Factors Influencing the Development of Leadership Skills among Students\

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Abstract

Objective: This study aimed to investigate the influence of various educational, personal, and social factors on the development of leadership skills among higher education students, with a specific focus on the academic environment in Qatar, as represented by the College of Business and Economics at Qatar University. This study came in response to the growing need among academic institutions to develop young leaders capable of adapting to economic and technological changes, in line with the objectives of Qatar National Vision 2030 in the human capital development axis.

Methodology: The study relied on a quantitative analytical approach. A validated scientific questionnaire was developed and distributed to a sample of students from the College of Business and Economics at Qatar University. The instrument was designed to cover all theoretical dimensions related to leadership skills. Data were collected over a specific period and analyzed using structural equation modeling (SEM) with partial least squares (PLS) inSmartPLS version 4. The statistical analysis phases included testing model validity, discriminant and convergent validity, internal consistency, and examining the relationships between variables to test the proposed hypotheses.

Findings: The results showed a statistically significant positive relationship between the use of artificial intelligence, participation in extracurricular activities, and volunteer programs, and the development of students' leadership skills. The results also demonstrated that leadership motivation plays an important interactive role by enhancing the impact of these factors on leadership outcomes, with the relationships being stronger and more pronounced when motivation is high. This suggests that providing technological activities or tools alone is insufficient; students must be internally motivated to utilize these resources effectively and develop their leadership capabilities.

Keywords: Leadership Skills, Higher Education, Artificial Intelligence, Extracurricular Activities

1. Introduction

Developing leadership skills among youth is a fundamental issue that directly impacts their ability to meet the demands of contemporary life, make informed decisions, and participate effectively in their communities. Despite the increasing importance of these skills in light of rapid economic and social transformations, educational and community practice still suffers from a lack of effective strategies for developing leadership among youth. Leadership is not merely a personal trait or innate ability; rather, it is a set of skills that can be learned and developed, including critical thinking, taking responsibility, effective communication, teamwork, and creative problem-solving (Wong et al., 2024). However, youth face structural, psychological, and social challenges that limit their ability to develop these skills adequately.

In the educational context, many institutions still prioritize traditional academic achievement over the development of leadership skills, neglecting the importance of interactive activities and practical experiences that enhance leadership, such as teamwork, community initiatives, and student projects. The lack of integration between educational policies and leadership development objectives limits young people's opportunities to gain the necessary experiences that qualify them for leadership in various settings (Al-Shehri et al., 2023). Additionally, psychological challenges arise, such as low self-confidence and lack of self-expression, along with social pressures related to peer influence and the lack of stimulating environments for experimentation and initiative.

Developing leadership skills among young people requires an integrated approach that simultaneously considers educational, social, and psychological dimensions. This is achieved through the development of interactive educational programs that integrate project-based learning and leadership activities, and build partnerships between educational institutions and civil society to foster a spirit of initiative among young people. Teachers and mentors must also be empowered to adopt leadership roles that support students and motivate them to engage in authentic leadership experiences. Investing in building these skills will contribute to preparing a generation of young people capable of effecting positive change, adapting to labor market demands, and participating in community development effectively and sustainably.

Developing leadership skills among young people is vital to preparing a generation capable of facing future challenges. Leadership is a fundamental skill that enhances individuals' ability to make decisions, motivate others, and adapt to rapid changes in various fields. The process of developing these skills begins at an early age, with the family and school environments playing a pivotal role in shaping a young person's personality and enhancing their self-confidence by encouraging them to assume responsibility and participate in group activities. However, many educational systems and families do not pay sufficient attention to leadership development. The factors influencing the development of these skills are addressed separately, without considering their interplay. For example, young people face psychological challenges related to self-confidence and emotional intelligence, in addition to social factors such as the influence of family and peers on their leadership behavior. Furthermore, the educational environment may lack activities and resources that encourage

young people to assume responsibility and take initiative. This creates a gap in personal and social development, thereby reducing young people's ability to naturally exercise leadership (Al-Shehri et al., 2023). In this context, artificial intelligence (AI) can play a role in bridging this gap, as interactive platforms and virtual simulations provide training environments that enable youth to make strategic decisions in realistic situations. Furthermore, participation in extracurricular activities and volunteer programs are effective tools for developing leadership skills, as they give youth the opportunity to gain practical experience in assuming responsibility and dealing with real-life challenges. However, there is still a lack of integration between these elements, limiting the effectiveness of efforts to develop young leaders (Vargas Portillo, 2025). Therefore, educational and community institutions need to adopt a comprehensive and integrated approach to leadership development, integrating AI with educational and volunteer programs to enhance leadership skills among youth. Interactive curricula and activities should also be designed that stimulate critical thinking, problem-solving, and effective communication, ensuring the development of future leaders capable of innovation, development, and contributing to societal progress.

Leadership skills are essential for developing youth capabilities and enhancing their readiness to face future challenges, whether professional or social. Despite widespread recognition of the importance of leadership in human capital development, a clear gap exists in how to effectively develop these skills within traditional educational systems, which often lack integration with modern methods and advanced technologies that enable practical and interactive leadership development (Al-Qurashi et al., 2022).

In light of these shortcomings, artificial intelligence (AI) emerges as a promising tool that can be employed to revamp educational methods and develop leadership skills among youth by providing smart, interactive, and personalized learning environments. AI enables learners to experience simulated decision-making processes, analyze data, and receive immediate feedback, helping them develop distinct leadership styles based on experimentation and real-world practice (Aziz et al., 2024). AI technologies also contribute to the development of critical thinking, problem-solving, and adapting to complex situations —essential traits for leaders in rapidly changing work environments. On the other hand, extracurricular activities, particularly volunteering, represent a vital area for developing leadership skills through social interaction, assuming responsibilities, and teamwork. However, scientific literature still largely neglects research into how artificial intelligence can be integrated to improve the effectiveness of these activities. AI can contribute to designing personalized volunteer experiences based on an analysis of youth interests and skills, facilitating coordination between participants and leaders, and enhancing a sense of empowerment and intrinsic motivation to lead (Brooker et al., 2024).

Despite growing research in the fields of artificial intelligence, education, and leadership separately, studies examining the interaction between these three factors remain scarce, particularly in Gulf contexts, characterized by cultural, educational, and social specificities that require localized and integrated solutions in terms of design and implementation. In this context, there are currently no in-depth systematic studies examining the interconnected relationship between the use of AI technologies, participation in extracurricular activities and

volunteer programs, and their role in developing leadership skills among youth in Qatar and the Gulf Cooperation Council (GCC) countries. Accordingly, this study aims to fill this gap by exploring how AI, when integrated into educational and volunteer programs, can contribute to enhancing leadership skills among young people. This study is based on the hypothesis that the use of AI tools in carefully designed educational and volunteer environments can enhance leadership skills practically and comprehensively, contributing to the development of a generation of leaders capable of innovation, adaptation, and initiative in facing future challenges.

This research aims to analyze the impact of various factors on the early development of leadership skills in students, including the use of artificial intelligence (AI), participation in extracurricular activities, and volunteer programs. It also examines the impact of personality traits, such as self-confidence and emotional intelligence, as well as social interactions within the family, school, and peer groups, and the broader environmental context. It also seeks to investigate the impact of AI on leadership development, evaluate the role of extracurricular activities and volunteer programs, and explore the interactive relationship between leadership motivation and these factors in supporting and developing leadership skills in students.

