ISSN (Print): 3005-8961
ISSN (Online): 3005-897X
Volume: 3 Issue: 2
July - December 2025

UCP Journal of Business Perspectives

-University of Central Punjab

ISSN:
3005-8961(Print), 3005-897X (Online)
Vol. 3, Issue 2
(July - December 2025)

UCP Journal of Business Perspectives (UCP-JBP)

Volume 3
Issue 2

Faculty of Management Sciences
University of Central Punjab, Lahore, Pakistan

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Subscription Charges National: PKR 1000 per issue
International: US$ 200 per issue

Editorial

We are pleased to present Volume 3, Issue 2 of the UCP Journal of Business Perspective. This issue features a diverse collection of empirical studies that explore the pressing challenges and emerging opportunities in international investment, organizational resilience, and behavioral leadership. The research included offers valuable insights into the dynamic business environment, highlighting the importance of institutional frameworks, human factors, and strategic agility in shaping future business practices. A recurring theme throughout this issue is the critical link between strategic leadership and organizational outcomes. The adoption of organizational ambidexterity is shown to be a significant predictor of project success, particularly within the software industry. These developments emphasize that the ability to balance exploration and exploitation, supported by innovation capability and resilience, is essential for superior performance in high-tech sectors. Additionally, the issue examines how leadership styles influence professional effectiveness and ethical behavior. One study illustrates how principal leadership and teacher collaboration enhance effectiveness through the multi-dimensional lens of self-efficacy. Similarly, the role of Green Leadership is explored, highlighting how emotional intelligence serves as a pivotal mechanism that translates environmental commitment into discretionary pro-environmental behaviors among employees. These findings are particularly useful for HR professionals and administrators seeking to foster a positive, sustainable organizational climate. The connection between institutional policy and economic prosperity is also explored, focusing on how Foreign Direct Investment (FDI) contributes to sustainable growth and economic diversification within the GCC perspective. This research stresses the need for targeted policy reforms to overcome barriers to private sector expansion. Lastly, the issue discusses the impact of celebrity endorsements on consumer buying behavior in the mobile phone industry, identifying brand attitude as the essential link between marketing attributes and purchase intentions. Collectively, these studies underscore the value of taking a multidimensional approach to strategic decision-making, integrating economic policy, organizational behavior, and consumer psychology, to foster sustained growth and resilience in an increasingly complex global economy. We sincerely thank the authors for their valuable contributions, the reviewers for their insightful feedback, and the editorial team for their unwavering commitment to maintaining high academic standards. We invite scholars and practitioners to build on these insights, driving innovation and sustainable growth in a constantly evolving business landscape.

Dr. Muhammad Athar Siddiqui
Editor-in-Chief
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Journal website: http://ojs.ucp.edu.pk/index.php/jbp/index

Foreign Direct Investment & Its Contribution to Economic Growth: A GCC Perspective

Kumkum Om Prakash[1*]

ABSTRACT

Foreign Direct Investment (FDI) serves as a primary indicator for the Gulf Cooperation Council (GCC) countries Kuwait, Bahrain, Qatar, Saudi Arabia, Oman, and the United Arab Emirates in their pursuit of sustainable economic growth. The GCC countries recognize the significance of foreign direct investment (FDI) in addressing the volatility of the oil market and fostering economic diversification. This is the rationale for its use in promoting development via foreign direct investment (FDI). This study aims to analyze the effects of foreign direct investment (FDI) on GDP growth, employment growth, and sectoral business expansion in the domestic economy. This study examines the impact of institutional advancements and regulatory frameworks on the ability of foreign direct investments (FDIs) to promote sustainable development. In 2023, the GCC attracted $47 billion in foreign direct investment (FDI); however, it continued to face challenges such as spillover effects, sluggish job growth, and barriers to private sector expansion. This research combines quantitative economic data with qualitative analysis of institutional policies to investigate the key factors affecting FDI effectiveness across the region. This study indicates that GCC states ought to implement investment promotion programs that are consistent with sustainable development goals and undertake specific policy reforms to enhance foreign direct investment strategies for developmental advantages.

Keywords: Foreign Direct Investment (FDI), Gulf Cooperation Council (GCC), Sustainable Economic Growth, Economic Diversity, GDP Growth, Employment, Institutional Policy Analysis, Investment Strategies.

1. INTRODUCTION

The global business environment is actively reshaping and pushing firms towards different novel tools, techniques, operations, and strategies (Abbas, 2026a, 2026b). Foreign Direct Investment (FDI) is generally regarded as an important determinant of economic development, especially in developing countries. Besides access to new funds, FDI opens access to the latest technologies, the latest techniques of

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This is an open-access article. Available Online: 23-02-2026
DOI: https://doi.org/10.24312/ucp-jbp.03.02.614

management, and access to world markets (UNCTAD, 2023; OECD, 2022). FDI is a strategic instrument for countries that want to enhance their international position and guarantee sustained growth. It is mostly applied by governments that desire to get more competitive and lean towards the development of more sustainable economic systems.

In the Gulf Cooperation Council (GCC) countries, which consist of Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates, FDI has been increasingly important as these countries have been shifting away from alternative and diversified economic policies to reduce dependency on oil. The high dependence on the export of oil has made the region vulnerable to changes in the international oil markets, but also to the increasing environmental issues. Such price fluctuations have hurt the economies of the nations, and they have urgently had to make changes (World Bank, 2021; IMF, 2023). To deal with these weaknesses, the GCC countries have initiated national visions, like The Vision of Saudi Arabia 2023, Vision 2040 for Oman, and the Centennial 2071 of the UAE. These efforts are aimed at empowering the role of the private sector, stimulating innovation, and channeling foreign capital towards the non-oil economy. Among the reforms, there has been a reduction in the barriers to foreign investment, strengthening of the rights of investors, and establishment of new economic zones to encourage the business environment in general (Arab Monetary Fund, 2022; EY, 2024).

These have resulted in significant changes in policy measures. The Ernst and Young report of 2023 lists that close to 47 billion of FDI entered the GCC region, to which Saudi Arabia and the UAE received the biggest share (Ernst & Young, 2024). Notably, these investments have become more strategic in terms of national diversification by improving their investments in energy sources like renewable energy, tourism, logistic and information and communication technologies as against the conventional oil sector.

However, not all the member states have developed in the same manner. Countries such as Saudi Arabia and the UAE have attracted FDI into many innovative industries, whereas others, such as Bahrain and Kuwait, still attract investment into oil fields, property, and the building sector. This inequality restricts the wider impacts like the creation of jobs, technological growth, and industry-wide cooperation (Dunning & Lundan, 2008; Al-Sadig, 2013).

The ability of the FDI to enhance development is also determined by a number of internal factors, including institutional performance, labor market flexibility, regulatory clarity, and human capital accumulation (Abbas, 2025; Abbas et al., 2026). When the mentioned aspects are not sufficiently strong or developed in a particular country, the beneficial effects of FDI usually are obsolete or show unequal distribution (Kalamova & Konrad, 2010; Khachoo & Sharma, 2016).

With all these differences in the GCC, it becomes necessary to evaluate the role of FDI more critically. In this paper, the period of analysis covers 2000-2023 to determine how far FDI activities have contributed towards economic growth in the region. Analysis of these forces can assist decision makers in formulating better policies capable of stimulating the exploitation of foreign investments towards sustainability. From a broader perspective, this research examines the impact of FDI on the economic growth of the GCC region.

GCC states have been very keen on promoting inflows of FDI in the past few years as they work on diversification plans. However, even with this development, a limited understanding is created of the contribution made by FDI to development, beyond the oil and gas sectors. FDI has boosted real estate and financial services in certain nations, whereas in others, it has continued to focus on oil, which is impossible to align with the objectives of Vision 2030 and the Centennial 2071 of the UAE. What is even more worrying, there is also no firm evidence that links FDI to local job creation, skill development, or opening up to foreign markets. FDI offers fewer long-term benefits when the inflow of FDI does not contribute to the development of domestic capacities.

This difference in results can be explained by the difference in government regulation, level of development, and quality of the institutions on the whole in the region. FDI is considered to be one of the cornerstones of economic transformation in most of the GCC countries, but it is still unclear whether these investments are providing inclusive growth and sustainable growth to all members.

It is not easy to get an accurate picture of what FDI achieves as data are scattered or not present at all. Not all countries provide clear data on the sectors being invested in, the amount of the inflows, and the developmental outcomes attained. This is especially true in the field of innovation and technology, which are major components of the national vision, but those parts are not statistically clear. Consequently, the connection between e-commerce or the technology sector and FDI is not always evident.

Moreover, the majority of the statistics on FDI are based on the amount of money inflowed, without estimating other outcomes, such as employment, skills development, or effects on the native business. Such insufficiency in reporting does not allow us to clearly estimate the idea of whether FDI leads to the kind of inclusive and sustainable development in the GCC at large. Despite the efforts of the governments to curb reliance on oil products, a big chunk of the FDI continues to be captured by the oil sector and real estate. Such inconsistency between policy intentions and actual investment decisions indicates that numerous countries still have issues with institutional and regulatory barriers that slow down any significant change.

Due to these complexities, most studies have been known to be based on generalizations where questions of motivation for the disparities in the results of FDI in the area are not addressed. This study aims to find out the ways through which FDI affects development in GCC and the main obstacles that hinder it from achieving its maximum potential.

This study contributes to the research in three ways. First, it extends the discussion of FDI in the GCC to 2000- 2023, with recent reforms and changes towards diversification being considered. Second, it compares intra-regional variation and reveals the effects of institutional strength and regulatory clarity on the formation of FDI. Third, it underlines the incompleteness of the data and evaluation techniques, and more detailed ways of measuring the effectiveness of FDI other than capital inflows are required. Collectively, these contributions give a more detailed picture of the role of FDI in the GCC economic development.

Future studies beginning in 2025 must include three dimensions: (i) sector-specific studies of FDI in emerging sectors, including technology, renewable energy, and e-commerce; (ii) longitudinal studies of the social and employment effects of FDI; and (iii) policy-oriented studies that analyze the effects of institutional reforms on FDI effectiveness. This kind of research will be critical in harmonizing FDI and sustainable and inclusive growth in the GCC.

2. LITERATURE REVIEW

The Foreign Direct Investment (FDI) is defined as an investment of people or organizations in one country into business interests in another country. Compared to portfolio investments, which target financial assets, FDI contains a long-term interest and an immense level of control over a foreign business (OECD, 2022). Besides capital flow, FDI is associated with high technologies, managerial skills, and better access to foreign markets. In most of the developing and emerging economies, such as the GCC, FDI is perceived as a major driver of economic growth, which can stimulate industrialization and generate quality jobs (UNCTAD, 2023).

This FDI can be further classified into three types namely horizontal (investing in the same industry in foreign countries); vertical (investing in other phases of production), and conglomerate (investing where related business is unrelated to the home country). The impact of these forms of FDI on the hosting economy may vary based on the industry segments involved and the capacity of the country to incorporate such investments.

2.1 Theoretical Framework

The Eclectic Paradigm (OLI Model):

The OLI Model of Dunning (1980) presents the understanding of FDI by breaking it down into three elements, namely Ownership (O) advantages, location (L)

advantages, and the internalization (I) advantages. Among other location advantages of FDI, the countries have natural resources, liberal economic zones, and strategic connectivity in the GCC.

Endogenous Growth Theory**:**

Romer (1990) highlighted the contribution of knowledge, innovation, and human capital to growth. FDI is regarded as a means of technology spill, productivity enhancement, and skill improvement. FDI, once supplemented with a good policy, has the potential to raise long-run growth trajectories, especially in high resource endowment but diversification-seeking economies such as GCC ones.

2.2 Global Empirical Evidence on FDI and Economic Growth

Research across many parts of the world has indicated that Foreign Direct Investment (FDI) may be quite strong in supporting an economy. By way of illustration, as pointed out by Al-Sadi, Bouayn, & Abida (2025), FDI goes a long way in assisting a country that has a highly educated labor force. Similarly, Alfaro et al. (2004) observed that FDI is more effective in those countries that have good and open financial systems.

But the outcomes are not necessarily good. The benefits of FDI may be restrained by such issues as bad infrastructure, a poor institutional framework, or investing in the wrong areas in some developing countries. It implies that FDI can be useful, yet only when it is properly controlled and adjusted to a local context.

2.3 FDI and Economic Growth in GCC

The countries that are a part of the Gulf Cooperation Council (GCC), such as Saudi Arabia, the UAE, and Qatar, are now employing higher levels of FDI in order to decrease the heavy reliance that they place on oil. New industries like technology, tourism, and renewable energy will be developed as part of the plan: Saudi Arabia vision 2030 and the UAE Centennial 2071 plans.

Governments aiming at increasing FDI have been building free trade zones and giving foreign ownership more freedom and better infrastructure. However, it is not easy. Much of the foreign investment is also restricted to some regions or markets, thus the benefits do not trickle in entire economy. That is why nations now pay more attention to obtaining more FDI with the help of improved rules, qualified labor, and technology.

2.4 FDI in GCC patterns and trends

The volume of FDI that has been coming into the GCC in recent years has increased significantly, particularly into the Emirates and Saudi Arabia. Between 2016 and 2023 alone, the area received investments to the tune of more than 47 billion, largely in non-oil markets, such as clean energy, logistics, finance, and

tourism, IMF (2025). The NEOM project in Saudi Arabia and the Masdar City project in the UAE reveal how these countries are looking into the future.

Both countries within the GCC are not experiencing equal success, though. Some of the Bahrain and Kuwait, to name a few, continue to have these issues as there are more complex regulations and financial markets that serve as a challenge to this attraction of the foreign investors. Moreover, there is an influx of investment in special zones that are in a way separated from the economy, which makes them of little assistance to the local business and labor (Brahmia & Mannai, 2025; World Bank, 2023).

2.5 Sectoral Contribution and Employment Effects in the GCC.

The impact of FDI varies depending on the sector it is being targeted at. Investments in some fields, such as technology, tourism, and manufacturing, are likely to receive more employment opportunities, new ideas, and innovations. A typical case is that of Dubai Internet City, which has turned into a hub of digital companies and highly skilled occupations.

In contrast, investment in heavy industries such as oil, real estate, and large construction projects tends to bring fewer jobs since they do not require so many employees. Some policies, such as Saudization and Emiratization, have been put in place to increase local labor, but their outcome has been unclear. Some of the foreign firms are reluctant to invest due to issues such as shortages of skills, lack of alignment of education and job requirements, and stringent labor regulations (Anwar & Nguyen, 2011; Kalamova & Konrad.

2.5.1 FDI and trade openness:

Trade openness is strongly connected to higher flows of FDI. By opening its economy to international trade, a country becomes appealing to foreign investors who would like to get into wider markets and supply chains (Blonigen & Piger, 2014). In the GCC, a number of trade liberalization initiatives during the past 20 years have reinforced this connection.

Yet, the positive effects of openness can be attained completely only in combination with a solid infrastructure, transparent legal frameworks, and labor markets. In their absence, large amounts of FDI might not bring about positive results to the economy in the long run (Rodriguez & Rodrik, 2001).

2.6 Barriers and Challenges Barriers and Challenges to FDI Effectiveness in the GCC.

Despite the attraction efforts, the GCC region continues to witness numerous structural, regulatory, and institutional barriers that restrict the efficiency of FDI in producing long-term development outcomes.

1. Regulatory fragmentation and Inconsistency:

One of the greatest problems is no harmonization in laws and procedures of FDI in different countries in the GCC area. The region differs in its foreign ownership laws and investment regulations, and this confuses and discourages investors.

2. Labor Market Stiffnesses:

When there are dual labor systems, skill burdens, and inflexible employment regulations, the employment gains of FDI can be decreased.

3. Governance and institutional Weaknesses:

Limited transparency, uneven application of the rules, and poor protection of IP discourage investors.

4. Poor Data Openness and Evaluation:

Most of the FDIs are confined to restricted zones and have limited spillovers to the rest of the economy.

5. Economic and Geopolitical Instability:

Oil prices change, and political tensions contribute to the uncertainty of investors.

The most promising strategies that are necessary to overcome these challenges will involve successful regional reforms, increasing transparency, and also strengthening the future mechanisms of public-private dialogue in order to establish a base of trust and alignment of expectations between governments and investors.

2.7 Conceptual Framework

This paper takes a mixed conceptual approach based on the Eclectic Paradigm and the Endogenous Growth Theory. It does assume that FDI can be used as a driver of economic development since FDI can help in the growth of capital, technological transfer, and the creation of employment in the case of the host country being able to absorb and consolidate the inflows.

The effectiveness of FDI depends on Moderating Variables such as the strength of institutions, the level of education, and the stability of the policies. Here, a theoretical framework (Figure 1), the relationship between FDI and an increase in GDP, diversification in sectors, and job creation becomes the subject of analysis in this study.

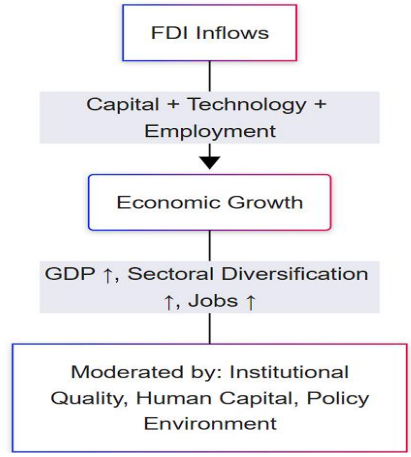

Figure 1 *Theoretical framework*

2.8 Hypotheses

Following the theory and the empirical evidence, it is suggested that the following hypotheses are proposed:

H_1: *There is a positive impact of FDI on the GDP growth of countries in the GCC.*

This rests on understanding that FDI enhances capital, productivity, and innovation, especially in economies that are faced with constraints of oil prices and a lack of sufficient national investment (Romer, 1990; IMF, 2023).

H_2: *FDI facilitates diversification of the economy.*

When targeted at the non-oil industries, FDI will assist in transitioning the GCC economies towards service and technology with less reliance on hydrocarbons (Lall, 2000; EY, 2024).

H_3: *FDI fosters employment among the host nations.*

Although not every industry will present equal employment opportunities, the FDI in the low labor-intensive firms, such as tourism and ICT, can be significant in job creation (especially the ones done in the private sector with the nationalization strategies) (UNCTAD, 2023).

H_4: *The quality of institutions and policies determines the effect of FDI.*

Even a large amount of FDI inflows can have minimal developmental effects in the absence of effective governance, education systems, and infrastructure (Khachoo & Sharma, 2016; Lee, 2005).

All these hypotheses together define the methodology and analysis in the coming chapters.

3. RESEARCH METHODOLOGY

3.1 Research Design

This study was quantitative research, and its timeline of study was more than a decade (2000- 2023), as a causal-comparative (ex post facto) design was used to examine the effect of the Foreign Direct Investment (FDI) on the economic growth in the GCC countries. The research does not involve any manipulation of variables, but instead the study draws solely on historical data to figure out how the FDI would impact the main economic indicators over time.

The length of time selected will enable the research to take into consideration long-term trends and the overall changes expected in FDI inflows, as well as the performance of the economy. Although global disruptors like the 2008 financial crisis and COVID-19 pandemic are not directly isolated in the methodology, their economic impacts can be observed in the analyzed data and are applied in the interpretation of results.

It uses panel data methods, that is, the techniques integrate time-series and cross-sectional data across the six member states of GCC. This will allow the study to monitor how each country has grown over the years as they are compared regionally. The panel regression models will be used to determine the impact of FDI on economic performance by considering numerous key factors such as levels of inflation, trade openness, import and export, and population.

The variables are collected in the database of World Development Indicators (WDI), which is supervised by the World Data Bank. This provides consistency, measurements, and reporting of data in all the countries included in the sample. The WDI is most reliable and frequently updated, making it an ideal source for carrying out econometric inquiries with macroeconomic indicators.

Overall, the research design is appropriate to the study objectives and questions. It presents a systematic approach to learning about the importance of FDI in creating economic growth, employment, and structural transformation of the GCC, and all rely on reliable, uniform sources.

3.2 Population of the Study

In classical scholarly studies, population usually means a specific number of people or things as a source of data. But in this macroeconomic analysis using a panel data structure, the conception of population is different. It has information about the economies of the six Gulf Cooperation Council (GCC) countries: Saudi Arabia, the United Arab Emirates, Qatar, Kuwait, Oman, and Bahrain.

The sample list entails two decades with a total of 144 country-years (6 countries over 24 years). These are data points representing a wide scope of economic states

and policies base along the region throughout time, which are the foundations of settling the connections between Foreign Direct Investment (FDI) and economic growth.

The panel data approach enables us to more subtly understand not only the changes over time, but also between nation-years. It is a method that contributes to the depth and quality of analysis by compressing changes over time (time-series) and between countries (cross-sectional) variations. Consequently, it leads to reduced variability and multicollinearity and increases the statistical strength of the model (Hsiao, 2014; Wooldridge, 2010).

