IMPACT OF TRANSFORMATIONAL AND AUTHENTIC LEADERSHIP ON INNOVATION IN PRIVATE HIGHER EDUCATION INSTITUTIONS IN MALAYSIA; THE CONTINGENT ROLE OF TRUST IN LEADER

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BY

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(3) Sole contribution has been made by me in completing the FYP.

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LIST OF ABBREVIATION

BP	Balanced Processing
CEO	Chief Executive Officer
HEIs	Higher Education Institutions
IC	Individualized Consideration
II	Idealized Influence
IM	Inspirational Motivation
IMP	Internalized Moral Perspective
IS	Intellectual Stimulation
IT	Information Technology
LMX	Leader-Member Exchange
OCB	Organizational Citizenship Behavior
RT	Relational Transparency
SA	Self-Awareness
SPSS	Statistical Package for Social Sciences
TIL	Trust in Leader
TQM	Total Quality Management
BP	Balanced Processing
CEO	Chief Executive Officer

PREFACE

The purpose of this research is to establish the relationship between transformational and authentic leadership on innovation in Malaysian private higher education institutions; the moderating variable is the trust in leaders. Since innovation has become the natural means of sustaining competitiveness and promoting constructive changes, especially in the sphere of higher education, the study determines ways in which various leadership approaches can encourage the enhancement of creativity.

The higher education sector in Malaysia as in any other country has a number of challenges which include the following; Increased rate of change of technology, global competition and organizational performance. The management has a central responsibility of setting directions for organizations and ensuring employees adopt new change. This research study aims at comparing research studies in the field of leadership and innovation in a bid to present findings that will assist educational leaders in attaining better results in the promotion of innovative practices in their institutions.

This study is anchored on the Leader-Member Exchange (LMX) theory which focuses on the leader subordinate relations as determinants of organisational results. Trust is found as a variable that increases the effect of leadership on innovation, providing significant knowledge regarding how to use trust to improve innovative LMX relationships.

At the end of this study, I am expecting to add to the existing literature on leadership in higher education by offering practical recommendations to leaders in Malaysian universities and other parts of the world in order to overcome the complex changes happening in the academic environment.

ABSTRACT

This study investigates the impact of transformational and authentic leadership on innovation in Malaysian private higher education institutions, focusing on the moderating role of trust in leaders. The higher education sector in Malaysia is facing increasing challenges due to rapid technological advancements, global competition, and evolving educational demands. Leadership plays a critical role in fostering innovation, and this research explores how different leadership styles influence the innovation process within these institutions.

Using Leader-Member Exchange (LMX) theory as the theoretical framework, the study examines how the quality of leader-follower relationships, characterized by trust and respect, enhances the effectiveness of transformational and authentic leadership in promoting innovation. The research hypothesizes that trust moderates the relationship between leadership styles and innovation, with higher levels of trust leading to more significant innovation outcomes.

Data was collected through surveys from academic staff in private universities, and the findings reveal that both transformational and authentic leadership significantly influence innovation, with trust acting as a key moderating factor. The results suggest that fostering trust-based relationships within academic settings is crucial for stimulating creative problem-solving and maintaining a competitive edge in higher education.

This research contributes to the understanding of how leadership can drive innovation in the context of higher education and provides practical insights for educational leaders seeking to cultivate a culture of innovation in their institutions.

Keywords: transformational leadership, authentic leadership, innovation, trust in leader, higher education

Chapter 1: Research Overview

1.0 Introduction

This research is to examine the impact of transformational and authentic leadership on innovation in private higher education institutions in Malaysia, with a focus on the contingent role of trust in leader.

1.1 Research Background

This paper identifies several imperatives that affect the higher education sector, such as technological advancement, political factors, new and non-conventional requirements for education sectors globally, making the higher education sector an interesting area of study. As the pressure from globalization rises, shifting funding models of higher education, and supply and demand of higher education, many higher education institutions across the globe are in pursuit of survival and competition through innovations (Alenezi et al., 2023; Brown, 2018; Kane et al., 2017). Aspects influencing innovation in higher education institutions have therefore always remained of critical interest in the field of organizational research (Đurek et al., 2018; Selznick & Mayhew, 2018). Normally, previous literature is of the view that innovation success factors in organizations are a function of the interaction of multiple individual and institutional factors (Selznick & Mayhew, 2018; Alenezi et al., 2023).

Innovation has a crucial role in propelling higher education institutions forward, particularly in the quickly changing global education scene. The higher education sector in Malaysia is confronted with noteworthy opportunities and problems such as the requirement to adjust to new technologies, improve academic performance, and keep up with international trends in education. To meet the global standards, the digital learning resources, international collaboration and innovative pedagogy have to be incorporated. However, lack of finance, bureaucratic red tape, and slow

adoption of technologies are some of the challenges that Malaysian institutions experience often (Alenezi et al. , 2023; Mamdouh et al. , 2023; Selznick & Mayhew, 2018).

There are more than twenty public universities in Malaysia, fifty private universities, and many colleges and polytechnics with students' enrollment of over 2 million students in the year 2023 according to the Ministry of Higher Education Malaysia, 2023. According to the QS Higher Education System Strength Rankings 2021, Malaysia stood at 25th place in the global system of higher learning. Additionally, Malaysia research productivity has enhanced whereby the country is producing over 20,000 research articles in 2022 as per SCImago Journal Rank.

In the Malaysian context specifically in higher education institutions effective leadership is crucial in managing change and nurturing creativity. Leadership is a key factor that determines organizational culture with regards to innovation, risk taking and learning. This paper also seeks to analyse the impact of authentic and transformational leadership styles in Malaysian higher education institutions on innovation. Leaders who are transformational, and are capable of motivating their followers as well as stimulating their intellect ensure that people are always encouraged to work harder in a welcoming environment (Daft, 2014; Kim, 2014). These leaders create a clear and appealing image of the desired future, challenge their followers, and encourage them. On the other hand, authentic leaders prioritize ethical behavior, transparency, and genuine relationships, which help in building trust and long-term partnerships. Authentic leadership, which has gained prominence as the 'gold standard for leadership,' encourages creativity and innovation by fostering a high level of self-awareness and positive psychological capital among followers (; Cha et al., 2019).

A study by the Malaysian Higher Education Leadership Academy (AKEPT) in 2021 found that 68% of academic staff in Malaysian universities perceived a high level of trust in their institutional leaders, which correlated with higher levels of organizational commitment and innovation (AKEPT, 2021). By fostering a positive and vibrant corporate culture, both leadership philosophies have the

ability to have a substantial impact on an organization's capacity for innovation. This study's theoretical framework is based on Leader-Member Exchange theory (LMX). The theory includes two leadership: transformational leadership and authentic leadership. Leader-Member Exchange (LMX) theory emphasize the significance of relationships between leaders and followers and how they affect organizational outcomes.

Investigating leader trust as a contingent factor in the relationship between leadership and creativity is a critical component of our research. Trust in leaders is the extent to which followers have confidence in their leader's competence, reliability and integrity (Cao & Le, 2022). Trust can be defined as one of the key variables that can either enhance or diminish a leader's influence. In order to develop the methods that would help to promote the academic excellence and the further progress, it is essential to understand how the trust in leaders, which is the mediator or the moderator of the impact of the leadership on the innovation.

1.2 Problem Statement

The Malaysian higher education is today experiencing increased challenges that have detained its chances of improving its innovation and performance in the growing globalized education sector. These challenges are complex and they include leadership issues, lack of trust between leaders and subordinates, attitude to change and lack of resources. Alenezi et al. (2023) observed that such problems are made worse by the change in technologies and political situation and that institutions must keep up with the changes in order to remain relevant. In the same regard, the work of Mamdouh et al. , (2023) reveals that the aforementioned interventions are financially proscribed and beset with bureaucratic challenges that hamper the application of innovative solutions in Malaysian universities. Moreover, according to Selznick and Mayhew (2018), the element of trust in leadership nullifies the followers' propensity to be innovative or supportive of change.

Lack of innovation is one of the critical issue for higher education institutions in Malaysian; most of the university are struggling to apply advanced technologies and encourage innovative ideas. Ministry of Higher Education (2023) has revealed that Malaysian universities are still struggling in the process of innovation in terms of teaching learning process and research activities due to increasing global competition. The following factors explain the lack of innovation among university academics: insufficient funding, bureaucracy, and academics' resistance to change (Alenezi et al., 2023; Mamdouh et al., 2023). These constraints limit the development of an innovation culture that the institutions require to compete in the international market for education.

There is lack of transformational and authentic leadership qualities of educational leaders. Transformational leaders help their followers achieve more than what is expected through appeal to the followers' ideas, creativity, and individual attention. On the other hand, authentic leaders foster trust in ethical practices as well as in the relations they entertain. The absence of such leadership qualities leads to the discouragement of invention and creativity in higher learning institutions (Major, 2020; Guerrero et al. , 2022).

The other significant problem is the lack of credibility between leaders and all their subordinates. Leadership support or organizational support work well when there is trust that can encourage innovative environment. Lack of trust weakens the confidence of the followers to embrace organizational change or support the visionary leader hence hampering the growth of innovations in the higher education sector (Yin et al., 2019). Such a shortfall limits the readiness of faculty and staff to engage in risks as well as come up with and enact innovation (Malaysian Higher Education Leadership Academy [AKEPT], 2021; World Economic Forum, 2022).

As any organization, universities encounter a number of obstacles that stem from the bureaucratic structure and other related practices. This resistance is often as a result of cultural restraints that champion traditional forms of management, uncertainty, and bureaucratic structures (Tildesley, 2023). Attitudes like these

slow down the implementation of new ideas and the adoption of improved practices, thus the challenge institutions face when trying to remain relevant in the global education system (Deloitte, 2023). These are made worse by the general concern of Malaysian higher education institutions to effectively respond to technological changes and the increasing call for reform in education. The closed and rigid structure and culture of university leadership and governance do not allow Malaysian universities to exploit all the opportunities to enhance their competitiveness and performance internationally. In addition, organizational politics and bureaucracy of institutions pose a challenge to the successful implementation of the innovations. Procedures hinder the chance of change and hamper the chances of improvement that seeks to encourage creativity and innovation in universities (Guerrero et al., 2022; Deloitte, 2023).

However, the problem of inadequate funding still poses a major challenge to innovation in Malaysian higher education institutions besides bureaucratic procedures. Lack of funds prevents one from expanding on new technologies, offering faculty professional development, and providing the environment that will support creativity and innovation (Syed Ismail Syed Mohamad et al., 2021). These challenges therefore call for effective leadership the most important of which are: transformational and authentic leadership styles as key factors in reversing these barriers and enhancing culture of innovation in higher education.

This research aims at filling these research gaps through exploring how transformational and authentic leadership can be utilized to improve innovation in Malaysian higher education institutions. They pay specific attention on trust as the primary moderating factor. While, the evidence gathered in this research indicates that the practices associated with the transformational and authentic leadership more likely to enhance the culture of innovation since they rely on the establishment of trust between the leaders and followers. Hence, this study intends to offer empirical data and best practices on how the leaders of higher education institutions can eliminate these challenges, and consequently foster development and competitiveness of Malaysia’s higher education in the global market.

1.2 Research Objective

1.3.1 General Objective

The purpose of this research is to investigate the impact of transformational and authentic leadership on innovation in higher education in Malaysia, with a focus on the contingent role of trust in leader.

1.3.2 Specific Objective

1. To examine the role of transformational leadership on innovation of private higher education institutions in Malaysia.
2. To identify the impact of authentic leadership on innovation within higher education settings in Malaysia.
3. To identify how does the role of trust in leader influence innovation of higher education institutions in Malaysia.
4. To identify how does trust in leader act as a moderating factor in the relationship between transformational leadership styles and innovation.
5. To identify how does trust in leader act as a moderating factor in the relationship between authentic leadership styles and innovation.

1.4 Research Question

The main purpose of the research is to inspect, investigate and understand the impact of transformational and authentic leadership on innovation in higher education in Malaysia: The Contingent Role of Trust in Leader. The research question are as shown below:

1. How does transformational leadership influence innovation of higher education institutions in Malaysia?

2. What is the impact of authentic leadership on innovation within higher education settings in Malaysia ?
3. How does trust in leader influence innovation of higher education institutions in Malaysia ?
4. How does trust in leader act as a moderating factor in the relationship between transformational leadership styles and innovation?
5. How does trust in leader act as a moderating factor in the relationship between authentic leadership styles and innovation?

1.5 Hypothesis of Study

H1: Transformational leadership will significantly influence innovation in higher education institutions in Malaysia.

H2: Authentic Leadership will significantly influence innovation in higher education institutions in Malaysia.

H3: Trust in leader will significantly influence the innovation in the higher education institutions in Malaysia.

H4: Trust in leader will have a significant interaction effect on the relationship between transformational leadership and innovation in the higher education institutions in Malaysia.

H5: Trust in leaders will significantly influence the relationship between authentic leadership and innovation in higher education institutions in Malaysia.

1.6 Significance of Study

The contribution of this research is substantial to the areas of educational leadership, organizational behaviour and higher education policy in Malaysia. This research will help in understanding the effects of transformational and authentic leadership in promoting innovation in higher education institutions especially through the trust between the leaders and followers. The findings from this research can have several implications:

This paper will also advance knowledge about effective leadership practices by identifying the direct effects of transformational and authentic leadership on innovation in higher education. These findings may inform training and development initiatives in educational leadership with the purpose of improving the leadership characteristics that are needed for cultivating an innovation culture within their organizations (Major, 2020; Guerrero et al. , 2022).

The study focuses on the role of trust in the leader-follower relationship with special reference to the higher learning institutions. It is important to know how trust influences the impact of leadership styles on innovation as it can assist institutions to foster and sustain trust that will enhance the support of innovation (AKEPT, 2021; World Economic Forum, 2022).

As a result of identifying the leadership deficiencies, trust deficits, resistance to change, and resource constraints in this research study, this study can offer practical solutions to these barriers. This can help the higher education institutions in Malaysia to understand the dynamics of the internationalization of education and improve on their position in the global market (Deloitte, 2023; Guerrero et al. , 2022).

From the results of this study, policymakers may learn about how leadership matters in promoting innovation in higher learning institutions. Specifically, the findings of this study have important implications for policymakers as they can now better appreciate how leadership, trust, and innovation are related and how these factors can enhance the HEIs in Malaysia and the overall sector (Guerrero et al. , 2022; Deloitte, 2023).

Although the study is carried out in the context of Malaysian higher education, the findings derived from the study may be useful in other settings that are facing similar issues. The research can help expand the understanding of how leadership affects innovative practices in various systems of education and be useful for a global audience (Major, 2020; World Economic Forum, 2022).

Consequently, this study is expected to improve the leadership capacity of higher education institutions, encourage innovation and, therefore, help to develop Malaysia's higher education sector to become more competitive in the global market.

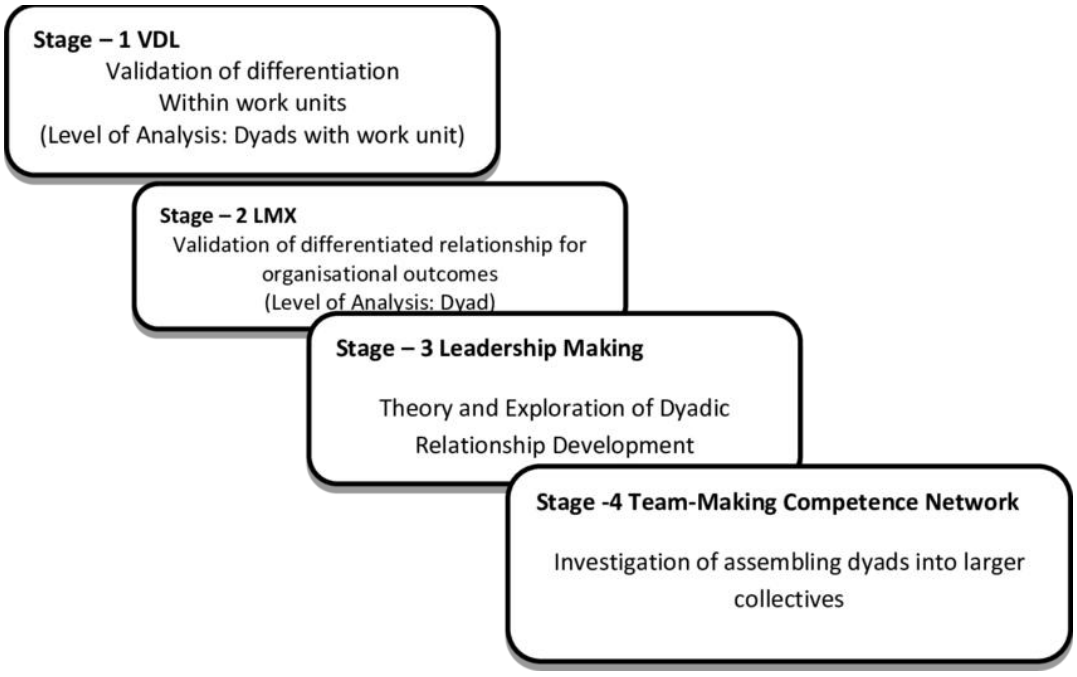
Chapter 2: Literature Review

2.1 Introduction

The independent variables, moderator variable and dependent variable will be discussed in this chapter. Discussing about the theory used in the research, research model and conceptual framework.

