# Research Article

# Investigating the psychological and social influences on leadership formation in educational settings

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## ABSTRACT

This study employs qualitative research methods to explore the factors influencing the development of student leadership among university students. Through the use of open-ended questionnaires and semi-structured interviews, we obtained in-depth insights into participants' experiences and perspectives. This qualitative approach facilitates a comprehensive examination of key influences, including emotional intelligence, family support, educational environments, and hands-on leadership experiences. Thematic analysis identified four major themes: pathways to acquiring leadership experience, essential leadership competencies, external influences on leadership development, and areas for improvement in leadership training programs. The findings highlight the complex and multifaceted nature of leadership growth, emphasizing the critical roles of emotional intelligence and practical opportunities in cultivating effective leadership among students. This research offers valuable insights to inform leadership development initiatives in higher education contexts.

*Keywords:* leadership development; student leadership; university students; social environment; emotional intelligence

## 1. Introduction

With globalization accelerating, the demand for leadership development has become increasingly urgent. Cross-cultural communication, problem-solving in complex scenarios, and team leadership are critical skills in the global workplace. According to the Future of Jobs Report[1], leadership is one of the most essential skills for future employment. In the post-pandemic era, organizations emphasize leadership to drive collaboration and innovation, while the United Nations' SDGs highlight its role in sustainable development. A lack of leadership skills among students can lead to challenges in navigating professional and societal demands, reducing competitiveness, teamwork, and problem-solving abilities, and ultimately hindering collective achievements[2]. Experiential learning-based leadership models are vital for cultivating global perspectives and practical skills. Researchers note that leadership, encompassing motivation, communication, and practical abilities, enhances comprehensive development. This study adopts qualitative methods to identify key influences on leadership development, explore region-specific elements, and design models to enhance students' leadership skills and global readiness[3].

By utilizing open-ended questionnaires and semi-structured interviews, this study aims to provide a more comprehensive and detailed perspective, revealing the critical roles of factors such as emotional intelligence, family support, campus environment, and practical leadership experiences in the development of student leadership[4,5]. This approach not only highlights individual differences but also explores how students shape and enhance their leadership abilities within specific socio-cultural contexts[6]. Our research will offer valuable insights for educators and policymakers, helping them better understand and support students' needs in leadership development.

The development of student leadership is a widely discussed topic in higher education[7]. The cultivation of student leadership is not only crucial for personal growth but also essential for preparing university students to navigate complex social environments and take on societal responsibilities. In today's globalized world, where rapid technological changes are occurring, fostering leaders with innovative thinking[8], teamwork skills[9], and decision-making abilities has become a key objective of higher education[10].

Although the focus on student leadership development in education systems began relatively late in some contexts, the growing demand for well-rounded talents in society has led many universities to prioritize leadership development in recent years[11]. University students today face not only academic pressures but also the challenges of adapting to a rapidly changing society and competitive job markets[12]. Therefore, exploring the factors that influence student leadership development is crucial for enhancing students' overall capabilities and preparing them to meet societal demands as future leaders[13].

Furthermore, from a global perspective, this study not only examines the differences in leadership development across cultures and nations but also pays particular attention to the unique influences of various regions and cultures on leadership cultivation. In multicultural settings, the definition and development of leadership may significantly differ due to varying educational systems, social cultures, and regional contexts[14]. For instance, Western countries often emphasize individualism and self-expression in leadership styles[15], whereas Eastern cultures tend to focus on collectivism and harmonious teamwork[16]. Additionally, educational policies and curricula in different countries play distinct roles in shaping students' leadership competencies. These cross-cultural factors contribute to the diverse pathways of leadership development, necessitating a global perspective to understand and respect the varying leadership needs and practices in different regions[17]. Therefore, this study provides an in-depth analysis of regional leadership development characteristics while offering an international perspective on leadership cultivation strategies in a globalized context. These findings provide valuable insights for leadership development initiatives in higher education, particularly in addressing the challenges of designing and implementing effective leadership training programs that are sensitive to the cultural and educational differences inherent in the increasingly globalized educational environment.

Existing research indicates that the factors influencing student leadership development are complex and diverse, encompassing personal traits[18], family background and social environment[19], among others. However, in reality, adolescents are becoming increasingly individualized, and each person may exhibit different factors affecting their development based on their unique characteristics. For example, emotional intelligence plays a critical role in shaping how students handle interpersonal relationships and team dynamics, which can significantly impact their leadership potential[20]. Additionally, factors such as self-motivation[21], resilience[22], and adaptability[23] may vary greatly from one individual to another, further influencing their leadership growth. Therefore, understanding these individualized factors is essential in developing a more nuanced approach to fostering student leadership. Therefore, this study proposes the following three research objectives: (1) To explore the primary factors influencing the development of

student leadership among university students; (2) To identify key elements of leadership models tailored to the unique characteristics of university students; (3) To develop a leadership model that enhances students' leadership skills, personal development, and readiness for the global workforce.

