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Let's Start!

## Research on Higher Education Sustainability Leadership in Pakistan Education System

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# Research on Higher Education Sustainability Leadership in Pakistan Education System


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## Abstract

Sustainable leadership (SL) is increasingly recognized as a key driver for advancing sustainability goals in higher education institutions (HEIs), especially in fostering social innovation (SI). This research explores the relationship between SL, SI, and competitive performance (CP) in HEIs within the context of Pakistan's education system. Grounded in the Upper Echelon Theory (UET), the study proposes that SL positively influences SI, which, in turn, enhances CP. Employing a cluster sampling technique; data were gathered from 263 respondents across universities in Lahore, Islamabad and Peshawar. The findings, analyzed through PLS-SEM, reveal that SL significantly impacts SI and CP, with SI acting as a partial mediator in the SL-CP relationship. These results contribute to the literature by offering empirical evidence of the role of SL in promoting SI and improving competitive performance in HEIs, while also providing actionable insights for leadership development in the education sector of Pakistan. The study emphasizes the importance of SL in driving innovation and sustainability-oriented organizational outcomes.


**Keywords**: Sustainable leadership, Education sector, Social Innovation, Sustainable Performance

## INTRODUCTION

Sustainable leadership drives organizations toward strategies that safeguard future prospects while addressing current challenges, fostering innovation, and ensuring resilience across generations (Guerra et al., 2021). Likewise, Education Institutions has crucial role in shaping sustainable future by fostering sustainable development through various means,

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including education, research, knowledge dissemination, and collaboration with industry stakeholders (Giesenbauer & Müller-Christ, 2020). HEIs play a crucial role in nurturing future leaders, policymakers, and decision-makers who will drive environmental sustainability (Leal Filho et al., 2020).

Furthermore, universities have a significant responsibility to incorporate sustainable development goals (SDGs) into their curricula, thereby ensuring that students are aware of and equipped to address these critical issues (Leal Filho et al., 2020). However, studies indicate that many HEIs face obstacles in advancing sustainability initiatives, often stemming from the attitudes and behaviors of their leadership (Doh & Quigley, 2014). To embed sustainability as a core value within their mission statements, a structural transformation in leadership practices is imperative. Such transformation necessitates innovative approaches and a commitment to sustainable development at all organizational levels (Szekely & Strebel, 2013; Guerra et al., 2021).

The discourse surrounding leadership within organizations has evolved to recognize various leadership styles, with sustainable leadership (SL) emerging as a critical approach to facilitate sustainable development. SL encompasses the implementation of socially responsible practices that guide organizations toward fulfilling their commitments to sustainability (Szekely & Strebel, 2013). This leadership model aligns closely with other established paradigms, such as reflexive, participative, responsible, ethical, transformational, and value-based leadership (Northouse, 2018).

Sustainable leaders play an essential role in fostering a motivating environment that aligns the goals of the organization with the aspirations of its employees, thus enhancing sustainable Competitive Performance (CP)(Chowdhury et al., 2022). In higher education institutions (HEIs), CP is significantly influenced by factors such as university governance, operational efficiencies, educational frameworks, and research initiatives (Leal Filho et al., 2020). Moreover, SL is instrumental in promoting systemic innovation, particularly social innovation (SI), which aims to enhance both economic and social performance while empowering individuals to lead fulfilling lives (Guerra et al., 2021). Sustainable development focuses on achieving progress in way that meets current needs without compromising future generationsability to meet their own needs (Fallah Shayan et al., 2022).

The effectiveness of organizational performance is closely tied to the capabilities of its leaders. Upper echelon theory (UET) asserts that leaders characteristics play significant part in determining success level that organization achieves, particularly in organizational settings in which managers are given significant autonomy (Neely Jr. and Colleagues, 2020). Sustainable

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leadership greatly emphasizes the importance of this principle when pertaining to its influence on SI.

Past research in HEIs has predominantly focused on the levels of SL, the factors influencing it, and the structures surrounding SI leadership and its practices (Poekert et al., 2022). While existing literature in business contexts has explored the interplay between SL, innovation, and corporate performance—primarily emphasizing environmental aspects—there is a pressing need to investigate the influence of various forms of responsible leadership, such as SL, on organizational performance (Lin et al., 2020). Further exploration of the mediating factors between SL and CP, with a focus on SI, is necessary in the context of HEIs.