2.2 Leader-Member Exchange (LMX) Theory

Figure 2.1 : Stages of Leader-Member Exchange (LMX) Theory Development



Adapted from: Graen, G. B., & Uhl-Bien, M. (1995). Relationship-based approach to leadership: Development of Leader-Member Exchange (LMX) theory of leadership over 25 years: Applying a multi-level multi-domain perspective.

Leader-Member Exchange (LMX), theory that was developed by Fred Dansereau, George Graen, and William Haga in the 1970s year has more elaborate

perspective on how variety of leadership styles including the transformational and authentic leadership impact on innovation in the higher learning institutions. LMX theory presupposes that leaders create different types of working relationships with each subordinate, which are characterized by different degrees of trust, respect, and obligation. LMX research reveals that high quality LMX relationship where there is trust and respect is positively associated with creativity and innovation in employees. These relationships make followers to be more constructive in their interaction with the goals and the activities of the organization (Graen and Uhl-Bien, 1995; Ersoy, 2023; Yang et al. , 2024).

In the context of higher education, transformational leaders ensure that they develop high quality LMX relationships by offering their followers, intellectual stimulation and individualized consideration. Such leaders motivate their followers by providing a clear vision that can be achieved; challenging the followers to think out of the box; and making sure that the followers are appreciated and encouraged. This environment is suitable for creativity since followers are free to experiment with available resources in an endeavour to come up with new ideas and products, without being punished for failure (Graen and Uhl-Bien; Ersoy; 2023). Authentic leadership does the same in enhancing high-quality LMX relationships because it fosters trust due to the ethical and truthful behaviors it promotes, which in turn enhances the innovative behavior of the followers (Hoang et al. , 2024).

Furthermore, the application of trust in LMX theory is quite useful in the context of the current literature that examines how trust mediates the leadership and innovation relationship. LMX is an important constituent of high-quality leader–member exchange; therefore, the existence of trust will enhance the positivity of the relationship between transformational and authentic leadership and innovation. Lack of trust in leaders brings about reluctance in the adoption of new ideas, reduced risk taking and poor contribution to innovation. This is particularly relevant in the present era of globalization, increased competition and frequent changes in the higher education context, where the concept of innovation proves to be vital for the sustainability of the organizations (Waseel et al. , 2024).

Subsequent research has also provided solid evidence for the role of LMX in promoting innovation. Research has also revealed that high quality LMX has positive relationship with OCB, which sometimes includes innovative behavior, not prescribed by the employee's job description (Graen & Uhl-Bien, 1995; Ersoy, 2023). The emerging issues in higher education for example; technology enhanced learning and inter-professional education and practice also support the need for leadership styles with high levels of trust and high-quality leader-follower communications (Yang et al. , 2024).

Applying LMX theory in leadership and innovation in college enhances the theory's framework and is also relevant to the current and emerging issues in the college leadership. This approach provides a more theoretical framework for such research and provides application advice to educational managers who desire to promote innovation in their organizations (Graen & Uhl-Bien, 1995; Waseel et al. , 2024; Hoang et al. , 2024).

2.3 Review of Variables

2.3.1 Independent Variables

2.3.1.1 Transformational Leadership

Transformational leadership has been researched widely because of the significant effect it has on the encouragement of innovation in organizations. It is characterized by four core dimensions: inspiration, motivation, stimulation and consideration. These dimensions in synergy produce a leadership style that not only encourages the followers but also challenges their intellect to deliver beyond expectations for the good of the organization. For example, idealized influence is the ability of the leader to be a moral and ethical example that followers admire and trust. This approach ensures that individual and organizational goals are in harmony with the overall goals of the society hence fostering unity and innovation (Zuraik & Kelly, 2019). The second component is inspirational motivation where leaders encourage the followers to work towards achieving higher standards that

in turn foster creativity and innovation within the team (Kasımoğlu & Ammari, 2020).

The other two dimensions, intellectual stimulation and individualized consideration are also very important in promoting innovation. Intellectual stimulation entails challenging followers to change their ways of thinking and therefore fosters an environment that supports creativity and new ideas. Leaders who encourage their followers to look at things in a different perspective foster cultures that embrace innovation and encourage people to take risks without the possibility of being punished for it (Afsar & Umrani, 2020). Finally, individualized consideration concerns the leader's function of providing attention and encouragement to each follower. Through coaching and offering training and development opportunities that are targeted at the followers, leaders enhance the followers' interest and make them feel valued. This in turn increases innovative behaviour as the employees feel encouraged and encouraged to come up with creative ideas (Gui et al. , 2021). Thus, the transformative nature of leadership in terms of inspiring, stimulating, and encouraging followers to achieve their full potential is a key factor in innovation in complex and competitive organizational contexts (Afsar et al. , 2019; Zuraik & Kelly, 2019).

2.3.1.2 Authentic Leadership

Authentic leadership is one of the leadership approaches that involve the demonstration of self-awareness, relational transparency, balanced processing, and internalized moral perspective. They play a major role in establishment of trust and provision of incentives for creation of innovations within organizations (Brunetto et al., 2023) . Self-awareness is one of the key components of authentic leadership that refers to the awareness of one's assets and limitations as well as the set of personal values. Authentic leaders are self-possessed and aware of the fit between their behaviour and personal standards. The self-awareness that they develop helps them to be very ethical in their leadership, thus encouraging the people they lead to develop trust (Walumbwa et al. , 2020; Psychology Today, 2019).

Another dimension is relational transparency in which genuine leaders do not conceal the truth. They communicate without any ill-intent, which helps them to further their bonds with the followers. This transparency also fosters openness at the workplace; thus, empowers the employees to share their ideas and be innovative. Openness of this nature is encouraged by authentic leaders and results in the creation of an environment that is favorable for innovation (Walumbwa et al. , 2020; SpringerLink, 2020).

A third characteristic of authentic leadership is balanced processing. It means the capacity of a leader to encourage and welcome different opinions before arriving at a conclusion. Effective authentic leaders always try to consider many views before making a decision to make sure that decision is fair, well thought out and in the best interest of the organization. It helps in reducing hasty decisions and helps to improve the ethical reasoning process .

Finally, internalized moral perspective is a dimension where the genuine leaders' behaviour is aligned to their values and beliefs and they do not succumb to pressure. The ethical element in them helps them to be fair and exercise integrity in their leadership styles. This ethical focus is central to the development of innovation culture, in which the employees are encouraged to come up with creative ideas (Baquero et al., 2019).

Altogether these four dimensions facilitate organization of creativity, trust, and innovative environment by actual leaders. This leadership style is therefore useful in organizations that need ethical behavior and strategic planning especially when they are operating in constantly changing and dynamic environments (Walumbwa et al. , 2020; SpringerLink, 2020).

2.3.2 Moderating Variable

2.3.2.1 Trust in Leader

Trust in the leader is a moderating variable, which regulates the impact of both transformational and authentic leadership on innovation. Trust is defined as the extent to which followers have confidence in their leader's competence, character and motives. It is a core element of the leader-follower trust and is critical in creating the psychological safety that is necessary for creativity to occur (Adil & Kamal, 2019; McAuliffe et al., 2019).

When the followers have confidence in their leader, they are willing to try out new things and be creative since they know they are safe to try out new things. Thus, trust can be recognized as a variable that enhances the effects of the transformational and authentic leadership on innovation because the formation of the atmosphere in which people talk, cooperate, and support each other (Álvarez et al. , 2019). Trust in the leader has been proven to increase the likelihood of innovation because it creates trust- based psychological safety climate that makes the followers willing to take risks and search for new solutions (Wang and Hsieh, 2019; Zeb et al, 2023).

Some of the recent studies include the one by Fransen et al. (2023) whereby the authors focus on the role of trust in enhancing the leadership for innovation. Such studies suggest that trust in the leader does not only enhance the commitment of the followers towards the innovation efforts, but also enhances the innovation climate within the organization. In this way, trust becomes the basis for building the general context for long-term innovative work and, therefore, the author's observations on the impact of trust on the further development of organizations can be considered relevant (Khalil & Siddiqui, 2019).

2.3.3 Dependent Variable

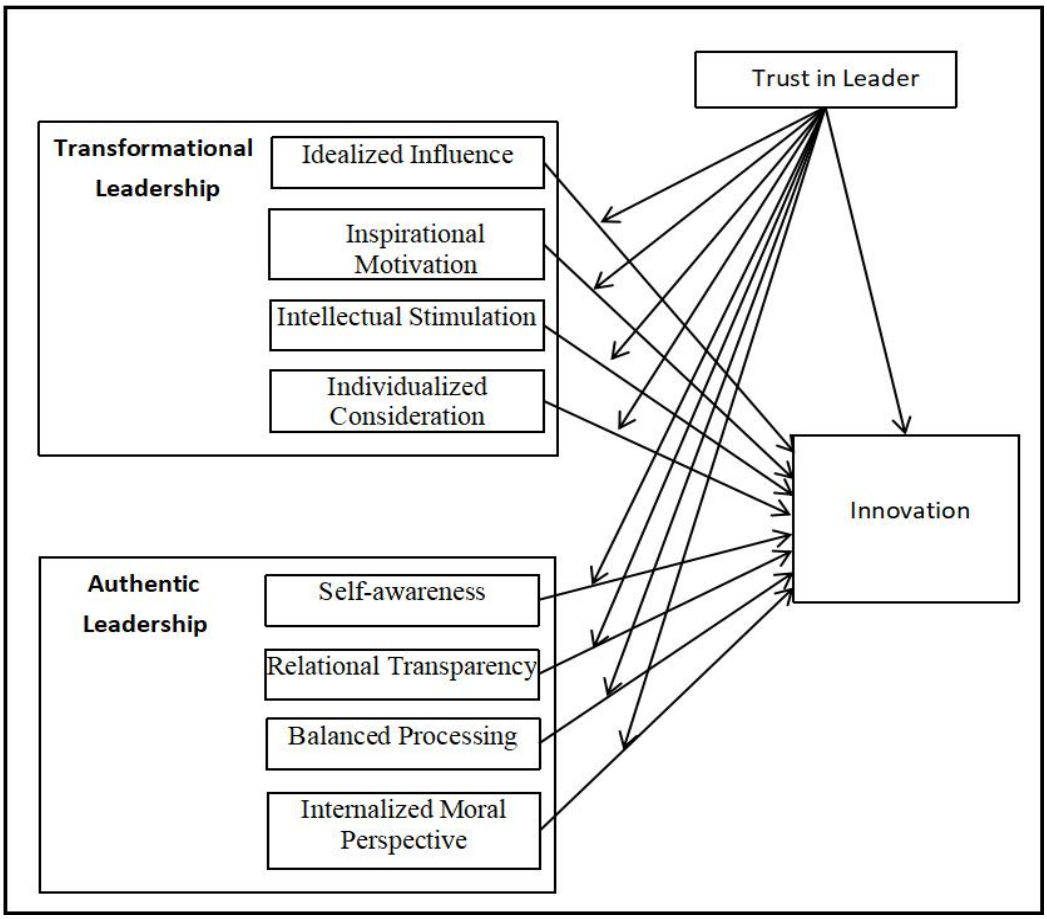
2.3.3.1 Innovation

This research operationalises innovation as the ability of an organization or it's members to generate new ideas, methods or products that are valuable. Innovation is one of the sources of sustaining competitive advantage and for the long-run success in the light of challenging and highly dynamic environment that exists today (Saeed et al. , 2019). Transformational leadership and authentic leadership both have been seen to increase innovation as they lead to improvement, risk taking and culture of innovation (Zuraik & Kelly, 2019; Afsar et al. , 2019).

Recent literature also highlight on the aspect of leadership in supporting an innovation culture. For example, Zuraik and Kelly (2019) have found out that transformational leadership enhances the level of innovation in organizations with learning organization culture. Similarly, the innovation has been found positively correlated with authentic leadership through the mediating variables of trust and psychological empowerment among the employees (Karman et al. , 2023). Therefore, one can state that leadership is one of the most important factors in the management of the innovative processes that are crucial for the development of organizations.

2.4 Conceptual Framework

Figure 2.2: Conceptual Framework



Source: Developed for the research.

The conceptual framework of this study is based on the interactions between the transformational leadership, authentic leadership, trust in leaders, and innovation in the context of private universities in Malaysia. As illustrated in the Figure 2. 2, the framework posits that transformational and authentic leadership has direct positive effects on innovation while trust in leaders is a both a significant mediator and moderator. These relationships are further explained by Leader-Member Exchange (LMX) theory which focuses on the quality of the leader-subordinate relationship.

As postulated in LMX theory, the nature of the leader-member exchange relationship has a direct effect on organizational performance, including innovation. Transformational leaders, who are expected to engage their followers' intellect and emotions, are likely to develop high-quality LMX relationships. These are relationship of trust and respect based on mutual obligation that foster the generation of ideas and creative solutions to problems. This research demonstrates the role of transformational leadership on innovation especially in the educational context where high quality LMX relationships enhance innovation through creating positive motivational environment (Afsar et al. , 2019; Zuraik & Kelly, 2019).

Other leadership styles that are likely to have a great impact on innovation include authentic leadership, which focuses on the aspects of openness, honesty, and relational trust. It can be therefore suggested that authentic leaders are likely to develop high-quality LMX relationships through communication and ethical working, which are essential in developing culture of innovation. In these high-quality relationships, followers get the feeling that they are valued and thus, are most likely to embrace innovative behaviors. As high-quality LMX relationships are characterised by trust and respect for each other, the impact of authentic leadership on innovation is even more significant (Karman et al. , 2023; Zhou et al. , 2020).

It is postulated that leader trust will moderate the relationship between both transformational and authentic leadership and innovation. According to LMX theory, trust is one of the key elements that define high-quality leaders and followers' relationships. This means that when trust is high, the quality of LMX relationship increases and thus enhances the leadership impact on innovation. Those who have confidence in their leaders are more likely to venture into risk and innovation since they are assured of their leaders' support. This trust not only improves the leader-follower relationship but also the general organizational climate for innovation (Fransen et al. , 2023; Khalil & Siddiqui, 2019).

2.5 Hypothesis Development

2.5.1 Transformational Leadership and Innovation

Transformational leadership significantly drives innovation through its four key dimensions: they are identified as: idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration. Idealized influence is where leaders become role models, and the followers develop trust and respect for them, and this makes them work towards the achievement of organizational objectives and embrace innovation (Afsar et al. , 2019). Inspirational motivation is also very important because it involves providing a vision that will make the followers to think out of the box and come up with new ideas (Wang et al. , 2022).

By means of knowledge enhancement, transformational leaders motivate the followers to question the existing paradigm and come up with new ideas, which creates an environment that supports creativity and innovation (Wang et al. , 2022). Last, individualized consideration guarantees that leaders pay attention to each of their subordinates and offer them the necessary support to develop and contribute to the organization's innovation process in the best way possible (Afsar et al. , 2019).

Research has shown that these four dimensions are critical in developing positive leadership-follower relationship and creativity and innovation in organizations. This leadership style is particularly important in contexts such as the Malaysian private universities where innovation is critical in sustaining competitiveness.

H1: Transformational leadership will significantly influence innovation in higher education institutions in Malaysia.

2.5.2 Authentic Leadership and Innovation

Authentic leadership drives innovation by focusing on four key dimensions: self-awareness, relational transparency, balanced processing and internal moral perspective. Leadership self-awareness allows the leaders to know about their values, thus leading and encouraging subordinates to develop trust and come up with various solutions. When employees are willing to take risks, then there is increased positive relational transparency which has open communication hence improving the culture of innovation (Walumbwa et al. , 2020).

This means that balanced processing enables leaders to spare time and listen to what other people are saying before arriving at the particular solutions rendered, making such solutions more integrating and innovative. On the other hand, an internal moral perspective is applied in ethical reasoning and drives trust besides encouraging the workforce to develop new solutions (Gardner et al. , 2019; Karman et al. , 2023).

