

From a sectoral standpoint, this finding is especially pertinent to Pakistan's project-based organisations, which operate in an environment marked by regulatory volatility, macroeconomic instability, and geopolitical uncertainty ([Goraya et al. \(2026\)](#)). It implies that in such conditions, structural supports such as psychological

safety programmes, organisational buffers, and stress-management resources are necessary complements to agile leadership practices in order to protect project outcomes and sustain employee resilience. Consequently, management frameworks within these high-volatility settings must look beyond leadership style alone, embedding robust organizational mechanisms to effectively safeguard workforce stability and drive project performance. Ultimately, these contextual realities underscore that sustainable project success in emerging economies requires a synchronized alignment between agile leadership behaviors.

5.6 Research Question 6

Does environmental uncertainty moderate the indirect effect of agile leadership on project success through employee resilience?

5.6.1 Discussion for Hypothesis 6

H6: Environmental uncertainty significantly moderates the mediation relationship between agile leadership and project success through employee resilience (moderated - mediation).

The empirical findings confirm that environmental uncertainty significantly moderates the mediated relationship between agile leadership and project success through employee resilience (moderated-mediation), as supported by the Index of Moderated Mediation.

This outcome provides critical insights into the boundary conditions of project management dynamics. While agile leadership and employee resilience are vital assets independently, their combined mechanism becomes significantly more potent when external volatility increases. In highly unpredictable operational environments, traditional management frameworks often fail. Under these circumstances, agile leaders provide the necessary adaptive direction, which effectively cultivates employee resilience, enabling teams to navigate disruptions and maintain focus on project objectives.

Consequently, organizations operating in volatile markets must recognize that environmental uncertainty does not merely pose a threat; rather, it acts as an active catalyst that maximizes the strategic value of agile leadership and resilient human capital in driving successful project outcomes. By recognizing this interactive dynamic, contemporary enterprises can better position themselves to leverage external disruptions as opportunities for strategic differentiation and long-term operational resilience. Furthermore, these insights underscore the necessity of moving beyond static management models, encouraging project-based institutions to systematically integrate contextual variables into their strategic planning and leadership development initiatives.

5.7 Research Implications

5.7.1 Theoretical Implications

This study uses the hypotheses that are based on the dynamic capabilities theory and previous empirical studies [Akkaya & Bagińska \(2022\)](#). The empirical evidence supports most of the hypotheses, which gives credence to theoretical claims that leadership, resilience, and contextual variables are connected to the performance of the project. First, the findings extend the theory of agile leadership by empirically confirming its direct and indirect influence on project success within project-based organisations. Second, the research supports the theory of resilience because it positions employee resilience as a dynamic psychological ability instead of a constant characteristic ([Adhiatma et al., 2023](#)). Third, the study confirms the moderating role of Environmental uncertainty, which adds credibility to contingency logic in the dynamic capabilities theory.

Above all, the study combines the leadership behaviour (macro level), psychological mechanisms (micro level), and environmental contingencies (contextual level) into a single moderated-mediation model. This holistic framework contributes to the development of the leadership and project management theory by showing that adaptive leadership, strong human capital, and the alignment of the context are

the factors that are required to make the projects successful simultaneously.

5.7.2 Practical Implications

There are a number of practical implications based on the accepted hypotheses and theoretical foundations. The agile leadership development programmes offered to organisations in unpredictable environments and project-oriented settings should focus on flexibility, empowerment, and learning orientation. Given the fact that Hypotheses 1 and 2 have been supported, it is clear that leadership agility can be improved directly to increase the project success and resilience of employees. Second, they should implement resilience-building programmes, including psychological safety programmes, mentoring, stress-management training and ongoing learning platforms, since resilience is an intermediate between leadership and effectiveness.

Third, organisations should measure the level of uncertainty in the environment when coming up with leadership strategies. Because Hypothesis 5 was established, the leadership strategies need to be changed in connection with contextual turbulence. In environments of high uncertainty, there is a need to have further structural and emotional support mechanisms. As per the Dynamic Capabilities Theory, organisations ought to keep on building sensing, seizing and transforming capabilities through adaptive leadership and robust human capital. The combination of leadership agility, psychological strength, and contextual awareness in a holistic system is the guarantee of the sustainable success of the projects.