Thorough his investigation, he hopes to uncover the correlations between SL and SI, as well as the interconnection between SI and CP, proposing that SI acts as a mediator in the bond between SL and CP. Additionally, research examines mediated effect of SI within framework of UET. The research conduct in Pakistan, where the China-Pakistan Economic Corridor (CPEC) is facilitating significant infrastructure projects—including power plants—this research is crucial in light of Pakistan's environmental challenges. Understanding the contributions of universities in these countries to sustainable development is vital, especially as many HEIs continue to operate under outdated paradigms, hindering their ability to effectively integrate sustainability. Overall, the study contributingmore to literature by investigating hypothetical relationships among SL, SI, CP, grounding these concepts in empirical research. The findings will also provide valuable directions for future research in this area.

## LITERATURE REVIEW

### SOCIAL INNOVATION AND SUSTAINABLE LEADERSHIP

Social innovation requires stakeholders to work together, find ways to improve, create engaging learning spaces, and give teachers, researchers, and student's freedom. Successful implementation requires substantial time, financial resources, and appropriate infrastructure, as well as specialized expertise within the university, such as accounting and technology transfer personnel, alongside support from managers and decision-makers (Steiner et al., 2023). Leadership plays a pivotal role in this process, as social innovation flourishes in environments characterized by partnerships, effective knowledge management, and motivation for innovation (Shier& Handy, 2020).

In this context, sustainable leadership encompasses actions such as establishing long-term objectives, developing strategic performance measures, and fostering employee engagement and development. It prioritizes the retention and appreciation of staff, considers stakeholder perspectives, and promotes diversity and knowledge sharing (Iqbal & Ahmad, 2021). Leaders must embody various personal attributes such as emotional intelligence, introspective

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practices, adept decision-making skills, an emphasis on teamwork dynamics (Lin et al., 2020).Sustainable leadership is fundamentally rooted in transformational leadership, which intellectually stimulates employees and encourages innovative thinking. This method improves the learning culture within the organization, promoting psychological security and overall happiness(Khattak et al., 2020). Leaders who empower others recognize each follower as a valuable team player, promoting inspiration and originality, while creating opportunities for collaboration and knowledge generation—elements essential for tackling sustainability challenges (Tang et al., 2022). Furthermore, such leadership facilitates knowledge sharing, which is critical for fostering innovation and developing sustainability-oriented solutions.Although sustainable leadership has been linked to environmental innovation in various business contexts, empirical evidence directly connecting it to social innovation remains limited. A lack of studies in this field implies that sustainable leadership may have a constructive influence on social innovation.

**H1: Sustainable leadership is positive and significant relationship with social innovation**

**COMPETITIVE PERFORMANCE AND SOCIAL INNOVATION**

Recognizing their pivotal role in promoting societal sustainability, HEIs must actively involve various stakeholders in decision-making process when assessing sustainable performance (Leal Filho et al., 2020). Several tools has developed for evaluating HEIs sustainable performance, emphasizing need for collaboration across disciplines and the integration of diverse functional areas to foster sustainable development and innovation (Shahzad et al., 2020).

Research indicates that sustainability-oriented innovation has substantial effect on organizational performance, as innovation fundamentally social process that often involves adapting existing ideas and disseminating successful practices (Agnihotri et al., 2024). Unlike traditional profit-driven innovation, the essence of social innovation lies in fulfilling social objectives. In the context of universities, innovations in teaching and learning represent public goods aimed at addressing pressing social challenges (Leal Filho et al., 2020). By creating and disseminating social innovations, universities enhance their legitimacy and contribute positively to their overall performance and development (Monteiro et al., 2021).

Social innovation not only improves societal capacity but also enhances the quality of life, encompassing both social and economic dimensions (Steiner et al., 2023). It promotes social inclusion and balances values of solidarity, equality, and economic performance, thereby contributing to sustainable development. Consequently, social innovation emerges as a vital mechanism for achieving sustainability. Hence, proposed that:

**H2: Social innovation is positive and significant relationship with Competitive Performance**

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**SOCIAL INNOVATION MEDIATING ROLE**

Competitive Performance could be greatly improved through the utilization of innovative methods. A sustainable corporation is built upon a framework of knowledge, always generating new information to progress its aims (Žičkienė & Tamasauskiene, 2021). To effectively pursue sustainability goals, leaders must take on the role of innovation managers. Social innovation is vital for sustainable development, contributing safety, education, health, and life quality, all of which support long-term social and economic vitality (Murray et al., 2023). Organizational learning, which encompasses the processes of knowledge sharing and creation, plays a key role in connecting sustainable leadership with competitive performance (Žičkienė & Tamasauskiene,2021). The process of social innovation engages various stakeholders and sectors, facilitating the collection and dissemination of knowledge that can be transformed into solutions that address social needs. By actively involving stakeholders, organizations can reshape social relationships and promote the spread of innovative practices (Chowdhury et al., 2022). When sustainable leaders engage stakeholders in university initiatives, they are better equipped to meet community expectations and enhance overall competitive performance.