This study focuses on an in-depth analysis of the macro and micro factors influencing the development of student leadership among university students. Based on this focus, our research question (RQ) is: What are the primary influences on the development of student leadership among university students in China, and how do these influences facilitate their growth as leaders? Specifically, we will examine the impact of factors such as team activities, family environment, school environment, and emotional intelligence on the development of student leadership, and explore how these factors interact to promote students' growth in leadership skills.

# 2. Literature review

## 2.1. Student leadership

Student leadership refers to the leadership abilities and behaviors exhibited by university students in academic, social, and extracurricular contexts[24]. It encompasses not only leadership roles in organizations but also skills such as teamwork, problem-solving, communication, and coordination. The development of student leadership depends not only on individual characteristics but also on educational background, social environment, cultural factors, and influences from peers and mentors.

Specifically, student leadership can be divided into several key areas. Firstly, Self-Leadership. This forms the foundation of student leadership, where students are able to self-motivate, set goals, manage time and resources, and maintain self-discipline to overcome challenges. Self-leadership skills contribute significantly to students' academic success and future career development[25]. Secondly, teamwork and collaboration. Student leadership is not only about individual capabilities but also involves the ability to collaborate with others. In a team, students need to coordinate differing opinions, foster cooperation among team members, and facilitate the resolution of conflicts while promoting team goals[26]. Additionally, communication and decision-making. Effective communication and decision-making are crucial components of student leadership. Students must be able to clearly express their ideas, listen to others, and make wise decisions based on the context[27]. Social responsibility and ethics. Student leadership also includes taking on social responsibility and demonstrating ethical awareness and good values. Leaders often engage in community service and volunteer work, reflecting their commitment to social and others' well-being[28].

Student leadership is a multidimensional concept that is not limited to students holding formal leadership positions in organizations. It refers to any student who demonstrates leadership potential within or outside the campus. Through education, training, and practice, students' leadership abilities can be developed, which is significant for their future career progression and societal contribution[29].

## 2.2. Factors and models of student leadership

Research on the primary factors influencing the development of student leadership among university students is extensive, covering individual, social, and educational aspects[30-32]. Key individual factors include self-efficacy, emotional intelligence, personality traits, and motivation, which have all been identified as critical in leadership development. For instance, Urdan and Pajares[33] suggested self-efficacy theory that students' beliefs in their abilities are crucial for their leadership growth. Emotional intelligence[34] and personality traits, such as extraversion and conscientiousness, are also essential in shaping students' leadership potential. Social factors, including peer influence, mentorship, and family support, are also vital in nurturing leadership abilities. Komives, Owen[35] emphasize the positive impact of peer relationships and

mentoring on leadership development, while involvement in extracurricular activities and student organizations provides students with valuable hands-on leadership experience[36]. Educational institutions also play a significant role in fostering leadership development, with leadership training programs and a supportive campus climate proven to enhance students' leadership skills[28].

The research on leadership models tailored to the unique characteristics of university students suggests that such models should reflect students' personal growth, psychological development, and cultural backgrounds. Development-oriented models focus on fostering students' self-awareness, emotional management, and teamwork abilities to help them develop well-rounded leadership qualities. Kezar[37] argues that leadership models should not only focus on role performance but also on personal growth. Contextual models, on the other hand, emphasize the need for leadership frameworks that adapt to the diverse challenges and cultural contexts that university students face[29]. Furthermore, competency and self-efficacy models highlight the importance of building students' awareness of their own skills and abilities, providing structured growth pathways and feedback to enhance their leadership development.

Research into developing leadership models that enhance students' leadership skills, personal development, and readiness for the global workforce is increasingly important. Globalization has led to a focus on leadership models that incorporate international and cross-cultural communication skills, which are essential for students to thrive in global environments. Astin[38] highlights the importance of fostering global perspectives in leadership development. Additionally, interdisciplinary leadership models, integrating skills from public management, social responsibility, and professional ethics, are considered crucial for preparing students for the complexities of the global workforce. Personalized and competency-based models, which cater to students' individual needs, have also been shown to help enhance leadership skills and readiness for global challenges[39]. Overall, future research could further explore how to integrate these factors and create more targeted models to better equip students for the global workforce.

# 3. Methodology

## 3.1. Research methods

This study employs qualitative research methods to explore the various factors influencing the development of student leadership among university students in Guangdong Province. By using open-ended questionnaires and semi-structured interviews, we can gather authentic experiences and perspectives from students regarding their leadership development. The advantage of this approach lies in its ability to capture individual uniqueness while revealing the deeper factors affecting leadership growth within complex social and cultural contexts. Compared to traditional quantitative research, qualitative research places greater emphasis on participants' subjective experiences and environmental factors, providing a more comprehensive perspective on students' leadership development.