5.7.3 Limitations of the Study

In spite of its theoretical and practical input, this study has a number of limitations that should be closely considered to interpret the results. To begin with, the research design is assumed to be cross-sectional, which limits the ability to be able to cause inferences of strong causal relationships between the study variables. Although the structural relationship provides well-informed results on the relationship between agile leadership, employee resilience, and project success, it is not entirely possible

to determine cause and effect. The longitudinal research designs would enable the dynamic nature of changes in leadership behaviours, employee resilience and project outcomes in the course of time to capture the nature of a more comprehensive understanding of these interrelations. Second, the research is focused on a local and organisational setting, a factor that could limit the extrapolability of the findings. Leadership action and reaction of employees may be different in various industries, organisations and cultures. As a result, the results are not likely to be transferable to other sectors and regions. Future studies must entail the use of various organisational settings and intercultural comparisons to increase the extraneous validity of the findings. The other weakness is related to the use of self-reported measures to collect data. Despite the extensive use of self-report instruments in leadership and organisational behaviour research, these studies could bring in general method bias and social desirability. It is possible that the respondents might overrate leadership effectiveness or project success due to perceptual bias. Although methodological rigour was induced with the assumption of statistical redress, future research may enhance the impact of such considerations by incorporating objective performance measures, supervisor ratings, or multi-source data. Lastly, the research was focused on a small number of variables of the proposed framework. The impact of potentially affecting factors, like the culture of an organisation, team dynamics or personal traits of character, was not considered. The omission of these variables can limit the explanatory strength of the model, and it points to possibilities of future model development.

5.7.4 Future Directions

Based on the shortcoming and the results of this study, there are a number of research directions that can be suggested in the future. To begin with, longitudinal research designs must be used in the future to explore the manner in which agile leadership and employee resiliency change with various stages of the project implementation. These methods would provide more information about causal processes and their dynamics over time, especially for long-term projects or complex projects. Since the mediating effect of Employee Resilience was not supported

in the present study, future researchers are encouraged to further examine this relationship using larger and more diverse samples across different industries and organizational settings. Additional data collection and broader respondent coverage may provide deeper insights into the conditions under which Employee Resilience may act as a mediator between Agile Leadership and Project Success. Although education appeared as an influential factor; more studies should be conducted to explore its role, as most researchers ignore the role of demographic variables. Also, the future may utilize mixed methods which incorporate both quantitative and qualitative research, like a case study or interviews. This would be informed by qualitative information that may provide more information on the situation because it provides insights into the different contextual sensitivities in leadership and the experiences of the employees that may not be very well captured in the survey data. Third, researchers outline the need to study other mediating variables that can explain more of the relationship between agile leadership and project success. Some of the constructions like psychological safety, team learning, job engagement and trust can be useful explanatory processes. A further study of these aspects would help to build up a more pervasive vision of the effects of leadership on project results. Moreover, there are other contextual moderators which could potentially influence leadership performance, such as organisational culture, digital maturity, technological intensity and organisational structure, which should be researched in the future. Comparative analysis across industries and countries would also enhance the power and external validity of the results.

5.7.5 Conclusion

This study has looked at the consequences of agile leadership in project performance with specific focus on the mediating role of employee resilience and the moderating role of environmental uncertainty. The results bring strong evidence to the idea that agile leadership is a decisive factor in the project's success, particularly where the conditions are marked by a high proportion of uncertainty and change. Agile leaders are capable of fostering adaptable behaviours and enhancing employee resilience. Although employee resilience was positively associated with project

success, its mediating role in the relationship between agile leadership and project success was not statistically supported in this study. The study fills in on the available literature on leadership, project management, and dynamic capabilities through the combination of leadership behaviours and psychological and contextual issues. It highlights the fact that leadership is not only a managerial role but also a strategy of shaping the human capital and the performance of an organisation. From a practical perspective, the results indicate the necessity of organisations to invest in agile leadership building and resilience-building programmes. In a rapidly changing and competitive business world, the success of the project's sustainability/success should not largely deal with technical skills and planning but rather with adaptive leadership and resilience of employees.

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Appendix A

CAPITAL UNIVERSITY OF SCIENCE & TECHNOLOGY
ISLAMABAD

Questionnaire

Dear respondent,

I am an MS research scholar at Capital University of Science and Technology, Islamabad, and I am collecting data for my thesis titled **The Role of Agile Leadership in Project Success: Mediating Mechanism of Employee Resilience and Moderating Role of Environmental Uncertainty**. It will take you 10 to 15 minutes to answer the questions and to provide the valuable information. I assure you that data will be strictly kept confidential and will only be used for academic purposes. To ensure anonymity, you are not supposed to write your name or the name of your organisation anywhere in the questionnaire.