The research seeks to answer the following questions:

1. How does the use of AI affect the development of leadership skills in students?

2. What is the role of participation in extracurricular activities in shaping leadership capabilities and skills in students?

3. How does participation in volunteer programs, such as the home environment, school environment, and community activities, contribute to the development of leadership in students at early stages?

4. To what extent does leadership motivation influence the interactions between factors such as the use of artificial intelligence, participation in extracurricular activities, participation in volunteer programs, and the development of leadership skills among students?

This research consists of four parts. The first part presents the introduction, research problem, objectives, and significance. The second part reviews literature and related theories, identifying research gaps and developing a conceptual framework. The third part focuses on the research methodology by reviewing the research philosophy, study design, measurement tools, and data collection procedures. The fourth part analyzes the data using structural equation modeling (SEM) and PLS, with a detailed presentation of the results. Part V concludes with a discussion of the results and their implications, clarification of limitations, and recommendations for future research.

2. Theories and Hypothesis Development

2.1 Social Learning Theory

This research model integrates concepts from the social learning theory developed by Albert Bandura (1977) and the intrinsic motivation theory developed by Deci and Ryan (1985; 2000)

to explain the relationship between the use of artificial intelligence, participation in extracurricular activities and volunteer programs, and the development of student leadership skills, with leadership motivation as a mediating variable.

First, social learning theory is based on the premise that individuals acquire skills and knowledge not only through direct learning but also through observation, social interaction, and imitation of successful behavioral models in their environment. This provides a strong foundation for understanding the impact of extracurricular activities and volunteer programs, as these environments provide real-world opportunities to apply and develop leadership skills through experience and practice in stimulating social contexts. Bandura notes that the fundamental processes driving behavioral learning include attention, retention, motor production, and motivation (Bandura, 1986), all of which are active within these real-world activities outside the classroom.

Moreover, the application of artificial intelligence technologies in education expands the scope of learning and observation opportunities through the use of simulations, virtual environments, and interaction with intelligent systems that provide immediate feedback. These tools enhance opportunities for self-learning and the gradual development of leadership skills, including decision-making, problem-solving, and teamwork.

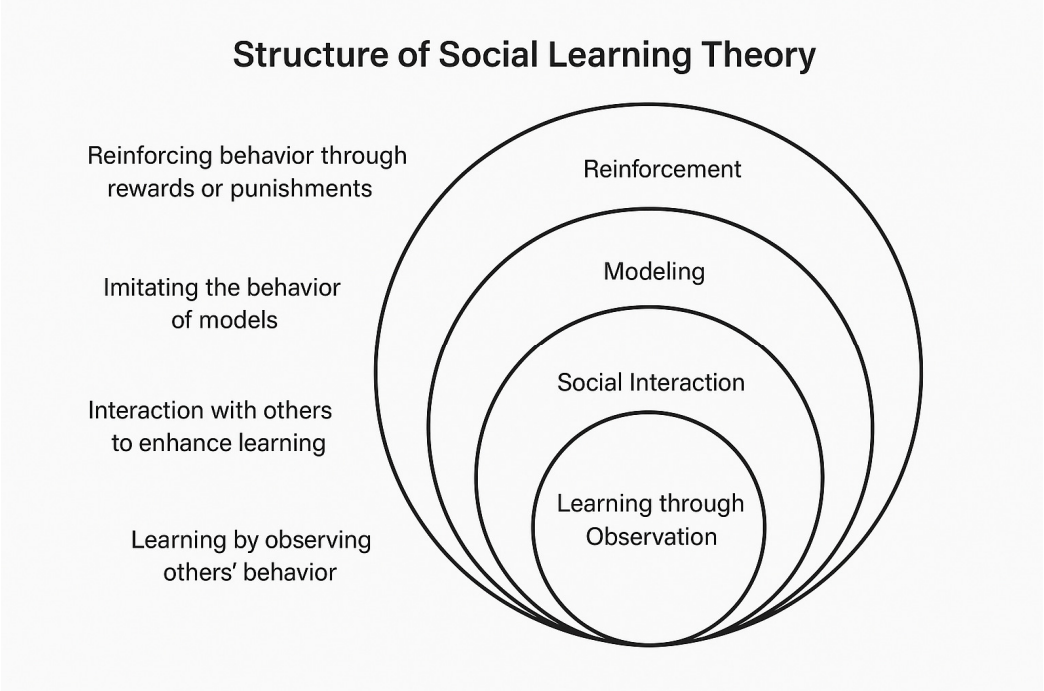

Figure 1: Social Learning Theory

By the Author'

2.2 Self-Determination Theory (SDT)

Intrinsic motivation theory is a significant psychological concept that explains how and why individuals are self-motivated to develop themselves and enhance their skills. This theory focuses on three basic psychological needs that must be met to promote growth and self-motivation: autonomy, which refers to the feeling of being able to make decisions freely; competence, which refers to a sense of achievement and success; and relatedness, which refers to a sense of belonging and connection with others (Deci & Ryan, 2000). The importance of this theory is highlighted in clarifying the role of leadership motivation as a mediating factor in the model, as students' participation in volunteer or educational activities outside of the classroom allows them to exercise leadership in ways that enhance their competence and sense of influence, which in turn motivates them to develop their leadership skills. The theory suggests that educational environments that support self-experimentation and independent decisions, and provide social support and appropriate challenges, foster strong intrinsic motivation, which positively impacts the development of students' leadership skills.

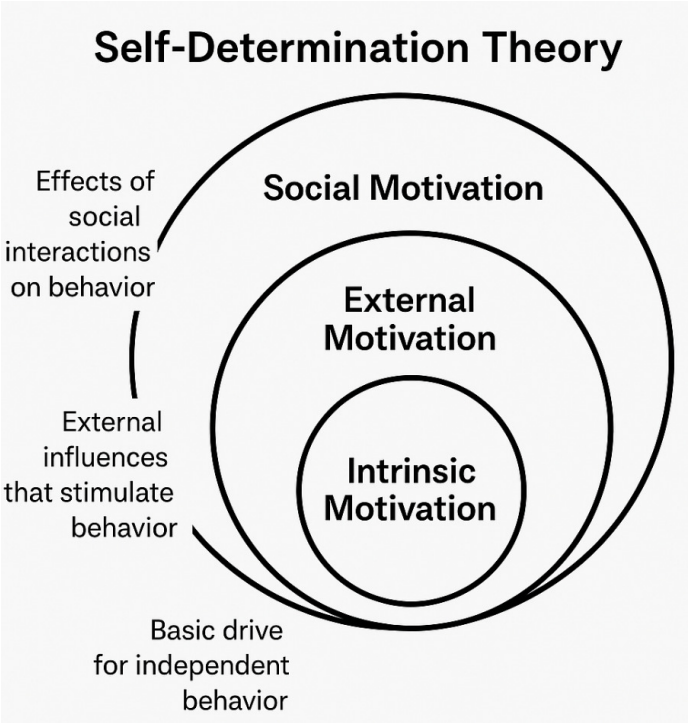

Figure 2.2: Intrinsic Motivation Theory

By the Author'

Therefore, integrating social learning theory with intrinsic motivation theory provides a strong theoretical foundation for understanding how educational, pedagogical, and technological factors, such as artificial intelligence (AI) and community engagement,

contribute to the development of leadership skills by stimulating intrinsic motivation, enhancing social interaction, and learning through experience.