As a result, social innovation acts as mediator in association among sustainable leadership and competitive performance, underscoring the interconnections of these concepts in achieving broader sustainability objectives (Lewandowska et al., 2021). Hence, it is proposed that:

**H3: Social innovation mediating role between sustainable leadership and competitive performance**

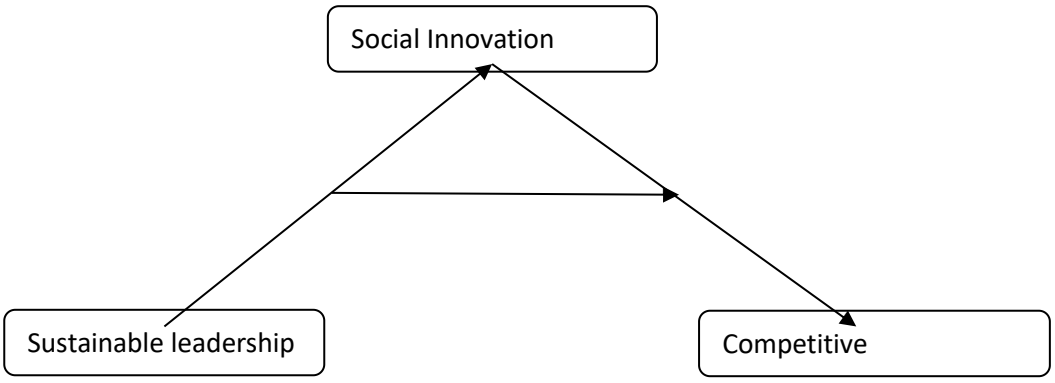


**Figure 1: Conceptual Framework**

**RESEARCH METHODOLOGY**

The research investigates higher education institutions (HEIs) in Pakistan as the primary focus. Due to limitations in time, budget, and networking opportunities, it was impractical to collect data from all HEIs in these countries. Consequently, a cluster sampling technique was

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employed, grouping institutions based on geographical location. A straightforward technique involving random sampling was employed for data collection in choosing educational institutions in Lahore and Pakistan's Islamabad. The software G*Power was used for determining sample size, and it established minimum 107 respondents requirement. This was achieved by considering predictors, 0.15 effect sizes, and 0.80 desired powers (Yahaya et al., 2019).

Moreover, survey first translated into Urdu for participants in Pakistan using triple translation technique (Uroose et al., 2024). Linguists and academics from both nations confirmed survey's face and content validity. A pilot study with 30 participants was undertaken to determine survey's reliability and validity. Local faculty members helped data collecting by distributing the survey to representatives of higher education institutions using a Google Form.

**DATA ANALYSIS**

**DEMOGRAPHICS**

The target population for this study included individuals in managerial positions at HEIs. Considering an average low response rate often seen in social research (Jawabri, 2017), a total of 500 questionnaires were distributed. Ultimately, 263 responses received, 52.6% response rate, that adequate for PLS-SEM. Demographic analysis indicated that 64.26 percent men respondents while 35.74 percent were women. Likewise, majority (34.22%) was aged between 21 and 36 years plus (33.46%) possessed <1 years of experience. Lahore respondents recorded 42.59%, while 37.26% were from Islamabad, (20.15%) were from Peshawar.

**Table 1: Demographics Analysis**

| Variable | Frequency | % |
|---|---|---|
| Gender-Male | 169 | 64.26 |
| Female | 94 | 35.74 |
| Age-21–26 years | 90 | 34.22 |
| 27–32 years | 72 | 27.38 |
| 33–38 years | 59 | 22.43 |
| 39 years and above | 42 | 15.97 |
| Experience-less than 1 Year | 88 | 33.46 |
| 1-2 | 70 | 26.62 |

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|---|---|---|
| 3-5 | 59 | 22.43 |
| 6 and more | 46 | 17.49 |
| City-Lahore | 112 | 42.59 |
| Islamabad | 98 | 37.26 |
| Peshawar | 53 | 20.15 |