The dynamics in LMX theory help in the building of trust as well as respect within the leaders and the followers that forms the climate for the innovation. This is particularly the case given that the Malaysian private universities are under investigation here, and in which ethical leadership coupled with innovation is paramount (Walumbwa et al. , 2020).

H2: Authentic Leadership will significantly influence innovation in higher education institutions in Malaysia.

2.5.3 Trust in Leader and Innovation

The visibility of leader and particularly the level of trust in leader is a significant determinant of the effect of leadership on innovation. LMX theory argues that the quantity and quality of the relationship between the leader and the subordinates determines levels of innovative promotion due to the fact that it is built on trust. The followers provide their assent to the leaders to accept the innovation behaviors since trust eliminates the dangers of change and creativity. This trust makes the followers to embrace change within the organization and also bring in new ideas knowing that their leaders will support them. Current studies also emphasize the role of trust in promoting innovation, especially in uncertain and volatile contexts such as private universities in Malaysia (Fransen et al., 2023; Zhou & George, 2020).

H3: Trust in leader will significantly influence the innovation in the higher education institutions in Malaysia.

2.5.4 Trust in Leader as Moderator between Transformational Leadership and Innovation

In this study, trust is identified as a moderator which strengthens the connection between transformational leadership and innovation. LMX theory posits that when the leaders and the followers share a healthy working relationship, the impact of transformational leadership on innovation will be enhanced. Transformational leadership has four components namely idealized influence, inspirational motivation, intellectual stimulation, and individualized consideration and it is noted that they are most effective when applied in the promotion of innovative behavior when there is trust.

Idealized power is even more prominent in settings where the followers have confidence in the leaders. In such environments, followers are inspired by their leaders' vision and values; therefore, they are ready to take risks and be creative.

Likewise, inspirational motivation is complemented by trust as this creates an emotional bond that makes the followers to accept change and innovate.

Another dimension is the Intellectual stimulation and this is very sensitive to trust as it allows followers to come up with new ideas and new ways of doing things without feeling that they will be fired if their ideas fail. Trust provides a platform that followers feel comfortable in coming up with new ideas and solutions to the problems affecting the organization. Lastly, individualized consideration is more effective if there is trust between the leaders and the followers. When leaders are trusted, they are able to give individual attention and encouragement to the followers thereby boosting the confidence of the followers to take creative risks and offer creative solutions to problems affecting the organization.

In conclusion, trust not only improves the quality of the leader-follower relationship but also greatly increases the leadership's capability of stimulating innovation. This dynamic is particularly important in contexts such as Malaysian private universities where the creation of innovation is important to competitiveness (Khalil & Siddiqui, 2019).H1: Transformational leadership will significantly influence innovation in private universities in Malaysia.

H4: Trust in leader will have a significant interaction effect on the relationship between transformational leadership and innovation in the higher education institutions in Malaysia.

2.5.5 Trust in Leader as a Moderator between Authentic Leadership and Innovation

It was also found that trust has a significant moderating effect in the relationship between authentic leadership and innovation. LMX theory also points out that trust is the key to the use of authentic leadership to foster innovation. Authentic leadership has four components, namely self-awareness, relational transparency, balanced processing, and internalized moral perspective, and trust strengthens these components by making the followers to accept the leader's values and ethical standards.

This is because when leaders show that they are aware of themselves, the followers are likely to trust them and this creates an environment where employees are free to come up with new ideas. When leaders are honest and open in their communication with the employees, then the employees are willing to take risks because they know that their leader is there to support them. When trust has been created, leaders who engage in balanced processing, whereby they consider the various perspectives, foster innovative behaviors among employees. Last but not the least, internalized moral perspective guarantees that leaders operate in a way that is consistent with the espoused values, which in turn strengthens trust and fosters creativity among employees (Fransen et al. , 2023; Gardner et al. , 2019).

In Malaysian private universities for instance, the leaders and followers' trust-based relationships are vital for innovation. Subordinates are more receptive to change and come up with new ideas to implement when they know their superiors will stand for them during change.

H5: Trust in leaders will significantly influence the relationship between authentic leadership and innovation in higher education institutions in Malaysia.

Chapter 3: Methodology

3.0 Introduction

In this chapter, it will exhibit the fundamental tenets of this study in which some methods and techniques were applied to formulate an approach to meet the goals of this study.

3.1 Research Design

Research design is the overall plan that is used by the researchers in the process of data collection, analysis and interpretation using different methods, theories and techniques. It offers a framework that shows how the major factors will be studied in an effort to respond to the research questions. As stated by McCombes (2023), the research design helps to ensure that the research methodology is consistent with the research objectives and that the right data analysis methods are used. In the same regard, Jaakkola (2020) opines that research design entails finding ways of carrying out the research process in a logical and systematic manner that the decision taken are not incidental. Using the research concepts and ideas identified by Baran (2022), it can be defined that research design is a map that connects the research aims with the variables that exist in the research and guides the researcher in making proper decisions while carrying out the research.

3.1.1 Quantitative Research

Quantitative research is essential in the leadership and innovation relation because it allows aggregation of data from massive groups and determine the relationship between transformational and authentic leadership and innovation (Bhandari, 2020). For example, it is possible to conduct an empirical analysis investigating the effects of trust and creativity in organizations, as proposed by Afsar et al.

(2019) by applying the quantitative research methods. It is therefore possible to give the leadership perception through surveys or other data collection methods to get the perception of the leadership from the academic staff. Memon et al. (2023) have also highlighted the fact that following the implementation of quantitative methods including Structural Equation Modeling it is possible to outline the direct as well as the moderating effects of leadership on innovation and hence the suitability of these quantitative instruments in this kind of study.

3.1.2 Descriptive research

Descriptive research is a type of research that is employed in a bid to provide a description of characteristics or events in a certain society with an aim of defining a relationship without manipulating any variables. It is useful in providing an overview of the subject as it simply involves logging data on what already exists, and thus useful in making trends (Ghanad, 2023). Descriptive research is useful for finding out on the existing practices of leadership and its effects on innovation in the higher learning institutions. It helps in describing how change and sound leadership engages the staff in participative practices. In this method, the researcher records the leadership behaviours while keeping the various factors constant; for this reason, this method is helpful in capturing the way leaders either encourage or discourage creativity. Zuraik and Kelly, (2019) has postulated that descriptive research provides an all-embracing view of organizational behaviors and causal research is best set out when there is a perfect groundwork.

3.1.3 Causal Research

Causal research is a kind of research study in which attempt is made to establish the existence of a cause and effect relationship. This method involves the steps of making intentional alteration of an independent variable so as to assess in the closest way the direct impact of this variable on a dependent variable (Indeed Editorial Team, 2023). While correlational research aims at knowing how two variables co-vary whereby identifying a degree of relationship between them, causal research aims at ascertaining the difference that exists between two

variables whereby identifying the influence that one variable has on the other (Indeed Editorial Team, 2023). It is primarily because causal research as it is founded on cause-and-effect associations can potentially help show that improvement in innovation results from leadership styles. In the context of higher education, causal research could look at how, for instance, the use of intellectual stimulation and inspirational motivation as the transformational leadership behaviors affect innovative behaviours among faculty members. As Takona (2024) rightly notes, causal studies are important in establishing what specific actions lead to innovation. For example, research questions may include whether higher levels of trust in leadership result in higher levels of innovation as the research objectives of the study are to investigate trust as a moderating variable between leadership and innovation.

3.2 Sampling Design

Sampling technique is the method used in identifying a portion of the population to be used in research. This design helps the researcher to ensure that the sample obtained is a true reflection of the population hence making generalization possible. There are probability and non-probability sampling techniques, and each is useful in a particular research context. Sampling is very important in order to reduce bias and get accurate and consistent results (Simakani, 2022). To achieve the correct way of sampling design, here are some steps:

1. Identify the sampling method.
2. Define the target population and target respondents.
3.Figure out the sample size.
4. Determine the method on data collection.
5. Selecting the appropriate estimating technique.

3.2.1 Sampling Technique

In research, there are two primary types of sampling techniques: probability sampling and non probability sampling. Probability sampling means techniques in which each person in the target population has a known nonzero chance of being included in the sample. This technique helps in ensuring that the sample obtained is a true reflection of the entire population hence making generalization possible. Some of the widely used methods are the simple random sampling, the stratified random sampling, and the systematic random sampling (Biffignandi & Bethlehem, 2021). This approach is considered to be more accurate due to the reduction of selection bias; however, it may take more time and money to conduct (Cornesse et al. , 2020).

On the other hand, non-probability sampling does not offer each member of the population a fixed probability of being chosen. This method is relatively faster and cheaper but it has the disadvantage of bias in that the sample used may not be a true reflection of the population. These are convenience sampling, quota sampling and snowball sampling (Lamm & Lamm, 2019). Consequently, non-probability sampling is employed in exploratory research where the aim is not to generalize the results to the population (Cornesse et al. , 2020).

For this study, **non-probability sampling** will be used and more specifically, **convenience sampling** will be used as data will be collected through an online survey conducted through Google Forms. This method of data collection will ensure that a large number of academic staff in private universities are reached with a lot of ease, and at a lesser cost. Since the study aims at identifying academic staff's perception on leadership and innovation, convenience sampling is suitable even though it has its limitations when it comes to the generality of results. This technique is appropriate for the scope and the cost of the research because of the ease of distribution and the possibility to collect responses quickly through online tools.

3.2.2 Target Population and Target Respondents

The target population for this research includes all the **academic staffs employed in private universities in Malaysia**. These people are deemed strategic in the higher learning system because of their responsibilities in teaching, research, and administration, which all have a bearing on institutional change. Private universities are chosen deliberately because these institutions have their specific tasks to solve and their further development to continue in the context of the modern educational environment and its constant changes, as well as the limitations that can be financial or administrative.

The academic staff within these institutions is well placed to provide useful information on the impact of leadership on innovation. Since they work closely with the university leaders, they are able to see and feel the impact of transformational and authentic leadership on their motivation, creativity and innovation. Also, their attitudes towards leadership and the part that trust in their leaders plays in determining the effect of leadership styles on innovation in their institutions is important.

3.2.3 Sample Size

Sample size refers to the number of respondents selected for a certain type of research and is incredibly central for purposes of statistical pooling, efficiency, exactness, and feasibility of the study (Adhikari, 2021; Charan & Biswas, 2019).

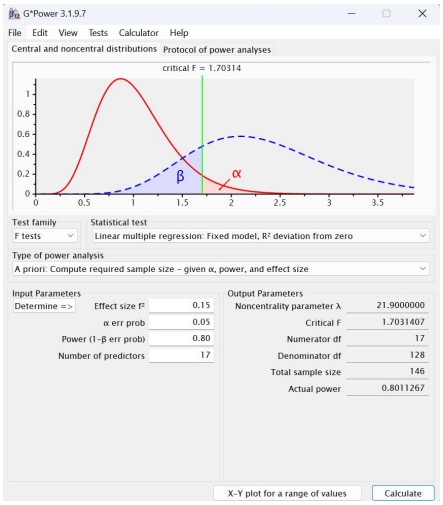
For the purpose of this study, the target population will be the consumers who have interacted with the products of the selected company within the last one year. The respondents to be included in the study will be **200**, a number slightly above the 146 that the G*Power analysis recommends. The reason why a larger sample size is considered suitable for this study is as follows. First, it follows the conventional path model/SEM guideline for determining the estimate sample size in quantitative research particularly in path models/ SEM. Kline (2016) suggested

that sample sizes of 100-200 are appropriate to satisfactorily complete models of medium complexity; 200 participants are thus appropriate in this research that tries to establish the correlation between leadership approach and innovation.

While the above G*Power analysis reveals that it is possible to get an effect size estimate from 146 participants with adequate level of power for detecting moderate effect size, having more participants that is, 200, is beneficial. A larger sample size also helps to improve the reliability of the estimates, the generalization of the results as well as reducing errors for the results to be nearer to the true population results. It also considers non-respondents or those who completed the questionnaire incompletely thus making the final analysis to be based on strong data base.

Furthermore, Adhikari (2021) noted that if a study has a small sample size it might discover inadequate information to answer the research questions raised, or if the sample size is large the study processes will be costly, and time consuming.Hence, **200 respondents** are reasonable to achieve the research objectives while at the same time provide a manageable and practical study size.

Figure 3.1 : G*Power Analysis



Source: Developed for the research.

3.3 Data Collection Method

Data collection is a process of identifying, measuring, gathering and organizing information to answer research questions or hypotheses. It has a significant function in the process of guaranteeing the credibility of the collected data for the use in research findings and conclusions (Zheng, X., 2021).

3.3.1 Primary Data Collection

Primary data collection is the process of collecting data from the original source for the purpose of answering some research questions or investigating some problems. It is gathered by methods such as questionnaires, interviews, observations and experiments, and this makes it possible for the researcher to decide on the most appropriate method that will suit the purpose and the objective of the research. In regard to this study, information will be obtained using Google Forms survey because it is simple to use and can assist in gathering the data from the samples (Research Method, 2019; Resonio, 2021).

3.3.2 Secondary Data

Secondary data on the other hand is data that has been collected, analyzed and published by other researchers for a purpose other than the current research. This data can be obtained from government, journals, databases, or industry reports among others sources of data. Secondary data is used by researchers in addition to their primary data, to give more depth or to use for comparative purposes. It is cheaper since it saves time and resources that would have been used in conducting primary research when the time and resources for data collection are scarce (Research Method, 2019; IntechOpen, 2019).

In this study, secondary data will be collected and combined with the primary data to be collected through questionnaires. For instance, journal articles on leadership issues in educational management or on innovation practices in Malaysian universities can be useful and complement the findings from the survey data collected from the academic staff. Through the use of secondary data, the research

will be in a position to complete any gaps in knowledge and enhance the results of the research, thereby providing a more holistic view of the influence of leadership on innovation.

3.4 Research Instruments

A research instrument can therefore be defined as an apparatus employed to gather, quantify and analyze information from the participants or subjects of a research study. They are surveys, questionnaires, interviews and observation protocols which are used in the collection of the required information towards the achievement of the research objectives. The selection of a research instrument depends on the kind of study being conducted and the kind of data required so that the tool used fits the methodological approach and objectives of the study in question (Switzer et al. , 2019; IntechOpen, 2019).

The main data collection tool in this research is the Google Forms structured questionnaire. This instrument is intended to measure quantitative data about the perception of leadership styles and innovation practices from the academic staff in private universities in Malaysia. Google Forms are used because they are easy to access, easy to complete, and can be used to gather data from a large group of people in different locations. Also, it helps in keeping the identity of the participants unknown which will help in getting real and unbiased feedback from the participants which is very important in ensuring the validity of the research.

3.4.1 Questionnaire Design

The questionnaire for this research is developed in a way that it will elicit information on the independent and dependent variables that are of interest in the transformational and authentic leadership and innovation. The survey tool used is Google Forms and it contains three major parts. The first part of the survey can be considered as an introduction to the research and aims to give the respondents a short description of the purpose of the study. This section also stresses on privacy

and data security issues and how the participants will be informed on how their data will be used and protected.

The second section is devoted to the collection of the respondents' demographic data. This section comprises of nominal scale questions concerning individual characteristics including age, gender, academic level, and years of service. The demographic data will assist in determining the diversity of the respondents as well as analyse if these factors affect their perception of leadership and innovation.

The last and the most crucial part contains 40 questions that address the independent ,dependent and moderator variable of the given study. The questions are structured to assess the respondents' attitude towards the two hypotheses; the degree of transformational and authentic leadership (independent variables) and the degree of innovation (dependent variable). The responses to these items will be measured on a 5-point Likert scale where 1 corresponds to Strongly Disagree and 5 to Strongly Agree The use of Likert scale will enable the respondent to give different level of agreement or disagreement to the items presented to them hence providing rich data for analysis.

3.4.2 Constructs Origin

Table 3.1 : Measurement Items

No.	Questions	
Section A: Demographic Information		
1.	Gender	
2.	Age	
3.	Highest Education Qualification	
4.	Position in University	
4.	Length of Employment at Current Institution	
5.	Involvement in Leadership Roles	
Section B: Independent Variables		**Sources**
Transformational Leadership (TL)		

	Inspirational Motivation (IM)	
IM1	My leader articulates a compelling vision of future innovations in our organization.	Meng, H. (2022)
IM2	My leader talks optimistically about the future of innovation within our organization.	
IM3	My leader expresses confidence in achieving our innovation goals.	
IM4	My leader inspires team members to pursue innovative ideas and solutions.	
	Idealized Influence (II)	
II1	My leader passionately advocates for innovative practices within the organization.	Al-Mansoori (2019)
II2	My leader bravely tackles challenges that arise during the implementation of innovative ideas.	
II3	My leader demonstrates a commitment to innovation as a core value of our organization.	
II4	My leader serves as a role model by consistently engaging in innovative behaviors.	
	Intellectual Stimulation (IS)	
IS1	My leader consistently encourages innovative thinking and problem-solving among team members.	Meng, H. (2022)
IS2	My leader challenges us to think creatively and develop new innovative methods to foster innovation within the organization.	
IS3	My leader supports experimentation with new ideas, even if they involve risks.	
IS4	My leader fosters a culture where questioning the status quo is encouraged to drive innovation.	
	Individualized Consideration (IC)	
IC1	My leader tailors management approaches to foster individual contributions to innovation.	Meng, H. (2022)
IC2	My leader mentors employees to develop their innovative capacities.	