3.2 Hypothesis Development

By integrating social learning theory with intrinsic motivation theory, a set of hypotheses can be formulated that explain the relationship between the variables in the research model. According to social learning theory, engaging in extracurricular activities and volunteer programs provides practical opportunities to acquire and develop leadership skills through social interaction, observation, and experimentation, supporting the hypothesis of a positive relationship between such engagement and students' leadership development. It is also hypothesized that the use of AI in the educational environment enhances critical thinking and decision-making skills, which in turn contribute to the development of leadership skills.

Intrinsic motivation theory suggests that leadership motivation plays a crucial mediating role, enhancing students' sense of competence, autonomy, and belonging when participating in these activities or using technology, thereby increasing their intrinsic motivation to develop themselves as leaders. Accordingly, intermediate hypotheses can be proposed that assume that leadership motivation explains the relationship between these inputs and leadership skill development.

1.3.2 The Relationship Between the Use of Artificial Intelligence and the Development of Leadership Skills in Students:

Recent studies suggest that the integration of artificial intelligence into education catalyzes developing leadership skills in students, as it enables the personalization of educational content and enhances individual learning experiences. According to Sposato (2024), artificial intelligence can analyze students' learning patterns and adapt educational programs to suit their abilities and interests, enhancing their personal and leadership skills. Research confirms that this technology contributes to the development of autonomous leadership and decision-making skills by providing guided learning scenarios that enable students to engage in virtual experiences, enhancing their independence and ability to think critically and solve problems.

Previous research has shown that artificial intelligence platforms, such as interactive simulation environments and virtual reality games, not only motivate learners but also allow them to experience leadership situations in realistic environments, helping them develop strategic thinking and long-term planning skills (Smith & Green, 2018). For example, these systems enable students to experience complex scenarios that require decision-making under time pressure or limited resources, enhancing their ability to handle real-world leadership situations.

In this context, a study (García-Peñalvo et al., 2023) demonstrated that the use of AI-powered collaborative digital platforms contributes to creating an interactive learning environment that encourages teamwork and enhances social leadership skills such as coordination, role assignment, and peer conflict management, which are essential elements of collaborative leadership. Additionally, AI-based data analysis techniques provide students with immediate

and accurate feedback on their performance, enabling them to identify strengths and weaknesses and develop plans to enhance their leadership behavior.

Furthermore, AI plays a vital role in enhancing leadership motivation by delivering personalized learning experiences. Research indicates that providing stimulating learning environments tailored to each student's needs enhances their sense of personal responsibility for the learning process, increases their sense of accomplishment, and increases their desire to assume leadership roles in the future (Deci & Ryan, 2000). This idea supports the intrinsic motivation theory, which asserts that a sense of competence, autonomy, and belonging are key factors that motivate leadership behavior.

Despite these positive findings, a notable gap remains in the research on the applications of artificial intelligence in Arab educational contexts, particularly within the Qatari context. Hence, there is a need for applied studies to understand how to use artificial intelligence effectively, tailored to the specificities of local contexts, and to identify the challenges and obstacles that may prevent its effective role in enhancing leadership skills among students in Qatar.

Hypothesis 1: There is a positive relationship between the use of artificial intelligence and the development of leadership skills among students.

2.3.2 The Relationship Between Participation in Extracurricular Activities and Student Leadership Skills:

Extracurricular activities, such as school clubs, sports teams, cultural events, and community initiatives, are vital and practical tools for developing leadership skills in students. These activities offer a practical and interactive learning environment that extends beyond the traditional classroom setting, fostering the development of students' personal and social skills through experimentation and practical application. Numerous studies have demonstrated that interaction within these participatory environments fosters the integrated development of students and enables them to naturally exercise leadership within group contexts (Abdel-Aleem, 2024).

In this context, Anderson et al. (2020) demonstrated that active and consistent participation in extracurricular activities is an essential element in enhancing students' leadership skills. This is achieved by training them to take on responsibilities, make informed decisions, delegate tasks, and work collaboratively to achieve common goals. Furthermore, student activities provide students with opportunities to assume authentic leadership roles in organizing events, managing teams, and planning community initiatives, enhancing their practical understanding of leadership principles.

Furthermore, another study has shown that these activities help students develop practical communication skills and build social relationships based on trust and mutual respect, which are essential elements for successful leadership. They also enhance time management skills, conflict resolution, and coping with the stress of teamwork—skills essential in both educational and professional settings.

A recent study by Brooker et al. (2024) demonstrated that extracurricular activities serve as a practical laboratory for applying leadership theories, providing a safe environment for students to experiment with diverse leadership styles and develop their approach to motivation, team building, and strategic thinking. The study confirmed that these practical experiences contribute to enhancing students' sense of self-efficacy and boosting their confidence in their ability to lead others in the future.

It is noteworthy that research has shown the positive impact of extracurricular activities to be more pronounced among students who assume organizational or administrative roles in teams or clubs. These students engage in situations that require skills in planning, organizing, allocating resources, and leading teams toward achieving goals. Some research has also shown that these engagements enhance students' awareness of their role in society and foster a sense of social responsibility and ethical leadership, which are essential for developing influential and effective leaders in their communities.

Based on the above, it can be concluded that extracurricular activities not only complement the formal educational process but also constitute a strategic approach to enhancing students' leadership skills, preparing them to face the challenges of university and professional life with greater maturity and confidence. Therefore, integrating these activities into the educational system and providing institutional support for them is crucial for developing student leaders capable of effecting positive change both inside and outside of school.

Hypothesis 2: There is a positive relationship between participation in extracurricular activities and students' leadership skills.

3.3.2 The Relationship Between Participation in Volunteer Programs and the Development of Leadership Skills in Students:

Participation in volunteer programs is an important and effective means of developing leadership skills in students, providing them with practical and real-life opportunities to enhance their personal and social capabilities, such as communication skills, team management, and responsibility. These programs offer an informal learning environment that encourages students to discover themselves and enables them to navigate difficult situations and real-life challenges, ultimately contributing to the development of strong and resilient leadership personalities.

Wilson (2000) indicated that volunteering provides students with opportunities to interact with diverse social and cultural groups, thereby enhancing their adaptive and practical communication skills and broadening their social awareness. The study also demonstrated that engaging in volunteer work provides direct experience in decision-making, taking responsibility for consequences, and motivating others to cooperate—essential characteristics of effective leaders.

In the same context, Anderson et al. (2020) found that volunteer work enhances students' sense of social responsibility and helps them develop teamwork skills to achieve shared humanitarian and societal goals. The study also demonstrated that participation in these

activities is positively correlated with students' abilities in strategic planning, problem-solving, and managing time and resources effectively.

On the other hand, Einolf's (2011) study showed that students who participate in organizing and implementing volunteer initiatives tend to assume greater leadership responsibilities due to their exposure to situations that require critical thinking and quick decision-making. The study demonstrated that these real-life experiences contribute to the development of a leadership mindset capable of analysis, evaluation, and innovation. Additionally, Wilson & Carter's (2018) study found that students participating in group volunteer projects exhibit significant improvements in their ability to lead diverse teams and coordinate efforts within groups of diverse backgrounds, which enhances relationship-building skills and mutual trust. In the long term, Chen et al.'s (2021) study demonstrated that participation in ongoing volunteer programs contributes to the development of advanced leadership skills, such as the ability to set a clear future vision, positively influence others, and inspire and motivate. The study demonstrated that these cumulative experiences enable students to gradually transition from the role of active participants to that of actual future leaders, whether in educational, professional, or social settings.