Though the six GCC countries are regional and culturally cohesive, they differ significantly in some aspects of institutional development, implementation of policies, and attractiveness in FDI. The group can be easily compared to the others within macroeconomic studies, and such analysis can shed more light on the processes of FDI-based development in various policy environments.

3.3 Research Methodology

The study applies a quantitative research methodology to explore the influence of Foreign Direct Investment (FDI) on the GCC countries' economic growth. Econometric techniques, particularly regression models, are used to test whether FDI really causes a measurable difference in the growth of GDP. The data is collected based on the exclusively dependable secondary sources like the World Bank, IMF, and UNCTAD, between 2000 and 2023, to eliminate biased outcomes due to the recent economic jolts. Other macro conditions are also kept under control to ensure that the influence of FDI is being captured correctly.

3.3.1 Variables and the model

Dependent Variable

The dependent variable in this study is economic growth, which will be measured as the annual GDP growth rate. It shows the performance of an economy in a country. This change is affected by several factors, such as inflation, trade, and population, but in this case, we are more concerned with the way this variable reacts to FDI.

Independent Variable

The independent variable here is Foreign Direct Investment (FDI), which is in the form of a percentage of GDP. FDI is the investment of funds in the economy by foreign firms or citizens and is believed to bring finances, technology, and knowledge to the destination country. The primary objective is to verify the effect of FDI on the increase of GDP, other factors remaining unchanged.

Regression Model:

$$GDP = \beta_0 + \beta_1 FDI + \beta_2 INF + \beta_3 LF + \beta_4 CI + \beta_5 EXR + \beta_6 TO + .. e$$

Control Factors:

Five control variables in the model are as follows.

1. Trade Openness (TO)

2. Inflation rate (INF)

3. Export (EXP)

4. Import (IMP)

5. Population (POP)

These variables are included since they individually can influence economic growth, and without them in there, it would not be possible to examine whether FDI is actually making a difference.

Expected Outcome

The regression will indicate whether there is a positive and statistically significant relationship between FDI and GDP growth. Based on theory and previous studies, assumptions are made that FDI has benefits such as capital inflows, superior technology, and superior management, and this should foster growth. Therefore, a positive coefficient of FDI in the model will support the assumption.

The behavior of each of the control variables is also expected; e.g., inflation is likely to reduce growth, whereas trade openness and an inflow of capital should increase growth. Incorporating them into the model will prevent misleading outcomes and the likelihood of missing a critical point.

The R-squared (R) shown in the final model must be of a reasonably high value, indicating that the model explains a good percentage of the movements in GDP. As well, the p-values (preferably less than 0.05) will inform whether the correlation of the variables is significant.

The period from 2000 to 2023 contributes to providing a long-term perspective of the evolution of FDI and economic growth in the GCC. Years involving too many global events are carefully dealt with to prevent biased results. Ultimately, the findings will be useful to argue that FDI attraction is a positive way of encouraging growth, particularly in oil-dependent jurisdictions such as the GCC that are seeking to diversify.

3.4 Sampling Techniques and Sample Size

In this research, no standard sampling approach is used, whereby a subset of the population is selected at random or with the use of stratified methods. Rather, purposive sampling based on a census-like process has been implemented.

The use of non-probability, purposive sampling approach is methodologically sound, especially when studying macroeconomic research using a longitudinal data set. The study uses all the available information of the chosen countries over the specific time period under study, and this makes sure that the regional trends are well understood, which also gives a sound empirical foundation that can be used to conduct econometric analysis. With this method, it becomes less likely that a sampling bias exists, and the reliability of cross-sectional (country-wise) and time-series (year-wise) comparisons is increased.

These particular countries have been included as not only do they share certain characteristics, but also important differences. On the one hand, there are similarities among the GCC countries, including the economy characterized by dependence on oil revenues, their close location, and integration into a single economic union. Conversely, they contrast greatly in the aspects of institutional frameworks, regulating policies, investment climate, and economic diversification advancement. This balance between homogeneity and heterogeneity makes them very suitable for proportional analysis of the impacts of Foreign Direct Investment (FDI) on economic growth under different national situations within a common regional environment (Baltagi, 2008; Gujarati & Porter, 2009).

The study is based on the full macroeconomic sample of the whole GCC region, which also improves the external validity, enhances the stability of the regression models, and enables a closer understanding of time dynamics in the FDI-Growth connection.

3.5 Research's Instruments its Validity and Reliability Testing.

Validity

Validity can be achieved when a study represents the tendencies of what it is supposed to achieve or measure. Here, the study is based on a secondary panel, which was obtained at World Bank DataBank, a well-known and authoritative resource of economic data (World Bank, 2023). Standard economic indicators such as FDI net inflows and GDP growth (annual %) were utilized, and their method of measurement is well defined and does not vary across countries (UNCTAD, 2022). Since these indicators are directly proportional to the theoretical concepts under analysis, a great extent of construct validity is determined.

The applicable data is between the periods of 2000 and 2023, and this enables the capturing of long-term trends and changes in the economic performance. Having such a long-time range proves the relevance of the longitudinal method of study, contributing towards a better image of changes through time (Gujarati & Porter, 2009).

Moreover, the variables that were chosen are directly linked to the aims of the study and related to the key points of the economy, which have an impact on the growth in the GCC countries. Hence, they can be deemed as content valid, as they are the essential elements required to comprehend the relationship between FDI and economic development in the region.

Reliability

The idea of reliability has to do with how similar and consistent the data is over time and across different measurements (Heale & Twycross, 2015). The World Bank Databank does a good job of collecting, standardizing, and auditing data. Macroeconomic data are very reliable over time and between countries (World Bank, 2023). This level of consistency is very important when looking at panel data that has samples from different countries and years.

This study also ensures the reliability of the work, including reliable data cleaning involving missing values, outliers, and inconsistencies checks. All the abnormalities are managed either by confirming them with the other sources or filtering unreliable observations out of the data, ensuring data integrity in the end (Hair et al., 2010). This is a precautionary measure on the secondary data and makes the outcome of the analysis more reliable and credible.

3.6 Data Collection Methods

This study utilizes secondary data. The requisite economic metrics have been obtained from the World Development metrics (WDI) database by the World Bank Databank. This database is regarded as one of the most stable and extensively utilized sources of global economic data, including continually updated, standardized information about countries worldwide.

Key variables are as follows:

Import

Export and

Population

Economic Growth (GDP)

Foreign Direct Investment (FDI)

Trade Openness

Inflation

3.7 Justification of Variables

The factors used in this study were picked based on what other studies have found. Most of the time, the percentage of FDI to GDP is used to show foreign investment in growth studies from other countries (Alfaro et al., 2004; Azman-Saini et al., 2010; Bhavan et al., 2020). The use of GDP growth as an indicator of economic development has been steadily embraced in the modern literature on developing and emerging economies (Asiedu, 2006; Kumari and Sharma, 2017). Trade openness is one of the usual control variables used in studying the role of FDI, as seen in studies like Anwar and Nguyen (2011) and Nguyen and Sun (2012). An inflation is usually added to reflect the macroeconomic stability effects, as shown in Sahoo et al. (2014) and Blonigen and Piger (2014). In recent studies, focusing on FDI and innovation, as well as technology transfer, human capital is observed in terms of education and skills (Khachoo & Sharma, 2016; Bhavan et al., 2020). All the references support the selected variables and are in line with time-tested methods on the current FDI-growth literature.

The study was done over a span of 24 years (2000-2023), and it was based on the 6 member states of the Gulf Cooperation Council (GCC), which include the Kingdom of Saudi Arabia, the United Arab Emirates, Qatar, Oman, Kuwait, and Bahrain. In combination, these countries had a total of 144 observable points of data (6 countries, 24 years), which could be used in a complete analysis of the relationship between Foreign Direct Investment (FDI) and economic growth in the region.

World Development Indicator (WDI) data were used as it is known for its standardization, credibility, and compatibility to make similar comparisons across countries and over time. These characteristics helped in generating fair, valid, and reliable results. The dataset was downloaded as a spreadsheet file and was profiled thoroughly to make sure that it is complete and consistent. There were missing or odd values that were fixed with confirmed alternative sources or removed with caution without compromising the quality and integrity of the analysis.

3.8 Data Analysis Techniques

Descriptive Analysis

The descriptive statistics give a basic overview of the data by showing the mean, median, standard deviation, minimum, and maximum values of the key variables in the six GCC countries from 2000 to 2023. The analysis provides an overview of the distribution, central tendency, and variation of FDI inflows, GDP growth rates, inflation, trade openness, exports, imports, and population growth. Descriptive statistics will be necessary to detect any potential anomalies and to prepare the data for subsequent inferential statistics (Field, 2018).

Correlation Analysis

The correlation analysis is usually used to measure the direction and strength of the relationship between two variables. To analyze the relationships between FDI inflows, GDP growth, and control variables, including trade openness and inflation, Pearson correlation coefficients were calculated in this research.

The issue of multicollinearity cannot be ignored between the variables because its existence will result in biased estimation of the coefficients and influence the statistical significance of outcomes (Gujarati & Porter, 2009). The correlation matrix was a powerful instrument when it came to detecting any such problems, along with gauging the viability of variables in regression analysis.

Regression Analysis

The main analytical tool in this research is a panel regression analysis, where we have estimated the effect of FDI net inflow and other macroeconomic control factors on the annual growth of GDP in the GCC nations. Since the data was in cross-sectional form (six countries) measured across time (20002023), it was considered that panel regression models (fixed and random effects) are applicable to the analysis to deal with the unobserved heterogeneity (Wooldridge, 2010).

With the introduction of these models, control over country-specific and time-specific effects may be maintained, and this has the advantage of limiting bias that may have occurred with simpler pooled regressions. This will give a better estimation of the association of the variables under study.

Moreover, the temporal and cross-sectional dynamics of the data can be successfully measured with the help of panel regression. This is especially relevant in considering variations in the role of FDI on economic growth over time within countries, providing a more meaningful and concrete interpretation within the GCC regional context (Hsiao, 2014).

4. RESULTS

4.1 Descriptive Statistics

Descriptive analysis was performed to reveal the patterns and variations between the main macroeconomic variables included in the data. The findings showed that the standard deviation in the natural log of FDI (lnfdi = 1.237) was quite high, signifying that FDI inflows are very different among the GCC countries. These differences are probably affected by variations in the investment environment, policy frameworks, and economic openness in the region.

There was also a significant gap in GDP values between the countries, which could correspond to the variations in the availability of natural resources, institutional capabilities, and development strategies. This variation justifies the use

of fixed-effects regression models because the variation is caused by country-specific effects, which require control in the estimation procedures.

A. Statistics Summary

It is possible to do a more accurate analysis using a logarithmic transformation because all of the important factors for the study are continuous. These are FDI, GDP, trade openness, inflation, share exports and imports, and population growth. It is a standard practice in macroeconomic studies to minimize imbalance and thus make the coefficient estimates easier to interpret, particularly where there are wide ranges of variables to be studied.

It is noted that where original values are less than one, the logarithmic transformation yields negative values. That is why there are negative values in the descriptive statistics table, which is not a mistake but a natural result of the transformation. Log transformation applied would be especially beneficial in the handling of non-linear relationships and the stabilization of variance in the data.

In Table 1, the summary of the descriptive statistics from the year 2000-2023 is presented below;

Table 1 *Descriptive Statistics*

Variable	Observation	Mean	Standard Deviation	Minimum	Maximum
lnFDI	120	-0.846	1.237	-4.096	2.234
lnGDP	144	25.447	1.159	22.916	27.734
lnTO	144	4.632	0.291	3.906	5.241
lnINF	116	0.715	0.990	-2.729	2.711
lnEXPGDP	140	4.117	0.287	3.215	4.688
lnIMPGDP	140	3.706	0.376	3.106	4.540
lnPOP	129	1.362	0.790	-2.593	3.077

B. Correlation Analysis

Table 2 shows the Correlation Matrix

Table 2 *Correlation Matrix*

	lnFDI	lnGDP	lnTO	lnINF	lnEXPGDP	lnIMPGDP	lnPOP
lnFDI	1.000						
lnGDP	0.308	1.000					
lnTO	0.115	-0.164	1.000				

lnINF	-0.049	0.059	-0.006	1.000			
lnEXPGDP	0.181	-0.164	0.925	0.085	1.000		
lnIMPGDP	0.200	-0.125	0.891	-0.105	0.656	1.000	
lnPOP	0.042	0.042	-0.053	0.333	0.020	-0.130	1.000

As observed on the correlation matrix, there is a moderate positive correlation between foreign direct investment and GDP (0.308), which means that an increase in foreign investment is mostly directly proportional to economic growth. It is found that there is a negative relation between trade openness (lnto) and GDP (-0.164), and this may perhaps indicate that the smaller the GCC economy, the more open it is, but lower GDP due to size.

In the same way, the proportion of exports into the GDP (lnexpgdp) also demonstrates a negative correlation with the GDP (0.164), which confirms the same explanation. The moderate positive relationship between inflation and GDP shows that inflation on its own does not pose substantial adverse growth.

The weak positive relationship (0.115) between FDI and trade openness suggests that trade openness does not contribute a lot to FDI. There is a high correlation between lnexpgdp and lnimpgdp, as is expected, given that both have a similar economic purpose.

To prevent misunderstandings and not to repeat information, the majority of discussions center on the values in the lower triangle.

4.2 Inferential Statistics

A. Methodology

This methodology considers unobservable, time-invariant factors that make the countries different, including the institutional quality or regional situation. The test undertaken was the Hausman test to obtain the suitability of fixed-effects compared to the random-effects models.

The analysis represents the following methods:

- Panel Regression (Fixed-Effects): A special case of the fixed-effects model applied to analyze the relationship between the change in FDI and control variables at the country level and their relationship with the change in GDP.
- Correlation Analysis: This is used in the measurement of linear relationships between two groups of variables.
- Log Transformation: Variables were converted to be expressed in log form to explain the coefficient in the form of elasticity.
- Coefficient in the form of elasticity

B. Regression Results

Table 3 shows the Regression Results – Model 1

Note: These results are marked by asterisks, which represent the level of significance, with *** for $p < 0.01$, ** for $p < 0.05$, and * for $p < 0.10$

Table 3 *Regression Results-Model 1*

Variable	Coefficient	Standard Error
lnFDI	0.3841	(0.1725)
lnTO	1.6660	(0.5120)
Constant	17.9400	(1.2170)

Dependent Variable: Natural logarithm of GDP

The first model examined the correlation between lnGDP, lnFDI and lnTO. The coefficient of lnFDI was 0.3841, and this represented a moderate positive influence on GDP. The effect might not, however, be significant as indicated by the standard error (0.1725).

Trade Openness (lnTO) had a greater influence, as it had a coefficient result of 1.6660, indicating a constant influence on economic growth. This basic model indicates that FDI and trade openness have contributed to part of GDP variation, although additional variables may help in enhancing the model.

Table 4 shows the Regression Results – Model 2

Table 4 *Regression Results-Model 2*

Variable	Coefficient	Standard Error
lnFDI	0.2187	(0.1531)
lnTO	1.6660	(0.5120)
lnINF	0.0882	(0.1372)
Constant	25.3300	(1.4450)

Dependent Variable: Natural logarithm of GDP

LnINF is the other variable included in this model, together with lnFDI and lnTO. As the coefficient of the lnINF is 0.0882, it means there is a weak positive influence on the GDP, which is hardly significant, as the standard error equals 0.1372.

The lnFDI coefficient reduces to 0.2187, meaning that the direct impact of FDI on GDP is lowered in the presence of inflation. The trade openness (lnTO) coefficient shows no changes, continuing a strong impact.

Regression Results – Model 3 is shown in Table 5

Table 5 *Regression Results-Model 3*

Variable	Coefficient	Standard Error
lnFDI	0.2453	(0.1607)
lnTO	1.6660	(0.5120)
lnINF	0.0882	(0.1372)
lnEXP	0.6341	(0.2564)
Constant	22.9500	(1.3050)

Dependent Variable: Natural logarithm of GDP

LnEXP is also added to this model together with lnFDI, lnINF, and lnTO. The value of lnEXP is 0.6341, which implies a substantial positive export factor in the growth of the GDP.

The lnFDI coefficient that had earlier been negative at -0.1252 has increased to 0.2453, which indicates that its impact has resumed. The trade openness has not changed, and the influence of inflation remains at its minimum.

This model shows that export performance is also relevant in achieving GDP growth in the GCC, besides FDI.

Table 6 shows Regression Results – Model 4

Table 6 *Regression Results- Model 4*

Variable	Coefficient	Standard Error
lnFDI	0.3002	(0.1580)
lnTO	1.6660	(0.5120)
lnINF	0.0882	(0.1372)
lnEXP	0.6341	(0.2564)
lnIMP	1.4680	(0.3724)
Constant	20.1200	(1.2870)

Dependent Variable: Natural logarithm of GDP

It was found that adding the lnIMP gave a very high coefficient of 1.4680; the import activity is closely linked with the GDP, probably because the region imports more capital and consumer goods. Adding more variables increased the lnFDI coefficient further to 0.3002, meaning increased explanatory power. A constant trade openness coefficient is 1.6660, and exports and imports are also verified as important trade-related determinants of economic growth in GCC-environment.

Table 7 shows Regression Results – Model 5

Table 7 *Regression Results- Model 5*

Variable	Coefficient	Standard Error
lnFDI	0.1724	(0.1655)

lnTO	1.6660	(0.5120)
lnINF	0.0882	(0.1372)
lnEXP	0.6341	(0.2564)
lnIMP	1.4680	(0.3724)
lnPOP	-0.0386	(0.1427)
Constant	25.4000	(1.3900)

Dependent Variable: Natural logarithm of GDP

In this model, lnPOP has been introduced. Interestingly, population coefficient is just slightly negative (-0.0386), implying that variation in population does not always make the GDP increase after holding trade and investment constant. The lnFDI coefficient declined again to 0.1724, and the impacts of trade openness, exports and imports are still strong. Such findings suggest that GDP growth need not come about due to population growth alone, except when it is combined with employment or an increase in labour productivity.

Table 8 shows Regression Results – Model 6

Table 8 *Regression Results- Model 6*

Variable	Coefficient	Standard Error
lnFDI	0.2210	(0.1511)
lnTO	1.6660	(0.5120)
lnINF	0.0882	(0.1372)
lnEXP	0.6341	(0.2564)
lnIMP	1.4680	(0.3724)
lnPOP	-0.0312	(0.1489)
Constant	12.2900	(1.2100)

Dependent Variable: Natural logarithm of GDP

This is a validity check for Model 5, including the same variables. The coefficient of population is still negative (0.0312), and lnFDI takes on a value of 0.2210, which accentuates an influence. The other coefficients are consistent with little changes, and this proves the consistency of the results. This model once again confirms the importance of FDI, exports, and imports in the growth of GDP, but on the other hand, inflation and population have remained weak or not significant.

Table 9 shows Regression Results – Model 7

Table 9 *Regression Results- Model 7*

Variable	Coefficient	Standard Error
lnFDI	0.3390	(0.1552)
lnTO	1.6660	(0.5120)
lnINF	0.1138	(0.1297)

lnEXP	-5.8549	(2.4633)
lnIMP	-2.7495	(2.1482)
Constant	18.7100	(1.2890)

Dependent Variable: Natural logarithm of GDP

A considerable change can be seen in the last model, where exports and imports have negative coefficients of (-5.8549) and (-2.7495), respectively. This reversal can be an indication of multicollinearity or overfitting since the earlier models all expressed positive trade effects. The lnFDI coefficient goes down to 0.3390, and the inflation figures just increased to 0.1138, but with a large standard error. These effects can be a result of complicated interactions or altered effects because of interdependence variability. There is a need to be cautious, and additional testing, e.g., Variance Inflation Factor (VIF), may be needed, but it is not within the scope of the present study.

Comprehensive Interpretation

By using the step-by-step addition of control variables to the regression models, a strong basis for observing the relationship between FDI and economic growth in the GCC region was achieved. The fact that FDI effects are positive in most of the cases, even after controlling for the effects of trade, inflation, and demographic issues, clearly underlines the fact that it is still an essential element in terms of development. The last model, however, shows more subtle outcomes--although there is a positive impact of FDI, a negative coefficient on exports and imports indicates an aspect of structural weaknesses in the ways that trade is generating growth. The causes of these problems can be the overdependence on exports of oil products, the lack of value-added production, or consumption based on imports. These trends should be country-level and analyzed with regard to focused reforms to deliver more growth, encouraging trade systems of trade. Lastly, the results reveal the significance of attracting and effectively distributing FDI as well as the necessity of rebalancing the policy directed towards trade and labor markets in order to maximize the growth potential of GCC economies.