**MEASUREMENT SCALE**

SL within HEIs was assessed using a 18-item scale (Kalkavan, 2015), while social innovation was measured with an eight-item scale adopted from study (Rado & Nuchpiam, 2023). The competitive performance (CP) of HEIs was evaluated using the 5-scale items adopted via study (Zaid et al., (2018). Before data collection, survey reviewed by subject experts, resulting in minor adjustments for improved clarity. An additional 30 respondents were surveyed to further examine reliability. In this investigation, 2 items from the sustainable leadership (SL) construct and one item from the social innovation (SI) construct were excluded due to indicator loadings falling below 0.40. The remaining indicators exhibited loadings above 0.50, demonstrating acceptable reliability. Moreover, Cronbach's alpha & composite reliability coefficients for all reflective constructs; SL, SI and the measures of CP; academic, engagement, operation, innovation planning & administration& leadership dimensions—were all greater than 0.70, confirming sufficient internal consistency reliability (Nunnally & Bernstein, 1994).

**Table 2: CR, AVE & Cronbach alpha**

| Construct | Loading | Cronbach Alpha | CR | AVE |
|---|---|---|---|---|
| **SL** | 0.719-0.796 | 0.721 | 0.91 | 0.73 |
| **SI** | 0.892-0.899 | 0.868 | 0.92 | 0.81 |
| **CP** | 0.782-0.856 | 0.701 | 0.71 | 0.83 |

The measurement model analysis examined indicator reliability, internal consistency, and construct validity. Items with loadings exceeding 0.50 were retained, while those with loadings below 0.40 were eliminated. Cronbach's alpha and CR were employed to evaluate internal consistency reliability, whereas Fornell-Larcker criterion was applied to assess discriminant validity. Competitive performance is addressed as a second-order construct, represented through a Type-II reflective-formative model. A two-stage approach was used to assess the CP validity and reliability. Moreover, the present study utilized heterotrait-monotrait criterion (HTMT) to check discriminant validity.

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**Table 3: Discriminant Validity**

| Construct | 1 | 2 | 3 |
|---|---|---|---|
| **SL** | (0.854) | | |
| **SI** | 0.759 | (0.900) | |
| **CP** | 0.784 | 0.341 | (0.911) |

**ASSESSMENT OF STRUCTURAL MODEL**

-SEM has been used to test the study's hypotheses using the bootstrapping procedure. Smart PLS 4 to generate 5,000 resamples. The present study examined inner VIF values, path coefficient findings, R2 values, f2 values, and Q2 values for predictive relevance. Since the path coefficients connecting the components in PLS-SEM were calculated using a series of regression analyses, it was essential to rule out the possibility of collinearity skewing the results (Hair et al., 2019). The hypothesis testing results indicate that Sustainable Leadership (SL) has a significant positive impact on Social Innovation (SI), with a path coefficient (β) of 0.539 and a large effect size ($f^2$ = 0.584), explaining 61.1% of the variance in SI. Similarly, SI significantly enhances Competitive Performance (CP), as indicated by a strong path coefficient (β = 0.621) and a large effect size ($f^2$ = 0.629), explaining 38.5% of the variance in CP. Additionally, the mediation analysis shows that SI partially mediates the relationship between SL and CP, with a small but significant indirect effect (β = 0.124) and a small effect size ($f^2$ = 0.044). All relationships tested are statistically significant, supporting the hypotheses and confirming that SI plays a partial mediating role between SL and CP. Moreover, the current research utilized the analytical technique described by Hair et al., (2019) to examine mediation proposition. First, SI mediating impact was examined by bootstrapping approach (i.e. resample 5,000). Moreover, table 4 indicates that bootstrap C.I in 95% bias-corrected have not include 0, suggested that SI mediates the association among SL and CP.

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**Table 4: Hypothesis Testing**

| Path | β | T-value | LL | UL | VIF | f2 | R2 | Q2 | Results |
|---|---|---|---|---|---|---|---|---|---|
| **SL-SI** | 0.539 | 14.610 | 0.467 | 0.610 | 1.719 | 0.584 | 0.611 | 0.601 | Accepted |
| **SI-CP** | 0.621 | 21.356 | 0.564 | 0.679 | 1.000 | 0.629 | 0.385 | 0.382 | Accepted |
| **SL-SI-CP** | 0.124 | 4.425 | 0.195 | 0.330 | | 0.044 | | | Partial Mediated |

## DISCUSSION

For CP, treated as second-order formative-construct, lower-order reflective-constructs displayed values within indicator loadings acceptable ranges , also satisfactory, discriminant validity, and AVE. Moreover, second-order latent variable loadings were analyzed, as path coefficients among first-order constructs. Tables provides results for indicator weights, significance, and multicollinearity, with variance inflation factor (VIF) values remaining below 5, confirming no multicollinearity (Kline, 2015). Although reliability values were not reported for CP, convergent validity was affirmed; as AVE values exceeded 0.50 and construct reliability surpassed 0.70. The AVEs square root for SL, SI, and the various performance dimensions exceeded their correlations with other constructs, indicating sufficient discriminant validity (Fornell & Larcker, 1981).