Based on the above, volunteer work can be considered not just an outdoor recreational activity, but rather an effective strategic means for shaping a generation of young leaders capable of affecting change and assuming societal and leadership responsibilities in the future.

Hypothesis 3: There is a positive relationship between participation in volunteer programs and the development of leadership skills among students.

4.3.2 The Interactive Role of Leadership Motivation:

Leadership motivation plays a fundamental and influential role in strengthening the relationship between the use of AI technologies and participation in extracurricular activities and volunteer programs, on the one hand, and the development of students' leadership skills, on the other. Leadership motivation is considered the internal force that motivates students to engage positively and effectively with various educational experiences and opportunities, contributing to the sustainable and effective improvement of their leadership traits, managerial skills, and social skills. Roberts et al.'s (2020) study confirmed that students with high leadership motivation are more willing to participate actively in educational and extracurricular initiatives and are more likely to derive deep benefits from the experiences associated with these activities compared to their peers with low motivation.

In the context of applying AI in education, students with strong leadership motivation show greater enthusiasm for exploring interactive AI tools such as digital simulations, adaptive learning, and personal data analysis. This contributes to enhancing their critical thinking, decision-making, and strategic planning skills. These students also benefit from immediate feedback and personalized learning content in ways that enhance their leadership experiences in AI-powered learning environments.

Concerning extracurricular activities, such as school clubs, community projects, and academic competitions, leadership motivation plays a crucial role in enabling students to assume effective organizational roles and respond positively to group challenges. This contributes to the development of essential skills, including team management, effective communication, and conflict resolution. Students with high motivation often strive to excel in these activities through initiative and influence, which deepens their leadership experiences and enhances their sense of self-efficacy.

Regarding volunteer programs, leadership motivation encourages students to commit and persevere in their volunteer roles, even when faced with challenges and difficulties. Chen & Kim (2021) demonstrated that students with high levels of leadership motivation exhibit a greater ability to develop advanced leadership skills, such as building relationships, exerting positive influence, and assuming social responsibility. They also seek to make a tangible difference in the communities they serve by developing clear visions and motivating others to collaborate to achieve volunteer goals.

Furthermore, leadership motivation plays a mediating role in enhancing the positive impact of various academic and non-academic activities on leadership development. It transforms activities from mere superficial experiences into profound learning situations that contribute to shaping a student's leadership identity. Students who are intrinsically motivated are more willing to transform the challenges they face during these activities into real opportunities for learning and growth, which is reflected in their leadership behavior and future personalities.

In this context, Taylor & Carter (2020) indicates that investing in developing students' leadership motivation is a critical strategic step to enable them to benefit from diverse learning environments fully. Enhancing this type of motivation contributes to increased participation and engagement rates, improving the effectiveness of educational activities, and paving the way for the development of a generation of young leaders capable of making responsible decisions, working within diverse teams, and achieving goals in dynamic environments. Accordingly, the following hypotheses were proposed, which assume the existence of interactive and dynamic relationships between these variables, given the mediating role of leadership motivation, to test their impact on the development of leadership skills among undergraduate students.

Hypothesis 4: Leadership motivation positively influences the relationship between the use of artificial intelligence and the development of leadership skills among students. The stronger the leadership motivation, the stronger the relationship between the use of artificial intelligence and the development of leadership skills among students.

Hypothesis 5: Leadership motivation positively influences the relationship between participation in extracurricular activities and the development of leadership skills among students. The stronger the leadership motivation, the stronger the relationship between participation in extracurricular activities and the development of leadership skills among students.

Hypothesis 6: Leadership motivation positively influences the relationship between participation in volunteer programs and the development of leadership skills among students. The stronger the leadership motivation, the stronger the relationship between participation in volunteer programs and the development of leadership skills among students.

5.3.2 Research Model

As shown in Figure 2.1, the model explores the relationship between a set of factors that positively contribute to the development of leadership skills in students, with a focus on the role of leadership motivation in enhancing the impact of these factors. First, the model demonstrates that the use of artificial intelligence can have a positive impact on the development of leadership skills in students, providing tools and technologies that enable them to learn leadership, decision-making, and problem-solving in intelligent environments. Second, participation in extracurricular activities, such as student clubs and group projects, plays a significant role in developing leadership skills. These activities provide students with opportunities to develop their skills in team management, effective communication, and event organization. Participation in volunteer programs also enhances leadership development, allowing students to assume leadership responsibilities and manage volunteer teams, which in turn enhances their leadership and creativity. However, the positive impact of these factors is not limited to their direct participation; instead, leadership motivation also plays a crucial role in enhancing this impact. The stronger the students' motivation to develop their leadership skills, the more they will benefit from these activities and technologies. For example, students with high leadership motivation will benefit more from using artificial intelligence to enhance their leadership skills. Students' motivation also positively influences their relationships with extracurricular activities and volunteer programs, as highly motivated students tend to participate more actively in these activities, thereby enhancing their leadership capabilities. Ultimately, the model demonstrates that developing students' leadership skills requires a positive interaction between these factors, emphasizing that leadership motivation is the primary driver of this effective interaction.