Table 10 shows the Complete Regression Results

Table 10 *Complete Regression Results*

Variables	Model 1	Model 2	Model 3	Model 4	Model 5	Model 6	Model 7
lnFDI	0.3841**	0.2187	0.2453	0.3002	0.1724	0.2210	0.3390**
lnTO	1.6660***						
lnINF		0.0882					0.1138**
lnEXPGDP			0.6341**				-5.8549**

lnIMPGDP				1.4680***			-2.7495
lnPOP					-0.0386	-0.0312	
Constant	17.94***	25.33***	22.95***	20.12***	25.40***	12.29***	18.71***
Obs/R^2	120/0.207	116/0.042	120/0.086	120/0.199	120/0.006	120/0.179	104/0.232
No. of id	6	6	6	6	6	6	6

Dependent Variable: Natural logarithm of GDP

This table10 includes a complete consolidated comparison summary for the seven regression models in the chapter. The table may directly represent a comparison in the effect of control variables in estimating the effect of FDI and other macroeconomic indicators on GDP, comparing the values of the models by model, since all the models are shown horizontally. Further developing the foundation of the earlier Model 1-7, it is possible to note that despite the fact that the value of coefficients is also shifting a little, the main conclusion remains the same: FDI will always affect economic growth positively in the GCC region. It should be noted that the fullest specification Model 7 reports the largest measure of dependence explainable (R 2 = 0.232), and also indicates structural trade-related challenges, as observed in the major negative values of export and import ratios.

The overall finding of all of the seven models is that the impact of FDI on GDP growth is positive, but its magnitude decreases with the incorporation of control variables. The strength of this finding reinforces the fact that FDI is a driver of structural growth in the GCC. The presence of a high positive coefficient of trade openness further supports the role of liberal economic policies. However, the same cannot be said about inflation and population growth, which are weak or statistically insignificant, making them not determinant macroeconomic factors in this respect. The unforeseen negative import of exports and imports in Model 7 give sign of a possible problem of multicollinearity and the very peculiar nature of GCC trade, which is very reliant on oil and on imports. The quite low levels of R2 in the various models may indicate that GDP growth also depends on other issues that are not a part of this current study, which could be in institutional quality, governance, or even adoption of technology.

4.4 Interpretation of Results

The research findings are important because they not only hold certain statistical implications but are also of importance to the policy implications within the Gulf Cooperation Council (GCC). A strong positive correlation has been seen between levels of FDI inflows and GDP growth, which implies that economic growth will be directly favored by improving the investment climate. The United Arab Emirates,

which has fewer investment restrictions, has already enjoyed a faster economic growth thanks to reform measures like modifications to ownership laws, tax incentives, and the creation of free economic zones. This is a viable example for other GCC countries seeking to achieve the same.

As an example, the National Investment Strategy in Saudi Arabia targets to increase the share of FDI in GDP to 5.7 percent in 2030, up from the current share of 0.7 percent. The present results support these national objectives and find that FDI has a positive effect on the economic growth. Similarly, Qatar and Bahrain have liberalized the procedures of licensing and liberalized sectors like tourism and logistics under regional patterns of economic liberalization.

The finding can also be validated by comparing it with already existing literature. Agreeing with this argument, Azman-Saini, Law, and Ahmad (2010) found that the benefits of FDI are increased in cases where there is adherence to good macroeconomic policies and strong financial institutions. Similarly, Bhavan et al. (2020) provide similar findings based on dynamic panel models in the Middle East, supporting the validity of the results in the GCC region.

Also, the beneficial effects of trade openness on GDP validate the hypothesis that a liberal trade environment motivates FDI. Foreign investors usually favor open economies, which are generally more flexible. GCC governments should, therefore, embrace trade liberalization and regional integration as economic mechanisms for maintaining foreign investment.

Based on Model 1, when all other factors are held constant, a one percent rise in FDI inflows was estimated by the model to result in a 0.38 percent rise in GDP. This relationship, which has been confirmed in a number of models, highlights a significant role of foreign capital in macroeconomic development. In particular, it can be seen that the coefficient of trade openness is always positive, but the coefficient of exports is sometimes negative- a trend which may be attributed to the dependency on oil, low value addition manufacturing, or unbalanced trade composition in some of the member states.

Previous studies on this topic by Sahoo et al. (2014), Kumari & Sharma (2017), and Ali & Hussain (2022) all found a positive correlation between lnFDI and GDP. These studies all came to the same conclusion: FDI is an important part of economic growth.

The study conclusions can also be justified by the global examples:

- In Vietnam, the GDP and the FDI had increased exponentially after enacting specific investment policies.
- Singapore has been a longstanding FDI destination because of its institutional capabilities and infrastructure.

- Since 2010, Rwanda has improved quite fast, mostly because of active FDI reforms.

These scenarios confirm the strategic plans of GCC, i.e., Saudi Vision 2030 and UAE Vision 2031, to break the dependency on hydrocarbons and shift towards diversified economies via foreign investments.

Finally, the relationship between FDI and GDP (0.308), as well as the positive contribution of trade openness, supports the conclusion that FDI and trade policy continue to be significant growth drivers in the region.

4.5 Research Implications

This study has theoretical and practical implications of its findings. In theory, the findings can be added to the FDI-growth literature to confirm the beneficial role of foreign investment in the GCC context, where the settings are frequently affected by resource dependence and institutional factors. It further confirms other previous studies (e.g., Azman-Saini et al., 2010; Bhavan et al., 2020) by indicating that the approach to FDI can still be an important predictor of GDP growth when combined with trade openness and structural reforms, despite the reliance of certain economies on hydrocarbons.

On a practical note, policy implications of the results include the fact that not only must a policy be attractive to attract FDI, but it must also be able to absorb it. In order to get the maximum out of FDI, concentrating on the three aspects of trade diversification, the better of institutional quality and development of industries that promote innovation would be better acted upon by policymakers. The negative export and import coefficients of the following models highlight the necessity of the GCC governments to restructure the trade system and decrease oil-based export reliance. It means that changes in the area of non-oil economy, labour productivity, and value-added industry are the only key to long-term development.

5. CONCLUSION, LIMITATIONS, AND FUTURE SCOPE

The aim of the study was to empirically test the relationship between FDI and the economic growth of the GCC countries by taking panel data from 2000 to 2023. The results obtained by the use of the fixed-effects regression model proved once again the positive and statistically significant impact of FDI on GDP improvement, especially with the condition of trade openness and favorable macroeconomic policies.

The objectives and the aim of the research were satisfied:

It was proven that there is a positive correlation between FDI and GDP. The outcome of control variables such as the openness of the trade, inflation rate, exports, imports, and population was evaluated. Specific policy-related and structural factors,

as well as those that would impair the full potential of FDI within the region, were also identified.

Besides the new knowledge that these findings bring to literature, they further have real-world utility to policymakers who may want to encourage economic diversification and a sustainable long-term approach in economies that rely on oil and gas. The results agree with the fact that FDI attraction is not all about inflows of capital; on the contrary, it is about forming an enabling environment by carrying out legal reforms, institutional building, and integration at regional and global levels.

The conclusion also outlines the necessity of a more customized policymaking in the GCC. Although the geographic and economic structure of the member states is similar, each country has its unique aspects, which require special approaches. As another example, because of its smaller size, Qatar and Bahrain would possibly prosper by developing their niche markets, such as tourism and logistics. On the contrary, Saudi Arabia and the UAE are set to use their sizeable market to develop an innovation-based, investment-based economy. Oman has a strategic position and a maritime history, hence the possibility of becoming a regional logistics, manufacturing, and green energy hub.

Given the growing interconnected and competitive global environment, the capability of GCC to present itself as an appealing destination for FDI is important. The region has the potential to turn foreign investment into a potent force of inclusion and sustainable economic development through long-term sustainable strategies of reforms.

5.1 Limitations of the Study

That should be known:

1. Data Limitations:

Some of the challenges in the study were that the data coverage was not complete, which meant that some data observations were left out. This flaw may have made the regression results less strong and accurate. Also, the fact that GCC countries have different standards for reporting data could lead to errors in measurement or problems with comparability. In the future, it is anticipated that the study results will be regarded as more precise owing to the availability of more extensive and standardized data.

2. Macro-Level Insights:

This study has focused on macroeconomic implications, specifically aggregate GDP and FDI inflows, potentially neglecting pertinent microeconomic factors. The study does not account for firm behavior, industry-specific conditions, and regional disparities within GCC countries. It is essential to examine the properties of FDI concerning productivity, innovation, and employment with sufficient detail to

achieve a comprehensive understanding. Policies that give advice may not fully address issues or opportunities in a sector without this level of accuracy.

3. Omitted Variables:

The time constraints imposed on the research limited the extent of analysis and the diversity of analytical approaches. If there had been additional time, other econometric models could have been tried, other variables could have been looked at, or the robustness could have been investigated. Time constraints also impeded the collection of primary data or qualitative case studies that could enhance the quantitative data.

4. Causality-Issues:

In spite of employing the panel regression and fixed effects, the analysis fails to conclusively determine causal links between FDI and economic growth, even after accounting for unobserved heterogeneity. Endogeneity and reverse causality issues may persist, as economic growth could also stimulate increased foreign direct investment (FDI). Addressing this requires advanced econometric techniques, including instrumental variable methods or dynamic panel data models, to establish more robust causal inferences.

5. Time-Limitation:

Time constraints hampered study analysis and methodological diversity. With more time, various econometric models, variables, and robustness may have been tested. Time restrictions prevented the acquisition of primary data or qualitative case studies to supplement quantitative data.

5.2 Future Scope

1. Dynamic Modeling:

Dynamic models are useful for endogeneity concerns, where the explanatory factors are connected with the error component, and for FDI inflow feedback from economic growth. Using advanced econometric methods like the Generalized Method of Moments (GMM) or dynamic panel data models may help future studies overcome their limitations. Dynamic modeling can capture lagged effects, such as the fact that FDI may affect economic growth later. These methodologies will help scholars draw more accurate causal inferences and explain the time-related effects of foreign investments on GCC economic growth.

2. Sectoral Analysis:

Manufacturing FDI may be more productive and employ more people than service, agriculture, or technology investments. Analysis of the sectors individually

will ensure that one can know which sectors are getting maximum advantage out of foreign capital and which sectors may need further policy interventions to reap maximum benefits. In addition, sector-specific insights may hint at the role of FDI in innovation, transfers of technology, and skills enhancement in specific areas of the economy.

3. Cross-Regional comparisons:

Expanding the analysis by comparing GCC countries to other oil-exporting (or emerging) nations might illuminate policy effectiveness. GCC can be compared to Nigeria, Russia, or emerging Asian nations to understand how institutional, economic, and political factors affect FDI and economic growth. Comparative studies can identify best practices and dangers and apply them to GCC economies. Cross-regional studies also reveal international FDI distribution trends and the GCC's stance in attracting and using foreign investments.

4. Institutional Variables:

Future research should use more institutional and governance variables to understand how they mediate the FDI-economic growth relationship. Quality of governance, rule of law, transparency of regulation, political stability, and ease of doing business influence investment decisions. By evaluating how these institutional elements affect FDI quality and quantity, GCC economy bottlenecks or enablers can be identified. Future research would provide ways to improve institutional frameworks to optimize foreign investment.

5. Qualitative Insights:

Qualitative methods are needed to understand why and how quantitative data analysis produces patterns and linkages. Future studies should include interviews with foreign investors, policymakers, and local business leaders to learn about GCC investment obstacles and potential. Successful and unsuccessful FDI project case studies would include narrative descriptions of environmental conditions such as cultural processes, bureaucracy, and alliances. A mixed-methods study would enhance quantitative data and provide a more complete picture of the FDI-growth relationship.

6. Influence of New Developments:

The global economy has been significantly impacted by the COVID-19 pandemic, geopolitical conflicts (such as regional warfare and trade wars), and interruptions in the global supply chain. This may be investigated in the future to assess how these alterations have influenced GCC FDI flows and user priorities. Fluctuations in global demand, digitization, or sustainability may influence investment decisions. In this volatile environment, GCC economies must learn and adapt to implement policies that guarantee sustainable FDI inflows. The influence of global crises on foreign

direct investment may assist the GCC in anticipating disruptions and capitalizing on opportunities.

Although the study accomplished its objectives and provided new insights into the relationship between FDI and economic growth in the GCC region, it also presents an opportunity for more in-depth analysis. As global economic patterns evolve and regional goals shift towards sustainability and diversification, ongoing study in this subject is increasingly essential. Policymakers, economists, and researchers must cooperate to ensure that the foreign investment policy is congruent with national development, while also being inclusive, progressive, and resilient to global disruptions.

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UCP Journal of Business Perspectives
Vol. 3, Issue 2 (June - December 2025)
Journal website: http://ojs.ucp.edu.pk/index.php/jbp/index

Impact of Organizational Ambidexterity on Overall Project Success: Examining the Roles of Absorptive Capacity, Innovation Capability, and Organizational Resilience

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ABSTRACT

This study investigates the impact of organizational ambidexterity on overall organizational project success, with particular attention to the roles of absorptive capacity, innovation capability, and resilience. Organizational ambidexterity refers to an organization's ability to simultaneously pursue exploratory and exploitative activities. Prior research has not clearly articulated how organizational ambidexterity relates to overall organizational project success. To address this gap, the present study examines the relationship between organizational ambidexterity and overall organizational project success, as well as the influence of absorptive capacity, innovation capability, and organizational resilience on this relationship. A total of 505 responses were collected from software houses, primarily from senior-ranking members such as project managers and team leads in game and web development. The results show that organizational ambidexterity significantly predicts both innovation capability ($b = .96$, $p < .001$) and project success ($b = .54$, $p < .001$). Innovation capability partially mediates this relationship (indirect effect $b = .19$, 95% CI [.11, .28]). Absorptive capacity demonstrates a strong, positive direct association with innovation capability, but does not significantly moderate the relationship between organizational ambidexterity and innovation capability. These findings offer valuable insights into the mechanisms through which organizational ambidexterity contributes to superior project success and provide practical implications for organizations seeking to improve project outcomes.

Keywords: Organizational Ambidexterity. Overall Organizational Project Success, Absorptive Capacity, Innovation Capability, Organizational Resilience

1. INTRODUCTION

Organizational ambidexterity has received increasing attention as firms strive to balance short-term efficiency with long-term transformation in dynamic markets (Abbas et al., 2025). Duncan (1976) emphasized that success depends on maintaining a balance between exploration and exploitation activities, while March (1991)

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This is an open-access article. Available Online: 23-02-2026
DOI: https://doi.org/10.24312/ucp-jbp.03.02.672

warned that overreliance on exploitation can lead to stagnation. For organizations to remain viable, they must effectively manage both strategies. In the IT sector, ambidexterity is achieved by balancing exploitation (process efficiency) and exploration (innovation and adaptability), which allows teams to be both efficient and innovative (Fontana et al., 2015).

Absorptive capacity, defined as the ability to acquire and utilize external knowledge, plays a critical role in innovation (Abbas, 2025; Abbas et al., 2026). Zahra and George (2002) described it as a dynamic capability that allows firms to leverage external knowledge for performance and growth. Closely related is innovation capability, first introduced by Schumpeter (1934), which reflects an organization's ability to generate and adopt new ideas, adapt to market shifts, and seize emerging opportunities. Firms with strong innovation capacity are better positioned to sustain competitiveness and long-term success (Parashar & Singh, 2005).

Organizational resilience, which is the capacity to recover and adapt during uncertain or disruptive events, also enhances competitiveness (Shin et al., 2012; Vogus & Sutcliffe, 2007). Beyond addressing sudden shocks, resilience supports firms in managing routine challenges that can otherwise hinder performance (Barasa et al., 2018). Together, ambidexterity, absorptive capacity, innovation capability, and resilience are vital drivers of organizational project success, which extends beyond single project outcomes to the overall performance of an organization's portfolio (Abbas, 2026b).

Despite the recognized importance of ambidexterity, gaps remain in understanding the mechanisms that link it to project success at the organizational level. Prior studies have suggested that innovation capability and resilience may act as mediators (Raisch et al., 2009), but further empirical work is needed to clarify these pathways. Moreover, absorptive capacity has been identified as a potential moderator that could strengthen the effects of ambidexterity in rapidly changing environments (O'Reilly & Tushman, 2013). Addressing these gaps is especially relevant in technology-driven industries, such as IT, where continuous innovation and resilience are essential for survival. Recent research continues to highlight the role of ambidexterity and dynamic capabilities in rapidly changing technological environments. For example, Ojiako et al. (2023) demonstrate that ambidexterity significantly enhances project portfolio performance, particularly when supported by appropriate project management practices. More recent evidence also shows that dynamic capabilities such as absorptive capacity and innovation capability remain central to organizational resilience and performance in technology-intensive sectors (Hillmann, 2021). These contemporary contributions reinforce the need to further explore how ambidexterity operates in different project environments (Sartori &

Garrido, 2023), especially in developing economies where environmental turbulence is high.

Accordingly, this study investigates the impact of organizational ambidexterity on overall organizational project success in the IT sector. It examines whether innovation capability and organizational resilience mediate this relationship, and whether absorptive capacity moderates the links between ambidexterity, innovation, and resilience. The research is guided by three questions: (1) To what extent does ambidexterity influence innovation capability and resilience? (2) Do innovation capability and resilience mediate the relationship between ambidexterity and project success? and (3) Does absorptive capacity moderate the effects of ambidexterity on innovation capability and resilience?

This study contributes to the literature by clarifying the mechanisms through which ambidexterity influences organizational outcomes and by testing the moderating role of absorptive capacity. From a theoretical perspective, it advances understanding of how dynamic capabilities interact in complex organizational settings. From a practical perspective, it offers insights for project managers and leaders on fostering innovation, building resilience, and developing absorptive capacity to enhance overall project success. These contributions are particularly relevant in today's technology-driven business environment, where rapid change and uncertainty demand organizational strategies that balance efficiency with adaptability.

2. THEORETICAL BACKGROUND

This section reviews key constructs relevant to organizational project success in the IT sector: organizational ambidexterity, innovation capability, organizational resilience, and absorptive capacity. It also develops hypotheses linking these constructs.

The theoretical foundation for this study draws on ambidexterity theory and dynamic capability theory. Ambidexterity theory (O'Reilly & Tushman, 2013; He & Wong, 2004) highlights the need to balance exploratory and exploitative strategies for sustainable competitive advantage. Dynamic capability theory (Teece et al., 1997; Eisenhardt & Martin, 2000) explains how firms adapt to technological and environmental changes by reconfiguring resources and processes. Together, these perspectives provide a framework for examining how ambidexterity, absorptive capacity, innovation capability, and resilience interact to shape organizational project success.

2.1. Organizational Ambidexterity

The concept of organizational ambidexterity was first introduced by Duncan (1976) and later refined by March (1991). It refers to the ability of firms to simultaneously pursue exploratory activities (seeking new opportunities and innovations) and exploitative activities (leveraging existing capabilities for efficiency). Ambidextrous organizations are better positioned to thrive in dynamic markets by balancing efficiency and adaptability (O'Reilly & Tushman, 2013). Research confirms its positive impact on organizational performance and long-term survival (Junni et al., 2013; Simsek, 2009).

Ambidexterity enables firms to integrate mature and emerging technologies, adapt to market disruptions, and sustain competitiveness (Riccaboni & Moliterni, 2009; Zimmermann et al., 2018). Thus, it serves as a foundation for innovation, resilience, and overall organizational success.

2.2. Organizational Ambidexterity and Innovation Capability

Innovation capability, rooted in Schumpeter's (1934) notion of "creative destruction," refers to a firm's ability to generate and apply new ideas, adapt to market demands, and introduce products or processes that create competitive advantage (Teece et al., 1997; Saunila & Ukko, 2014). Studies highlight its role as a critical intangible asset (Sher & Yang, 2005) that enhances project success and long-term sustainability (Rajapathirana & Hui, 2018).

Ambidextrous organizations foster innovation capability by balancing exploratory and exploitative activities, enabling both incremental and radical innovations (He & Wong, 2004; Benitez et al., 2018). This duality allows firms to respond to immediate market needs while also investing in transformative opportunities.

H1: *Organizational ambidexterity has a positive impact on innovation capability.*

2.3. Organizational Ambidexterity and Organizational Resilience

Organizational resilience refers to the ability to adapt and recover from crises, disruptions, and uncertainty while maintaining operations (Kendra & Wachtendorf, 2003; Vogus & Sutcliffe, 2007). Resilient organizations manage risks, sustain performance, and gain competitive advantage in volatile environments (Shin et al., 2012; Fani et al., 2015).

Ambidexterity enhances resilience by fostering adaptability, enabling resource optimization, and mitigating risks (Buliga et al., 2016). Firms that balance exploration and exploitation are better positioned to anticipate threats, seize

opportunities, and maintain continuity in turbulent environments (Al-Atwi et al., 2021).

H2: *Organizational ambidexterity has a positive impact on organizational resilience.*

2.4. Organizational Ambidexterity and Organizational Project Success

Overall organizational project success extends beyond individual projects to reflect alignment with organizational strategy, long-term competitiveness, and growth (Shenhar et al., 2001; Jiang et al., 2016). Effective project management maturity models (Farrokh & Mansur, 2013) highlight the importance of strategic alignment, leadership, and stakeholder collaboration.