IC3	My leader recognizes and nurtures my unique abilities to contribute to organizational innovation.	
IC4	My leader provides personalized support to help me implement innovative ideas.	
Authentic Leadership (AL)		
	Self-Awareness (SA)	
SA1	My leader seeks feedback to enhance the innovation process and collaboration on new ideas.	(Avolio et al., 2004); (Gardner et al., 2005);
SA2	My leader is aware of how their leadership style influences innovation in the organization.	
SA3	My leader reflects on their own practices to improve their ability to foster innovation.	
SA4	My leader demonstrates self-awareness in promoting innovation across the organization.	
	Relational Transparency (RT)	
RT1	My leader communicates transparently about the challenges and opportunities in pursuing innovation.	(Avolio et al., 2004); (Gardner et al., 2005);
RT2	My leader openly acknowledges failures in the innovation process and encourages learning from them.	
RT3	My leader is honest about the potential risks and rewards of innovative initiatives.	
RT4	My leader fosters open communication to support innovation across teams.	
	Internalized Moral Perspective (IMP)	
IMP1	My leader consistently acts in accordance with a commitment to fostering innovation within the organization.	(Avolio et al., 2004); (Gardner et al., 2005);
IMP2	My leader ensures that innovative practices are conducted ethically and responsibly.	
IMP3	My leader makes decisions that reflect a strong commitment to ethical innovation practices.	
IMP4	My leader prioritizes long-term ethical considerations when promoting innovation.	

	Balanced Processing (BP)	
BP1	My leader encourages diverse viewpoints to challenge and refine innovative strategies.	(Avolio et al., 2004); (Gardner et al., 2005);
BP2	My leader carefully considers different perspectives before making decisions related to innovation.	
BP3	My leader integrates feedback from various stakeholders to improve innovation processes.	
Section C: Dependent Variable		
Innovation (IN)		
IN1	Our university continuously improves existing courses and academic programs by incorporating innovative content and methodologies.	(Zuraik & Kelly, 2019);
IN2	The academic programs and courses at our university are recognized for their innovative approach and cutting-edge offerings.	
IN3	Our university regularly implements new technologies and administrative methods to enhance the delivery of academic resources and services.	
IN4	Our university effectively incorporates student feedback and innovative processes to improve overall organizational efficiency.	
Section D: Moderating Variable		
Trust in Leader (TIL)		
TIL1	I feel confident that my leader's fair treatment of team members encourages innovative thinking and practices.	Podsakoff et al. (1990); (Avolio & Gardner, 2005)
TIL2	I trust that my manager's integrity and honesty foster an environment where new ideas and innovations are welcomed.	
TIL3	I have complete faith in my manager's ability to support and implement innovative processes within our organization.	
TIL4	I feel a strong loyalty to my leader because of their	

	commitment to driving innovation and improving organizational efficiency.	

Source: Developed for the research.

3.5 Construct of Measurement

In this research, three types of measurement scales are utilized: The three forms of scales include Nominal Scale, Ordinal Scale, and Likert Scale, all of which have their specific uses in data collection and analysis.

The Nominal Scale is the simplest type of measurement where the categories are simply named and there is no relation between the names (Bhat, 2018). This scale is used to record demographic data of the respondents such as their gender. It assists in grouping the participants without creating a status difference between them and thus, the characteristics of the participants are appropriately captured.

The Ordinal Scale takes it a notch higher by not only assigning names to the categories but also ordering them in a particular manner (Akman, 2023). For instance, a question that requires the respondent to tick a box with his or her age, for instance, “18 and below” or “19 to 25” employs an ordinal scale. In this case, the scale measures the relative standing of age groups to facilitate comparison of different segments of the academic staff.

Among the ordinal scale, the most frequently used scale in this research is the Likert Scale which is used to measure attitudes and perceptions. It offers a set of statements concerning the independent variables (leadership styles) and the dependent variable (innovation), to which the respondents have to express their level of agreement on the scale ranging from ‘strongly disagree’ to ‘strongly agree’ (Bhandari & Nikolopoulou, 2023). This scale is especially helpful in measuring the level of endorsement of the respondents with regards to the statements about transformational and authentic leadership and their relation to innovation in a university setting.

These measurement scales assist the research to have some sort of structure on how the data is collected and analyzed so as to have better understanding on the kind of relationship between leadership and innovation.

3.6 Pilot Test

Prior to the full-scale version of a study or project being executed, a pilot test is a smaller version that is carried out. It functions similarly to a trial run to make sure everything goes according to plan. Pilot testing is used to assess each questionnaire's degree of validity and reliability . The validity and reliability of the data are evaluated using the reliability test. The internal consistency and reliability of the responses obtained through the questionnaire were established in this study using Cronbach's Alpha coefficient which was computed using the statistical tool SPSS 30.0 as recommended by Bujang et al., (2018). The sample size for this test was 30, and the result for Cronbach's Alpha must be approved to be at least 0.70. The findings showed that every construct was above this permissible threshold. As a result, every variable is considered trustworthy.

Table 3.2 : Pilot Test Reliability Test

Variable	Construct	Item	Cronbach's Alpha
Transformational Leadership (TL)	Inspirational Motivation (IM)	4	0.876
	Idealized Influence (II)	4	0.828
	Intellectual Stimulation (IS)	4	0.830
	Individualized Consideration (IC)	4	0.886
Authentic Leadership (AL)	Self-Awareness (SA)	4	0.862
	Relational Transparency (RT)	4	0.895
	Internalized Moral Perspective (IMP)	4	0.884

	Balanced Processing (BP)	3	0.824
Innovation (IN)	-	4	0.806
Trust in Leader (TIL)	-	4	0.887

Source: Developed for the research.

3.7 Data Processing

In this research, the information to be gathered through Google Forms will be arranged systematically for the purpose of increasing the amount of accuracy needed for the analysis. Once the responses are received the data will be retrieved from Google Forms and stored in an Excel format. The data shall also be captured in excel sheets from where it will later be pasted to the analysis tool called SPSS. SPSS is chosen because of the stability it has shown in an analysis of the transformational and authentic leadership and innovation.

3.7.1 Data Checking

The collected data will be checked to ascertain the quality and accuracy of the collected data before any analysis is conducted. Completeness of the questionnaire will be verified on the basis of check-list to ensure that all the questions have been answered with no contradiction in the given responses. In addition, the content section of the questionnaire will be checked for defects such as, poor sequence of the questions, wrong content information and spelling and grammatical errors. It is the process of reviewing the data with a purpose of checking the credibility of the data that has been collected from the respondents and to ensure that the respondents have answered the questions in the right way in this questionnaire. All the errors, which will be identified in this process, will be eliminated so that the ultimate dataset can be of superior quality before further analysis using statistical tools.

3.7 Data Analysis

In this study data analysis will be done using the Statistical Package for the the Social sciences software as it provides a more comprehensive analysis tools. Hypotheses: The Data Analysis is used to determine whether or not the given hypotheses are true: – transformational leadership and authentic leadership have a positive impact on innovation, – the impact of the mentioned kinds of leadership on innovation is moderated by Trust in Leader. In the process of analyzing data, several approaches will be used to ensure that results retrieved meet the necessary standards of the study so as to answer the research questions and hypotheses appropriately.

3.7.1 Descriptive Statistics

Descriptive statistics refers to area of statistics which involves working with characteristic of the collected data and arranging them in a systematic manner. It assists in the evaluation of the data since it quantifies characteristics of the data such as mean, variations, and distribution. Descriptive statistic is very relevant in quantitative research since they offer general information on the main features of collected data and help in identifying pattern, trend or outlier in the sample data (Kumar, 2024).

In this study, the application of descriptive statistics will be applied first as a means of analyzing the accumulated data. Mean, median, and mode which are the measures of central tendency will be used in this analysis to portray the average in the data set. In the same respect, measures of variability that will be used include; range and standard deviation to show the dispersion of data. Such tools are useful for startling overview of the basic outline of the respondents and their conduct in reaction to the survey items, or at least the aspects of the research focused on leadership styles and innovation variables.

This analysis will also enable the researcher to identify any other patterns or anomalies within the data to give a better understanding before going further to

other inferential statistics. Descriptive statistics are an essential part of data preparation for analysis and hypothesis testing as they provide the basis for further statistical research (IntechOpen, 2019; SpringerLink, 2024).

3.7.2 Reliability and Validity Test

Reliability is the extent to which measurement instrument yields consistent results each time it is used. The reliability of a measurement tool is the ability to obtain similar results in similar circumstances. For instance, if a questionnaire always assesses leadership style and its impact on innovation with the academic staff in various scenarios, then it is reliable (Scribbr, 2019). Cronbach's Alpha is used to test the internal consistency which is the extent to which the items on a scale are measuring the same construct. Ideally, reliability analysis should yield a Cronbach's Alpha value of 0. 70 or above is considered acceptable.

While, validity refers to how well an instrument is able to capture the construct that it is supposed to measure. In this study, construct validity will be assessed by factor analysis to ensure that the questions on the questionnaire are aligned with the variables under study including transformational and authentic leadership, innovation, and trust in leadership (Popping, 2019). Validity makes sure that the conclusions, which are arrived at from the data collected, are valid and have some significance.

By testing reliability and validity, the study guarantees that not only the measurement instruments are reliable, but they are also valid to measure the intended constructs, which is important in producing reliable results.

Figure 3.2 : Rule of Thumb of Cronbach's Alpha

Alpha (α) Coefficient Range	Strength of Association
<0.60	Poor
0.60 to **< 0.70**	Moderate
0.70 to **< 0.80**	Good
0.80 to < 0.90	Very Good

Source: Hair et.al (2019). Essentials of business research methods. Routledge.

3.7.3 Inferential Analysis

Inferential analysis also known as inferential statistics are useful in this study to generalize the findings of the study done on the sample of academic staff in private Malaysian universities to the entire population. While descriptive analysis only present data, inferential analysis enable the researcher to predict and generalize the data to the population (Corbo, 2022). This is of particular significance in explaining the relationship between transformational and authentic leadership and innovation with Trust in Leader as the mediating variable.

Inferential analysis in this study will entail the use of hypothesis testing, confidence interval, regression analysis and analysis of variance (ANOVA). These techniques will assist in testing the hypotheses that will establish the extent of the relationship between the observed leadership styles and innovation in the sample and see if these are generalizable to the entire population of academic staff across private universities in Malaysia (CueMath, 2023).

3.7.3.2 Pearson Correlation Analysis

The Pearson correlation analysis is a measure of both strength and direction of the relationship between two interval level variables. The symbol ‘r’ is used to represent the correlation coefficient and varies between -1 and + 1; values closer to 1 are positive while those closer to - 1 are negative, the closer to 0 it is then no

correlation (Scribbr, 2022; Springer, 2021).

Regarding the analysis of the relationship between the independent variables; transformational and authentic leadership and the dependent variable, innovation, Pearson's correlation will be used in this research. This analysis will help in developing the relationship between the level of leadership competencies and the level of innovation in the higher learning institutions. The results will also state the closeness and relevance of these relationships in order to explicate the means whereby several styles of leadership may influence innovation within private Malaysian universities.

3.7.3.3 Multiple Linear Regression Analysis

Multiple linear regression analysis is the method of forecasting the value of one quantity from two or more other known quantities. This method allows the researchers to establish the research question by finding out the effects of both the independent variables; transformational and authentic leadership on innovation in academic organisations. This way, the study will be in a position to establish the amount of variation of the dependent variable (innovation) that will be explained by the independent variables. This analysis also provides individual coefficients for each predictor that are aimed at quantifying the measure of relationship between the predictors and innovation.

In this research, the method to be adopt for testing the moderated relationship between TL and AL as well as their impact on innovation in private Malaysian universities is; Multiple Linear Regression Analysis. This an approach that will help in ascertaining which of the leadership dimension has the highest impact and if such impacts are realised when other measures are taken into consideration (Das, 2019; Corbo, 2022).

Chapter 4: Data Analysis

4.0 Introduction

In this chapter, researcher will analyze the data collected to arrive at research findings. In this study the respondents completed 245 questionnaires. Descriptive and inferential analysis were performed using the SPSS 30.0 version for data analysis and interpretation.

4.1 Descriptive Statistics

Table 4.1: Demographic Data

Demographic	Items	Frequency	Percentage
Gender	Male	115	46.9 %
	Female	130	53.1 %
Age	20 - 29	48	19.6 %
	30 - 39	48	19.6 %
	40 - 49	67	27.3 %
	50 -59	56	22.9 %
	60 and above	26	10.6 %
Highest Education Qualification	Bachelor's Degree	51	20.8 %
	Master’s Degree	74	30.2 %
	PhD (Doctorate)	77	31.4 %
	Postdoctoral qualification	43	17.6 %
Position in the University	Full Professor	17	6.9 %

	Associate Professor	27	11 %
	Assistant Professor	29	11.8 %
	Senior Lecturer	31	12.7 %
	Lecturer	37	15.1 %
	Research Fellow	28	11.4 %
	Senior Research Fellow	31	12.7 %
	Dean/Head of Department	21	8.6 %
	Program Coordinator	23	9.4 %
	Postgraduate Research Assistant	1	0.4 %
Length of Employment at Current Institution	Less than 1 year	47	19.2 %
	1 - 3 years	66	26.9 %
	4 - 6 years	52	21.2 %
	7 - 10 years	52	21.2 %
	More than 10 years	28	11.4 %
Involvement in Leadership Roles	Yes	118	48.2 %
	No	127	51.8 %

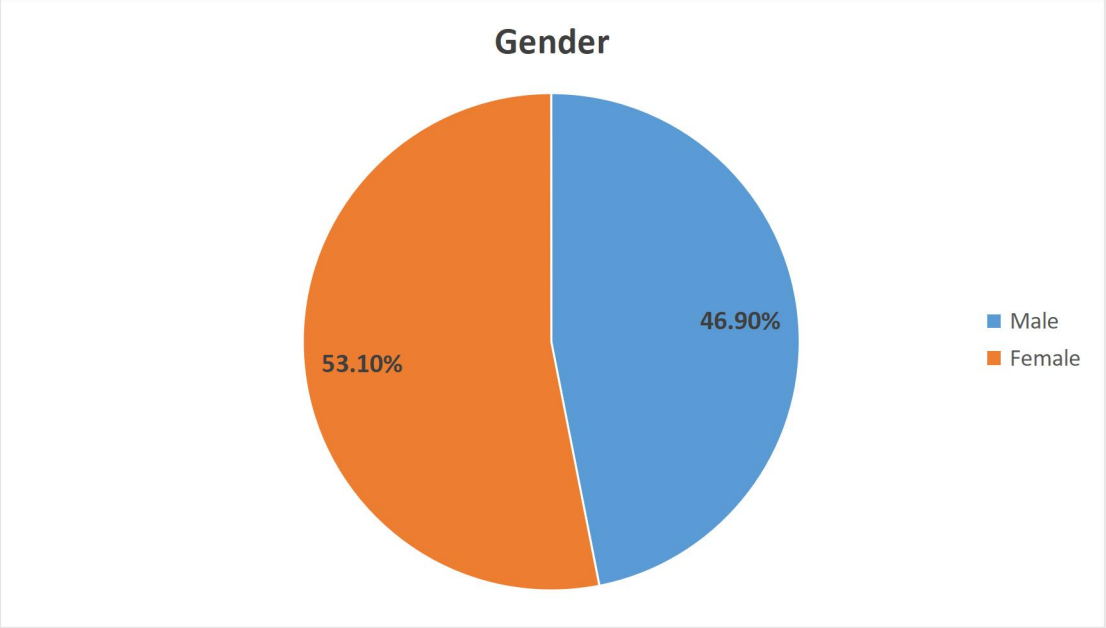
Source: Developed for the research.

Respondents Demographic Profile

In this research, the descriptive analysis was used in order to understand the demographic data of the individuals. The outcomes of descriptive analysis of Section A of the survey will be presented briefly in tabular form and pie charts. Key demographic information encompasses the participants' gender, age, income, highest education qualification, position in the university, length of employment at current institution, and involvement in leadership roles.