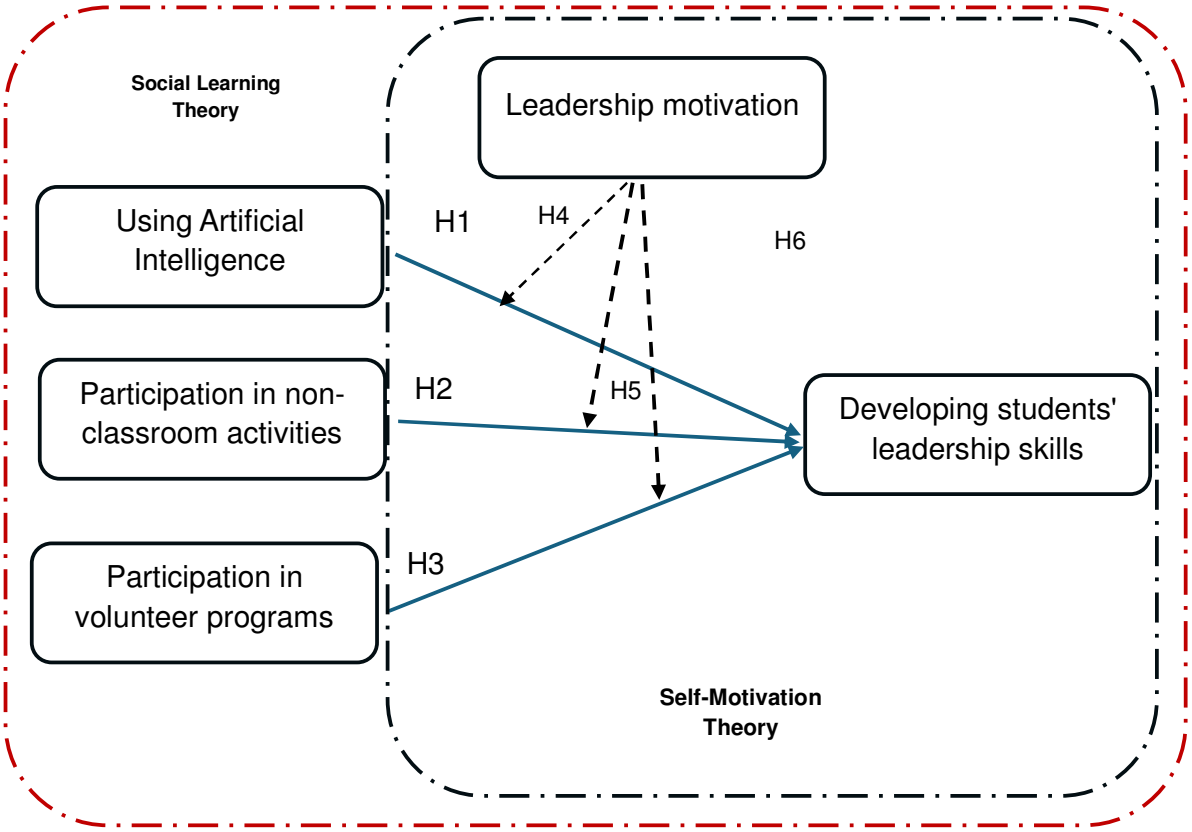

Figure 2.3: Research Model

3. Research Methodology

The research design of this study relies on a quantitative approach to measure the impact of a set of factors on the development of leadership skills among early-stage university students. Specially designed questionnaires were used to collect data from a sample of university students. These questionnaires focus on exploring the relationship between independent variables such as the use of artificial intelligence, participation in extracurricular activities, involvement in volunteer programs, and leadership motivation, and their impact on the development of leadership skills among students. Questions were designed using a five-point Likert scale to enable participants to assess the extent of their agreement or disagreement with a set of statements related to various factors. Data analysis will include the use of quantitative statistical analysis tools such as factor analysis and correlation tests to examine the relationship between various variables, to understand how these factors influence leadership development, as well as the role of leadership motivation in enhancing this impact.

The philosophy adopted by this study is based on positivism, which believes that knowledge can be acquired through objective and measurable observations and data. This approach requires collecting quantitative data using reliable tools such as questionnaires and analyzing it using statistical methods to draw conclusions. The positivist philosophy aims to minimize the personal and subjective influences of researchers by employing rigorous methods for collecting and analyzing data. This philosophy also contributes to the accuracy and objectivity of the results, enhancing the study's ability to provide generalizable conclusions

about the psychological, social, and environmental factors that influence leadership development in early childhood.

1.3 Study Population and Sample

The research design of this study relies on a quantitative approach to measure the impact of a set of factors on the development of leadership skills among students at the College of Business at Qatar University. Participants were selected from the Qatar Leadership Center as the study population, representing an ideal setting for studying the psychological, social, and environmental factors that influence leadership development in early adulthood. The study focuses on exploring the relationship between psychological factors such as self-confidence and emotional intelligence, social factors such as family roles and peer interactions, and environmental factors such as the university environment and technology, and their impact on leadership development. The sample consists of College of Business students who have extensive experience in leadership activities, both within the university and through their participation in social and volunteer activities. These students were selected based on their direct interaction with activities that contribute to the development of leadership skills. A purposive sample was used to ensure representation of the various groups that directly influence leadership development.

The sample consisted of 200 students. Data was collected through carefully designed questionnaires to explore the impact of various factors on the development of students' leadership skills. Questions were designed using a five-point Likert scale, allowing participants to rate their agreement or disagreement with a set of statements related to various factors. Data will be analyzed using quantitative statistical analysis tools such as factor analysis and correlation tests to examine the relationship between different variables and draw accurate scientific conclusions about the impact of psychological, social, and environmental factors on the development of leadership skills among students at the College of Business at Qatar University. Therefore, a targeted sample of young people in Qatari universities was selected using a purposive sampling method, focusing on individuals with experience in extracurricular or volunteer activities, or who have used artificial intelligence technologies in education. Two hundred participants were selected for this study, a number considered appropriate for conducting statistical analysis using structural equation modeling (SEM) and considered sufficient according to methodological standards in social studies (Hair et al., 2022).

2.3 Measurement of Variables

All scales used were adapted from the available literature. Brislin's (1980) translation and back-translation procedure was used to convert the questionnaire into Arabic while maintaining semantic equivalence with the English version. Six experts in the field of leadership and business ethics reviewed and approved the questionnaire questions. A pre-test was also conducted through cognitive interviews with 18 employees, resulting in minor modifications to ensure the questionnaire's clarity, readability, and suitability before data collection. All scales used a five-point Likert-type response format (1 = strongly disagree; 5 = strongly agree). Use of Artificial Intelligence: Five questions were used as a measure of this

variable. These questions were taken from (Pan, et al., 2023). Example: "I regularly use artificial intelligence applications in my daily tasks."

Participation in extracurricular activities and participation in volunteer programs: These were measured with five questions for each variable. These were taken from (Aarum, 2018). Example: "I regularly participate in extracurricular student activities" and "I regularly participate in volunteer programs to serve the community."

Leadership Motivation: These were measured with five questions each. Example: "I participate in workshops or training courses to develop my leadership skills." These questions were taken from (Duerden, et al., 2012).

Development of Student Leadership Skills: These were assessed with six questions, including the example: "I participate in workshops or training courses to enhance my leadership skills." These questions were taken from (Jenkins, et al., 2012).

Table 3.1: Description of Variables and Their Measurement Tools

Variable	Number of Items	Example Item	Source
Use of Artificial Intelligence	5	"I regularly use AI applications in my daily tasks."	Pan et al., (2023)
Participation in Extracurricular Activities	5	"I regularly participate in student activities not related to the curriculum."	Aarum (2018)
Participation in Voluntary Programs	5	"I regularly participate in voluntary programs to serve the community."	Aarum (2018)
Leadership Motivation	5	"I participate in workshops or training sessions to develop my leadership skills."	Duerden et al., (2012)
Development of Students' Leadership Skills	6	"I participate in workshops or training sessions to enhance my leadership skills."	Jenkins et al., (2012)

3.3 Data Analysis

In this study, SPSS and SMART-PLS were used to analyze the data collected from the questionnaires. Quantitative analysis includes a set of tools and techniques to examine relationships between variables and test hypotheses. The main tools used in SPSS include:

• Descriptive Statistics: Used to obtain basic information about the data, such as means, standard deviation, and range, as well as to examine the distribution of data.

• Structural Equation Modeling (SEM):

• Hypothesis Testing: The following table illustrates some of the study's hypotheses and hypothesis tests using SPSS, with key values such as t-value, p-value, and degrees of freedom (df):

4. Data Analysis and Results

As explained in Chapter 1, this research aims to study the impact of factors such as the use of artificial intelligence, participation in extracurricular activities, and participation in volunteer programs on the early development of leadership skills. It also seeks to explore the impact of personality traits such as self-confidence and emotional intelligence, the impact of social interactions within the family, school, and peer groups, as well as the role of the broader environmental context in fostering leadership capabilities. This chapter presents the results of the statistical analysis to test the research model and related hypotheses. Several stages were considered in all data analysis procedures. Details of the statistical analysis procedures are as follows: (1) response rate via SPSS, (2) demographic analysis via SPSS, (3) measurement model testing using partial least square (PLS), and (6) structural model testing conducted via PLS.

4.1 Response Rate

Questionnaires were distributed to students of the College of Business and Economics at Qatar University. The questionnaire was shared via email and WhatsApp groups, and 205 responses were received and returned. Accordingly, 205 questionnaires were used for data analysis, as shown in Table 4.1.