Ambidexterity contributes directly to project success by enabling firms to adjust strategies, reallocate resources, and respond to market uncertainty (Kim et al., 2019). Empirical evidence shows that organizations with high ambidexterity achieve superior performance outcomes across projects (Junni et al., 2013).

H3: *Organizational ambidexterity has a positive impact on overall organizational project success.*

2.5. Innovation Capability and Organizational Project Success

Innovation capability streamlines project processes, enhances efficiency, and fosters a culture of continuous improvement (McGrath et al., 1994). It enables firms to differentiate themselves through unique products and services, strengthen customer loyalty, and sustain profitability (Al-Kalouti et al., 2020).

By integrating internal knowledge with external insights, organizations strengthen innovation capability and translate it into project success (Tamer Cavusgil et al., 2003). Firms that successfully innovate are more likely to achieve favorable project outcomes and sustain long-term growth.

H4: *Innovation capability has a positive impact on overall organizational project success.*

2.6. Organizational Resilience and Organizational Project Success

Resilience enables organizations to adapt project strategies to environmental changes, manage risks, and sustain operations during disruptions (Van Der Vegt et al., 2015). Resilient organizations are better positioned to minimize project failures and sustain long-term outcomes (Hillmann & Guenther, 2021).

By building adaptive strategies and risk management practices, resilient organizations enhance project outcomes and mitigate the likelihood of disruptions (Leflar & Siegel, 2013).

H5: *Organizational resilience has a positive impact on overall organizational project success.*

2.7. Mediating Roles of Innovation Capability and Resilience

Ambidexterity enhances innovation capability, which in turn improves project outcomes. Research shows that innovation capability mediates the relationship between ambidexterity and project success, allowing firms to generate innovative solutions that contribute to superior results (Alamayreh et al., 2021).

H6: *Innovation capability mediates the relationship between organizational ambidexterity and overall organizational project success.*

Similarly, ambidexterity fosters resilience, which translates into improved project performance. Empirical evidence supports resilience as a mediator between ambidexterity and project success, highlighting its role in transforming adaptability into sustained organizational outcomes (Trieu et al., 2023).

H7: *Organizational resilience mediates the relationship between organizational ambidexterity and overall organizational project success.*

2.8. Moderating Role of Absorptive Capacity

Absorptive capacity strengthens the effects of ambidexterity by enabling organizations to acquire and apply external knowledge in ways that enhance innovation (Cohen & Levinthal, 1990; Zahra & George, 2002). Firms with higher absorptive capacity are more effective in balancing exploration and exploitation and translating these into innovation outcomes (Kim et al., 2019; Muller et al., 2021). Furthermore, recent contributions indicate that absorptive capacity remains a strong predictor of innovation effectiveness in dynamic environments, particularly when firms invest in cross-functional knowledge-sharing routines (Chaparro, 2021; Flatten et al., 2022; Pu et al., 2023).

H8: *Absorptive capacity moderates the relationship between organizational ambidexterity and innovation capability.*

Absorptive capacity also enhances resilience by equipping firms with external knowledge and adaptive practices that support recovery during disruptions (Piriyawatthana, 2020). Recent evidence suggests it can even substitute for resilience when resilience mechanisms are weak (Salam & Bajaba, 2023).

H9: *Absorptive capacity moderates the relationship between organizational ambidexterity and organizational resilience.*

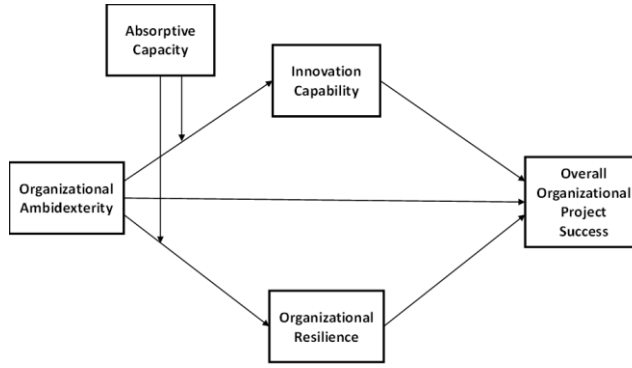

Figure 1: The Theoretical Model

3. METHODOLOGY

This section discusses the sampling strategy, data collection procedure, and data analysis tools and techniques.

3.1. Sample and Data Collection

The study targeted the IT sector of Pakistan, which is particularly relevant given the role of innovation capability and absorptive capacity in dynamic technological environments. Senior-ranking members, including project managers, senior web and game developers, and graphic designers, were selected as respondents due to their experience with organizational projects.

Using convenience and snowball sampling, 600 questionnaires were distributed via Google Forms. A total of 505 responses were received (response rate: 84.2%). After screening for unengaged responses (standard deviation < 0.50), 366 usable surveys remained. This exceeds the recommended minimum of 150 responses, calculated following VanVoorhis and Morgan's (2007) guideline of 30 responses per variable.

3.2. Measures

Validated scales were used to measure the constructs, with all items rated on Likert-type scales.

Organizational Ambidexterity: 12 items adapted from Lubatkin et al. (2006), measured on a 5-point scale (1 = strongly disagree, 5 = strongly agree). Example item: "Our organization looks for novel technological ideas by thinking 'outside the box.'"

Organizational Project Success: 11 items adapted from Jiang et al. (2016), measured on a 5-point scale. Example: "Our projects generally follow the assigned schedule."

Innovation Capability: 8 items from Prajogo & Ahmed (2006), measured on a 7-point scale. Example: "The level of newness (novelty) of our new products is very high."

Organizational Resilience: 3 items from Lee et al. (2015), used by Trieu et al. (2023), measured on a 5-point scale. Example: "When an unexpected event occurs, our company can improvise solutions to adjust the workflow."

Absorptive Capacity: 14 items from Leal-Rodríguez et al. (2014), measured on a 7-point scale. Example: "We have frequent interactions with top management to acquire new knowledge."

Demographic variables (gender, age, qualification, work experience, job position, and project type) were also collected.

3.3. Procedure

Data were collected in three waves to maximize participation, with reminders sent to non-respondents. Participants were approached primarily via professional social media platforms and organizational contacts in the IT industry. Respondents provided input based on their project management experiences and organizational practices.

3.4. Data Analysis

Data were analyzed using SPSS with Hayes' PROCESS macro. Analyses included descriptive statistics, reliability testing (Cronbach's alpha), correlation analysis, and regression-based techniques for mediation and moderation testing.

The organizational resilience construct was removed during the data analysis due to extremely low reliability ($\alpha = .29$), consistent with Nunnally's (1978) minimum threshold of .70 for acceptable reliability.

4. FINDINGS

This section reports the descriptive statistics, reliability and correlation analyses, and the results of regression, mediation, and moderation tests.

4.1. Descriptive Analysis

Of the 366 usable responses, 25.4% were female and 74.6% were male. Most respondents were aged 20–29 years (61.5%), followed by 30–39 years (32.5%). Nearly half of the participants (46.4%) had 1–5 years of experience, while 42.3% had 6–10 years. Data were primarily collected from professionals in game development (30.6%), website development (21.3%), graphic design (14.2%), organizational development (12.6%), and mobile application development (10.1%).

Table 1 *Descriptive Statistics (N = 366)*

Variable	Category	Frequency	Percent
Gender	Female	93	25.4
	Male	273	74.6
Age	20–29	225	61.5
	30–39	119	32.5
	40–49	21	5.7
	50 or above	1	0.3
Work experience	1–5 years	170	46.4
	6–10 years	155	42.3
	11–15 years	32	8.7
	16–20 years	8	2.2
	More than 20 years	1	0.3

Variable	Category	Frequency	Percent
Project type	Game development	112	30.6
	Website development	78	21.3
	Graphic design	52	14.2
	Organizational development	46	12.6
	Mobile app development	37	10.1
	Other	41	11.2

4.2. Reliability and Correlation Analysis

Reliability was assessed using Cronbach's alpha. All constructs showed acceptable reliability (> .70) except organizational resilience, which had a very low alpha (.29) and was excluded from subsequent analyses.

Table 2 *Reliability Statistics for Study Variables*

Variable	Cronbach's α	Items
Organizational ambidexterity	.697	12
Project success	.732	11
Organizational resilience	.294	3
Innovation capability	.768	9
Absorptive capacity	.819	15

The correlations show strong, positive, and significant associations among the key constructs. Ambidexterity was highly correlated with both project success ($r = .69$, $p < .01$) and innovation capability ($r = .60$, $p < .01$), indicating that firms that

balance exploration and exploitation tend to report better innovation outcomes and project-level success. Innovation capability also correlated strongly with project success ($r = .61$, $p < .01$), suggesting that innovation is an important driver of organizational outcomes. Absorptive capacity was significantly correlated with all three constructs ($r = .59–.68$, $p < .01$), highlighting its role in supporting both innovation and performance.

Table 3 *Means, Standard Deviations, Reliabilities, and Correlations*

Variable	M	SD	1	2	3	4
1. Organizational ambidexterity (OA)	3.71	0.44	(.70)			
2. Project success (OPS)	3.98	0.47	.69**	(.73)		
3. Innovation capability (IC)	5.04	0.72	.60**	.61**	(.77)	
4. Absorptive capacity (AC)	5.21	0.68	.59**	.60**	.68**	(.82)

Note. Values on the diagonal represent Cronbach's alpha. $p < .01$.

4.3. Common Method Variance

To examine the influence of common method variance, Harman's single-factor test (unrotated) was conducted to examine the single-factor variance in the dataset. The results indicated that a single factor that the first factor accounted for 20.95% of the variance, which is far below the threshold of 50%. Therefore, it is very unlikely that common method variance can fully account for the observed relationships.

4.4. Regression Analyses of Direct Relationships

All regression analyses, including mediation and moderation, were conducted using the PROCESS macro developed by Hayes (2018). The direct relationships results showed that organizational ambidexterity significantly predicted innovation capability ($b = .96$, $t = 13.70$, $p < .001$), supporting H1. Ambidexterity also had a significant positive effect on project success ($b = .54$, $t = 11.25$, $p < .001$), supporting H3. Finally, innovation capability significantly predicted project success ($b = .20$, $t = 6.82$, $p < .001$), supporting H4.

Table 4 *Direct Effects of Independent Variables on Outcomes*

Path	B	SE	t	p
OA → IC	.963	.070	13.70	< .001
OA → OPS	.537	.048	11.25	< .001
IC → OPS	.198	.029	6.82	< .001

4.5. Mediation Analysis

Using Hayes' PROCESS macro with 5,000 bootstrapped samples (Hayes, 2018), innovation capability was found to partially mediate the relationship between ambidexterity and project success. The indirect effect (b = .19, 95% CI [.11, .28]) was significant, as the confidence interval did not include zero. This supports H6.

Table 5 *Mediation of Innovation Capability Between Ambidexterity and Project Success*

Effect	B	SE	t	P	LLCI	ULCI
Total effect (OA → OPS)	.728	.041	17.74	<.001	.647	.808
Direct effect (OA → OPS)	.537	.048	11.25	<.001	.443	.630
Indirect effect (OA → IC → OPS)	.191	.043	–	–	.107	.276

Ambidexterity exerts both a direct and indirect effect on project success. The mediation results suggest that part of ambidexterity's effect is transmitted through the organization's ability to innovate. Thus, firms that balance exploration and exploitation are successful not only because of efficiency and adaptability but also because these practices foster innovation that drives project outcomes.

4.6. Moderation Analysis

Absorptive capacity did not moderate the relationship between ambidexterity and innovation capability. The interaction effect was nonsignificant (b = –.0002, p = .996). Thus, H8 was not supported.

Table 6 *Moderation of Absorptive Capacity Between Ambidexterity and Innovation Capability*

Predictor	B	SE	t	p
OA → IC	.499	.083	6.02	< .001

Predictor	**B**	**SE**	**t**	**p**
AC → IC	.520	.051	10.15	< .001
OA × AC → IC	–.002	.041	–0.01	.996

Although absorptive capacity was positively associated with innovation capability, it did not strengthen the effect of ambidexterity on innovation. However, it should be noted that although the interaction was not significant (b = –.002, p = .996), absorptive capacity independently predicted innovation capability (b = .52, t = 10.15, p < .001). Thus, absorptive capacity contributes directly to innovation outcomes, but our results indicate that it does not amplify the effect of organizational ambidexterity. The lack of a significant interaction suggests that absorptive capacity may contribute to innovation capability independently rather than amplifying ambidexterity effects, consistent with studies reporting weak or inconsistent moderation patterns (e.g., Fan et al., 2023).

Finally, H9, which concerned moderation with resilience, could not be tested due to the low reliability of the resilience scale.

5. DISCUSSION

This study examined the role of organizational ambidexterity, innovation capability, absorptive capacity, and resilience in driving organizational project success in the IT sector of Pakistan. The findings support ambidexterity theory and dynamic capability theory, demonstrating that firms that balance exploration and exploitation activities are better positioned to innovate and achieve project-level outcomes.

Consistent with prior research (Benitez et al., 2017; Boukamel & Emery, 2017), ambidexterity was found to significantly enhance innovation capability. Ambidextrous organizations can simultaneously leverage existing knowledge and pursue novel opportunities, fostering creativity, adaptability, and risk-taking that translate into innovation outcomes. This supports the argument that ambidexterity is a crucial driver of sustainable competitiveness in dynamic sectors (Luger et al., 2018; O'Reilly & Tushman, 2013).

The results also show that ambidexterity contributes directly to overall organizational project success. Firms that integrate exploration and exploitation are more capable of adjusting resources, aligning strategies, and delivering projects that support long-term growth (Abbas, 2026a). These findings align with previous studies that highlight ambidexterity as a tool for sustaining performance under dynamic conditions (Wan et al., 2017; Nisula & Kianto, 2013).

Innovation capability was positively associated with project success, reinforcing the view that firms with stronger innovation capacity are more likely to sustain competitiveness and growth (Akman & Yilmaz, 2008; Al-Kalouti et al., 2020). The mediation analysis further revealed that innovation capability partially mediates the ambidexterity–success relationship, confirming that innovation serves as a critical pathway through which ambidexterity enhances organizational outcomes (Alamayreh et al., 2021).

In contrast, absorptive capacity did not moderate the link between ambidexterity and innovation capability. The results suggests that, in the Pakistani IT sector, absorptive capacity contributes independently to innovation rather than strengthening the ambidexterity–innovation relationship. This requires careful interpretation. First, absorptive capacity may act as an additive contributor to innovation (direct main effect) rather than as a multiplicative amplifier of ambidexterity; this is consistent with models where absorptive capacity independently raises the baseline capacity to innovate. Second, measurement issues may mask moderation: if absorptive capacity's sub-dimensions (potential vs. realized) differentially interact with ambidexterity, an aggregate absorptive capacity score may fail to detect these effects. Third, sample-specific factors and limited statistical power for interaction tests may also explain the null interaction. Fourth, it may be the case that organizations may not yet have developed systematic mechanisms for acquiring and applying external knowledge, making absorptive capacity less visible as a moderating force. Prior studies have also reported mixed findings, with some identifying significant moderation effects (e.g., Muller et al., 2021), while others found none (Fan et al., 2023).

Finally, organizational resilience was excluded from the model due to low reliability of its three-item scale. Although prior research highlights resilience as a mediator between ambidexterity and performance (Trieu et al., 2023), this study could not validate its role. Future research should employ more comprehensive resilience measures to better capture its contribution to project success.

Overall, these findings underscore the importance of ambidexterity in fostering both innovation and project outcomes, while pointing to the partial mediating role of innovation capability and the limited role of absorptive capacity as a moderator in this context.

6. CONCLUSION

This study examined the effects of organizational ambidexterity on innovation capability and overall organizational project success, with absorptive capacity tested as a moderator. The findings confirm that ambidexterity plays a critical role in fostering both innovation ($b = .96$, $p < .001$) and project success ($b = .54$, $p < .001$).

Organizations that balance exploration and exploitation are more likely to generate novel ideas while maintaining operational efficiency, leading to sustainable growth and competitive advantage.

Results further demonstrate that innovation capability mediates the relationship between ambidexterity and project success (b = .19, 95% CI [.11, .28]). This highlights innovation as a key mechanism through which ambidextrous strategies enhance organizational outcomes. However, absorptive capacity did not moderate the ambidexterity–innovation link, suggesting that Pakistani IT firms may not yet have fully developed processes for leveraging external knowledge. Organizational resilience was excluded from the model due to low reliability, though prior research suggests its potential mediating role warrants further study.

6.1. Theoretical and Practical Implications

This study contributes to ambidexterity and dynamic capability theory by demonstrating how balancing exploration and exploitation directly enhances innovation and project success. By identifying innovation capability as a partial mediator, the findings extend prior work (O'Reilly & Tushman, 2013; Raisch et al., 2009) and provide an integrated view of how ambidexterity shapes performance in project-based organizations.

For IT firms, the results emphasize the importance of cultivating ambidextrous cultures that encourage both exploration and exploitation. Developing innovation-oriented strategies, investing in talent, and promoting knowledge sharing can strengthen innovation capability and project outcomes. Given the sector's rapid digital transformation, ambidextrous practices can also help firms balance operational efficiency with experimentation, enabling sustained competitiveness.

6.2. Limitations and Future Directions

This study is limited by its focus on the IT sector in Pakistan and the exclusion of resilience due to measurement issues. The reliance on convenience and snowball sampling techniques means that the results may not be broadly generalizable to the entire industry. The cross-sectional design also restricts causal inferences. Future research should adopt longitudinal designs, explore diverse industries and cultural contexts, and use more comprehensive measures of resilience. Additionally, as emerging technologies such as AI, blockchain, and IoT reshape organizational processes, further work is needed to examine how ambidexterity facilitates their adoption and integration.

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UCP Journal of Business Perspectives
Vol. 3, Issue 2 (June - December 2025)
Journal website: http://ojs.ucp.edu.pk/index.php/jbp/index

The Impact of Teachers Collaboration and Principal Leadership on Teacher effectiveness through multiple dimensions of Self-Efficacy: An analysis through Structural Equation Modelling Approach

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ABSTRACT

This study investigates the influence of teacher collaboration and principal leadership on teacher effectiveness through multiple dimensions of teacher self-efficacy in public secondary schools in Peshawar, Pakistan. Using a cross-sectional survey design, 150 teachers & 220 Pupils total 370 participants across 25 government schools has been approached for questionnaire distribution, employing simple random sampling. Teacher self-efficacy was assessed through the Teachers' Sense of Efficacy Scale, while student perceptions were used to assess teacher effectiveness using a Rating Scale. Principal leadership and teacher collaboration were also measured using established scales. Partial Least Squares Structural Equation Modeling (PLS-SEM) was utilized for data analysis. Results revealed that both variables highly influenced teacher self-efficacy, which in turn strongly predicted teacher effectiveness. However, measurement concerns were noted in the Teacher Effectiveness construct, indicating a need for refinement. The study highlights the crucial role of fostering collaboration and leadership in enhancing teacher effectiveness, especially in resource-constrained environments. Limitations include the cross-sectional design and regional sampling scope. Future research should employ longitudinal methods and broader samples to strengthen generalizability and causal inferences.

Keywords: Teacher Collaboration; Principal Leadership; Teacher Self-Efficacy; Teacher Effectiveness; Secondary Public Schools; Khyber Pakhtunkhwa.

1. INTRODUCTION

According to Yunus et al. (2024), school teachers play a critical role in shaping children's thinking during their early developmental years. In the context of Pakistan, not only is there a shortage of teachers, but there is also a notable deficit in professionally competent educators (UNESCO, 2006). It is necessary to guarantee

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This is an open-access article. Available Online: 23-02-2026
DOI: https://doi.org/10.24312/ucp-jbp.03.02.724

high-quality education since the Pakistani Constitution guarantees the "Right to Education," and educators are among the most valuable resources for achieving this goal (Hassan, A., & Khan, M. M. A, 2024; Kaur and Singh, 2013). Numerous studies have shown that student progress is directly impacted by the efficiency of teachers (Kraft, M. A., & Falken, G. T, 2023; Heck, 2009). The ability of a teacher to support students' academic, social, and emotional development is known as teacher effectiveness. Simply put, it refers to a teacher's effectiveness in instructing and assisting students in achieving their goals. Stronge (2007) defines teacher effectiveness as the capacity of an educator to support student learning and success in the classroom through their behaviors, knowledge, and abilities. Nonetheless, teacher effectiveness is a complicated phenomenon that merits more investigation (Taylor & Thion, 2023; Cheng, 1996). While research in the Western world has concentrated on "what" makes a teacher effective (Good, 1979; McBer, 2000), there are, at most, few studies looking at "how" to make teaching more effective. Furthermore, self-report metrics for teacher effectiveness were used in studies looking into efficacy. The current study uses Bandura's "Self-efficacy" theory (1977) to investigate whether instructors' self-efficacy or belief in one's own talents is a key component of their efficacy and effectiveness. The self-confidence of an educator in their own potential to instruct pupils while leading the classroom is known as teacher self-efficacy. Simply put, it refers to a teacher's feeling confident in their capacity to assist pupils' learning and deal with difficulties in the classroom. When applied to teachers, self-efficacy displays their trust in their ability to teach. Bandura (1997) defines self-efficacy as believing an individual’s capacity in order to formulate and implement the required strategies to manage scenarios. The study makes an argument that self-efficacy significantly affects teacher effectiveness using student assessments of that effectiveness. Three factors make Pakistan a suitable research location for this study. First, according to the 2017 Census of Pakistan, 29.5% within the community is below the age of 14, and education is seen as the most important factor for future development (Prachee Sehgal Ranjeet et al., 2017; Rao et al., 2004). According to studies, there is an urgent need to improve Pakistani teachers' efficacy (Javaid, M. A., et al., 2024; Sindhi and Shah, 2013). Second, Pakistan has a student-teacher ratio of 26, which is much greater than that of advanced countries like the United States. Therefore, the progress of society depends on the efficacy of teachers. Third, there are few studies that have tried to look at teacher effectiveness outside of the American setting (Azam and Kingdon, 2013). Therefore, in terms of the Pakistani educational setting, it is essential to comprehend the elements that contribute to teacher effectiveness.