4.1.1 Gender

Figure 4.1: Descriptive Statistic for Gender

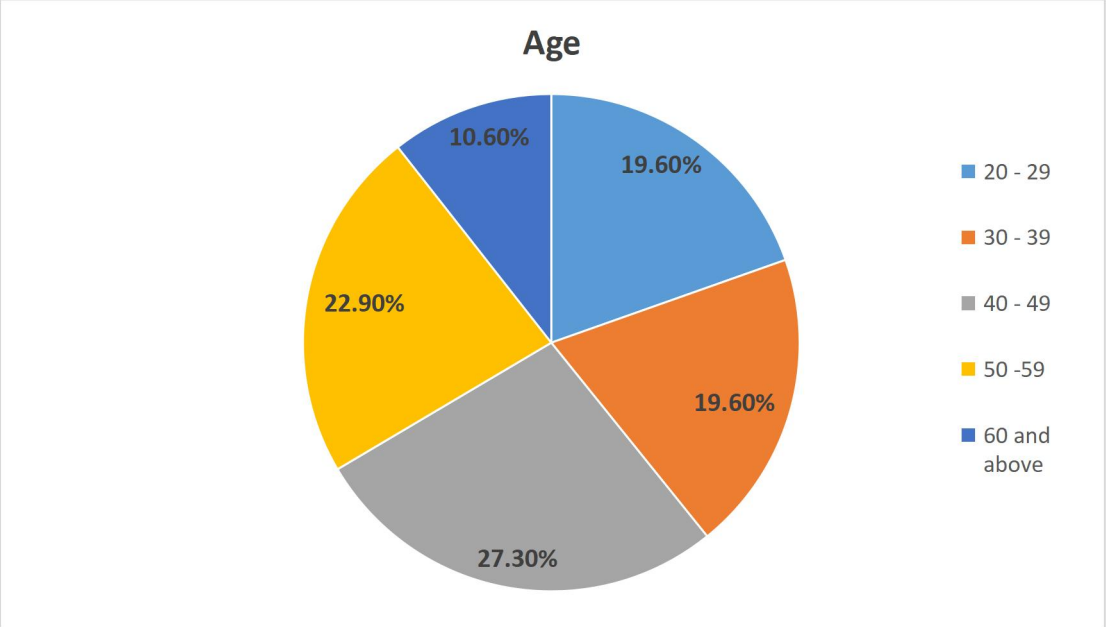


Source: Developed for the research.

The gender distribution of respondents is shown in figure 4.1 with 46.9% (115 people) of the total participants are male and 53.1% (130 people) are female thus the study has a slightly higher proportion of female participants.

4.1.2 Age

Figure 4.2: Descriptive Statistic for Age

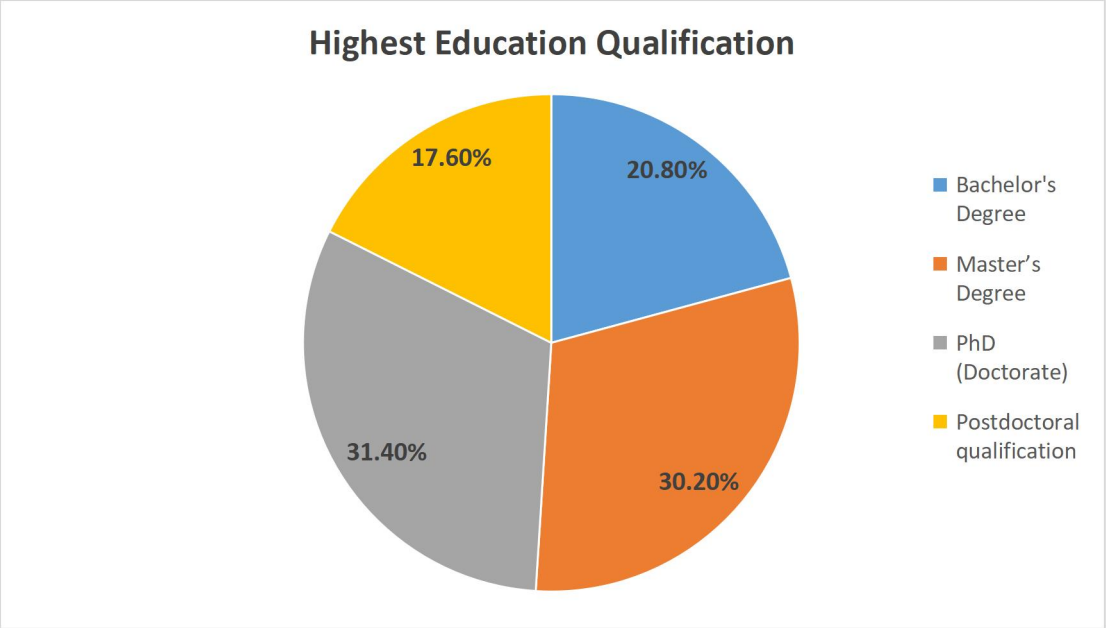


Source: Developed for the research.

Figure 4.2 above shows the age distribution of the staff. The largest group, accounting for 27.3% (67) of the respondents, is the 40–49 years age group; the second largest is the 50–59 years age group with 56 respondents. Staff aged 20–29 years and 30–39 years comprise two equal groups, 19.6% (48) each. The smallest group, at 10.6% (26) is the staff that are 60 years old and above. This distribution shows a fairly moderate age distribution where majority of the staff are within the mid-career age of between 40 and 59 years.

4.2.3 Highest Education Qualification

Figure 4.3: Descriptive Statistic for Highest Education Qualification

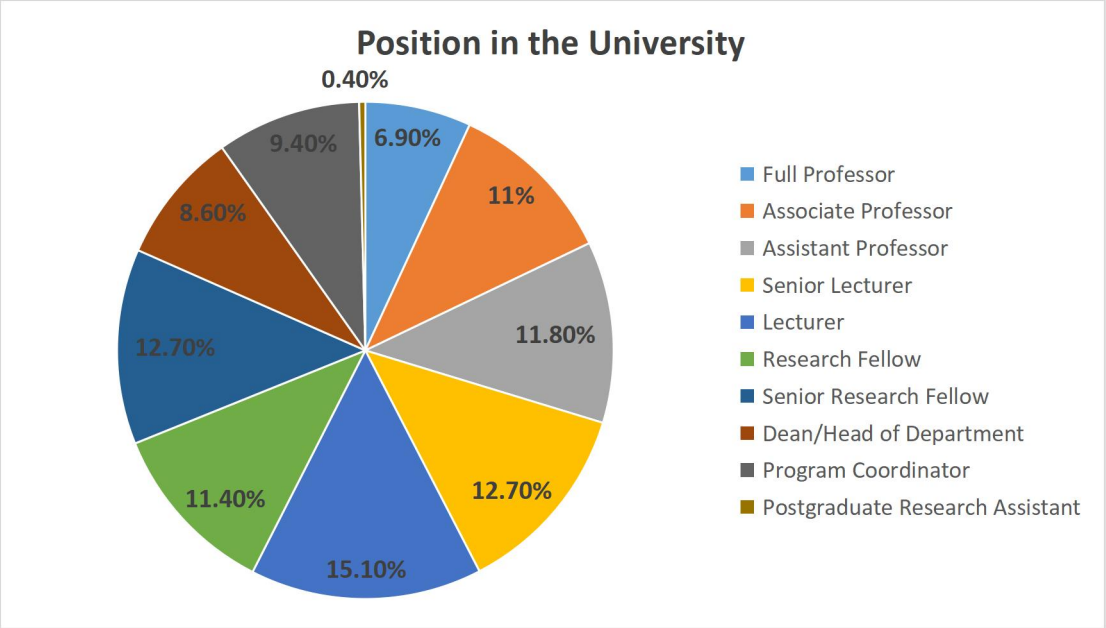


Source: Developed for the research.

Figure 4.3 above shows the educational level of the staff in terms of the highest qualification achieved. The largest group is 31.4% (77) of the respondents who have a PhD (Doctorate), the second largest is Master's Degree holders at 30.2% (74). Employees with a Bachelor's Degree are 20.8 % (51) and employees with a Postdoctoral qualification are 17.6 % (43). This distribution shows that a large percentage of the staff has doctoral or master's level education.

4.2.4 Position in the University

Figure 4.4: Descriptive Statistic for Position in the University

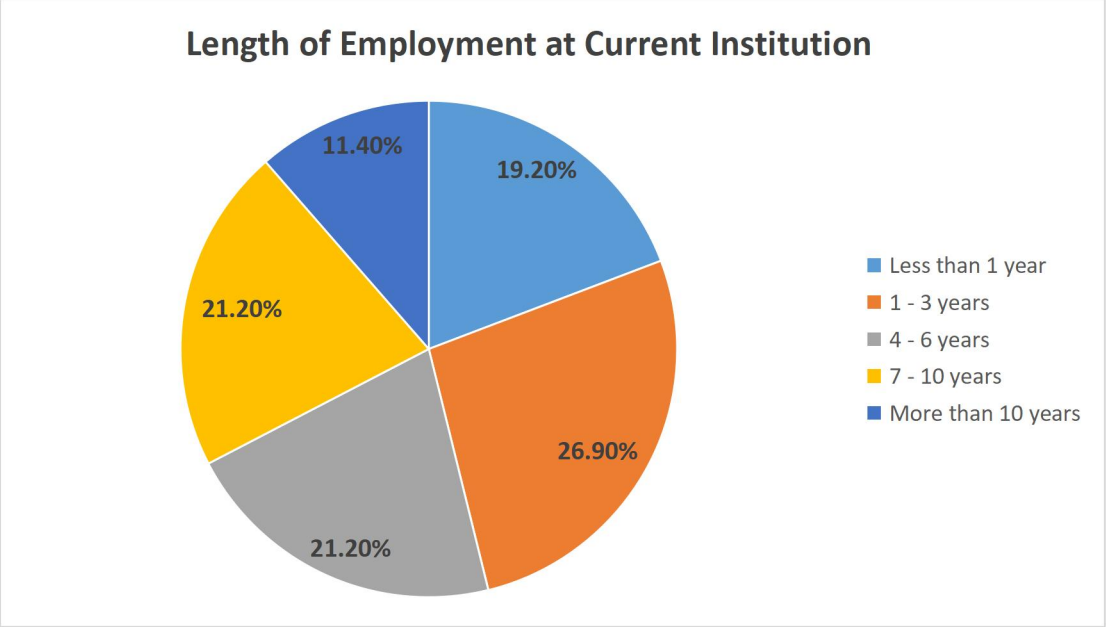


Source: Developed for the research.

The number of staff taken for each position and the proportion occupied in each position based on the university is presented in Figure 4.4. Majority of the staff are Lecturers, which takes 15.1% (37 respondents) while Senior Lecturers and Senior Research Fellows took the 12.7% (31 respondents). Other positions include Assistant Professors 11.8% (29 respondents), Associate Professors11% (27 respondents), and Research Fellows 11.4% (28 respondents). Service positions are relatively rare, though 8.6% (21 respondents) of faculty serve as Deans/Heads of Departments and 9.4% (23 respondents) as Program Coordinators. Out of 17 Full Professors it can be concluded that a senior academic position is limited in number and occupies only 6.9% of total jobs. The last but the least important position is the Postgraduate Research Assistant with only 1 of them or 0.4% (1 respondent). This distribution indicates the concerns more with the teaching and middle tier research positions in the university with considerably lesser numbers in academia and leadership positions.

4.2.5 Length of Employment at Current Institution

Figure 4.5: Descriptive Statistic for Length of Employment at Current Institution

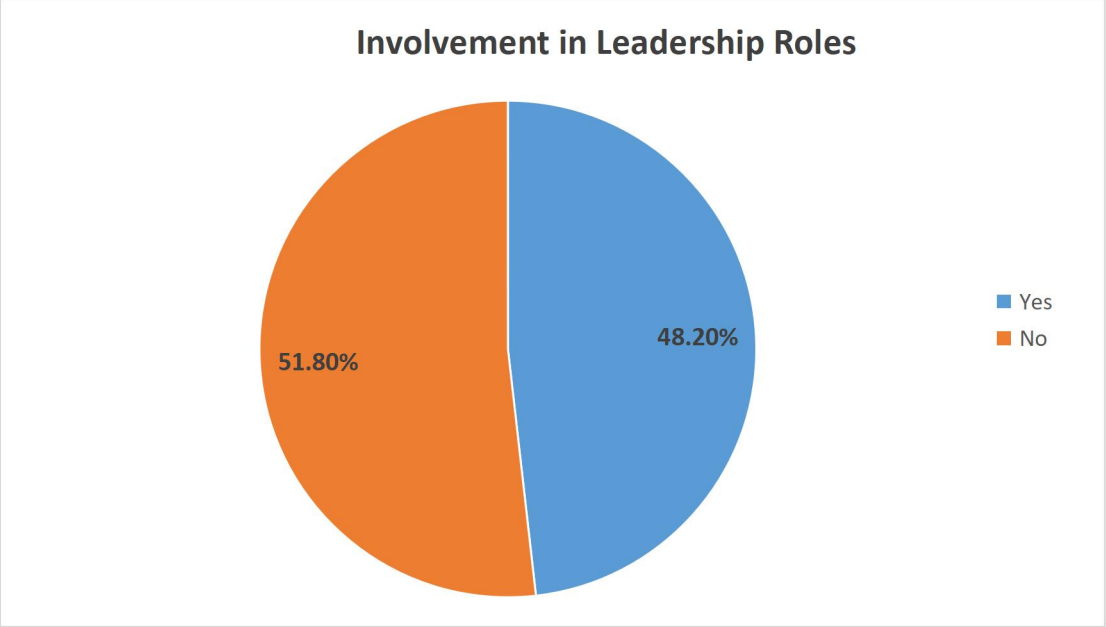


Source: Developed for the research.

As shown in the Figure 4.5, the staffs' years of service in their current organization. Preliminary experience in the workplace, from 1 to 3 years, is represented at 26.9% (66 respondents). Moreover, figure 4.5 show that a total of 41.4% (102 respondents) have 4 to 10 years of experience, represent the majority. Another 19.2% (47 respondents) have had their employment with the organization for less than one year; this shows that the organization employs a relatively large number of inexperienced workers. The least privileged group is the one that has served their employers for more than 10 years where only 28 of them are found, which only represents 11.4%. Such distribution means that the providers have a good population in terms of the staff's experience with an emphasis on early years of practice.

4.2.6 Involvement in Leadership Roles

Figure 4.6: Descriptive Statistic for Involvement in Leadership Roles



Source: Developed for the research.

Figure 4.6 above presents the proportion of the staff who engages in leadership activities in the institution. About 51.8% (127) of the respondents said that they are not in leadership positions while 48.2% (118) said that they are in leadership positions. This is almost equal indication that most of the staff members are involved in leadership and non-leadership responsibilities, however, the latter category is slightly larger.

4.2 Central Tendencies of Measurement

Table 4.2: Descriptive Statistic of Variables

Variable	Construct	Mean	Standard Deviation
Transformational Leadership (TL)	Inspirational Motivation (IM)	3.8418	0.87879
	Idealized Influence (II)	3.7969	0.90866
	Intellectual Stimulation (IS)	3.7776	0.91044
	Individualized Consideration (IC)	3.7908	0.86447
Authentic Leadership (AL)	Self-Awareness (SA)	3.8235	0.88719
	Relational Transparency (RT)	3.8173	0.86487
	Internalized Moral Perspective (IMP)	3.8102	0.88168
	Balanced Processing (BP)	3.8796	0.80138
Innovation (IN)	-	3.7776	0.88938
Trust in Leader (TIL)	-	3.8316	0.85499

Source: Developed for the research.

4.3 Reliability Test

Table 4.3: Reliability Test of Measurement Model

Variable	Construct	Item	Cronbach's Alpha	Reliability Test
Transformational Leadership (TL)	Inspirational Motivation (IM)	4	0.739	Good
	Idealized Influence (II)	4	0.743	Good
	Intellectual Stimulation (IS)	4	0.783	Good
	Individualized Consideration (IC)	4	0.701	Good
Authentic Leadership (AL)	Self-Awareness (SA)	4	0.785	Good
	Relational Transparency (RT)	4	0.705	Good
	Internalized Moral Perspective (IMP)	4	0.742	Good
	Balanced Processing (BP)	3	0.748	Good
Innovation (IN)	-	4	0.753	Good
Trust in Leader (TIL)	-	4	0.718	Good

Source: Developed for the research.

In the measurement model, Cronbach's Alpha was used to estimate reliability of the items within each construct. A value of more than 0.7 is desirable, which means that the items are useful in measuring the same construct.