Regards,

Mahrukh Akhtar

Appendix

Section 1

Gender

Male	Female
1	2

Age

18–25	26–35	36–45	46–55
1	2	3	4

Education

Intermediate	Bachelors	Masters	MPhil	PhD
1	2	3	4	5

Occupation

Project Manager	Human Resource	IT Professional	Finance Manager
1	2	3	4
Admin/Support Staff	Other		
5	6		

Section 2:

IV-Agile Leadership

Agile Leadership Questionnaire Table 1 = Strongly Disagree 2 = Disagree
 — 3 = Neutral 4 = Agree 5 = Strongly Agree

Item Code	Statement	1	2	3	4	5
AL1	My manager has the intrinsic ability to deal effectively with change.	1	2	3	4	5
AL2	My manager views the organization as a fluid and adaptive system composed of intelligent people.	1	2	3	4	5
AL3	My manager recognises the limits of external control and values self-organisation as a means of establishing order.	1	2	3	4	5
AL4	My manager continuously scans the environment to remain aware of changing situations.	1	2	3	4	5
AL5	My manager relies on the collective capability of autonomous teams as the primary problem-solving mechanism.	1	2	3	4	5
AL6	My manager thinks critically when dealing with emergencies or unexpected problems.	1	2	3	4	5
AL7	My manager responds appropriately to outcomes that emerge from self-organised teams.	1	2	3	4	5
AL8	My manager removes obstacles that hinder the team from achieving its goals.	1	2	3	4	5

DV-Project Success

1 = Strongly Disagree 2 = Disagree — 3 = Neutral 4 = Agree 5 = Strongly Agree

Item Code	Statement	1	2	3	4	5
PS1	The project was completed on time.	1	2	3	4	5
PS2	The project was completed according to the budget allocated.	1	2	3	4	5
PS3	The project has maintained quality.	1	2	3	4	5
PS4	Health and safety are highly considered in the project work.	1	2	3	4	5
PS5	The project met its environmental goals for environmental performance.	1	2	3	4	5
PS6	Project team members/participants were satisfied with the process by which the project was implemented.	1	2	3	4	5
PS7	The client was satisfied with the project work.	1	2	3	4	5
PS8	The project contributed commercial value to the company.	1	2	3	4	5

Employee Resilience - Mediator

1 = Strongly Disagree 2 = Disagree — 3 = Neutral 4 = Agree 5 = Strongly Agree

S.No.	Item	1	2	3	4	5
ER1	I effectively collaborate with others to handle unexpected challenges at work.	1	2	3	4	5
ER2	I find new ways to deal with difficult situations at work.	1	2	3	4	5
ER3	I am able to adapt when changes occur at work.	1	2	3	4	5

S.No.	Item	1	2	3	4	5
ER4	I seek help from colleagues when needed to cope with challenging situations.	1	2	3	4	5
ER5	I am able to remain calm when facing difficulties at work.	1	2	3	4	5
ER6	I learn from mistakes and setbacks at work.	1	2	3	4	5
ER7	I actively look for solutions during stressful work situations.	1	2	3	4	5
ER8	I recover quickly from stressful events at work.	1	2	3	4	5
ER9	I adjust my way of working when necessary to deal with challenges.	1	2	3	4	5

Environmental Uncertainty - Moderator

1 = Strongly Disagree 2 = Disagree — 3 = Neutral 4 = Agree 5 = Strongly Agree

S.No.	Item	1	2	3	4	5
EU1	Products in our industry become obsolete very quickly.	1	2	3	4	5
EU2	The product technologies in our industry change very quickly.	1	2	3	4	5
EU3	We cannot predict what our competitors are going to do next.	1	2	3	4	5
EU4	We cannot predict when our product demand will change.	1	2	3	4	5
EU5	The research and development in our industry are very intense.	1	2	3	4	5

S.No.	Item	1	2	3	4	5
EU6	In our industry, there is considerable diversity in customers' buying habits.	1	2	3	4	5
EU7	In our industry, there is considerable diversity in the nature of competition.	1	2	3	4	5
EU8	In our industry, there is considerable diversity in product lines.	1	2	3	4	5
EU9	The survival of this organisational unit is currently threatened by the scarce supply of labour.	1	2	3	4	5
EU10	The survival of this organisational unit is currently threatened by the scarce supply of materials.	1	2	3	4	5
EU11	The survival of this organisational unit is currently threatened by tough price competition.	1	2	3	4	5
EU12	The survival of this unit is currently threatened by tough competition in product quality.	1	2	3	4	5
EU13	The survival of this organisational unit is currently threatened by tough competition in product differentiation.	1	2	3	4	5
EU14	The survival of this organisational unit is currently threatened by legal, political, and economic constraints.	1	2	3	4	5
EU15	The survival of this organisational unit is currently threatened by requirements of environmental and social responsibility.	1	2	3	4	5