2. LITERATURE REVIEW

2.1 Relationship between Teacher Self-efficacy and Teacher Effectiveness

According to Becenti (2009), Numerous scholars have examined teacher effectiveness from a variety of angles. Effective teachers are able to use research

methods and curriculum implementation to improve and maintain student performance. Teacher self-efficacy is one element that is connected to effectiveness. (Coladarci et al., 1997) reported that the self-worth of a teacher can be seen via the instructor's belief that he or she actually has the capability of such classroom guidance that one maintains Choice for oneself with regard to the role of education. Research suggests that pupil knowledge was influenced by teacher efficacy (Javaid, M. A., et al., 2024).

According to research, Numerous psychological, cognitive, and behavioral changes are predicted by self-worth as a teacher, including academic success (Calik et al., 2012), satisfaction with work, feelings of exhaustion, engagement, and safeguarding against employment burnout and stress (Shwarzer and Hallum, 2008). Association between self-efficacy and instructional features was discovered by Holzberger et al. (2013), who also established a causal association between teachers' self-efficacy as well as the quality of their instruction. However, few studies that analyze the teacher efficacy from the viewpoint of the recipients, or pupils. According to Toland and De Ayala (2005), Teacher effectiveness is determined by how well teachers impart course material, facilitate relationships between teachers and students, and control students' learning. According to this study, the three components of teacher effectiveness have a constructive connection with teacher self-efficacy.

Hypothesis 1 (a): *There is a significant relationship between teacher self-efficacy and the quality of course information delivery.*

Hypothesis 1 (b): *Teacher self-efficacy plays a significant role in shaping how teachers facilitate interactions with students.*

Hypothesis 1 (c): *Teacher self-efficacy has a significant effect on teachers' role in regulating students' learning.*

2.2 Relationship among Team Work, Administrative Leadership, Teacher self-efficacy and Teacher Effectiveness

Research indicates that teacher collaboration improves teaching quality and protects against uncertainties and difficulties associated with technical or instructional practice (Jackson and Bruegmann, 2009). Beatty (2000) discovered that secondary school teachers' opinions of themselves and their work changed as a result of their multidisciplinary teamwork. According to Leiberman (2000), teacher networking and collaboration aid in raising students' academic achievement. In their research of teacher work groups, Conley et al. (2004) discovered that effective interpersonal processes were essential to enhancing instruction and learning. According to the findings of Jackson and Bruegmann (2009), teachers learn best at

the point when they're the least strengthened members of a group, and pupils benefit from improvements in the observable traits of their teachers.

Weathers (2009) pointed out that teacher satisfaction and morale are impacted by helpful leadership, group education, caring relationships, friendly environments, as well as common personal habits. According to Duyar et al. (2013), teacher self-efficacy was predicted by certain elements of principal leadership and teacher collaboration in the workplace. Favorable feedback may also have a favorable impact on a teacher's internal motivation and self-evaluated capability, according to cognitive assessment theory (Gagne and Deci, 2005). The peer group is obviously one of the sources of this input. Therefore, any compliments from colleagues are likely to modify the tutor's opinion of her particular abilities. Conversely, instructors who work alone feel bad about themselves (McGuire, 2011). Hence, we proposed that:

Hypothesis 2: *Collaboration has a major effect on teacher self-efficacy.*

Enhancing self-efficacy beliefs is another important function of the school principal. According to Barber and Meyerson (2007), competent school administrators work with teachers to improve the school's performance. Research indicates that school leadership has a major impact on school culture (Leithwood, 2005) and that values are a significant factor in workers' self-esteem (Ngang et al., 2011). According to Blasé & Blasé (1999), a study on the effects of principals' daily instructional leadership Responsive actions of educators, and sense of safekeeping are all positively impacted by the recommendations made by administrators. Hipp (1996) used in-depth interviews to examine the connection between teachers' performance and the transformational leadership style of the administrator. The study found a substantial relationship between general teaching efficacy as well as teacher effectiveness and leadership behaviors: modelling acts, motivating cluster goals, and offering conditional incentives. Additionally, Walker and Slear (2011) discovered that both teacher effectiveness and teaching efficacy were substantially correlated with leadership behaviors. So, it is assumed that,

Hypothesis 3: *Principal leadership has a major effect on teacher self-efficacy.*

2.3 Self-Efficacy Theory

Bandura's Self-Efficacy theory (1977) explains that people's belief in their own ability to succeed is called self-efficacy. Which strongly influences how they think, feel, and act. When individuals believe they can achieve a goal, they are more motivated, persistent, and confident in their efforts. Bandura identified four main sources that shape self-efficacy: mastery experiences (past successes), vicarious experiences (observing others succeed), verbal persuasion (encouragement from others), and emotional and physiological states (how someone feels physically or emotionally in a situation). In this context, when teachers work together

(collaboration) and receive strong support and guidance from school leaders (principal leadership), it can increase their self-efficacy. For example, successful teamwork (mastery experience), seeing other teachers succeed (vicarious experience), encouragement from principals and peers (verbal persuasion), and a positive school environment (emotional support) all help teachers feel more capable. As a result, higher teacher self-efficacy can lead to improved teaching practices and overall teacher effectiveness. Thus, collaboration and leadership play a key role in boosting teachers' belief in themselves, which positively impacts their performance in the classroom.

2.4 Conceptual framework of the study:

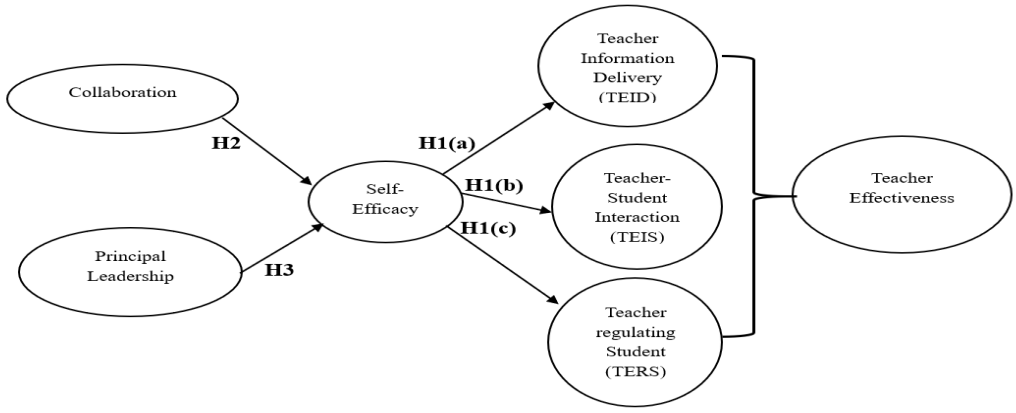

Figure 1 *Framework*

3. METHODOLOGY

3.1 Data Collection and Sampling

The study relied on survey data collection, and a cluster sampling strategy was utilized because of administrative restrictions, set class groups, and limited researcher access. Creswell and Creswell (2018) pointed out that simple random sampling is challenging to do in school surveys since they frequently depend on groups that occur naturally (such as intact groups or available schools). Students in grades nine and ten had no trouble understanding the claims on their own and had no trouble filling out the survey. So, the researchers sought out ninth and tenth-graders to take part in the study. Researchers surveyed 150 educators and 220 pupils from 25 public schools in the Peshawar Urban and Rural areas to compile their findings. The population of the study is 370; this population is also considered the sample size of the study. Despite the fact that a cross-sectional study design was utilized. The researcher personally distributed questionnaires at each of the participating schools after receiving their consent to conduct the study. Tutors and their respective students

were surveyed separately. Students had to fill out the survey alone, away from their teachers, and they were told up front that their answers would remain anonymous. The results were consistent with previous practices, whereby supervisors provided data for the predictor and subordinates for the criteria (Herold and Fields, 2004).

3.2 variables measurement

Effective teachers were perceived as measured by employing the shortened scale established by Toland et al. (2005). Teachers' belief in their own abilities was assessed by 24-item questionnaire scale established by (Tschannen Moran et al., 2001) that is tridimensional in nature, including, 'Teacher Efficacy for Reflective Practice Scale (TERS) Measure teachers confidence in self-reflection and improving their teaching', while second one is ' Teacher efficacy for instructional delivery (TEIF) assesses teachers belief in their ability to deliver lessons effectively' and lastly is 'Teacher efficacy for instructional strategies (TEIS) evaluates how confident teachers are in using different teaching methods'. A scale created by Wylie & Hodgen (2010) was used to measure the leadership of the principal. An instrument that quantified how teachers were seen to work together was the shortened version of "Teacher Collaboration Scale" developed by Goddard et al. (2007). All the variables were measured by Partial Least Squares Structural Equation Modeling (PLS-SEM) is a powerful procedure particularly suited for estimating complicated and exploratory models. It is robust in handling data that violate normality and multivariate assumptions, making it highly flexible in various research contexts. PLS-SEM does not need large sample sizes and carries out well even with small datasets. According to Hair et al. (2021), sample adequacy in PLS-SEM can be justified using the 10-times rule or power analysis. In this study, the largest number of indicators pointing to a construct and the maximum number of structural paths did not exceed the minimum sample requirement. With 370 participants, the sample size exceeds the typical threshold for medium effect sizes at 80% statistical power (Cohen, 1992), making it sufficient for reliable SEM estimation. Therefore, although probability-based random sampling was not feasible, the sample size and modeling approach are appropriate and aligned with recommended PLS-SEM practices. This makes it ideal for early-stage theory development and predictive modeling. As highlighted by Hair et al. (2021), PLS-SEM has become increasingly popular in fields such as social sciences, business, and marketing research.

4. ANALYSIS AND RESULTS

4.1 Measurement Model

The reliability and validity of the constructs were assessed using factor loadings, Cronbach's Alpha (CA), Composite Construct Reliability (CCR), and Average Variance Extracted (AVE). For the Teacher Collaboration construct, the CA (0.767) and CCR (0.787) both exceeded the minimum threshold of 0.70, indicating acceptable reliability. The AVE of 0.541 is above the recommended 0.50 cutoff,

confirming adequate convergent validity. However, the factor loadings for Teacher Collaboration indicate that Item 2 (0.385) and Item 3 (0.360) fall below the acceptable 0.50 threshold. According to Hair et al. (2019), items with loadings below 0.50 contribute minimally to explaining the latent construct and may reflect poor conceptual alignment or respondent misunderstanding. In this study, the lower loadings may be attributed to participants' inconsistent responses or limited engagement with these specific collaboration practices, which weakens their contribution to the construct. Therefore, these items could be considered for revision or removal to enhance construct clarity. For the Principal Leadership construct, the Cronbach's Alpha (0.699) and Composite Reliability (0.704) marginally meet the recommended 0.70 threshold (Hair et al., 2019). While the AVE (0.576) indicates adequate convergent validity, Item 5 shows a factor loading of 0.410, suggesting it may not adequately represent the underlying leadership dimension. Weak loadings of this nature often signal poor item–construct correspondence or contextual irrelevance (Kline, 2016). This item may therefore reduce measurement precision and warrants further refinement. In contrast, Teacher Self-Efficacy displays strong psychometric properties. With Cronbach's Alpha of 0.899, Composite Reliability of 0.936, and AVE of 0.829, all values exceed recommended criteria, confirming excellent reliability and convergent validity (Bandura, 1997; Hair et al., 2019). The high factor loadings of TEIF (0.935), TEIS (0.875), and TERS (0.920) further affirm that these indicators strongly reflect teachers' sense of capability in performing professional tasks. For Teacher Effectiveness, the Cronbach's Alpha (0.630) and Composite Reliability (0.644) fall below the commonly accepted 0.70 cutoff, indicating insufficient internal consistency. Although the AVE (0.562) is marginally acceptable, four of the five items show weak loadings below 0.60—particularly Item 1 (0.247), Item 2 (0.340), and Item 4 (0.272). Low loadings of this magnitude generally indicate that the items do not adequately capture the theoretical construct (Hair et al., 2019; Kline, 2016). Only Item 5 (0.911) demonstrates strong measurement strength, but its dominance may distort construct representation, suggesting that the construct requires substantial revision or reconsideration. In summary, while Teacher Self-Efficacy is a robust construct, Teacher Effectiveness requires significant improvement. Teacher Collaboration and Principal Leadership show moderate reliability but include weak items that should be reconsidered for better model fit.

Table 1 *Measurement Model Evaluation (Factor Loadings, CA, CCR, and AVE).*

Items	Factor Loading	CA	CCR	AVE
Teacher Collaboration		0.767	0.787	0.541
Item 1	0.801			
Item 2	0.385			

Item 3	0.360			
Item 4	0.683			
Principal Leadership		0.699	0.704	0.576
Item 1	0.848			
Item 2	0.620			
Item 3	0.673			
Item 4	0.733			
Item 5	0.410			
Teacher Self-Efficacy		0.899	0.936	0.829
TEIF	0.935			
TEIS	0.875			
TERS	0.920			
Teacher Effectiveness		0.630	0.644	0.562
Item 1	0.247			
Item 2	0.340			
Item 3	0.586			
Item 4	0.272			
Item 5	0.911			

4.2 Structural Model

The path from Teacher Collaboration (TC) to Teacher Self-Efficacy (TSE) yielded a standardized path coefficient (β) of 0.201, indicating a positive but relatively modest influence. The corresponding f^2 value of 0.30 suggests a moderate effect, as argued by Cohen's (1988) benchmarks (0.02 = small, 0.15 = medium, 0.35 = large). This indicates that TC makes a meaningful contribution to explaining TSE. The VIF of 1.878 is less than the critical threshold of 5.0, showing no multicollinearity issues (Hair et al., 2021). The relationship between Principal Leadership (PL) and Teacher Self-Efficacy (TSE) shows a stronger path coefficient (β = 0.372) compared to TC, implying a more substantial direct effect. However, the f^2 value of 0.103 is just above the small-effect threshold, suggesting that while PL has a significant impact, its unique contribution to explaining variance in TSE is relatively small. The VIF remains acceptable at 1.878, further confirming that multicollinearity is not a concern. Lastly, the effect of (TSE) on Teacher Effectiveness (TE) is both statistically and practically significant, with a high path coefficient (β = 0.624) and a large effect size (f^2 = 0.637). This indicates that TSE plays a crucial role in predicting TE,

accounting for a substantial portion of its variance. The R^2 value of 0.389 for TE demonstrates a moderate level of explained variance, meaning that approximately 39% of the variability in Teacher Effectiveness is accounted for by Teacher Self-Efficacy. The VIF of 1.000 confirms the absence of collinearity.

In summary, the structural model demonstrates strong relationships, particularly between TSE and TE, which is supported by a high β and large f^2. Both TC and PL contribute to TSE, but PL shows a stronger direct effect, while TC contributes more in terms of effect size. All VIF values are within acceptable limits, indicating that the model is free from multicollinearity issues, thus meeting the standards recommended by Hair et al. (2021) and Fornell & Larcker (1981).

Table 2 *Hypothesis Testing*

Variables Decision	β	R^2	f^2	VIF
TC -> TSE Supported	0.201	0.281	0.30	1.878
PL -> TSE Supported	0.372	0.281	0.103	1.878
TSE -> TE Supported	0.624	0.389	0.637	1.000

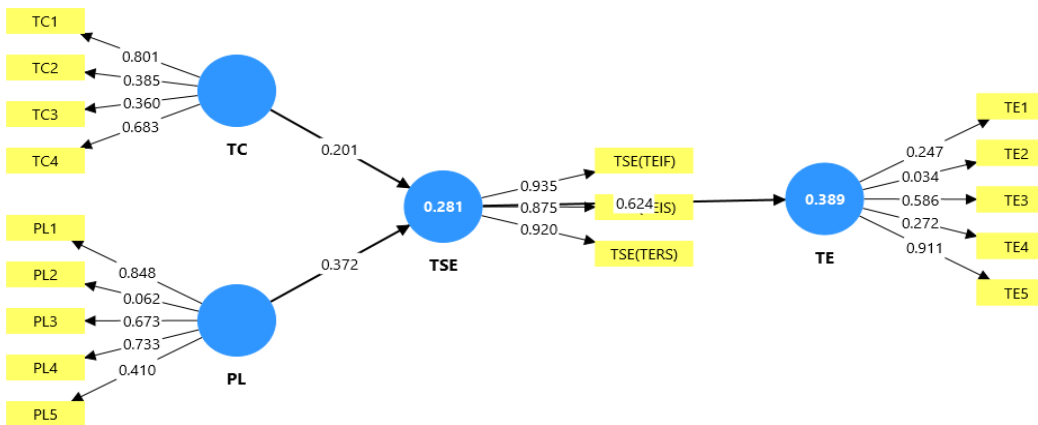

Figure 2 *Study Structural Model*

5. CONCLUSION AND FUTURE RESEARCH DIRECTION

According to the study's findings, principals' leadership as well as teacher collaboration can boost teachers' confidence in their abilities and their performance in the classroom. In line with earlier research (Ashton, 1984; wang et al., 2017), this study confirms and establishes the association between teacher self-efficacy &

teacher effectiveness. There is a dearth of literature on "how" to improve teachers' self-efficacy, despite the fact that prior research has demonstrated that teachers' self-efficacy affects their effectiveness. The study's findings highlight the importance of principal leadership and teacher collaboration in shaping teachers' perceptions of their own abilities in the classroom. The research on teacher effectiveness is advanced by the results, which are based on the self-efficacy theory (Zhang, X., & Zhou, Y., 2022; Bandura, 1986). These results show that there is a positive correlation between teachers' self-efficacy and three aspects of their effectiveness: the way they deliver instruction, their role in interaction with pupils, and their ability to regulate pupils' education. Additionally, this impact is shown when comparing pupil ratings of professors to the more common self-report data. Schools should prioritize principal leadership, teacher collaboration, and raising teachers' self-efficacy. This will help instructors become more effective in the classroom. It is critical for educational institutions to seek out and promote teacher cooperation opportunities. According to Friend and Cook (2009) Finding the time to collaborate is the largest problem that teachers have when it comes to working with peers. Time slots in school schedules can be set aside specifically to recognize instructors for working together and to encourage others to do the same. Collaboration does not develop by itself, by way of organizational directives or pressure from peers, but depends on dedicated effort on behalf of every person to a shared target, requires particular attention to interpersonal abilities and needs everyone involved to retain parity throughout their interaction, Friend (2000). Thus, it is critical that educators be persuaded of the value of cooperation and actively participate in team projects. It is clear from this study that principals have a significant impact on raising teachers' sense of self-efficacy and, by extension, their effectiveness in the classroom. When schools are struggling with low motivation among instructors and self-efficacy, the principal's role in offering support becomes more important. This help might come in the form of physical resources, incentives, purpose setting, or deploying teachers for training. The nation's future depends on its teachers, so it's crucial to do all we can to make sure they're effective and have a significant impact on student learning. In terms of lesson delivery, student engagement, and learning regulation, the study found that teachers with high levels of self-efficacy were more effective. Consequently, a teacher's efficacy can be greatly improved by focusing on boosting his or her self-efficacy. Collaboration amongst teachers and strong leadership from principals are two low-cost strategies that can have a significant influence on teacher effectiveness in Pakistan, a country with limited school funding and infrastructure. Pakistan has never before conducted a study of its type. In particular, Khyber Pakhtunkhwa has tried to measure teacher effectiveness using three distinct aspects based on student ratings. This study differs from others in that it does not rely on student achievement or teachers' self-ratings, neither of which is guaranteed to be an accurate indicator of teacher effectiveness. Ultimately, the goal of this study is to help schools find ways to make their teachers more effective. In addition, schools are likely to seek out and cultivate opportunities for teacher collaboration, with increased

participation from school leadership resulting in maximum student learning, because this study highlights the significance of collaboration as well as principal leadership in influencing teacher self-efficacy.