As presented in Table 4.3, reliability test of all constructs was performed and the Cronbach's Alpha values of all the constructs were above 0.7. For Transformational Leadership, the reliability coefficients were moderate to high for

Inspirational Motivation (IM) = 0.783, Idealized Influence (II) = 0.752, Intellectual Stimulation (IS) = 0.710, and Individualized Consideration (IC) = 0.701. These values suggest that the items in Transformational Leadership were measured with reasonable reliability.

The reliability coefficients for Authentic Leadership were also acceptable. The Cronbach's Alpha coefficient for the Self-Awareness (SA) dimension was 0.785, while Internalized Moral Perspective (IMP) was 0.742 and Relational Transparency (RT) was 0.705; all of which are acceptable levels. The Balanced Processing (BP) dimension also had a Cronbach's Alpha of 0.748, which is also good.

The reliability coefficient Cronbach's Alpha for the Innovation (IN) construct was 0.753, and for Trust in Leader (TIL) was 0.718, which is quite acceptable. These values provide the evidence for the overall satisfactory reliability of the measurement model, and all the constructs surpass the acceptable level.

Therefore, Cronbach's Alpha values indicate that the measurement model has acceptable reliability for all the constructs and sufficiently reliable for this research.

4.4 Inferential Analysis

4.4.1 Pearson Correlation Coefficient Analysis

Table 4.4: Pearson Correlation Coefficient Analysis

Correlations

		IM_Score	IL_Score	IS_Score	IC_Score	SA_Score	RT_Score	IMP_Score	BP_Score	IN_Score	TIL_Score
IM_Score	Pearson Correlation	1	.762**	.736**	.734**	.750**	.755**	.771**	.562**	.748**	.743**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
IL_Score	Pearson Correlation	.762**	1	.741**	.757**	.738**	.768**	.764**	.695**	.752**	.742**
	Sig. (2-tailed)	<.001		<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
IS_Score	Pearson Correlation	.736**	.741**	1	.769**	.693**	.781**	.739**	.723**	.794**	.751**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
IC_Score	Pearson Correlation	.734**	.757**	.769**	1	.787**	.815**	.768**	.704**	.764**	.763**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001	<.001	<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
SA_Score	Pearson Correlation	.750**	.738**	.693**	.787**	1	.785**	.718**	.598**	.705**	.737**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001		<.001	<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
RT_Score	Pearson Correlation	.755**	.768**	.781**	.815**	.785**	1	.797**	.687**	.793**	.747**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
IMP_Score	Pearson Correlation	.771**	.764**	.739**	.768**	.718**	.797**	1	.633**	.794**	.735**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001		<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
BP_Score	Pearson Correlation	.562**	.695**	.723**	.704**	.598**	.687**	.633**	1	.667**	.651**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001		<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
IN_Score	Pearson Correlation	.748**	.752**	.794**	.764**	.705**	.793**	.794**	.667**	1	.760**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001		<.001
	N	245	245	245	245	245	245	245	245	245	245
TIL_Score	Pearson Correlation	.743**	.742**	.751**	.763**	.737**	.747**	.735**	.651**	.760**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	
	N	245	245	245	245	245	245	245	245	245	245

**. Correlation is significant at the 0.01 level (2-tailed).

Source: Developed for the research.

The Pearson correlation analysis shown in Table 4.4 has the following implications of the leadership styles and innovation (IN_Score). Four dimensions of TL indicate positive correlations with innovation. Indeed, Intellectual Stimulation (IS_Score) is most highly correlated at 0.794($p < 0.001$), which indicates that leaders who foster creativity increase innovation. Other TL dimensions also show high positive correlations: IM_Score = 0.748, $p < 0.001$ for

Inspirational Motivation, IL_Score = 0.752, $p < 0.001$ for Idealized Influence, and IC_Score = 0.764, $p < 0.001$ for Individualized Consideration. These results suggest that engaging, exemplifying, and encouraging behaviors are very effective at fostering innovation.

For Authentic Leadership (AL), the scores of Relational Transparency (RT_Score) and Internal Moral Perspective (IMP_Score) has moderate positive correlations with innovation where; RT_Score = 0.793, $p < 0.001$ and IMP_Score = 0.794, $p < 0.001$. This captures on the work of leaders that require them to be open and have high ethical standards to encourage innovation. Likewise, Self-Awareness (SA_Score) and Balanced Processing (BP_Score) have moderate to strong positive correlation with innovation, correlation coefficient of 0.705 and 0.667 respectively ($t < 0.001$). These results highlight the fact that ethical actions as well as the ability to look at a problem from different perspectives will unlock innovation.

Moreover, Trust in Leader (TIL_Score) has a positive significant relationship with innovation, $r = 0.760$ ($p < 0.001$) demonstrating the importance of trust in leadership to create an environment conducive to creativity.

4.4.2 Multiple Linear Regression Analysis

Table 4.5: Multiple Linear Regression Analysis (Model Summary)

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.872[a]	.761	.751	.44342
2	.898[b]	.806	.792	.40573

a. Predictors: (Constant), TIL_Score, BP_Score, IM_Score, SA_Score, IMP_Score, IS_Score, IL_Score, IC_Score, RT_Score

b. Predictors: (Constant), TIL_Score, BP_Score, IM_Score, SA_Score, IMP_Score, IS_Score, IL_Score, IC_Score, RT_Score, Interaction_BP_TIL, Interaction_IM_TIL, Interaction_SA_TIL, Interaction_IMP_TIL, Interaction_IS_TIL, Interaction_RT_TIL, Interaction_II_TIL, Interaction_IC_TIL

Source: Developed for the research.

As was seen at Table 4.5, the value of R in model 1 was 0.872, thus implying a positive and strong relationship between the independent variable and the dependent variable meaning that the model has linear characteristics. The R^2 0f 0.761 indicates that the use of independent variables minimally predicts 76.1% of dependent variable variability – an impressive measure of predictive accuracy.

Increasing the number of predictor variables in Model 2 produces interaction terms that raise the R value to 0.898 indicating a stronger positive relationship and the suitability of the model. The proportion of the variability in the dependent variable is now 80.6% having increased the R^2 to 0.806 hence showing increased predictive accuracy. This is better compared to the Model 1 that accounted for 76.1 percent of the variance.

Table 4.6: Multiple Linear Regression Analysis (ANOVA)

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	146.795	9	16.311	82.952	<.001[b]
	Residual	46.207	235	.197		
	Total	193.002	244			
2	Regression	155.634	17	9.155	55.615	<.001[c]
	Residual	37.367	227	.165		
	Total	193.002	244			

a. Dependent Variable: IN_Score

b. Predictors: (Constant), TIL_Score, BP_Score, IM_Score, SA_Score, IMP_Score, IS_Score, IL_Score, IC_Score, RT_Score

c. Predictors: (Constant), TIL_Score, BP_Score, IM_Score, SA_Score, IMP_Score, IS_Score, IL_Score, IC_Score, RT_Score, Interaction_BP_TIL, Interaction_IM_TIL, Interaction_SA_TIL, Interaction_IMP_TIL, Interaction_IS_TIL, Interaction_RT_TIL, Interaction_II_TIL, Interaction_IC_TIL

Source: Developed for the research.

The table above pointed out the independent variables on a statistical basis. The F-value of 82.952 and the Sig. value of <0.001 indicate that overall the regression model is significant as shown in Model 1. As it can be observed in the following table, there is a very close linkage between the independent variables and the dependent variable Innovation (IN), and the analysis also revealed that the independent variables do account for a good deal of variation in the dependent variable. The low p-value (Sig. <0.001) to the relationship showed that there are not random chance involved in the findings.

In Model 2 which involves interaction terms as (Interaction_BP_TIL, Interaction_IM_TIL, Interaction_SA_TIL, etc.) the F-value reduces to 55.615. Even though this F-value is slightly lower than in the Model 1, Sig. value is still <0.001, which proves that introducing Trust in Leader as the moderator variable in the model is still significant. The addition of the interaction terms (moderation) does make a contribution to the model by showing how or when Trust in Leader affects the strength of the relationship between the independent variables (leadership dimensions) and the dependent variable (Innovation).

In other words, while Model 1 delivers a robust and significant positive estimate of the Leadership and Innovation affair, Model 2 adds to this account by exploring how Trust in Leader Moderates this affair, making the overall model even more informative and explanatory of the Leadership-Innovation phenomenon.

Table 4.7: Multiple Linear Regression Analysis (Coefficients)

Model	Unstandardized Coefficients	Standardized Coefficients	t	Sig.

		B	Std. Error	Beta		
1	(Constant)	.027	.147		.186	.853
	IM	.083	.062	.082	1.329	.185
	IL	.066	.061	.067	1.086	.279
	IS	.231	.061	.236	3.798	<.001
	IC	.056	.069	.054	.802	.424
	SA	-.028	.061	-.028	-.461	.645
	RT	.168	.071	.164	2.369	.019
	IMP	.232	.063	.230	3.709	<.001
	BP	.034	.052	.035	.668	.505
	TIL	.143	.061	.137	2.327	.021
2	Interaction_IM_TIL	-.169	.081	-1.127	-2.076	.039
	Interaction_II_TIL	-.137	.093	-.920	-1.479	.140
	Interaction_IS_TIL	.441	.083	2.969	5.335	<.001
	Interaction_IC_TIL	-.053	.107	-.352	-.494	.622
	Interaction_SA_TIL	-.028	.082	-.184	-.335	.738

Interaction_RT_TIL	-.059	.092	-.390	-.641	.522
Interaction_IMP_TIL	.064	.086	.424	.738	.461
Interaction_BP_TIL	.038	.068	.253	.565	.572

Source: Developed for the research.

Table 4.7 shows the findings of the analysis of leadership dimensions and their impact on innovation with TIL as a moderator. The research shows that some leadership dimensions are related to innovation, but others are not. Thus, Intellectual Stimulation (IS)($B = 0.231$, $p < 0.001$), Relational Transparency (RT)($B = 0.168$, $p = 0.019$), Internalized Moral Perspective (IMP)($B = 0.232$, $p < 0.001$), and TIL all have a positive impact on innovation ($p < 0.05$). More precisely, the coefficients related to IS and IMP are the largest, and their p-values < 0.001, which underlines the significance of cognitive development and ethical behavior in the generation of innovations. Another factor is Trust in Leader (TIL) which showed a very high positive correlation with innovation ($p = 0.021$).

On the other hand, Inspirational Motivation (IM), Idealized Influence (II), Individualized Consideration (IC), Self-Awareness (SA), and Balanced Processing (BP) did not affect innovation since the p-values obtained were greater than 0.05. This research evidence implies that not all dimensions of transformational and authentic leadership are effective in creating innovation.

The table also contains the estimates of the interaction terms which test whether TIL has a moderating effect on the leadership dimensions and innovation. Of these, the interaction between IS and TIL is the largest and shows a positive significant moderating effect on innovation ($B = 0.441$, $p < 0.001$). This indicates that the more the followers trust the leader, the more the positive relationship between the use of intellectual stimulation and innovation. Nevertheless, the other interaction terms, IM-TIL, II-TIL, and IC-TIL were not significant meaning that trust does not mediate the relationship between these dimensions and innovation.

Consequently, it can be concluded that, although trust in leadership enhances the positive effects of leadership on innovation in some respects, it does not influence the effects in other respects.

Chapter 5: Discussion, Conclusion, and Implication

5.0 Introduction

An overview of the statistical study is provided in Chapter 5. Additionally, this chapter will discuss the research's main conclusions and implications. This chapter will also provide limitations and recommendations.

5.1 Discussions of Major Findings

Table 5. 1 Hypothesis Testing Analysis

No	Hypothesis	Coefficient / p Value		Result
H1	Transformational leadership will significantly influence innovation in higher education institutions in Malaysia.	IM	β = 0.083 P = 0.185	Significant
		IL	β = 0.066 P = 0.279	
		IS	β = 0.231 P = < 0.001	
		IC	β = 0.056 P = 0.424	
H2	Authentic Leadership will significantly influence innovation in higher education institutions in Malaysia.	SA	β = -0.028 P = 0.645	Significant
		RT	β = 0.168 P = 0.019	
		IMP	β = 0.232 P = < 0.001	

		BP	β = 0.034 P = 0.505	
H3	Trust in leader will significantly influence the innovation in the higher education institutions in Malaysia.	β = 0.143 P = 0.021		Significant
H4	Trust in leader will have a significant interaction effect on the relationship between transformational leadership and innovation in the higher education institutions in Malaysia.	IM_ TIL	β = -0.169 P = 0.039	Significant
		II_T IL	β = -0.137 P = 0.140	
		IS_T IL	β = 0.441 P = < 0.001	
		IC_ TIL	β = -0.053 P = 0.622	
H5	Trust in leaders will significantly influence the relationship between authentic leadership and innovation in higher education institutions in Malaysia.	SA_ TIL	β = -0.028 P = 0.738	Insignificant
		RT_ TIL	β = -0.059 P = 0.522	
		IMP _TIL	β = -0.064 P = 0.461	
		BP_ TIL	β = 0.038 P = 0.572	

Source: Developed for the research.

5.2.1 Relationship between Transformational Leadership and Innovation

H1: Transformational leadership will significantly influence innovation in higher education institutions in Malaysia.

Among all the dimensions of the transformational leadership, the Intellectual Stimulation (IS) has a positive impact on innovation, however, Inspirational Motivation (IM), Idealized Influence (II) and Individualized Consideration (IC) do not have any effects on innovation. However, as transformational leadership comprises four sub-constructs, and only IS is significantly influencing innovation in this study, it is safe to conclude that TL can still be potentially a determinant factor for innovation within higher education institutions in Malaysia. Especially, Intellectual Stimulation is significant in stimulating creative thinking, questioning and problem solving, which are crucial for innovation in academic context (Hashim et al., 2019). IM, II, and IC showed no significant effects from any perspective.

IM may have relatively lower effect in academic context than in corporate context because faculty and academic staff are intrinsically motivated by their research interests, academic freedom, and intellectual problems. Unlike the corporate environment where IM promotes creativity and innovation by external pressure, academic staff are driven by internal factors (Shafi et al., 2020; Nurdin & Ismaya, 2017). Consequently, IM has negligible impact on innovation in higher education, as the faculty prefer their autonomy to incentives.

In the context of higher education institutions, therefore, the influence of Idealized Influence (II) is likely to be relatively small insofar as innovation is concerned because they share common objectives, work in groups, and are not driven by charismatic leaders. Faculties always appreciate their academic experience and recognition by peers rather than leaders' personality, thus reducing the impact of II (Schürmann et al., 2023; Winks et al., 2020). Furthermore, learning innovation and creativity is more enhanced through collaborative campus designs that promote peer learning and university industry linkages that promote knowledge sharing (Yin et al., 2023). Although the transformational leadership, including II, has positive effects on KS, the effects on innovation are moderated by the level of cross-faculty collaboration (Al-Husseini et al., 2019). Hence, in academic contexts, culture development and designing learning spaces that support students' peer cooperation are more conducive to innovation than II.

In academic context, it may be challenging to apply Individualized Consideration (IC) because faculty members are used to autonomy as well as working in groups, and they do not necessarily require attention from their leaders. A number of studies indicate that faculty tends to focus on their individual research and career development, meaning that IC is less effective (Vangrieken et al., 2017). Some of the faculty members appreciate cooperation but this happens in the framework of their independence, so they can collaborate but they retain authority over their work and learning process (Vangrieken & Kyndt, 2020). Moreover, teachers with a collaborative disposition continue to value their autonomy suggesting that self-directed professional learning and peer cooperation are more cherished than direct coaching or guidance (Vangrieken & Kyndt, 2020). Therefore, the culture of autonomy and peer cooperation in higher learning organizations reduces the extent to which IC can drive innovation and creativity.

Furthermore, it has been evidenced that Transformational Leadership has been more endorsed in the context of higher education as an enabler of innovation even though few dimensions are positively related to the outcomes. Several past investigations have established that the extent to which leaders mobilize people's intellectual resources and question the prevailing paradigm is critical for innovation in scholarly organisations (Hashim et al., 2019). This supports the findings of this study because in this research, IS was the largest dimension. Hence, notwithstanding the partially supported findings in this study, the role of transformational leadership in the innovation process in Malaysian private universities cannot be overemphasized.

5.2.2 Relationship between Authentic Leadership and Innovation

H2: Authentic Leadership will significantly influence innovation in higher education institutions in Malaysia.