Table 4.1: Response Rate

Distributed Questionnaires	Returned Questionnaires	%	Completed Questionnaires	%
205	205	100%	200	**97%**

4.2 Demographic Analysis

The table presents a comprehensive demographic profile, detailing the percentage distribution, frequency, and categories across various demographic factors. Starting with gender (Demographics item: Gender), it appears that 56.5% of respondents are male, with a corresponding frequency of 102, while females constitute 44.4%, or 78 individuals. Moving on to age (Demographics item: Age), the distribution shows that 57% of respondents are under the age of 25. The 26-30 age group represents 33%, with 66 individuals. Additionally, the age groups 31 and over 51 years constitute 10%. When examining education levels (Demographics item: Educational Qualification), the majority hold a bachelor's degree (85.5%), representing a total of 171 individuals. Other educational levels include a master's degree (MA) at 13.5% and a doctorate (PhD) at 1%. Moving to work experience (Demographics: Work Experience), those with two years or less experience represent 36%,

with a rate of 72%, while 64% have 3-5 years of experience. Therefore, this demographic breakdown provides valuable insights into the characteristics of the surveyed individuals across gender, age, education, and work experience, allowing for a more nuanced understanding of the respondent population.

Table 4.2: Demographic Profile of Respondents

Item	Category	Frequency	Percentage
Gender:	Male	102	56.5%
	Female	78	44.4%
Age:	Under 25 years	114	57%
	26 – 30 years	66	33%
	31 years and above	20	10%
Education Level:	Bachelor's	171	85.5%
	Master's	27	13.5%
	Doctorate	2	1%
Work Experience:	2 years or less	72	36%
	3 – 5 years	128	64%

4.3 Data Analysis in Structural Equation Modeling Using Partial Least Squares

This study relied on Smart PLS (Structural Equation Modeling Using Partial Least Squares) to analyze the data collected, due to its methodological accuracy and superior analytical flexibility. Smart PLS is a highly effective tool when dealing with complex theoretical frameworks containing latent variables and intertwined relationships between multiple theoretical constructs, especially in exploratory or predictive research. One of its most notable features is its ability to simultaneously evaluate two models: the standard model (which verifies the validity and reliability of the measures) and the structural model (which tests the hypothesized relationships between variables) within a single analytical process. The program is also well-suited for research relying on small to medium-sized samples and does not require strict assumptions about data distribution, such as normality, which is often a challenge in social science research. Smart PLS features an easy-to-use graphical interface, bootstrapping capabilities, and its reliance on a variance-based methodology rather than covariance, making it a powerful tool for extracting meaningful results. By applying this program to this study, the researchers were able to ensure the integrity of the methodology, enhance the statistical power of the results, and provide strong empirical support for the hypothetical model and proposed theoretical framework. Therefore, the use of Smart PLS

was essential to achieve a high level of depth, accuracy, and credibility in data interpretation and to contribute effectively to advancing scientific understanding in the field of study.

4.4 Evaluating Reliability and Validity of Variables

The measurement model was evaluated through construct validity, which includes convergent and discriminant validity, as well as construct reliability. Regarding construct reliability, individual Cronbach's alpha values were tested to assess the reliability of each primary variable in the measurement model. The results showed that all individual Cronbach's alpha values exceeded the recommended value of 0.70 (Hair et al., 2017). Furthermore, the study used composite reliability (CR) to test construct reliability, which also met the recommended values. Consequently, the obtained values were above 0.70 (Hair et al., 2017). This adequately indicates that construct reliability has been achieved, as shown in Table 4.3. Therefore, the CR and Cronbach's alpha obtained for all constructs can be considered sufficiently error-free. To test the reliability index, factor loadings were used. High loadings on a construct indicate that the associated indicators share a significant amount of commonality that the construct was able to capture (Hair et al., 2017). To test convergent validity, i.e., the degree to which a scale positively correlates with alternative measures of the same construct, the average variance extracted (AVE) was used in this study. This indicates that all AVE values were above the recommended value of 0.50 (Hair et al., 2017). For all constructs, convergent validity was successfully achieved, and adequate convergent validity was achieved, as shown in Table 4.3.

In terms of discriminant validity, the Fornell-Larcker method was used, which revealed no problems. The AVE for each construct was greater than the variance that each construct shared with the other latent variables (Hair et al. 2017) (see Table 4.4).

Table 4.3: Measurement Model — Loadings, Reliability (Cronbach's Alpha), and Convergent Validity (AVE)

Variables	Items	Loadings (> 0.5)	Cronbach's Alpha (> 0.7)	Average Variance Extracted (AVE)
Use of Artificial Intelligence	Q1	0.741	0.860	0.606
	Q2	0.882		
	Q3	0.892		
	Q4	0.795		
	Q5	0.741		
Participation in Extracurricular Activities	Q1	0.863	0.852	0.582

Variables	Items	Loadings (> 0.5)	Cronbach's Alpha (> 0.7)	Average Variance Extracted (AVE)
	Q2	0.745		
	Q3	0.843		
	Q4	0.741		
	Q5	0.864		
Participation in Voluntary Programs	Q1	0.866	0.795	0.632
	Q2	0.841		
	Q3	0.874		
	Q4	0.796		
	Q5	0.777		
Leadership Skill Development	Q1	0.741	0.863	0.523
	Q2	0.852		
	Q3	0.863		
	Q4	0.762		
	Q5	0.911		
Leadership Motivation	Q1	0.798	0.817	0.511
	Q2	0.811		
	Q3	0.831		
	Q4	0.779		
	Q5	0.819		
	Q6	0.837		

Table 4.4: Discriminant Validity via Fornell-Larcker Criterion

Variables	Use of AI	Extracurricular Participation	Voluntary Participation	Leadership Skill Development	Leadership Motivation
Use of AI	**0.712**				
Extracurricular	0.669	**0.718**			

Participation					
Voluntary Participation	0.629	0.640	**0.736**		
Leadership Skill Development	0.516	0.491	0.370	**0.777**	
Leadership Motivation	0.471	0.511	0.354	0.491	**0.811**

4.5 Hypothesis Testing

The results of the table showed that all direct hypotheses were accepted. The use of artificial intelligence had a significant impact on developing students' leadership skills ($\beta = 0.386$, $t = 6.467$, $p < 0.000$), as well as participation in extracurricular activities ($\beta = 0.198$, $t = 3.019$, $p = 0.001$), and participation in volunteer programs ($\beta = 0.280$, $t = 3.990$, $p < 0.000$). As for the interactive relationships representing the role of leadership motivation as a moderator, the hypotheses regarding the interaction of artificial intelligence with leadership motivation were accepted ($\beta = 0.386$, $t = 6.467$, $p < 0.000$), and the interaction of extracurricular activities with motivation ($\beta = 0.198$, $t = 3.019$, $p = 0.001$). In contrast, the interactive relationship between volunteer programs and leadership motivation was not statistically significant ($\beta = 0.018$, $t = 1.371$, $p = 0.174$), and therefore the hypothesis was rejected. The results are shown in Table 4.5.