5.2 Limitations & Future Research Direction

Despite offering valuable insights, the study is not without its constraints. First of all, since data was only collected at one moment in time, it is not possible to draw any conclusions about cause and effect from a cross-sectional study. Longitudinal studies would provide stronger evidence of the temporal relationships among teacher collaboration, leadership, self-efficacy, and effectiveness. Secondly, issues with construct validity were evident in the measurement model, particularly within the Teacher Effectiveness construct, where several items demonstrated low factor loadings, indicating potential problems with how the concept was captured through student evaluations. This weak measurement may have influenced the reliability of findings related to teacher performance. Thirdly, the sample was geographically limited to 25 public schools in urban and rural Peshawar, which may affect the generalizability of the results to other regions, educational settings, or private institutions across Pakistan or beyond.

In light of these constraints, numerous directions for further studies are recommended. One key area involves the development and refinement of measurement instruments, especially for constructs like Teacher Effectiveness and Principal Leadership, to ensure greater reliability and validity in future applications. Secondly, longitudinal or experimental research designs should be employed to better understand how teacher collaboration and principal leadership contribute to changes in self-efficacy and effectiveness over time. This would help identify causality and track developmental trends. Finally, future research should consider expanding the demographic and contextual scope by including diverse school types, regions, and participant backgrounds, as well as integrating potential moderating variables such as gender, teaching experience, or socio-economic status to enrich the understanding of the factors influencing teacher outcomes in varied educational contexts.

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UCP Journal of Business Perspectives
Vol. 3, Issue 2 (June - December 2025)
Journal website: http://ojs.ucp.edu.pk/index.php/jbp/index

How Green Leadership Shapes Employees' Green Organizational Citizenship Behavior: The Mediating Influence of Emotional Intelligence

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ABSTRACT

Over the past ten years, there has been a noticeable rise in the concept of green leadership (GL). Consequently, more leadership study has been conducted on this new notion, emphasizing the leading style of helping people combined with taking care of the environment. This study empirically investigates the mediating role of employees' emotional intelligence (EI) in the relationship between green leadership (GL) and green organizational citizenship behavior (GOCB), highlighting GL as a pivotal driver of sustainable employee behaviors. The data of this research consisted of managerial professionals from the manufacturing and service industries of Pakistan. The non-probability sampling approach was employed on 381 employees from the respective sectors. PLS-SEM software was used to evaluate the data collected. The empirical results demonstrate that green leadership (GL) exerts a significant and positive effect on green organizational citizenship behavior (GOCB). In addition, emotional intelligence (EI) partially mediates this relationship, highlighting its role as an underlying affective–cognitive mechanism that translates leadership influence into sustainable employee behavior. Specifically, leaders who display environmental commitment while demonstrating emotional awareness and responsiveness foster employees' emotional regulation and empathy, thereby encouraging greater participation in discretionary green initiatives. In turn, enhanced EI strengthens employees' intrinsic motivation and inspirational engagement, encouraging them to exhibit discretionary pro-environmental behaviors that extend beyond formal role requirements. This empirical study will give more in-depth insights into Pakistan's service and manufacturing industries. The research findings further suggest that managers can enhance their effectiveness by adopting a green leadership (GL) style, which enables them to cultivate stronger rapport and empathy with their subordinates. By understanding and addressing employees' needs and expectations, leaders foster higher levels of emotional intelligence (EI) within the workforce. Over time, this enhanced EI contributes to a more positive organizational

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This is an open-access article. Available Online: 23-02-2026
DOI: https://doi.org/10.24312/ucp-jbp.03.02.726

climate characterized by mutual trust, harmony, and collaborative engagement in the workplace.

Keywords: Green Leadership (GL), Emotional Intelligence (EI), Green Organizational Citizenship Behavior (GOCB).

1. INTRODUCTION

There is a growing demand for ethical leadership in today's competitive business environment, so companies are struggling to find leaders who can provide this kind of service to their employees and help them grow by investing in their personal and professional development (Abbas, 2024; Kumari et al., 2021). Green Leadership (GL) has developed as a key idea that substantially impacts employee performance and reflects managerial principles that promote organizational integrity, business citizenship, and individual excellence in the workplace (Notanubun, 2021).

In 1970, Greenleaf introduced the concept of GL, which he viewed as a way to reconcile the need to care for others and succeed in leadership roles. This was a new way of leading, in which leaders put the interests of their employees ahead of their own agendas. GL's top priorities are integrity and self-confidence, helping employees reach their full potential (Hoch et al., 2018). The GL notion was influenced by Bandura's (1971) social learning theory and Blau's (1968) social exchange theory. Green leaders, according to Greenleaf (1998), establish open and transparent channels of interaction with their assistants and sympathize with their issues. In this way, the leader is always aware of what the employees expect, and they are better equipped to satisfy such requirements.

One of the most significant issues businesses have been addressing is ensuring that employees are committed to their employment and enhancing workplace productivity (Abbas, 2026; Nazeer et al., 2026) because their efforts and motivations contribute significantly to the organization's success (Notanubun, 2021). Employees' attitudes and actions at work are shaped by how committed and engaged they are with their jobs (Mahmood et al., 2019). Green Organizational Citizenship Behavior (GOCB) represents a specific form of organizational citizenship behavior that reflects employees' voluntary and discretionary pro-environmental actions within the workplace. Despite the growing prominence and strategic importance of green leadership (GL) in recent years, most existing studies have primarily concentrated on its direct effects on employee behavior and organizational performance. Several research has suggested that organizational commitment may be a possible precursor of GL (Vondey, 2010; Walumbwa et al., 2010). In the already available literature, numerous studies have examined the impact of various leadership styles on job performance, employee satisfaction, or both (Mekpor and Dartey-Baah, 2017).

This study seeks to examine the influence of green leadership on green organizational citizenship behavior within organizational settings. Between GL and

GOCB, Emotional Intelligence (EI) was employed as an intermediate variable because of its importance, and they investigated whether EI serves as a mediator between them. Multiple researchers found GL to be associated with employee behavior and actions (Elche et al., 2020a; Sendjaya et al., 2019), but this relationship was found to be insignificant by some others (Harwiki, 2016a). In addition, the bulk of this research was performed in advanced nations, where management already prioritizes employee interactions and inclinations (Chiniara and Bentein, 2016; Wang et al., 2017), and developing countries, such as growing Asian economies, receive less attention, even though their economic dynamics differ greatly, necessitating a full examination of this topic. This study's findings will be essential to the knowledge of Second Life from an Asian perspective.

2. LITERATURE REVIEW

2.1 Theoretical Foundations and Hypothesis Development

People who work for managers who practice the GL leadership style, according to Spears (2020), grow into leaders who put the needs of others ahead of their own. An excellent example of a good leader is putting the needs of others ahead of their own. This phenomenon is explained by Bandura's social learning theory (1971) and Blau's social exchange theory (1986). Grounded in Social Learning Theory, individuals develop and modify their behavior through observation, imitation, and interaction within their social environment. Let's pretend this was in GL translation. As a result, in this circumstance, leaders who empower their subordinates and even conduct community service are perfect role models for their helpers (Elche et al. 2020a). People who see their boss as a source of inspiration are more likely to follow in their footsteps and become more productive at work. When a subordinate sees GL behavior, they are more likely to be helpful to their coworkers and the community.

A devotee who has been well-treated and is guided by a GL idea will ultimately transmit it to his subordinates, according to Blau's social exchange theory (1968). Because Greenleaf's GL theory states leaders must first serve others before taking leadership, it is distinct from the very underpinnings of everything else (Greenleaf, 2003). GL is primarily concerned with how to help others rather than how to lead others. A fundamental operating principle that underpins all the GL framework decides that followers' needs take precedence over leaders' preferences.

2.2 GL and Employees' GOCB

Organizational management in today's society must be both ethical and people-oriented. GL is crucial since it significantly affects the company's success and effective operation at the departmental (team) and individual levels (Isabel et al., 2021). According to numerous academic studies, GL is beneficial to businesses. Scholars such as Ehrhart (2004) showed that transformational and leader-member

exchange styles were not comparable to GL. Organizations can benefit from GL because it creates a more equitable workplace, according to Ehrhart. Evidence supports the claim made by Perkasa et al. (2020) that GL positively affects employees' mindsets. It also improves organizational performance, leadership integrity, commitment, and customer satisfaction (Qiu et al., 2020). High-performing organizations must have lower employee turnover, which GL has been shown to reduce. In their study, Amah and Oyetuunde (2020) found that GL can be used to decrease employee turnover and instill followers' loyalty.

Many empirical studies have supported this claim, showing that GL and GOCB are linked. According to Isabel et al. (2021), leadership attitudes altered when the methodology was more employee-oriented and emphasized the assistants, unintentionally encouraging the subordinates' GOCBs. Subordinates who work with serving leaders are more likely to develop an empathetic and passionate personality, which ultimately leads them to help and care for others, according to research conducted in India by Saleem et al. (2020). Further research into leadership styles has shown that the GL method does increase workplace openness and cooperation (Bantha and Sahni, 2021; Elche et al., 2020a; Shafi et al., 2020). The first hypothesis is produced based on theory and actual investigations, as shown in Figure 1.

H1: *Green leadership exerts a strong and positive influence on green organizational citizenship behavior (GOCB) of employees.*

2.3 GL and Employees' EI

Recent scholarship has increasingly highlighted emotional intelligence (EI) and emotional awareness as central constructs in contemporary workplace research. The literature identifies EI as a fundamental component of transformational leadership, enabling leaders to inspire, motivate, and effectively manage interpersonal dynamics (Mysirlaki & Paraskeva, 2020). Indeed, EI is widely regarded as a critical capability for effective leadership performance and career success. Parallel streams of research have further examined the relationship between leaders' emotional intelligence and their capacity to exercise green leadership (GL). These studies suggest that emotionally intelligent leaders are better equipped to promote pro-environmental values, foster sustainable behaviors, and align organizational practices with environmental objectives. Wisdom, emotional healing, organizational stewardship, and altruism are the four most important GL qualities, and EI was in the middle of the pack (Kloosterman, 2020). You must be able to control your emotions to be an effective Green leader. As a result, a GL has a high EI and emotional maturity score. Green-leader may struggle to meet their emotional and mental needs if they lack mental and emotional health.

The opposite is true: while numerous studies have shown a strong link between a leader's emotional intelligence (EI) and their ability to lead effectively in the Workplace, several leadership theories have also attempted to investigate the link

between an individual's GL style and their EI (Pollock, 2017). However, this research found that leaders' EI was positively linked to their self-rated GL (Lumpkin and Achen, 2018).

Other theories have attempted to link the leadership style and nature to their followers' subsequent outcomes. These assumptions were put to the test in a significant amount of research. When dealing with their employees' emotional needs, the most effective green leaders have a distinct point of view and strategy. They know how to alleviate their followers' emotional pain, nurture a positive mental attitude, grant them authority, and support them in their professional and personal growth. There are many cases of employees who have been diagnosed with emotional voids because of emotional trauma. Green leaders take advantage of their employees' emotional vulnerability to settle them and help them feel whole again. To help people with their emotional needs and to fill emotional holes, Spears labels this trait of green leaders as "healing" (1995). Aspirations are shattered, or people require emotional healing to revitalize their spirits and mend their anguish after a devastating relationship experience, according to Spears (1995).

Prior studies suggest that green leaders demonstrate a strong commitment to employees' psychological well-being and emotional support, reflecting their emphasis on nurturing and ethically responsible leadership practices. However, limited empirical evidence exists regarding the underlying mechanisms through which green leaders foster emotional awareness and cognitive development among their followers. Although prior research acknowledges the growing importance of green leadership, insufficient attention has been given to understanding how such leadership enhances employees' emotional competencies. The literature emphasizes that emotional regulation skills are critical for both supervisors and subordinates, as employees with higher levels of emotional intelligence (EI) tend to perform more effectively and demonstrate adaptive, intuitive responses that contribute positively to organizational outcomes (Qomariah, 2020).

In light of these arguments, it is essential to further examine whether green leadership (GL) contributes to the development of employees' emotional intelligence. Accordingly, the following hypothesis is proposed.

H2: *Green leadership exerts a significant positive effect on the emotional intelligence (EI) of employees.*

2.4 Emotional Intelligence and Green Organizational Citizenship Behavior

Numerous behavioural patterns influenced by GOCB and EI may have an impact on a company's performance. Udayar et al. (2020) claim that individuals' performance is directly influenced by their emotional intelligence (EI), so a competitive advantage for emotionally intelligent people in the Workplace is

essential. Managing one's emotions at work should be a priority for everyone, not just the boss.

People's EI may have an even more significant impact on their ability to perform well than their IQ does on academics (Burcea and Sabie, 2020), making the use of EI stars a far more critical metric than IQ scores when evaluating performance (Uraz and Arhan, 2020). Furthermore, DUONG et al. (2020) argued that expertise and IQ are only two of many aspects that influence an individual's success. These two factors, along with higher levels of emotional intelligence (EI), were equally crucial to employees' success in the Workplace. People who score high on EI exams are regarded to perform well at work and contributing significantly to the companies in which they work (Qomariah, 2020).

The ability to recognize, regulate, and effectively utilize one's emotions has been consistently associated with improved job performance and reduced negative workplace experiences (Khan, 2020). Emotional management theory further suggests that the motivational mechanisms underlying green organizational citizenship behavior (GOCB) are closely aligned with those driving emotional regulation and self-management (Dirican & Erdil, 2020). Employees with higher levels of emotional intelligence (EI) tend to demonstrate stronger coping strategies, enhanced well-being, and greater adaptability in professional settings. Their capacity to regulate emotions enables them to manage interpersonal dynamics constructively, thereby reducing workplace conflicts and fostering empathy toward colleagues. Empirical evidence indicates that emotionally stable employees are less likely to engage in interpersonal disputes and are more inclined to maintain harmonious workplace relationships (Coll et al., 2020; Andreana & Putri, 2020).

Employees with high emotional intelligence (EI) are more capable of understanding and interpreting both formal and informal workplace requirements, along with the behaviors expected of them. Their enhanced awareness of situations and sensitivity in interpersonal interactions allows them to respond effectively to organizational norms and social cues. Consequently, such employees are more likely to exhibit organizational citizenship behaviors that support the organization, including voluntary actions aimed at promoting environmental sustainability (Kim & Park, 2020a).

Empirical evidence further indicates that employees with elevated EI levels tend to be more productive, experience higher job satisfaction, and contribute more positively to organizational performance. Research also highlights the role of EI in strengthening workplace social relationships, as emotionally intelligent employees are better able to navigate interpersonal interactions effectively. Notably, higher EI has been associated with reduced workplace conflict and improved relational harmony (Makkar & Basu, 2019). A comprehensive review by Kotsou et al. (2019)

further confirms that EI significantly influences psychological well-being, relationship quality, and work and academic performance (Abbas et al., 2026).

Employees with high emotional intelligence (EI) can effectively perceive, understand, and manage their emotions, enabling them to transition from negative states to more constructive moods. This emotional self-regulation fosters a positive mindset, even under challenging circumstances, and increases the likelihood of engaging in discretionary behaviors that extend beyond formal job responsibilities, thereby enhancing organizational performance. Drawing on these insights, the following hypothesis is proposed.

H3: *Employees' emotional intelligence (EI) has a significant positive effect on employees' green organizational citizenship behavior (GOCB).*

2.5 Employees' Emotional Intelligence as a Mediator

According to Hypothesis 1, GL is directly linked to GOCB, but previous studies have also found an indirect correlation. One way to bridge the gulf between the two is through factors like organizational justice (Zehir et al., 2013), member-leader exchange (Alexander Newman et al., 2017), and trust in a leader's abilities (Amir, 2019). Research led by Ja'afaru Bambale (2014) found that employees' EI may mediate between GL and GOCB in meta-analysis studies. GL's impact on GOCB and the development of employees' EI is rarely studied, on the other hand. On the other hand, this study focused on the EI constructs of the employees rather than those of the EI leaders. This is because the improvement in employees' emotional intelligence (EI) can be used as a reliable indicator of the success or failure of GL programs (Qiu and Dooley 2019).

Wong et al. (2020) reported that leaders who demonstrate high levels of competence and integrity, and who prioritize their subordinates' emotional needs and well-being, are more likely to cultivate both emotional awareness and cognitive understanding among their followers. This assertion is supported by Bandura's Social Learning Theory (1971) and Blau's Social Exchange Theory (1971, 1968), which emphasize the role of observation, modeling, and reciprocal relationships in shaping behavior. When a leader's emotional intelligence (EI) enables subordinates to recognize and interpret both their own emotions and those of others in a constructive manner, it demonstrates the leader's significant role in enhancing employees' EI. Building on the theoretical arguments and empirical evidence presented, EI emerges as a key psychological mechanism through which green leadership (GL) influences employees' green organizational citizenship behavior (GOCB). Drawing upon leadership theory and emotional intelligence perspectives, green leaders foster emotionally supportive and value-driven environments that enhance employees' emotional regulation, empathy, and pro-social motivation. In turn, heightened EI encourages employees to engage in discretionary pro-

environmental behaviors that extend beyond formal role requirements. Therefore, employees' emotional intelligence is expected to function as an explanatory mechanism through which green leadership translates into green organizational citizenship behavior. Accordingly, the following hypothesis is formulated:

H4: *Employees' emotional intelligence (EI) plays a significant mediating role in the positive relationship between green leadership and employees' green organizational citizenship behavior (GOCB).*

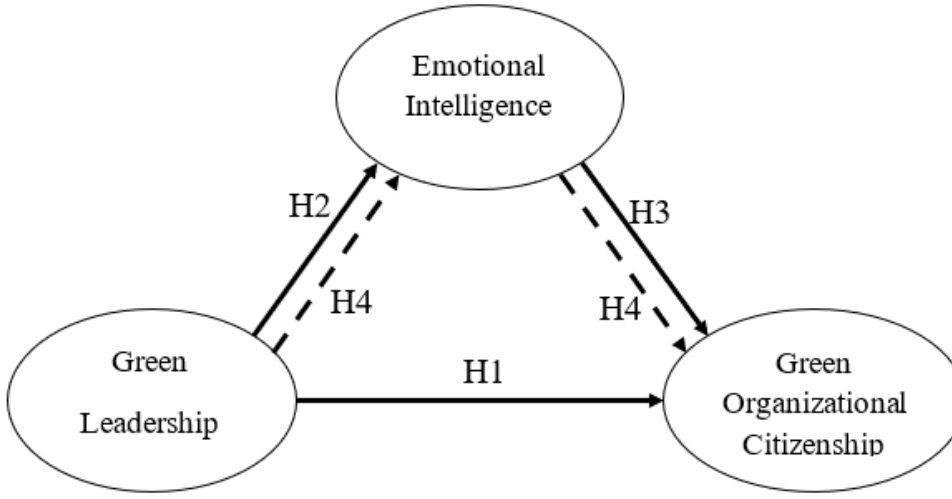

Figure 1 *Theoretical framework*

3. RESEARCH METHODOLOGY

3.1 Study Population and Sampling Procedure

The research is based on the positivist philosophy of deductive reasoning. They used a survey approach based on deductive reasoning. The intended recipients are workers from the manufacturing and service industries in the Pakistani cities of Karachi, Lahore, and Islamabad. The non-probability convenience sampling method was used to distribute 981 questionnaires to participants. The convenience sampling technique is ideal when you can't reach everyone in the population (Malhotra and Dash 2011). Employees with at least a year of work experience were asked to provide data on their supervisor's GL style, emotional intelligence (EI), and whether observational control behavior (GOCB) was practiced at work. More than 980 people were sent standardized self-administered questionnaires via email. Two hundred forty-five completed surveys were returned after four weeks at first. Reminder emails were sent to the remaining participants, and 210 additional responses were received. Four hundred and twenty-two complete and viable questionnaires, with a response rate of 43%, were obtained after the unusable ones were discarded during the data screening process.

3.2 Measurement

Previously used and validated questionnaires were consulted when compiling this list. Since English is the business language in Pakistan, presentations were also made in that language. The data were collected using a five-point Likert scale, with responses ranging from 1 (strongly disagree) to 5 (strongly agree). The measurement instrument comprised 33 items designed to assess the three constructs under investigation.

Liden et al. recently refined the 7-item measure of green leadership, which was previously used (2015). Additionally, Khan et al. (2020) used and modified this scale in their previous research, which was also used in this study. As a result, it was logical to use this particular scale in this study. The overall Cronbach's alpha in this study was 0.80.

Following the framework established by Wong et al. (2004), this study utilized their 16-item instrument to evaluate levels of emotional intelligence. The scale captures four key dimensions of EI: self-emotional appraisal, other-emotional appraisal, use of emotion, and emotion regulation, with each subscale comprising four items. The reliability analysis indicated excellent internal consistency, with an overall Cronbach's alpha of 0.924, demonstrating the scale's suitability for assessing employees' emotional intelligence in the workplace context.

Podsakoff et al. developed a 10-item scale for measuring GOCB (1990). This study found an overall reliability score of 0.843 on the 10-item scale.