The results partially support the hypothesis that the level of Authentic Leadership has a significant impact on the level of innovation in private universities in Malaysia. Of the four components of authentic leadership, there was evidence that

Relational Transparency (RT) and Internalized Moral Perspective (IMP) had a positive effect on innovation, thus supporting part of H2. Nevertheless, the dimensions of Self-Awareness (SA) and Balanced Processing (BP) were non-significant, indicating that these components of authentic leadership do not seem to make a direct impact on the development of innovation in this case. According to Al-Moamary et al. (2016) at a health sciences university, even though relational transparency was ranked lower than the other dimensions of the Authentic Leadership Questionnaire (ALQ), it was still found to have a strong positive effect on the degree of leadership authenticity among academic leaders who had non-medical backgrounds. A study on physical education teachers by Chen et al. (2022) suggest that moral leadership enhances psychological safety and innovation behavior by adopting internal moral perspective that encourages internal and external innovation among teachers by embracing ethical practices.

Research shows that such leadership competencies as change leadership and innovation management are crucial for the success of Malaysian higher education institutions. The leaders with high RT and IMP are more capable of addressing the organisational change challenges in their institutions (Daud & Harun, 2014; Daud et al., 2023; Arokiasamy et al., 2022).

Academic staffs mainly pay attention to managing feelings in the interest of attaining professional and interpersonal objectives. They found that self-awareness or lack there of is an essential factor in determining the likelihood of poor emotional regulation. Self-awareness on the aspects of self-criticism and self–reflection correlates positively with affect regulation and negative affect non-acceptance and impulse control concerns (Hadi & Gharaibeh, 2023). This means that although self-awareness helps a person manage their emotions, its effectiveness may be modest because academics work independently.

Accoridng to Schürmann et al. (2023), the author found that in an academic setting, the model of leadership is less about the leader deciding specific actions for individual members of the organisation, such as a faculty, and more about the role of the leader in providing the structure and environment that foster academic freedom and cooperation. Scholars and teachers are appreciated more for their

capacity to advance academic freedom and create conditions for cooperative creativity rather than for the well-grounded information processing. This reliance on the consultation of peers and mutual decision making can diminish the role that balanced processing plays in stimulating innovation.

5.2.3 Relationship between Trust in Leader and Innovation

H3: Trust in leader will significantly influence the innovation in the higher education institutions in Malaysia.

Trust in Leader and Innovation is fully supported by the results, where as Trust in Leader (TIL) had a positive influence on innovation. This affirms the research hypothesis indicating that trust is a key antecedent of innovation within higher education institutions especially the private universities.

The level of trust with leadership is one of the critical variables that determine the extent of innovation. When the leaders of a faculty and staff are believed by the staff, such staff will have the morale of continuing with their tasks and even undertake new projects that are innovative. Management who engender trust provide the environment that employees are comfortable to take risks and therefore, seek new opportunities to transform the organization. Also, Visionary leadership in academic libraries enhances the development of cooperation, trust and learning environment which is fundamental to pioneering services. Trust and shared vision are two resources that can help leaders to facilitate the process of innovation (Koloniari et al., 2018). Therefore, H3 is supported.

5.2.4 Trust in Leader as Moderator between Transformational Leadership and Innovation

H4**:** Trust in leader will have a significant interaction effect on the relationship between transformational leadership and innovation in the higher education institutions in Malaysia.

The interaction of TIL with Innovation is as follows: the greater the TIL, the higher the IS on Innovation is supported. Based on this, the study posits that the more trust in leaders, the more the Intellectual Stimulation has a positive impact on innovation and consequently the more the faculty and staff trust their leaders the more will experience the impact of IS on innovation.

Trust strongly moderates the relation of IS to innovation in the context of higher education. When the faculty members have confidence in their leaders, they are likely to participate in and actually gain from IS that fosters innovative thinking, question conventional approaches, and seek out new solutions. This creates an environment in which the faculty are free to share new ideas and explore new ways of doing things without the feeling that they will be criticised or that a project will fail (Yin et al., 2019; Yin & Zheng, 2018)..

Individualized consideration basically entails acknowledging the needs of everybody and the manager should be able to act as a mentor. It affects job satisfaction and performance but not innovation by trust (Siswanto & Yuliana, 2022). Besides, Wang, Oh, Courtright & Colbert (2011) have stated that Individualized consideration has connection with the follower satisfaction and well-being but is not very proximal with innovation though; it may be when certain other parts of transformational leadership such as Intellectual Stimulation make it possible. Following Zhu, Avolio & Walumbwa (2009), Idealized Influence fosters commitment and trust but does not translate to innovation. Rather it is the Intellectual Stimulation dimension that encourages followers to question the prevailing paradigm and to look at problem solving in a creative manner.

According to Bass & Riggio (2006), Inspirational Motivation is likely to prompt desire to achieve extant goals than to create new ones, or propound new ways of meeting goals. Hence, it can be suggested that Trust in Leader could positively impact motivation, and yet, have no direct impact on the level of innovation, if certain objectives connected with innovativeness were not highlighted in the vision pursued by the leader.

The results provide evidence for the hypothesized mediation of Trust in Leader (TIL) on the connection between Transformational Leadership and Innovation in private universities in Malaysia. In particular, it is shown that the positive effect of Intellectual Stimulation (IS) on innovation is strengthened when the level of trust in leadership is higher.

5.2.5 Trust in Leader as Moderator between Authentic Leadership and Innovation

H5: Trust in leaders will significantly influence the relationship between authentic leadership and innovation in higher education institutions in Malaysia.

The interaction between Trust in Leader (TIL) and the dimensions of Authentic Leadership (i.e., Relational Transparency (RT), Internalized Moral Perspective (IMP), Self-Awareness (SA), and Balanced Processing (BP) were insignificant in predicting innovation. This implies that although trust in leaders is important for creating innovation, it does not augment the impact of authentic leadership for innovation in higher education organisations.

The minimal interaction of TIL with authentic leadership in innovation might be attributed to the fact that authentic leadership contains some of the inherent trust building blocks. Since authentic leadership involves relational transparency, internalized moral perspective, and decisional consistency, it is possible that the effect of trust as a moderator is unnecessary.

Lee et al., (2018) and Gao et al., (2021) have found that trust between the team members can mediate the relationship between shared leadership and innovation behavior, but this moderation effect is not as strong when considering the role of authentic leadership since authentic leadership promotes high levels of trust in the first place.The structural relationship between authentic leadership, trust in the supervisor, and innovative behavior meant that while trust remained important, its moderating role was not as prominent when there was authentic leadership (Min & Ko, 2015).

This could be the reason why TIL has no significant interaction with authentic leadership on innovation because the nature of leadership is in itself aimed at building trust. Lack of trust is not an issue in authentic leadership because authentic leaders are always transparent, moral, and consistent in their behaviors; therefore, adding more trust as a moderator is inconsequential (Laguna et al., 2019; Zhen-Lei & Jian-Hao, 2023). This trust-building capability of authentic leadership is intrinsic and directly improves innovation behaviour among followers.

5.3 Implication of Study

5.3.1 Practical and Managerial Implication

5.3.1.1 Transformational leadership and Innovation

In particular, the study emphasizes the role of Intellectual Stimulation (IS) as the factor that contributes to the generation of innovations in the context of HEIs. This means that leaders of the higher education institutions should consider devoting more resources on programs such as intellectual stimultion that support critical thinking and innovation can foster organizational learning and academic success (Indiran et al., 2023; Alkhaffaf & Aljanabi, 2016). The cost innovation can be implemented in private HEIs whereby intellectual capital and information technology capabilities are used to control expenditure while maintaining quality (Jayabalan et al., 2021). HEIs have an important function of enhancing innovativeness and passion among students through the module of entrepreneurship. It is further found that institutional environments that support these programs have a significant influence over passion and innovation (Porkodi et al., 2023).

5.3.1.2 Authentic Leadership's Role

Relational Transparency (RT) and Internalized Moral Perspective (IMP) had positive impacts on innovation while Self-Awareness (SA) and Balanced Processing (BP) had no effects hence it is argued that professors engaged in

unveiling their ethical stand and integrity to foster organizational culture. This can be accomplished by the use of moral values in all the dealings and choice-making processes that are within an employee-employer relation (Al-Moamary et al., 2016; Chen et al., 2022). Spending time promoting the kind of communication where you are honest with your employees can be very helpful in developing ideas. Managers should be sincere especially when it comes to addressing staff and students (Al-Moamary et al., 2016; Junaid & Sajid, 2023). Making sure that people do not feel threatened to come up with their innovations is key to foster innovation. Chen and his team further conducted a study and realized that moral leadership is very crucial in improving psychological safety (Chen et al., 2022).

5.3.1.3 Trust in Leader and Innovation

The great impact of the TIL factor in predicting the level of innovation shows how trust is vital in academic settings. Those who can build and sustain trust with faculty and staff provide the framework for cooperation and the sharing of knowledge needed to think creatively. There is need for institutions to employ action consistent with trust, open communication, and practice ethical leadership. Organizational commitment and particularly trust in the leaders is likely to facilitate the level of innovation among the faculty and staff in order to support the progress of the institution (Al-Husseini & Elbeltagi, 2016).

This study reveals TIL has a strong correlation with IS; therefore it can be hypothesized that trust plays an influential role in leadership efforts to foster creativity. The executives in higher education institutions should not only rely on the need to challenge an individual's thinking but also emphasize on the need to build trust in addition to the need to challenge an individual's thinking in order to foster innovation. This paper argues that through establishment of an environment which the followers have confidence in the leader, more can be achieved in terms of exercising the creative aspect of followers. Such a two-pronged approach of trust and cognitive engagement brings about more meaningful and sustainable innovation at learning institutions (Yin-Wen, 2023; Shafi et al., 2020).

5.4 Limitation of the Study

The study used cross-sectional research design and therefore, data was collected at one particular time. This is why it is challenging to identify dependencies between leadership dimensions, trust, and innovation. Longitudinal research could help explain how these associations change as the subjects age and probably be more confirmatory of causation.

The study was based on survey which has limitations as it is based on the recollection of the respondents i.e. the faculty members. Leadership and other factors might have been overestimated or underestimated by the faculty members. This element could have somehow biased the findings, since people often have a tendency to over- or underestimate their own and others' leadership patterns. Such the limitation could be eliminated in the future studies using multiple sources of data, for instance peer ratings or measures of innovativeness.

Additionally, this research only focused on private universities in Malaysia, and therefore, the result may not be generalised to the public university sector. In this case, the public and private institutions may have a different organizational culture, leadership practice and issue, which can affect the relationship between leadership and innovation.

Lastly, this study looked at a number of aspects of transformational and authentic leadership, but other process characteristics of leadership, or other leadership types can also impact innovation in the context of higher education. For instance, transactional or servant leadership may have an intervention role in promoting innovation, but were excluded from this research. Further research should be conducted to examine the effects of other leadership behaviours in order to enrich the knowledge of the relationship between leadership and innovation.

5.5 Recommendation for Future Research

The study could be extended in future to, therefore, involve a cross-sectional survey to establish a cause and effect relationship between incorporated leadership styles, trust and innovation. A cross-sectional approach would be useful in observing the long-term impacts of these leadership behaviours and trust on innovation as compared to the short time horizons of cross sectional surveys.

Due to the use of self-generated data in the current study, future research could supplement it with more quantitative measures of innovation including the number of patents, research productivity or innovation in terms of new pedagogy adoption or technology integration. Samples which can be used include peer assessment, or records in institutions of innovation would give a true picture of the factors that lead to innovation in higher learning institutions.

Additionally, future research could generalise this study by adding public universities to the study to increase knowledge on the effect of leadership on innovation across the Malaysian higher learning institutions.

This paper examined transformational and authentic leadership only, but other types of leadership like, transactional, servant, and distributive leadership might also influence innovation in higher learning institutions. It is recommended that future research should generalize the study across various organizations so as to establish how these different leadership styles affect innovation, trust and collaboration in academics. This could provide a better insight into how leadership influences the academic innovation.

Since the present study established that trust in the leader has an impact on innovation, future research should examine the mediating effect of trust as to the leadership behaviors and innovation. It could provide further understanding of what constitutes trust in leadership-innovation relationship and how it influences the leadership styles to foster innovation.

If future research is to meet these recommendations, the understanding of the relationship between leadership, trust, and innovation in higher education could be much richer and developed.

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Appendix A: Ethical Approval for Research Project

No.	Research Title	Student's Name	Supervisor's Name	Approval Validity
39.	Impact of Digital Marketing Strategy on Purchase Intention	Lum Jia Mei	Dr Komathi a/p Munusamy	
40.	Unveiling the Elements of Employee Motivation for Thriving Workplaces in Malaysia	Michelle Tan Hui Shan	Dr Kalaivani a/p Jayaraman	
41.	Women's Entrepreneurship Success in the Technological Industry	Ooi Xin Yi	Dr Law Kian Aun	
42.	Social Media Strategies for Business Success Maximizing Impact through Navigating Channels and Engaging Audiences	Poon She Kei	Pn Ezatul Emilia Binti Muhammad Arif	
43.	Measuring the Impact of Organizational Factors on Turnover Intention of Fast-Food Industry Employees in Malaysia	Rachel Ong Pei Lyn	Ms Puvaneswari a/p Veloo	
44.	Impact of Transformational and Authentic Leadership on Innovation in Higher Education in Malaysia: The Contingent Role of Trust in Leader	Robin Wong Woon Ping	Ms Puvaneswari a/p Veloo	
45.	Social Media Influencers on Consumer Purchase Intention: The Sportswear Products	Sam Yu Xiang	Dr Sia Bee Chuan	
46.	The Influence of Customer Relationship Management on Customer Loyalty in Insurance Sector	Seah Chee Keong	Dr Komathi a/p Munusamy	
47.	Impact of Social Media Influencers (SMIs) on Purchase Intention of Young Adults in Malaysia	Seow Gin See	Dr Foo Meow Yee	
48.	Understanding University Student's Behavioral Intention in using 'Smart Technology'	Sin Chee Leong	Ms Goh Poh Jin	
49.	The Challenge of Consumer Adoption of Battery Electric Vehicle (BEV) in Malaysia	Siow Huang Ming	Dr Sia Bee Chuan	
50.	Customer Motivation in Choosing Preferred Courier Service	Syamini Syazwani Devi A/P Muraleidaran	Dr Komathi a/p Munusamy	
51.	Digital Platform: Do Data Privacy Concerns and Transparency Affect User's Trust and Loyalty?	Tai Buo Ting	Pn Ezatul Emilia Binti Muhammad Arif	
52.	A Study of the Impact of Flexible Work Arrangement on Employees' Turnover Intention Among Generation Z in Klang Valley	Teh Jia Chuen	Dr Lee Siew Peng	9 September 2024 – 8 September 2025
53.	The Role of E-training, E-communication and E-		Dr Qwee Hayden	

The conduct of this research is subject to the following:

(1) The participants' informed consent be obtained prior to the commencement of the research;

(2) Confidentiality of participants' personal data must be maintained; and

(3) Compliance with procedures set out in related policies of UTAR such as the UTAR Research Ethics and Code of Conduct, Code of Practice for Research Involving Humans and other related policies/guidelines.

(4) Written consent be obtained from the institution(s)/company(ies) in which the physical or/and online survey will be carried out, prior to the commencement of the research.

Should the students collect personal data of participants in their studies, please have the participants sign the attached Personal Data Protection Statement for records.

Thank you.

Yours sincerely,

Professor Ts Dr Faidz bin Abd Rahman
Chairman
UTAR Scientific and Ethical Review Committee

c.c Dean, Faculty of Accountancy and Management
Director, Institute of Postgraduate Studies and Research

Appendix B: Survey Questionnaire

Dear respondents,

I am Robin Wong Woon Ping a final-year undergraduate student from Universiti Tunku Abdul Rahman (UTAR), currently pursuing a Bachelor's Degree in International Business (Hons) under the Faculty of Accountancy and Management (FAM). I am conducting a research project as part of my degree requirements titled, "Impact of Transformational Leadership and Authentic Leadership on Innovation in Higher Education in Malaysia; The Contingent Role of Trust in Leader". The objective of this research is to investigate the impact of transformational and authentic leadership on innovation in higher education in Malaysia, with a focus on the contingent role of trust in leader.

Transformational and Authentic Leadership ?

Transformational leadership is a leadership style in which leaders inspire, motivate, and elevate followers to achieve more than what is typically expected. Transformational leaders focus on creating positive change by aligning their team's values and goals with the larger organizational vision.

Authentic leadership emphasizes the importance of leaders being genuine, self-aware, and transparent. Authentic leaders lead with their true self, fostering trust through honesty and ethical behavior.

This research is conducted for educational purposes. Your participation is voluntary, and your responses will remain anonymous. All information provided will be kept confidential, and we will not disclose your personal details to any third party. This survey will take approximately 15 minutes to complete. If you have any questions or concerns regarding this research project, please feel free to contact me at robinwong1105@1utar.my

Thank you for your cooperation and participation.