Table 4.5: Hypotheses Results

Hypothesis	Relationship	Standardized Beta	Standard Error	t-value	p-value	Decision
Hypothesis 1	Use of Artificial Intelligence → Development of Students' Leadership Skills	0.386	0.056	6.467	0.000	Hypothesis Accepted
Hypothesis 2	Participation in Extracurricular Activities → Development of Students' Leadership Skills	0.198	0.066	3.019	0.001	Hypothesis Accepted

Hypothesis 3	Participation in Voluntary Programs → Development of Students' Leadership Skills	0.280	0.070	3.990	0.000	Hypothesis Accepted
	Interaction Effects					
Hypothesis 4	Use of AI × Leadership Motivation → Development of Students' Leadership Skills	0.386	0.051	6.467	0.000	Hypothesis Accepted
Hypothesis 5	Participation in Extracurricular Activities × Leadership Motivation → Development of Leadership Skills	0.198	0.066	3.019	0.001	Hypothesis Accepted
Hypothesis 6	Participation in Voluntary Programs × Leadership Motivation → Development of Leadership Skills	0.018	0.044	1.371	0.174	Hypothesis Rejected

The table presents the results of testing the study's hypotheses through structural equation modeling using partial least squares (PLS-SEM). The analysis focused on two types of relationships: direct and interactive. The results of the direct relationships showed that the use of artificial intelligence had a strong positive effect on developing students' leadership skills ($\beta = 0.386$, $t = 6.467$, $p < 0.001$), demonstrating the importance of integrating modern technology into the educational environment for developing leadership capabilities. Participation in extracurricular activities also had a positive and significant effect ($\beta = 0.198$,

t = 3.019, p = 0.001), along with the role of volunteer programs, which also contributed effectively to developing leadership skills (β = 0.280, t = 3.99, p < 0.001). Regarding interactive relationships, the results revealed that leadership motivation strengthens the relationship between the use of artificial intelligence and leadership development, as well as between participation in extracurricular activities and leadership development, with statistically significant values in both cases. However, the hypothesis regarding an interaction effect between leadership motivation and participation in volunteer programs was not supported, as the p-value was higher than 0.05 (p = 0.174), indicating that motivation does not significantly moderate the relationship between volunteer work and leadership development. These results confirm that the adoption of artificial intelligence and active participation in extracurricular activities are key drivers of leadership development, especially when intrinsically motivated, while volunteer programs may require additional factors to enhance their impact.

4.6Importance-Performance Matrix Analysis (IPMA)

Importance-Performance Matrix Analysis (IPMA) is also known as Impact-Performance Matrix Analysis (IPMA), and Hair et al. (2017) considered it a useful tool for extracting managerial implications. This tool is valuable because it expands the results of partial least squares structural equation modeling (PLS-SEM) estimations by comparing the total effect of independent variables on a target variable with the mean scores of those variables (Hair et al., 2017). The total effects indicate the importance of the independent variables in explaining the target latent variable, while the mean scores reflect the level of performance. The primary goal of this analysis is to identify exogenous variables that are highly important to the target endogenous variable but exhibit relatively low performance according to their mean scores (Hair et al., 2017). Thus, this analysis provides valuable information for decision-makers to direct efforts toward improving the performance of variables that are considered to have the greatest influence on the target variable but are relatively underperforming. On the other hand, IPMA is useful because it combines the importance and performance dimensions to provide additional insights into the practical applications of PLS-SEM. This clearly identifies variables that need improvement based on their level of importance. In this study, IPMA was performed as a next step using "leadership development" as the outcome variable. It was estimated that the total effects reflect the importance of the antecedent variables in shaping the target variable (leadership development), while the mean scores of the variables reflect the level of performance. Performance indicators were calculated by rescaling the variable scores to a scale from 0 (lowest performance) to 100.

Table 4.6: IPMA – Importance-Performance Map Analysis (IPMA) of Impact on Leadership Skill Development

Latent Variables	Total Effect on Leadership Skill Development (Importance)	Performance Values (Output)
Use of Artificial Intelligence	0.525	71.963
Participation in	0.322	66.486

Extracurricular Activities		
Participation in Voluntary Programs	0.256	67.229
Leadership Motivation	0.179	76.371

5. Discussion of Hypotheses

In this section of the research, the results of testing the hypotheses established within the theoretical framework of the study are analyzed and discussed, based on intrinsic motivation theory and social learning theory. Statistical analysis was conducted using partial least squares (PLS) to explain the strength of the relationships between the independent variables (such as the use of artificial intelligence, participation in extracurricular activities, and volunteer programs) and the dependent variable (the development of student leadership skills).

Intrinsic motivation theory is based on the premise that individuals are internally motivated when they feel competent, independent, and a sense of belonging. This is reflected in the development of leadership skills when educational activities and initiatives are self-motivated. On the other hand, social learning theory highlights the importance of learning through observation and modeling, as participation in volunteer and extracurricular activities provides a social learning environment that fosters the acquisition of leadership behaviors through interaction with others. The results indicate strong support for many of the hypotheses proposed, reflecting consistency with previous literature and confirming the effectiveness of integrating these two theories in explaining the relationship between modern educational practices and student leadership development. 1.5 Interpretation of the Results on the Relationship between the Use of Artificial Intelligence and the Development of Leadership Skills in Students

The research results confirm a strong, statistically significant, positive association between the use of AI technologies and the development of leadership skills in students, highlighting the growing role of AI as an effective educational tool in enhancing personal and cognitive capabilities. The integration of AI into educational environments opens new horizons for interactive and personalized learning experiences. These technologies can provide immediate feedback and learning styles that adapt to the student's level and needs, enhancing student independence and fostering initiative, an essential quality for leaders. Additionally, technologies such as intelligent simulation, virtual reality-enhanced learning, and behavioral analytics platforms enable students to assume leadership roles in safe virtual learning environments that enhance their ability to make decisions, assume responsibility, work collaboratively, and think strategically. (Fullan et al., 2024)

On a practical level, educational institutions in Qatar can benefit from these findings by integrating AI into curricula in a systematic and thoughtful manner, and developing educational platforms based on predictive analytics to identify students' leadership tendencies

and guide them toward appropriate learning paths. Additionally, AI-based interactive workshops and projects can be implemented to enhance problem-based learning and train students on realistic leadership scenarios. Furthermore, designing digital training programs that focus on communication skills, conflict resolution, and decision-making, supported by AI technologies, can contribute to building a strong foundation of future leadership competencies.

In the Qatari context, this hypothesis gains particular importance given the ambitious national goals aimed at developing human capital, as outlined in the Qatar National Vision 2030. Investing in AI in education is not only a step toward modernizing the education system, but also a strategic foundation for building a generation of leaders empowered with the tools of the digital age, capable of innovating, influencing, and contributing to the sustainable development of society. Therefore, applying the results of this hypothesis in education and training policies is a practical step to enhance the quality of education and youth leadership in Qatar (Al-Kuwari, & Maryam Muhammad Saif. 2024).

5.1 Interpreting the Relationship Between Participation in Extracurricular Activities and Students' Leadership Skills

The study results indicate a positive and statistically significant association between involvement in extracurricular activities and the development of students' leadership skills. This highlights the significant importance of these activities in building students' character and enhancing their leadership abilities. Participation in extracurricular activities—such as student clubs, school councils, competitions, sports and cultural activities, and community projects—provides students with practical opportunities to assume organizational roles, assume responsibilities, and work within diverse teams, all of which are essential elements in the formation and development of leadership skills.