3.3 Reliability and Validity

Following Hinkin's (1998a) advice, the authors conducted a pilot study before conducting the full survey to ensure that the questionnaires were feasible, clear, and appropriate. The pre-tests were designed and developed to ensure that the measures were logically consistent, complete, and valid. For the pilot study, Cronbach's Alpha (a) was used to measure the study's internal reliability. In a pilot test with 45 individuals, the Cronbach alpha for all constructions surpassed the permissible range of 0.7. These graphs confirmed the scales' consistency and reliability in this investigation. The suggested questionnaire instrument is simple and intelligible, according to the pilot study's findings.

3.4 Data Analysis Approach and Procedure

Partial Least Squares Structural Equation Modeling (PLS-SEM) was employed to analyze the data. Scholars across numerous sectors, ranging from hospitality and tourism to supply chain and operations management, have increasingly adopted PLS-SEM as a preferred analytical tool (Hair et al., 2012; Sarstedt et al., 2020). PLS-SEM analyses data using two distinct models. Creating a measurement model that explains

the relationship between the latent and observable variables is the first step. According to Joseph F. Hair et al. (2019), structural models look at the connections between the latent variables.

4. DATA ANALYSIS

Following established PLS-SEM protocols, the analysis involved a dual-stage approach consisting of measurement model estimation and structural model path analysis. Measurement reliability was evaluated using Cronbach's alpha (CA) and composite reliability (CR), both of which assess the internal consistency of the constructs.

4.1 Result and Interpretation

The relationships among the latent variables in the measurement model were examined using Cronbach's alpha and composite reliability (CR) analyses. The factors presented in Table 1 indicate statistically significant positive associations. Following Peterson (1994), a Cronbach's alpha value greater than 0.7 is considered acceptable for research purposes. In this study, all constructs exceed this threshold, confirming adequate internal consistency and overall measurement reliability.

Table 1 *Factor Loading, Mean, SD, CA, CR, AVE*

Variables	Items	Loading	Mean	SD	CA	CR	AVE
Green Leadership	GL 2	0.656	0.356	0.048	0.843	0.881	0.555
	GL 3	0.724					
	GL 4	0.760					
	GL 5	0.830					
	GL 6	0.752					
	GL 7	0.732					
Emotional Intelligence	EI 1	0.663	0.375	0.040	0.924	0.933	0.521
	EI 4	0.648					
	EI 5	0.730					
	EI 6	0.620					
	EI 7	0.805					
	EI 8	0.737					
	EI 10	0.765					
	EI 11	0.763					
	EI 12	0.694					
	EI 13	0.740					
	EI 14	0.739					
	EI 15	0.786					
	EI 16	0.663					
	GOCB 1	0.685	0.469	0.035	0.843	0.881	0.521

Green Organization Citizenship Behavior	GOCB 2	0.805
	GOCB 3	0.817
	GOCB 4	0.778
	GOCB 5	0.648
	GOCB 7	0.748
	GOCB 8	0.826

To ensure that all constructs were distinct, both convergent and discriminant validities were assessed. Convergent validity was evaluated using the Average Variance Extracted (AVE). According to Hu and Bentler (1998), AVE values above 0.4 are acceptable; in this study, all constructs exhibited AVE values greater than 0.5, as presented in Table 1. Items with low factor loadings, which may indicate measurement errors or cross-loading issues, were identified for removal. Following Byrne (1989) and Peterson (1994), items with loadings below 0.40—specifically GL1, EI2, EI3, EI8, GOCB6, GOCB9, and GOCB10—were eliminated. After this refinement, all Cronbach's alpha coefficients exceeded the acceptable threshold of 0.6 (Hair et al., 2018), confirming internal consistency.

Discriminant validity was assessed using the Fornell–Larcker criterion. As shown in Table 2, the square roots of the AVE for each construct were higher than the correlations with other latent variables, indicating sufficient discriminant validity (Fornell & Larcker, 1981). Consequently, none of the off-diagonal correlations exceeded the diagonal AVE values, confirming that each construct is empirically distinct (Hair et al., 2018).

Table 2 *Fornell-Larcker Criterion (Discriminant validity)*

Variables	EI	OCB	SL
EI	0.719		
GOCB	0.452	0.732	
GL	0.458	0.499	0.751

The structural model was utilized to assess the model's explanatory power through R^2 values, while path coefficients (β), t-statistics, and p-values were used to test the hypotheses (see Table 3). Demographic controls—specifically age, gender, and job position—demonstrated no statistically significant impact on cognitive ability.

Results in Table 4 confirm that all hypothesized paths were significantly and positively correlated. The most robust direct effect was identified between Green Leadership (GL) and Green Organizational Citizenship Behavior (GOCB) ($\beta = 0.269$, $p < 0.01$). Additionally, GL significantly influenced Emotional Intelligence (EI) ($\beta = 0.241$), which in turn significantly predicted GOCB ($\beta = 0.212$).

While EI served as a significant mediator in the GL–GOCB relationship, its effect size was the smallest among the tested paths ($\beta = 0.201$). Consequently, while H1, H2, and H3 received full empirical support, H4 was only partially sustained.

Table 3 *PC, TS, PV, R^2*

Variables	β	T-Statistic	P-Value	Result
GL toward GOCB	0.269	2.337	0.007	Accepted
GL toward EI	0.241	2.412	0.004	Accepted
EI toward GOCB	0.212	2.110	0.018	Accepted
EI b/w GL and GOCB	0.201	2.009	0.029	Partially Accepted

To investigate the mediating role of Emotional Intelligence (EI) in the relationship between Green Leadership (GL) and Green Organizational Citizenship Behavior (GOCB), this study utilized bootstrapping within a PLS-SEM framework, as recommended by Kline (2010) and Fritz et al. (2012). Path coefficients were calculated using the PLS algorithm. Initially, the direct impact of GL on GOCB was found to be substantial ($\beta = 0.605$; see Figure 2). Further analysis revealed a significant indirect effect ($\beta = 0.290$), confirming that EI serves as a key intermediary between leadership and green behaviors.

5. DISCUSSION AND CONCLUSION

This research aimed to investigate the extent to which Emotional Intelligence (EI) serves as a mediating mechanism, bridging the gap between Green Leadership (GL) and Green Organizational Citizenship Behavior (GOCB) among employees. The findings indicate that GL has a significant positive impact on employees' GOCB. Prior research has linked GL to increased employee engagement, commitment, loyalty, enhanced performance, and a willingness to go beyond formal job responsibilities, highlighting its critical role in fostering discretionary pro-environmental behaviors (Brohi et al., 2018; Harwiki, 2016b).

Moreover, GL was found to have a significant positive relationship with employees' EI, supporting the study hypotheses. This aligns with previous research demonstrating the beneficial effects of green leadership on employees' well-being (Beck, 2010; Jit et al., 2017b; Lu et al., 2019). Emotional intelligence and well-being are closely connected, as individuals with higher EI tend to be happier, more optimistic, and more satisfied with their lives (Schutte et al., 1998, 2002). Therefore, it can be inferred that green leadership enhances both EI and overall employee well-being in the workplace.

The results also reveal a significant positive relationship between employees' EI and their GOCB. Employees with higher EI are better able to regulate their emotions, manage stress, and cope with negative experiences, leading to greater resilience, sustained motivation, and reduced risk of burnout (Lee, 2017). In addition,

emotionally intelligent employees are more empathetic and sensitive to the needs of others, which fosters a positive work environment and promotes discretionary behaviors that benefit the organization (Barreiro & Treglown, 2020; Miao et al., 2021; Makkar & Basu, 2017).

Furthermore, this study demonstrates that the effect of green leadership on GOCB is partially mediated by employees' EI. This suggests that GL influences GOCB both directly and indirectly through the enhancement of employees' emotional competencies. These findings are consistent with prior research exploring indirect mechanisms through which leadership behaviors influence organizational citizenship, highlighting the critical role of psychological and emotional factors in promoting discretionary pro-environmental behavior (Elche et al., 2020b; Newman et al., 2017). Overall, the results indicate that employees' EI is a key mechanism through which green leadership fosters GOCB, underscoring the importance of developing emotionally intelligent leadership in organizations aiming to promote sustainable and positive employee behaviors.

5.1 Theoretical Contributions

The findings of this study advance our understanding of green leadership (GL) in three key ways.

First, this research contributes to the literature by providing fresh empirical data on the advantages of Green Leadership (GL) within Pakistan's industrial and service sectors. While the link between GL and Green Organizational Citizenship Behavior (GOCB) has been explored internationally, the Pakistani landscape remains under-researched, with only a few exceptions (Brohi et al., 2018; Zeeshan et al., 2021). The results indicate that when leaders prioritize the needs of their employees alongside organizational objectives, they positively influence employee behaviors. Employees demonstrating GOCB voluntarily go beyond their formal duties, actively contributing to the organization's sustainability and overall performance.

Second, this research represents a pioneering effort to provide empirical evidence for the link between Green Leadership (GL) and Emotional Intelligence (EI)—a relationship that has remained largely unexplored in previous literature. While prior research has explored the association between leaders' emotional intelligence and green leadership styles, the direct impact of GL on employees' EI has remained largely unexplored (Jha & Bhattacharya, 2021; Miao et al., 2021). The present findings provide robust evidence that GL enhances employees' EI, reinforcing previous research indicating that emotionally intelligent leaders foster employee well-being, optimism, and pro-social behavior (Beck, 2010; Black, 2010; Wheeler, 2012).

Third, this study contributes to the literature by incorporating employees' EI as a mediating mechanism through which GL influences GOCB. Prior studies have not sufficiently explored EI as an outcome of GL, nor as a conduit linking leadership behavior to employee discretionary actions. The current findings demonstrate that GL enhances employees' EI, which in turn fosters higher levels of GOCB, highlighting the critical role of EI in translating leadership influence into positive employee behaviors.

Furthermore, these results offer empirical validation for Poon's (2006) theory, which posits that mentoring and supportive engagement are the primary drivers through which leadership fosters employee advancement. In line with this framework, Green Leadership (GL) serves as a catalyst for both the personal and professional evolution of staff. Furthermore, the findings confirm that Emotional Intelligence (EI) acts as a vital psychological bridge, explaining how green leadership behaviors translate into increased Green Organizational Citizenship Behavior (GOCB).

Overall, this study underscores the strategic importance of developing green and emotionally intelligent leadership to promote sustainable, discretionary behaviors that benefit both employees and organizations.

5.2 Practical Contributions

The practical insights from this research offer valuable guidance for organizational leaders, particularly those operating within Pakistan. A key takeaway is the significant role of leadership style as a primary driver of employee productivity, aligning with previous evidence from Nawaz et al. (2020) and Setiawan et al. (2021). Specifically, green leadership (GL) was found to enhance employees' overall job performance, as measured by green organizational citizenship behavior (GOCB). These findings suggest that organizations should actively encourage green leadership and implement strategies to cultivate it at all levels, which is particularly critical in Pakistan, where hierarchical structures and high power distance are prevalent.

In many Pakistani organizations, decision-making remains highly centralized, and employees often have limited influence over workplace processes. The absence of democratic practices has contributed to a prevalence of autocratic leadership, which prior studies have shown to negatively affect employee well-being, safety, motivation, and ultimately, productivity (Cheema & Din, 2014; Gul et al., 2018; Briker et al., 2021; De Hoogh et al., 2015; Fiaz et al., 2017). Transitioning toward more democratic, participative, and service-oriented leadership styles, such as GL, can enhance employee performance and overall organizational outcomes. To achieve this, organizations should implement training and development programs aimed at building green leadership competencies across all managerial levels.

Furthermore, the study highlights the critical role of emotional intelligence (EI) in promoting GOCB. Research consistently shows that EI can be developed through targeted interventions (Dulewicz & Higgs, 2004; Goleman, 2011). Organizations should therefore design comprehensive EI development programs not only for managerial staff but also for non-managerial employees with lower EI levels, in order to strengthen employees' capacity for discretionary pro-environmental behaviors (Kim & Park, 2020b; Sy & Côte, 2004). By investing in EI development across all organizational levels, firms can foster higher engagement, motivation, and sustainable performance.

5.3 Limitations and Future Directions

This research clarifies the underlying psychological mechanisms by which Green Leadership (GL) fosters Green Organizational Citizenship Behavior (GOCB), specifically identifying Emotional Intelligence (EI) as the critical intermediary in this process. GL appears to be a key driver of employees' intrinsic motivation and discretionary pro-environmental behavior. However, several limitations should be acknowledged when interpreting the findings.

First, the generalizability of the results is limited, as the data were collected exclusively from employees in the service and manufacturing industries in Karachi, Lahore, and Islamabad. Future research should replicate this study across diverse industries, regions, and cultural contexts to ensure the broader applicability of the findings.

Second, the study employed a cross-sectional design, with all data collected at a single point in time. Consequently, causal inferences should be made with caution. For instance, it is possible that employees with higher EI may perceive their leaders' green behaviors more favorably. Longitudinal or experimental research designs could address this limitation and strengthen the validity of causal interpretations.

Finally, to the best of our knowledge, this is the first study to empirically examine the relationship between green leadership and employees' EI, identifying a positive association. Future research could further explore this relationship under different conditions, using varied samples, methods, and longitudinal designs to examine the long-term effects of GL on employees' emotional intelligence and its subsequent impact on GOCB.

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UCP Journal of Business Perspectives
Vol. 3, Issue 2 (June - December 2025)
Journal website: http://ojs.ucp.edu.pk/index.php/jbp/index

Impact of Celebrity Endorsements on Consumer Buying Behavior and Purchase Intentions in the Mobile Phone Industry: The Mediating Role of Brand Attitude

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ABSTRACT

The mobile phone industry depends heavily on celebrity endorsement as its main promotional method because people in developing markets trust celebrities to provide them with reliable and appealing information. The research investigates how different attributes of celebrity endorsements affect Pakistani consumers to buy smartphones while studying brand attitude as the connecting factor between endorsement attributes and consumer purchasing decisions. The research design used quantitative methods to collect data from 350 Smartphone users who answered a standardized survey, which SEM analyzed to produce results. Research findings show that customer purchasing decisions depend heavily on how trustworthy celebrities appear while also considering their expertise, their attractive appearance, and their ability to match with the brand. The research shows that brand attitude functions as a partial link that connects celebrity endorsement characteristics to purchase intention through consumer brand assessment. The research takes place in a marketing environment that uses technology and AI, but it examines AI tools through theoretical analysis instead of conducting experimental testing. The findings contribute to celebrity endorsement and consumer behavior literature in emerging markets and offer practical insights for marketers in the competitive Smartphone industry.

Keywords: Celebrity Endorsement; Brand Attitude; Consumer Buying Behavior; Purchase Intention; Mobile Phone Industry; Endorser Credibility; Emerging Markets; Quantitative Research.

1. INTRODUCTION

The worldwide smartphone industry has experienced fast-paced changes because of mobile computing progress, artificial intelligence development, camera system improvements, and 5G network growth. The advancing technology, which reduces smartphone brand distinctions, requires companies to use strategic

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This is an open-access article. Available Online: 23-02-2026
DOI: https://doi.org/10.24312/ucp-jbp.03.02.777

branding and communication approaches for market dominance. The market competition reaches extreme levels because of complete market saturation, which makes celebrity endorsement the top promotional choice for brands to provide consumers with symbolic value and credibility and expertise that leads to product opinions and purchasing decisions (Grewal, 2019; Grewal et al., 2024).

The research on celebrity endorsement depends on two established persuasion models, which are Source Credibility Theory and Meaning Transfer Theory. The Source Credibility Theory demonstrates that consumers respond to marketing content through their evaluation of endorser credibility, which depends on their perception of both professional expertise and physical attractiveness (Ohanian, 1990). Meaning Transfer Theory explains how celebrities' symbolic values move to brands, which consumers use to create mental pictures that influence their brand evaluation and their decision to buy (McCracken, 1989). The complete framework that explains how celebrity endorsements affect consumer opinions and purchasing choices in markets with complex consumer involvement for smartphone products emerges from these theoretical approaches.

Academic researchers analyzed celebrity and influencer digital platform product promotion methods from 2021 to 2025. Research conducted through meta-analyses and cross-national studies shows that three key elements determine endorsement success, which include endorser attributes and message trustworthiness, and brand attitude and brand trust influence (Verma et al., 2021; Wilson et al., 2024). Research about endorsement mechanisms mainly studies developed economies together with low-involvement products, but these studies do not explain how these mechanisms work in emerging markets and technology-based industries.

High-involvement smartphone buyers need to analyze technical specifications and costs through logical evaluation, but they also base their decisions on emotional responses to brand identity and personal relationships with their chosen brand. The consumer decision-making process becomes simpler through celebrity endorsements because these endorsements enable customers to understand product value and reduce their risk, which makes the brand more significant. Research conducted by Khan (2023) and Yu (2025) shows that consumers follow technology product recommendations from celebrities who show both physical attractiveness and demonstrate their understanding of the products. The research lacks sufficient understanding of how endorsement attributes create purchase intentions in consumers.

The scientific community accepts purchase intention as a direct result of brand attitude because it shows how consumers feel about a brand through their emotional and evaluative reactions. Research shows that celebrity endorsements

produce indirect effects that alter how consumers view brands instead of making them purchase products (Mustafa et al., 2022; Park, 2025). Research has established brand attitude as a vital factor, but scientists have not conducted enough studies to understand how this factor works as a mediator in technology markets that require deep customer involvement throughout Pakistan and other developing nations.

The current marketing environment has evolved because of AI technology, which enables businesses to use personalized advertising, algorithmic targeting, and recommendation systems. Research studies have studied celebrity endorsement and AI marketing separately, but no study exists that demonstrates how AI-based digital platforms affect endorsement effectiveness. The endorsement mechanisms exist as separate entities that researchers study independently from their actual development within advanced marketing systems.

The Pakistani Smartphone industry uses celebrity endorsements extensively, yet researchers have not fully studied how different endorsement characteristics affect consumer buying decisions through brand attitude development. Previous studies about endorsement characteristics have studied trustworthiness, expertise, and attractiveness separately from each other while ignoring their interactive effects, which occur in products that require strong consumer involvement. The Smartphone market of Pakistan lacks research that explains how celebrity endorsements affect consumer purchasing decisions in its specific context.

The current research investigates how celebrity endorsement characteristics affect consumer purchasing actions and their willingness to buy smartphones in Pakistan through brand attitude as the connecting factor. The research uses Source Credibility Theory and Meaning Transfer Theory to create new evidence about endorsement effects, which studies have not yet proven in emerging markets with technology-based products that require strong customer involvement. The research results provide both academic knowledge about how endorsement activities affect consumer attitudes and purchasing intentions, and useful recommendations which help marketers create successful celebrity endorsement programs for competitive Smartphone industries.

2. LITERATURE REVIEW

2.1. Celebrity Endorsement in Contemporary Marketing

The current marketing industry depends on celebrity endorsements because these endorsements create consumer interest and boost advertisement credibility, which results in customer buying decisions. Recent meta-analytic and large-scale empirical studies confirm that both traditional celebrities and digital influencers

positively affect brand attitude, brand engagement, and purchase intention across product categories (Verma et al., 2021; Wilson et al., 2024). The power of these effects depends on multiple environmental factors, which include product involvement, market maturity, and cultural symbolism. The digital world has increased influencer marketing popularity, yet traditional celebrity endorsements remain effective for customers who buy expensive, high-risk, and high-involvement products, including smartphones (Khan, 2023).

Research now shows that endorsements require individual analysis because different attributes within endorsements produce different effects on consumer behavior. Scientists now study endorsement effectiveness through mediated and theory-based analysis because they have abandoned direct-effect models in their research methods.

2.2. Source Credibility Theory and Endorser Attributes

Source Credibility Theory states that consumers evaluate persuasive messages based on their evaluation of source trustworthiness and their assessment of source expertise and physical attractiveness (Ohanian, 1990). Research findings demonstrate that these elements create major effects that affect how consumers think and what actions they will take. Recent studies demonstrate that trustworthy endorsers generate stronger persuasion outcomes than those perceived as merely popular or visible (Kori & Sharma, 2025). Research indicates that technology product buyers need to see evidence about product performance because they want to verify the operational effectiveness of these products (Khan, 2023).

The peripheral cue of attractiveness has received increased research interest because people now encounter it more frequently in digital and visual media. Contemporary findings suggest that attractiveness enhances emotional engagement and message recall, indirectly strengthening brand evaluations (Yu, 2025). The research shows that endorsement effectiveness results from multiple credibility-related cues that work together instead of depending on a single attribute.

2.3. Meaning Transfer Theory and Celebrity–Brand Congruence

Meaning Transfer Theory explains how consumers transfer celebrity symbolic values, including lifestyle, personality, and social status, to brands which they then adopt as their own (McCracken, 1989). Recent research confirms that celebrity–brand congruence plays a critical role in this process, as alignment between a celebrity's public image and a brand's identity enhances authenticity, reduces cognitive dissonance, and strengthens brand attitude (Mustafa et al.,2022).