Sincerely,

Robin Wong Woon Ping

2200039

PERSONAL DATA PROTECTION NOTICE

Please be informed that in accordance with Personal Data Protection Act 2010 ("PDPA") which came into force on 15 November 2013, Universiti Tunku Abdul Rahman ("UTAR") is hereby bound to make notice and require consent in relation to collection, recording, storage, usage and retention of personal information.

1. Personal data refers to any information which may directly or indirectly identify a person which could include sensitive personal data and expression of opinion. Among others it includes:

a) Name
b) Identity card
c) Place of Birth
d) Address
e) Education History
f) Employment History
g) Medical History
h) Blood type
i) Race
j) Religion
k) Photo
l) Personal Information and Associated Research Data

2. The purposes for which your personal data may be used are inclusive but not limited to:

a) For assessment of any application to UTAR
b) For processing any benefits and services
c) For communication purposes
d) For advertorial and news
e) For general administration and record purposes

f) For enhancing the value of education

g) For educational and related purposes consequential to UTAR

h) For replying any responds to complaints and enquiries

i) For the purpose of our corporate governance

j) For the purposes of conducting research/ collaboration

3. Your personal data may be transferred and/or disclosed to third party and/or UTAR collaborative partners including but not limited to the respective and appointed outsourcing agents for purpose of fulfilling our obligations to you in respect of the purposes and all such other purposes that are related to the purposes and also in providing integrated services, maintaining and storing records. Your data may be shared when required by laws and when disclosure is necessary to comply with applicable laws.

4. Any personal information retained by UTAR shall be destroyed and/or deleted in accordance with our retention policy applicable for us in the event such information is no longer required.

5. UTAR is committed in ensuring the confidentiality, protection, security and accuracy of your personal information made available to us and it has been our ongoing strict policy to ensure that your personal information is accurate, complete, not misleading and updated. UTAR would also ensure that your personal data shall not be used for political and commercial purposes.

Consent:

6. By submitting or providing your personal data to UTAR, you had consented and agreed for your personal data to be used in accordance to the terms and conditions in the Notice and our relevant policy.

7. If you do not consent or subsequently withdraw your consent to the processing and disclosure of your personal data, UTAR will not be able to fulfill our obligations or to contact you or to assist you in respect of the purposes and/or for any other purposes related to the purpose.

8. You may access and update your personal data by writing to us at _____.

Acknowledgment of Notice

[ ] I have been notified and that I hereby understood, consented and agreed per UTAR above notice.

[ ] I disagree, my personal data will not be processed.

……

Name:

Date:

Questionnaire:

Section A

1) Gender

o Male

o Female

2) Age

o Below 20

o 20 – 29

o 30 – 39

o 40 – 49

o 50 – 59

o 60 and above

3) Highest Education Qualification

o Bachelor's Degree

o Master’s Degree

o PhD (Doctorate)

o Postdoctoral qualification

4) Position in the University

o Full Professor

o Associate Professor

o Assistant Professor

o Senior Lecturer

o Lecturer

o Research Fellow

o Senior Research Fellow

o Dean/Head of Department

o Program Coordinator

5) Length of Employment at Current Institution

o Less than 1 year

o 1–3 years

o 4–6 years

o 7–10 years

o More than 10 years

6) Involvement in Leadership Roles

o Yes

o No

Section B: Independent Variables

Transformational Leadership (TL)

Inspirational Motivation (IM)

Statement	SD	D	N	A	SA
My leader articulates a compelling vision of future innovations in our organization.	1	2	3	4	5
My leader talks optimistically about the future of innovation within our organization.	1	2	3	4	5
My leader expresses confidence in achieving our innovation goals.	1	2	3	4	5
My leader inspires team members to pursue innovative ideas and solutions.	1	2	3	4	5

Idealized Influence (II)

Statement	SD	D	N	A	SA
My leader passionately advocates for innovative practices within the organization.	1	2	3	4	5
My leader bravely tackles challenges that arise during the implementation of innovative ideas.	1	2	3	4	5
My leader demonstrates a commitment to innovation as a core value of our organization.	1	2	3	4	5
My leader serves as a role model by consistently engaging in innovative behaviors.	1	2	3	4	5

Intellectual Stimulation (IS)

Statement	SD	D	N	A	SA
My leader consistently encourages innovative thinking and problem-solving among team members.	1	2	3	4	5
My leader challenges us to think creatively and develop new innovative methods to foster innovation within the organization.	1	2	3	4	5
My leader supports experimentation with new ideas, even if they involve risks.	1	2	3	4	5

My leader fosters a culture where questioning the status quo is encouraged to drive innovation.	1	2	3	4	5

Individualized Consideration (IC)

Statement	SD	D	N	A	SA
My leader tailors management approaches to foster individual contributions to innovation.	1	2	3	4	5
My leader mentors employees to develop their innovative capacities.	1	2	3	4	5
My leader recognizes and nurtures my unique abilities to contribute to organizational innovation.	1	2	3	4	5
My leader provides personalized support to help me implement innovative ideas.	1	2	3	4	5

Authentic Leadership

Self-Awareness (SA)

Statement	SD	D	N	A	SA
My leader seeks feedback to enhance the innovation process and collaboration on new ideas.	1	2	3	4	5
My leader is aware of how their leadership style influences innovation in the organization.	1	2	3	4	5
My leader reflects on their own practices to improve their ability to foster innovation.	1	2	3	4	5

My leader demonstrates self-awareness in promoting innovation across the organization.	1	2	3	4	5

Relational Transparency (RT)

Statement	SD	D	N	A	SA
My leader communicates transparently about the challenges and opportunities in pursuing innovation.	1	2	3	4	5
My leader openly acknowledges failures in the innovation process and encourages learning from them.	1	2	3	4	5
My leader is honest about the potential risks and rewards of innovative initiatives.	1	2	3	4	5
My leader fosters open communication to support innovation across teams.	1	2	3	4	5

Internalized Moral Perspective (IMP)

Statement	SD	D	N	A	SA
My leader consistently acts in accordance with a commitment to fostering innovation within the organization.	1	2	3	4	5
My leader ensures that innovative practices are conducted ethically and responsibly.	1	2	3	4	5

My leader makes decisions that reflect a strong commitment to ethical innovation practices.	1	2	3	4	5
My leader prioritizes long-term ethical considerations when promoting innovation.	1	2	3	4	5

Balanced Processing (BP)

Statement	SD	D	N	A	SA
My leader encourages diverse viewpoints to challenge and refine innovative strategies.	1	2	3	4	5
My leader carefully considers different perspectives before making decisions related to innovation.	1	2	3	4	5
My leader integrates feedback from various stakeholders to improve innovation processes.	1	2	3	4	5

Section C: Dependent Variable

Innovation (IN)

Statement	SD	D	N	A	SA
Our university continuously improves existing courses and academic programs by incorporating innovative content and methodologies.	1	2	3	4	5
The academic programs and courses at our university are	1	2	3	4	5

recognized for their innovative approach and cutting-edge offerings.					
Our university regularly implements new technologies and administrative methods to enhance the delivery of academic resources and services.	1	2	3	4	5
Our university effectively incorporates student feedback and innovative processes to improve overall organizational efficiency.	1	2	3	4	5

Section D: Moderator Variable

Trust in Leader (TIL)

Statement	SD	D	N	A	SA
I feel confident that my leader's fair treatment of team members encourages innovative thinking and practices.	1	2	3	4	5
I trust that my manager's integrity and honesty foster an environment where new ideas and innovations are welcomed.	1	2	3	4	5
I have complete faith in my manager's ability to support and implement innovative processes within our organization.	1	2	3	4	5
I feel a strong loyalty to my leader because of their commitment to driving innovation and improving	1	2	3	4	5

organizational efficiency.					

Appendix C: SPSS Data Analysis Output

I) Pilot Test for Reliability Test

IV1: Transformational Leadership (TL)

Scale: Inspirational Motivation

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.876	4

Scale: Idealized Influence (II)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.828	4

Scale: Intellectual Stimulation (IS)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.830	4

Scale: Individualized Consideration (IC)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.886	4

IV2: Authentic Leadership (AL)

Scale: Self-Awareness (SA)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.862	4

Scale: Relational Transparency (RT)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.895	4

Scale: Internalized Moral Perspective (IMP)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.884	4

Scale: Balance Processing (BP)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.824	3

DV: Innovation (IN)

Scale: Innovation (IN)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.806	4

MV: Trust in Leader (TIL)

Scale: Trust in Leader (TIL)

Case Processing Summary

		N	%
Cases	Valid	30	100.0
	Excluded[a]	0	.0
	Total	30	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.887	4

II) Reliability Test

IV1: Transformational Leadership (TL)

Inspirational Motivation

Scale: IM

Case Processing Summary

		N	%
Cases	Valid	245	100.0
	Excluded[a]	0	.0
	Total	245	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.739	4

Idealized Influence

Scale: II

Case Processing Summary

		N	%
Cases	Valid	245	100.0
	Excluded[a]	0	.0
	Total	245	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.743	4

Intellectual Stimulation

Scale: IS

Case Processing Summary

		N	%
Cases	Valid	245	100.0
	Excluded[a]	0	.0
	Total	245	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.783	4

Individualized Consideration

Scale: IC

Case Processing Summary

		N	%
Cases	Valid	245	100.0
	Excluded[a]	0	.0
	Total	245	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.701	4

IV2: Authentic Leadership (AL)

Self Awareness

Scale: SA

Case Processing Summary

		N	%
Cases	Valid	245	100.0
	Excluded[a]	0	.0
	Total	245	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.785	4

Relational Transparancy

Scale: RT

Case Processing Summary

		N	%
Cases	Valid	245	100.0
	Excluded[a]	0	.0
	Total	245	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.705	4

Internalized Moral Perspective

Scale: IMP

Case Processing Summary

		N	%
Cases	Valid	245	100.0
	Excluded[a]	0	.0
	Total	245	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.742	4

Balance Processing

Scale: BP

Case Processing Summary

		N	%
Cases	Valid	245	100.0
	Excluded[a]	0	.0
	Total	245	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.748	3

DV: Innovation (IN)

Scale: IN

Case Processing Summary

		N	%
Cases	Valid	245	100.0
	Excluded[a]	0	.0
	Total	245	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.753	4

MV: Trust in Leader (TIL)

Scale: TIL

Case Processing Summary

		N	%
Cases	Valid	245	100.0
	Excluded[a]	0	.0
	Total	245	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.718	4

III) Descriptive Analysis

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
IM_Score	245	1.00	5.00	3.8418	.87879
IL_Score	245	1.00	5.00	3.7969	.90866
IS_Score	245	1.00	5.00	3.7776	.91044
IC_Score	245	1.00	5.00	3.7908	.86447
SA_Score	245	1.00	5.00	3.8235	.88719
RT_Score	245	1.00	5.00	3.8173	.86487
IMP_Score	245	1.00	5.00	3.8102	.88168
BP_Score	245	1.00	5.00	3.8776	.89446
IN_Score	245	1.00	5.00	3.7776	.88938
TIL_Score	245	1.00	5.00	3.8316	.85499
Valid N (listwise)	245				

IV) Pearson Correlation Coefficient

Correlations

		IM_Score	IL_Score	IS_Score	IC_Score	SA_Score	RT_Score	IMP_Score	BP_Score	IN_Score	TIL_Score
IM_Score	Pearson Correlation	1	.762**	.736**	.734**	.750**	.755**	.771**	.562**	.748**	.743**
	Sig. (2-tailed)		<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
IL_Score	Pearson Correlation	.762**	1	.741**	.757**	.738**	.768**	.764**	.695**	.752**	.742**
	Sig. (2-tailed)	<.001		<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
IS_Score	Pearson Correlation	.736**	.741**	1	.769**	.693**	.781**	.739**	.723**	.794**	.751**
	Sig. (2-tailed)	<.001	<.001		<.001	<.001	<.001	<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
IC_Score	Pearson Correlation	.734**	.757**	.769**	1	.787**	.815**	.768**	.704**	.764**	.763**
	Sig. (2-tailed)	<.001	<.001	<.001		<.001	<.001	<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
SA_Score	Pearson Correlation	.750**	.738**	.693**	.787**	1	.785**	.718**	.598**	.705**	.737**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001		<.001	<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
RT_Score	Pearson Correlation	.755**	.768**	.781**	.815**	.785**	1	.797**	.687**	.793**	.747**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001		<.001	<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
IMP_Score	Pearson Correlation	.771**	.764**	.739**	.768**	.718**	.797**	1	.633**	.794**	.735**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001		<.001	<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
BP_Score	Pearson Correlation	.562**	.695**	.723**	.704**	.598**	.687**	.633**	1	.667**	.651**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001		<.001	<.001
	N	245	245	245	245	245	245	245	245	245	245
IN_Score	Pearson Correlation	.748**	.752**	.794**	.764**	.705**	.793**	.794**	.667**	1	.760**
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001		<.001
	N	245	245	245	245	245	245	245	245	245	245
TIL_Score	Pearson Correlation	.743**	.742**	.751**	.763**	.737**	.747**	.735**	.651**	.760**	1
	Sig. (2-tailed)	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	<.001	
	N	245	245	245	245	245	245	245	245	245	245

**. Correlation is significant at the 0.01 level (2-tailed).

V) Multiple Regression Analysis

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.872[a]	.760	.751	1.77404	.760	82.911	9	235	<.001
2	.898[b]	.806	.791	1.62647	.045	6.572	8	227	<.001

a. Predictors: (Constant), Total_TIL, Total_BP, Total_IM, Total_SA, Total_IMP, Total_IS, Total_IL, Total_IC, Total_RT

b. Predictors: (Constant), Total_TIL, Total_BP, Total_IM, Total_SA, Total_IMP, Total_IS, Total_IL, Total_IC, Total_RT, Interaction_SA_TIL, Interaction_IS_TIL, Interaction_IM_TIL, Interaction_IMP_TIL, Interaction_BP_TIL, Interaction_RT_TIL, Interaction_II_TIL, Interaction_IC_TIL

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	2348.432	9	260.937	82.911	<.001[b]
	Residual	739.593	235	3.147		
	Total	3088.024	244			
2	Regression	2487.516	17	146.324	55.313	<.001[c]
	Residual	600.508	227	2.645		
	Total	3088.024	244			

a. Dependent Variable: Total_IN

b. Predictors: (Constant), Total_TIL, Total_BP, Total_IM, Total_SA, Total_IMP, Total_IS, Total_IL, Total_IC, Total_RT

c. Predictors: (Constant), Total_TIL, Total_BP, Total_IM, Total_SA, Total_IMP, Total_IS, Total_IL, Total_IC, Total_RT, Interaction_SA_TIL, Interaction_IS_TIL, Interaction_IM_TIL, Interaction_IMP_TIL, Interaction_BP_TIL, Interaction_RT_TIL, Interaction_II_TIL, Interaction_IC_TIL

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.098	.599		.163	.871
	Total_IM	.079	.061	.078	1.278	.202
	Total_IL	.065	.062	.067	1.059	.291
	Total_IS	.230	.061	.236	3.751	<.001
	Total_IC	.056	.069	.054	.805	.422
	Total_SA	-.034	.061	-.034	-.553	.581
	Total_RT	.174	.071	.169	2.457	.015
	Total_IMP	.230	.063	.228	3.659	<.001
	Total_BP	.041	.069	.037	.597	.551
	Total_TIL	.144	.061	.139	2.360	.019
2	(Constant)	4.876	2.635		1.851	.066
	Total_IM	.700	.261	.692	2.687	.008
	Total_IL	.449	.302	.459	1.485	.139
	Total_IS	-1.257	.265	-1.287	-4.738	<.001
	Total_IC	.101	.350	.098	.288	.773
	Total_SA	.100	.271	.099	.368	.713
	Total_RT	.355	.289	.345	1.230	.220
	Total_IMP	-.008	.282	-.008	-.028	.978
	Total_BP	-.076	.295	-.068	-.257	.797
	Total_TIL	-.068	.172	-.065	-.396	.692
	Interaction_IM_TIL	-.044	.020	-1.173	-2.226	.027
	Interaction_IL_TIL	-.035	.024	-.935	-1.479	.141
	Interaction_IS_TIL	.112	.020	3.013	5.523	<.001
	Interaction_IC_TIL	-.009	.027	-.250	-.349	.728
	Interaction_SA_TIL	-.005	.021	-.134	-.245	.807
	Interaction_RT_TIL	-.014	.023	-.377	-.619	.537
	Interaction_IMP_TIL	.018	.022	.473	.820	.413
	Interaction_BP_TIL	.002	.022	.043	.076	.939

a. Dependent Variable: Total_IN