From an educational perspective, extracurricular activities provide a flexible and unconventional environment that enables students to develop skills such as decision-making, effective communication, problem-solving, and planning. They also contribute to enhancing self-confidence and encouraging students to be proactive and creative, enhancing their ability to lead effectively, both within school and in other contexts later in university or professional life. Educational literature demonstrates that trial and error in these activities enables students to gain practical learning that is not available in traditional classrooms. In the Qatari context, this relationship is gaining increasing importance given the growing interest in developing 21st-century skills, such as leadership, teamwork, and innovation, which align with the goals of Qatar National Vision 2030 to build a knowledge-based society. Therefore, enhancing student participation in extracurricular activities is a direct investment in preparing a generation of qualified young leaders capable of responding positively to challenges and contributing effectively to national development. Therefore, it is recommended that educational institutions in Qatar provide a stimulating environment rich in extracurricular opportunities, while adopting evaluation methodologies that systematically and continuously measure the impact of such participation on leadership development (Amani Mukhtar Awadallah 2023).

5.2 Explaining the Relationship Between Participation in Volunteer Programs and Student Leadership Development

Participation in volunteer programs is a key factor in developing students' leadership skills, providing them with real-life opportunities to experience leadership in practical and community settings outside the classroom. Participating in volunteer work fosters students' sense of initiative and responsibility, and develops their communication, negotiation, and decision-making skills, all of which are essential elements in building leadership (Saad bin Abdulaziz Al-Yousef, & Kholoud 2022).

Volunteering provides students with the opportunity to interact with diverse segments of society, contributing to enhancing their social awareness, developing a sense of empathy, and the ability to work within a team. In addition, volunteer tasks often require coordination, time management, and task allocation, placing students in real-life leadership situations that require them to utilize critical and creative thinking strategies to solve problems and achieve goals. From a scientific and educational perspective, recent studies indicate that students who participate in volunteer activities demonstrate higher levels of personal and leadership competence than their peers and have greater confidence in their ability to influence their surroundings. In the Qatari context, this relationship is particularly important, as it aligns with national trends calling for promoting a spirit of active citizenship and social responsibility among young people, in line with the goals of Qatar National Vision 2030. Therefore, encouraging students to engage in volunteer activities, whether through schools or in collaboration with civil society organizations, is an effective way to cultivate a generation of leaders capable of making a positive impact in their communities. It is also recommended that these activities be included in educational plans and skills development programs, with the necessary supervision and support to ensure maximum impact on personal and social leadership.

5.3 Explaining the Interactive Role of Leadership Motivation

Leadership motivation is a key interactive variable in understanding individual differences in the extent to which educational, social, and technological factors influence students' leadership development. It represents a student's internal desire to influence, achieve goals, and assume responsibility, which can enhance or diminish the impact of other factors associated with building leadership capabilities.

When examining the relationship between the use of artificial intelligence and leadership development, it appears that students with high leadership motivation are more willing to adopt modern technologies effectively and strategically. They not only use AI tools for traditional academic purposes but also seek to employ them to enhance their skills in analysis, planning, problem-solving, and decision-making. Furthermore, they tend to explore AI applications in real-world leadership situations, such as project management or informed group decision-making. Conversely, low leadership motivation may lead to superficial use of technology, without truly benefiting from it in developing personal and leadership capabilities. Regarding participation in extracurricular activities, such as student clubs, cultural, or sporting events, leadership motivation plays a significant role in determining how

a student engages with these opportunities. While some students are content with superficial participation, students with strong leadership motivation seek to assume leadership roles in managing and organizing activities and making strategic decisions within teams, providing them with practical leadership experience that cannot be acquired in traditional classroom settings. This motivation also motivates students to face the challenges and pressures associated with leadership, contributing to the development of their leadership personality.

Regarding participation in volunteer programs, the leadership impact resulting from such participation is not automatically achieved by all students; rather, it depends largely on their level of leadership motivation. Highly motivated students view volunteer work as a real opportunity to acquire leadership skills such as social impact, ethical leadership, conflict resolution, and working within multidisciplinary teams. They also demonstrate a deep understanding of the importance of volunteer work as a path to building a comprehensive leadership resume, which positively impacts their personal and professional development. In contrast, a student with low motivation may view volunteering as a mere requirement or a secondary activity, without benefiting from its real leadership opportunities.

In addition, leadership motivation enables students to make the most of social interactions within the family, school, and wider community. Social situations teach students how to manage relationships, negotiate, and influence others constructively. Thus, leadership motivation acts as a link between individual, social, and environmental factors, transforming them from fixed elements into active catalysts for building an integrated leadership personality.

In practical terms, this highlights the importance of designing educational and training programs aimed at enhancing intrinsic motivation for leadership. This can be achieved through:

1. Providing real leadership opportunities in educational and volunteer activities.

2. Integrating leadership concepts into the curriculum.

3. Providing inspiring role models and successful leadership experiences.

4. Using self-assessment and feedback to enhance leadership awareness.

5. Supporting students in developing personal development plans that include clear leadership goals.

In short, leadership motivation not only serves as a facilitator, but also serves as the driving force that transforms educational, social, and technological opportunities into authentic leadership experiences, ensuring the sustainability of educational impact and contributing to the development of a generation of leaders capable of making a difference in their environments and communities.

5.5 Scientific and Practical Contribution

This study offers a significant scientific contribution by presenting an integrated model that explores the relationship between artificial intelligence use, participation in extracurricular

activities and volunteer programs, and the development of leadership skills among secondary school students. By introducing leadership motivation as an interactive variable, the model provides deeper insights into how the impact of these factors varies according to students' intrinsic motivation. It is among the first studies to apply structural equation modeling (PLS-SEM) in the Qatari educational context, enhancing the robustness of the model and supporting the generalization of findings to similar settings in the Gulf region. Additionally, the research enriches the limited Arabic literature on educational leadership by addressing cultural and contextual dimensions often overlooked in studies focused on Western or Asian contexts.

On a practical level, the study presents actionable, evidence-based recommendations for educators, curriculum designers, and policymakers. It underscores the strategic role of artificial intelligence in fostering critical leadership skills like decision-making and problem-solving when integrated into the curriculum and classroom activities. It also highlights the importance of extracurricular and volunteer programs as effective channels for nurturing leadership traits such as responsibility and teamwork. Moreover, the study advocates for leadership development initiatives aligned with local culture, such as innovation competitions and summer programs, contributing to Qatar National Vision 2030 by supporting the development of youth leadership and digital innovation within the education system.

6.5 Limitations and Future Recommendations

The study faces several limitations, most notably its exclusive reliance on a quantitative approach through questionnaires, which may overlook the qualitative dimensions of students' experiences and leadership behaviors. Furthermore, the study is limited to a sample of secondary school students in the Qatari context, limiting the generalizability of the results to other age groups and educational communities. The study also relied on self-reports, which may be affected by social bias or exaggeration. Furthermore, its cross-sectional nature prevents the tracking of leadership developments over a longer period of time, making it difficult to establish precise causal relationships. Future Recommendations:

Future studies using mixed methods (quantitative and qualitative) are recommended to gain a deeper understanding of the behavioral and psychological dimensions associated with student leadership. They should expand the geographical scope to include comparisons between Gulf countries and the Arab world to understand the impact of cultural contexts, and target different age groups to examine leadership development across educational levels. It is also recommended to incorporate the views of teachers and parents to form a more comprehensive vision, design longitudinal studies that track the development of leadership skills over the long term, and adopt experimental research designs to examine causal relationships with greater precision and reliability.

Conflict of Interest Declaration

The authors declare that there is no conflict of interest regarding the publication of this paper.

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Competing Interests

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