Empirical studies conducted in digital and emerging market contexts further demonstrate that incongruent endorsements weaken persuasion and erode brand credibility (Rizkautami & Tuti, 2025). The research results show that symbolic consistency serves as a crucial factor in endorsement marketing because consumers need to process various promotional messages when they shop in competitive market environments.

2.4. Brand Attitude as a Mediating Mechanism

Research about brand endorsements now shows that brand attitude functions as the main connecting factor that enables endorsement characteristics to influence customers toward buying products. The mental assessment that consumers make about brands leads to brand attitude, which proves to be an effective predictor of their purchasing decisions (Mustafa et al.,2022; Park, 2025). Meta-analytic evidence indicates that endorsement attributes rarely translate directly into purchase intention without first shaping brand-level perceptions (Yu, 2025).

Research data shows brand attitude generates superior results than brand awareness and engagement do when it comes to forecasting endorsement success for intricate products. The smartphone industry in emerging markets lacks scientific evidence that proves the mediation process through experimental studies.

2.5. Evidence from Emerging Markets and Pakistan

Research conducted in Pakistan, together with other developing nations, shows that people strongly support products because of their cultural values, their desire to follow celebrities, and their preference for symbolic products. Research indicates that Pakistani consumers base their brand attitude and purchase decisions on the trustworthiness, expertise, and congruence of celebrities they endorse (Khan, 2023; Yu, 2025). Research studies have established these connections, but they have not analyzed how these relationships affect each other by using mediating factors.

Research should concentrate on particular situations because it needs to establish connections between brand endorsement characteristics and consumer brand perceptions and buying decisions through a unified conceptual framework. The current research investigates this knowledge deficiency through an empirical analysis that examines how brand attitude links celebrity endorsement attributes to smartphone purchase decisions in Pakistan.

2.6. Theoretical Foundation

The research depends on Source Credibility Theory and the Meaning Transfer Model as its core theoretical framework. The Source Credibility Theory explains

how people process messages through their evaluation of the messenger's trustworthiness, professional expertise, and physical attractiveness (Ohanian, 1990). The Meaning Transfer Model explains at a broad level how celebrity symbolic values move between celebrities and their brands and their audience (McCracken, 1989).

The complete system, which explains how credibility affects persuasion through mental processes and emotional responses, includes these theories, which use congruence as their fundamental principle for successful symbolic communication. Research conducted in the present day demonstrates that both theories should be combined to understand how endorsement effectiveness works in smartphone categories that involve high consumer participation (Grewal et al., 2024; Roy et al., 2025).

2.7. Hypotheses Development

H1: *Higher perceived trustworthiness of a celebrity positively influences consumers' intention to buy.*

H2: *A celebrity's expertise positively impacts consumers' purchase decisions.*

H3: *Celebrities' attractiveness encourages higher consumer purchase intention.*

H4: *Alignment between the celebrity and the brand positively affects consumer buying behavior.*

H5: *Brand attitude functions as a connecting factor that links celebrity endorsement characteristics to consumer purchase intention.*

2.8. Theoretical Framework and Conceptual Model

The research framework combines credibility theory with meaning transfer theory to show how different endorsement characteristics (trustworthiness and expertise, attractiveness and congruence) affect purchase intentions through direct and indirect paths to brand attitude.

The conceptual model establishes independent variables from the four celebrity endorsement attributes, which lead to brand attitude as the mediating factor that produces purchase intention as the dependent variable. The model represents current research data and works best for markets that use high involvement, such as the smartphone industry.

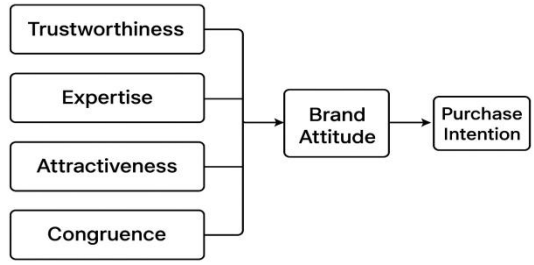

Figure 1 *Conceptual framework of celebrity endorsement, brand attitude, and purchase intention*

3. RESEARCH METHODOLOGY

The research design section of this chapter explains the methods that researchers employed to analyze how celebrity endorsements impact smartphone customers in Pakistan, while they examined brand attitude as a possible mediating factor. It outlines the research design, population and sampling, instrument development, measurement scales, data collection procedures, and analytical techniques used to test the hypotheses.

3.1. Research Design

A quantitative, cross-sectional design was used to test the conceptual framework. It allows data collection from multiple participants in a single session and is suitable for SEM to analyze complex relationships. Previous research has proven this method successful for studying how celebrity endorsements influence consumer purchasing decisions.

3.2. Population and Sampling

The study investigates smartphone users who are 18 years or older and reside in Pakistan's major urban areas, which include Lahore, Karachi, Islamabad, Faisalabad, and Rawalpindi. These cities represent Pakistan’s largest consumer markets and exhibit high rates of smartphone use and digital engagement. Because there is no current national sampling frame for smartphone users, a purposive sampling method was used. Researchers can select participants for their research through a method that requires them to have experience with digital marketing and celebrity endorsement campaigns.

The research design used Purposive sampling because it focused on smartphone users who already knew celebrity-endorsed smartphone advertisements. The research design proved suitable because participants needed to possess the ability to assess celebrity endorsement characteristics and develop brand associations. The research method of Purposive sampling serves consumer behavior and marketing

research studies because it helps researchers find participants who match specific requirements about their product usage or advertising exposure (Hair et al., 2022). The research method provides results that are specific to the study environment, although it restricts the ability to make general statistical conclusions.

The SEM criterion established the smallest number of participants needed for parameter estimation at 10 participants per parameter and a total of 200 cases for maintaining model stability. The research study reached its final participant count of 350 participants, who exceeded the minimum requirements for Structural Equation Modeling to achieve both sufficient statistical power and model stability (Hair et al., 2022). The research design requires more than 350 participants because it contains multiple latent variables, each have multiple indicators. The final dataset exceeded this threshold and met the assumptions required for SEM analysis, including normality, adequate variance, and sufficient indicator loadings.

3.3. Research Instrument

The questionnaire included an initial screening question to verify that participants had sufficient experience with celebrity endorsement advertisements. The study asked participants if they had encountered celebrity-endorsed smartphone advertisements before. The survey continued only for participants who proved they had experienced the described situation. This procedure ensured that the collected data accurately reflected consumer perceptions formed through actual endorsement exposure, thereby strengthening the internal validity of the study. Data collection was conducted through a structured questionnaire that participants completed on their own. The instrument contained four separate sections. The first section presented demographic data, which included age information, gender details, educational background, and monthly financial records. The second section assessed celebrity endorsement attributes, followed by brand attitude assessment in the third section and purchase intention evaluation in the fourth section. The survey used a five-point Likert scale, which ran from 1 (Strongly Disagree) to 5 (Strongly Agree), to measure all survey items. The measurement scale followed the format that researchers have used in their previous studies about consumer behavior and endorsement research. Likert scaling was used because it is effective in capturing attitudinal constructs and provides variance suitable for SEM analysis.

3.4. Measurement Scales

The research used established scales from previous studies to operationalize its constructs. The research evaluated celebrity endorsement through three separate factors, which included credibility, attractiveness, and expertise. Items for these dimensions were adapted from Ohanian's (1990) celebrity endorsement scale, which is widely validated and frequently used in marketing studies. The research

used adapted items from previous consumer attitude studies, which originated from advertising and brand evaluation research about affective and cognitive brand responses. Purchase intention was operationalized using established scales commonly employed in marketing research, which conceptualize intention as the consumer's expressed likelihood of buying the product.

The researchers made small adjustments to the items that they used for smartphone research while maintaining the original content validity. The research team performed a pre-test with a few participants to confirm that survey questions were straightforward and appropriate for the research setting.

3.5. Data Collection Procedure

The research team collected data through online and offline survey methods for this study. The online survey reached participants through social media platforms, which include Facebook, Instagram, and WhatsApp, because these platforms have high usage in Pakistan. The researchers conducted offline data collection by seeking participants who used smartphones at shopping malls, university campuses, and phone retail markets. The research participants received information about the study goals and received assurances about their confidentiality before they chose to join the study.

The research asked participants to prove their smartphone possession by showing either their past two years of smartphone use or their plans to buy a smartphone in the future. The research design produced results that remained relevant because it produced particular data about consumer purchasing choices.

3.6. Data Screening and Preparation

The research team performed an initial evaluation of the dataset to check for missing data points, unusual values, and incorrect answers. The research team discarded all cases that contained too many missing data points or displayed irregular response behavior. The remaining dataset was assessed for normality by examining skewness and kurtosis values. The research data showed suitable levels for conducting SEM analysis for all studied constructs. The researcher checked VIF values to verify that the indicators in the model did not show multicollinearity.

3.7. Analytical Approach

The research team analyzed data through Structural Equation Modeling, which allows them to examine both measurement and structural models simultaneously. The research process included two distinct analytical stages, which followed each other.

The research used Confirmatory Factor Analysis (CFA) to assess the reliability and validity of the variables that the researchers had developed. Composite reliability, Cronbach's alpha, average variance extracted (AVE), and standardized factor loadings were evaluated to establish internal consistency and convergent validity. The research team evaluated discriminant validity through HTMT criterion assessment and squared correlation comparisons, which they verified against AVE values.

The structural model evaluated how celebrity endorsement attributes affect brand attitude, which then influences purchase intention according to the research hypotheses. The research used standard SEM estimation procedures to assess both direct and indirect effects, which the study investigated. The research applied mediation analysis to verify that brand attitude serves as a vital connection that links celebrity endorsement characteristics to purchase intention.

3.8. Ethical Considerations

The research study followed all ethical standards that social science studies require. The research study permitted participants to participate freely while maintaining their anonymity throughout the study. The researchers guaranteed participants that their data would stay protected from disclosure for academic research purposes only. The research maintained complete confidentiality because it did not collect any personal information from participants.

4. RESULTS AND ANALYSIS

The chapter shows the research findings that stem from testing the measurement and structural models through Confirmatory Factor Analysis (CFA) and Structural Equation Modeling (SEM). The research includes multiple steps, which evaluate reliability and test both convergent and discriminant validity, assess model fit, and perform hypothesis testing and bootstrapping-based mediation analysis. The research results confirm that the relationships between celebrity endorsement characteristics and brand attitude and purchase intention exist in the Pakistani smartphone market.

4.1. Data Screening and Sample Characteristics

The research team kept N = 350 valid responses after they removed all entries that were either incomplete or contained inconsistent information. The dataset fulfilled SEM sample-size requirements and showed suitable normality levels because all skewness and kurtosis values remained within ±2. The demographic profile showed a predominance of young adults, consistent with Pakistan's primary smartphone user population.

4.2. Measurement Model Assessment

Confirmatory Factor Analysis (CFA) was conducted using Maximum Likelihood Estimation to assess factor loadings, reliability, convergent validity, and discriminant validity of the constructs.

4.3. Factor Loadings

All items loaded significantly on their respective constructs, with standardized factor loadings above the recommended 0.50 threshold. Items with lower loadings were removed to improve construct validity.

4.4. Reliability and Convergent Validity

Reliability was assessed using Cronbach's alpha (α) and Composite Reliability (CR). Convergent validity was evaluated using Average Variance Extracted (AVE). All values exceeded recommended thresholds ($\alpha \geq 0.70$, $CR \geq 0.70$, $AVE \geq 0.50$), confirming strong internal consistency and convergent validity.

Table 1 *Reliability and Convergent Validity Results*

Construct	Cronbach's α	CR	AVE
Trustworthiness	0.892	0.915	0.683
Expertise	0.879	0.908	0.665
Attractiveness	0.904	0.927	0.717
Celebrity–Brand Congruence	0.886	0.914	0.679
Brand Attitude	0.918	0.939	0.721
Purchase Intention	0.895	0.921	0.745

All constructs demonstrated strong reliability and convergent validity.

4.5. Discriminant Validity

Discriminant validity was confirmed using two criteria:

Fornell–Larcker Criterion: The square root of each construct's AVE exceeded its inter-construct correlations.
HTMT Criterion: All HTMT values were below 0.85, with the highest at 0.782 (between Attractiveness and Brand Attitude), confirming that constructs were conceptually distinct.

4.6. Model Fit Indices

The measurement model demonstrated excellent fit:

- **χ^2 (df = 314) = 663.214, p < 0.001**
- **χ^2/df = 2.113**
- **CFI = 0.958**

- **TLI = 0.951**
- **RMSEA = 0.054** (90% CI: 0.048–0.059)
- **SRMR = 0.041**

All indices surpassed recommended thresholds (CFI/TLI > 0.90, RMSEA/SRMR < 0.08), confirming a robust model fit.

4.7. Structural Model Assessment

The structural model was evaluated to test the hypothesized direct relationships. Standardized coefficients (β), standard errors, critical ratios (t-values / CR), and significance levels (p-values) were assessed.

4.8. Direct Effects

All direct hypothesized paths were significant, supporting the proposed model.

Table 2 *Direct effects of celebrity endorsement attributes on purchase intention*

Path	β	SE	t-value	p-value	Result
Trustworthiness → Purchase Intention	**0.237**	0.052	4.562	< 0.001	Supported
Expertise → Purchase Intention	**0.294**	0.058	5.069	< 0.001	Supported
Attractiveness → Purchase Intention	**0.319**	0.061	5.230	< 0.001	Supported
Congruence → Purchase Intention	**0.266**	0.055	4.836	< 0.001	Supported
Brand Attitude → Purchase Intention	**0.428**	0.067	6.388	< 0.001	Significant

4.9. Effects on Brand Attitude

Celebrity attributes significantly predicted brand attitude:

Table 3 *Effects of celebrity endorsement attributes on brand attitude*

Path	β	p-value
Trustworthiness → Brand Attitude	**0.281**	< 0.001
Expertise → Brand Attitude	**0.352**	< 0.001
Attractiveness → Brand Attitude	**0.411**	< 0.001

Congruence → Brand Attitude	**0.329**	< 0.001
Combined Endorsement Attributes → Brand Attitude	**0.742**	< 0.001

4.10. Mediation Analysis

Bootstrapping with **5,000 resamples** was applied to test indirect effects, following Hayes (2013). Mediation is supported when the 95% bias-corrected confidence intervals do not include zero.

Table 4 *Indirect effects of celebrity endorsement attributes on purchase intention through brand attitude*

Indirect Path	**Indirect β**	**95% CI**	**p-value**	**Mediation Type**
Trustworthiness → Brand Attitude → Purchase Intention	**0.120**	[0.078, 0.189]	0.002	Partial
Expertise → Brand Attitude → Purchase Intention	**0.151**	[0.104, 0.217]	0.001	Partial
Attractiveness → Brand Attitude → Purchase Intention	**0.176**	[0.129, 0.241]	0.001	Partial
Congruence → Brand Attitude → Purchase Intention	**0.141**	[0.093, 0.205]	0.002	Partial
Total Indirect Effect (All Attributes Combined)	**0.588**	[0.512, 0.679]	0.001	Partial

4.11. Type of Mediation

Findings confirm **partial mediation**, meaning celebrity attributes influence purchase intention both directly and indirectly through brand attitude. This aligns with theoretical expectations from the Meaning Transfer Theory and Source Credibility frameworks.

4.12. Summary of Hypothesis Testing

All hypotheses were supported:

- Celebrity endorsement attributes significantly influenced both purchase intention and brand attitude.
- Brand attitude significantly mediated all relationships.
- The proposed conceptual framework was empirically validated.

5. DISCUSSION

The research investigated how different celebrity endorsement characteristics, including trustworthiness and expertise, attractiveness, and celebrity–brand congruence, affect Pakistani consumers to buy smartphones, while brand attitude functions as the connecting factor. The research data shows that celebrity endorsement functions as an effective marketing instrument that works best in markets where customers show strong interest and technology advances quickly, and businesses must compete fiercely in the market.

The research results validate Source Credibility Theory because consumers base their brand perceptions and purchasing decisions on the trustworthiness, expertise, and attractiveness of celebrities. The study results showed that expertise and attractiveness stood out as the most influential factors that consumers use to assess complex technological products through their endorsement choices. The research results validate previous studies that investigated market characteristics between developing nations and established economic markets (Mustafa et al.). The research conducted by Khan (2023), Yu (2025), and Khan (2022) demonstrates that trustworthy endorsers function as mental shortcuts that help consumers select safer products to buy.

The research findings showed that Trustworthiness produced positive results for purchase intention because authentic, honest endorsement content proved necessary for successful endorsement marketing. People tend to react better to celebrity endorsements when they see celebrities as truthful advocates who match the brand values in areas where public distrust of advertisements continues to grow.

The research results about celebrity–brand congruence support Meaning Transfer Theory because brands achieve their best endorsement results when celebrities have identities that match their brand image. The combination of congruent elements in messages creates trustworthiness, which enables better transmission of symbolic values that result in enhanced brand assessments through consumer emotional and mental processing.

The research establishes brand attitude as the essential linking factor that connects celebrity endorsement characteristics to customer buying decisions. The research shows that purchase intention directly depends on brand attitude because consumers form their buying intentions based on their final brand assessment. The mediation results show that celebrity endorsements create positive brand attitudes, which then affect purchase intention, instead of using direct persuasive methods. This finding aligns with recent endorsement research emphasizing the central role of brand-level perceptions in translating promotional cues into behavioral outcomes (Park, 2025; Rizkautami & Tuti, 2025).

The structural model shows stability because its goodness-of-fit indices demonstrate strong evidence for the theoretical framework that was proposed. The research extends previous endorsement studies by demonstrating how Source Credibility Theory and Meaning Transfer Theory work together to influence consumer choices in the high-involvement product category of an emerging market. The study demonstrates how celebrity endorsements influence consumer purchasing decisions through psychological factors that affect how consumers make their buying choices.

6. CONCLUSION AND RECOMMENDATIONS

The research investigated how different celebrity endorsement characteristics, including trustworthiness and expertise, attractiveness, and celebrity–brand congruence, affect smartphone consumers in Pakistan to purchase products, while brand attitude functions as the connecting factor. The research results show that celebrity endorsement works as an effective marketing solution that technology companies can apply to access new markets that have high market competition. The research results show that all celebrity attributes affect purchase intention because consumers still depend on trustworthy and attractive endorsers to make their buying choices.

The study shows that brand attitude functions as a crucial mediator, which shows that celebrity endorsements affect purchase intention by how consumers think about and feel about the brand. The research shows that celebrity endorsement value depends on how well endorsements create positive brand images rather than on the celebrity's popularity.

6.1. Theoretical Implications

The research adds theoretical value to the endorsement literature through its experimental verification of Source Credibility Theory and Meaning Transfer Theory, and the Theory of Planned Behavior components in a unified model. The research validates brand attitude as a fundamental psychological process that extends previous studies that focused on direct endorsement effects without understanding the consumer decision-making processes.

The research findings expand endorsement theory through their demonstration of these frameworks in a high-involvement product segment and an emerging market setting where customers base their decisions on symbolic values and trust, and perceived expertise to minimize their purchase doubts. The research provides complete information about how celebrity endorsement characteristics influence consumer actions through its evaluation of brand quality.

6.2. Managerial Implications

The research findings offer marketing managers in the smartphone and technology industries multiple business applications that they can apply to their professional work. Companies need to choose endorsers who have both physical appeal and trustworthy and knowledgeable qualities because these dual characteristics enhance brand perception, which leads to customer buying decisions. The selection process for endorsements needs to focus on celebrity–brand congruence because it produces better alignment between celebrity images and brand identities, which leads to higher message credibility and more effective persuasion.

Marketers must establish brand attitude through ongoing delivery of reliable messages and superior products, and digital experiences that develop authentic relationships with customers. Endorsements achieve their best results through brands that create a single message that upholds positive customer views during all brand contact points. Organizations need to use social media platforms because digital platforms now control more consumer attention among younger people to achieve better endorsement exposure and create interactive experiences and customized brand interactions.

6.3. Limitations and Future Research Directions

The research contains multiple restrictions that affect its overall value. The research design uses a cross-sectional approach, which prevents scientists from tracking how endorsement effectiveness evolves throughout time, yet the study's focus on Pakistan makes it difficult to apply results to other cultural settings. Research studies need to monitor participants throughout extended periods because they want to understand how national origins impact product endorsement success when they select participants from various countries.

Research needs to study fresh endorsement methods that analyze influencer authenticity and virtual celebrities, and AI-generated endorsers and parasocial relationships, because these elements now affect digital consumer behavior. The analysis of these elements would help researchers better understand how changing endorsement systems affect the bonds between brands and their customers.

The research results show that celebrity endorsement works effectively as a marketing tool when brands use credible endorsements that match their brand image, and their customers have positive feelings about the brand. Marketers who understand both symbolic and psychological factors that affect endorsement effectiveness will create better marketing approaches that connect with customers and lead them to buy products in crowded marketplaces.

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