The hypothesis testing findings are in Table 4. The structural analysis showed that SL significantly affects SI ($\beta = 0.539$, $p < 0.05$) in HEIs, supporting Hypothesis 1 (H1). This supports previous studies suggesting strategic, instrumental, and interactive leadership styles promote SI growth (Yahaya et al., 2019). SL with strong moral purpose and an emphasis on organizational learning and creativity are essential for social innovation, according to this study. Moreover, the findings indicate that social responsibility practices—including sponsorship, donations, and community engagement—significantly impact the sustainable performance (CP) of organizations. Additionally, organizational learning has been shown to enhance CP. The analysis revealed that SI significantly influences CP ($\beta = 0.\ 0.621$; $p < 0.05$) in HEIs in Pakistan, thus supporting Hypothesis 2 (H2) and aligning with prior studies that established a link between social innovation and CP (Salim Saji & Ellingstad, 2016).

Previous research has also identified factors such as psychological empowerment, organizational learning, psychological safety, and environmental innovation as mediating

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variables between leadership styles—such as transformational or sustainable leadership—and organizational CP (Malik & Mehmood, 2022). For example, in the manufacturing sector, lean management practices have been identified as effective mediators between transformational leadership and CP. This study suggests that SI similarly mediates the relationship between sustainable leadership (SL) and CP. Data analysis supports this assertion, indicating that SL significantly impacts CP through SI ($\beta = 0.124$; $p < 0.05$), thereby confirming Hypothesis 3 (H3). Also, this finding indicates competitive partial mediation of SI in the relationship between SL and CP in HEIs in Pakistan.

**PRACTICAL IMPLICATIONS**

The findings offer several important implications. Firstly, managers in higher education institutions (HEIs) should prioritize fostering SI. In Pakistan, the sustainability of HEIs is still in its early stages across areas like research, curriculum, governance, and stakeholder engagement. Implementing SI can help overcome challenges to sustainable development in these institutions. A sustainable leader in higher education should offer new faculty induction programs to familiarize them with the system and encourage interdisciplinary research and collaboration with businesses. They should also promote innovation by creating a collaborative work environment that encourages knowledge creation and application to real-world problems. HEIs in both China and Pakistan must develop SL skills among their leaders to drive SI and improve CP. This involves selecting appropriate candidates for leadership roles and fostering competencies that align with sustainability goals. These candidates should be familiar with fields like natural sciences, social sciences, and engineering and be capable of addressing the sustainability challenges facing their institutions.

Moreover, HEI leaders must shift their focus from traditional objectives, such as maximizing shareholder value, toward broader goals that include societal and environmental well-being. Implementing SI strategies that engage multiple stakeholders and emphasize shared values can help HEIs contribute meaningfully to social change.

**THEORETICAL IMPLICATIONS**

This research advances academic knowledge by investigating the connections between higher education, sustainable development, leadership, and innovation. It validates SL's direct influence on CP and sheds light on SI's role as a mediator in this interaction. The findings also imply that, whereas SL has a direct impact on CP, MD moderates the link, which can have a negative impact on the process. This expands our understanding of SL's role in sustainable development, particularly in educational situations. This study provides a quantitative approach for investigating how SL affects CP. Future research might build on these findings to investigate

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the dynamics of leadership and sustainability in a variety of organizational settings other than HEIs.

**CONCLUSIONS**

The study highlights higher education institutions (HEIs) sustainable leadership crucial role in fostering sustainable future by examining factors that contribute to high competitive performance (CP). It reveals that SL has a major effect on SI, which then effects CP. Furthermore, SI partially mediates the link between SL and CP, whereas high levels of MD can impede advancement in this area. The study adds to both theoretical and empirical knowledge by combining ideas from sustainable development, leadership, higher education, and innovation. It provides practical advice for university administrators, lawmakers, and society, with a focus on leadership selection, establishing collaborative cultures, and implementing educational programs for future leaders to guarantee sustainability goals are achieved.

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