## 3.2. Research setting

The target population of this study is divided into two main categories, each with unique objectives. The first category comprises undergraduate students and above in Guangdong Province, China. The selection of 67 universities and colleges in Guangdong Province as the sample source was primarily to ensure the representativeness of the sample and the feasibility of the study. These institutions cover various types of higher education establishments, providing a broad representation of the university student population in Guangdong.

The data was collected from 67 universities and colleges in Guangdong Province. The total number of enrolled students at these institutions was 1410781. To ensure the representativeness of the sample, the

sample size was determined based on 1% of the total number of enrolled students at each institution. The main reason for using a 1% sampling rate was to ensure the representativeness of the sample while also considering the feasibility of the study and the efficiency of data processing. Specifically, a 1% sampling ratio ensures an adequate sample size to maintain the validity and reliability of statistical analysis, while also avoiding excessive resource consumption and the analytical burden associated with a very large sample[40]. This ratio typically balances the breadth of the sample with the complexity of data processing, making it a common and reasonable sampling method. Kish[41] argued that a 1% sample size is a reasonable compromise in large-scale surveys, as it ensures the representativeness and accuracy of the results while reducing the complexity of data collection and processing. Using a 1% sample size strikes a reasonable balance between the breadth of the sample and the complexity of data processing. While increasing the sample size can improve the coverage of the study, a very large sample would complicate data collection and analysis, potentially exceeding the time and resource capacity of the researchers. A 1% sampling rate typically ensures the feasibility of the study while avoiding the excessive burden of handling an overly large sample. Furthermore, the 1% sample rate is widely used in large-scale surveys, especially in population-based research, and is considered a proven and economically efficient sampling method.

Initially, 1402 questionnaires were planned for distribution. However, due to incomplete responses in some questionnaires, an additional 100 were distributed, bringing the total to 1502. In the end, 1420 valid questionnaires were collected, with 82 excluded due to incomplete or illogical information, resulting in a response rate of 94.54%, demonstrating excellent questionnaire accuracy[42]. Comrey and Lee thought that a sample size of over 1,000 participants demonstrates excellent survey accuracy. Therefore, they encouraged researchers to obtain samples of 500 or more observations whenever possible. They urged researchers to obtain samples of 500 or more observations whenever possible[43]. Additionally, this study fixed the survey scope to senior undergraduate students, which helps reduce the confounding effects caused by grade differences and ensures more precise results. Students in different academic years may differ in their academic stage, psychological development, and leadership experiences, especially with significant developmental differences between undergraduates and postgraduate students in terms of leadership. Therefore, selecting a specific academic year as the sample scope allows for a more focused exploration of this academic issue and provides more targeted research conclusions.

This study explores their views on the development of student leadership by distributing an open-ended questionnaire to selected university students. The questionnaire includes three open-ended questions: leadership experiences during university, areas for improvement in leadership development, and factors that promote leadership development.

The second category includes university faculty members with at least an undergraduate degree in Guangdong Province. For this population, the study employs semi-structured interviews, conducting structured interviews, semi-structured interviews, and focus group discussions with 15 participants. By integrating the results from the questionnaires, interviews, and existing academic literature, this study investigates the components of student leadership development in higher education institutions and further develops the 'Student Leadership Index Survey (Preliminary Survey)'.

Regarding the open-ended questionnaire, this study randomly selected 1% of students currently enrolled in undergraduate programs and above in Guangdong Province to distribute the questionnaires, with the results integrated to form final answers. Each interview is meticulously documented in writing and recorded with the consent of the participants to ensure the accuracy of the collected data. Each interview is expected to last approximately 30 minutes. For the semi-structured interviews, content analysis methods are used to

examine the textual data, involving coding the responses to identify recurring themes, patterns, and viewpoints in the development of student leadership.

The focus of the analysis is to clarify students' views on the effectiveness of current leadership courses, their personal leadership experiences, and their suggestions for enhancing leadership education. The final stage of data analysis includes validating the proposed student leadership model based on the research objectives and the data collected. This phase assesses the model's comprehensiveness, its applicability to the target population, and its potential to inform policies and practices in higher education institutions. Additionally, feedback from expert focus groups may be incorporated to further refine and validate the model. Our reporting method adheres to the American Psychological Association (APA) guidelines for the publication of qualitative empirical research[44].

### 3.3. Research design

This study employs open-ended questionnaires and interviews as the primary methods to explore the nuances of student leadership development in Guangdong Province. This approach aids in gaining a comprehensive understanding of students' perspectives, experiences, and the contextual factors influencing their leadership growth. The steps of this qualitative research are as follows:

### *Step 1: Preparation and Question Design*

The research team first designed thoughtful open-ended questions that align with the research objectives. These questions aim to explore the factors influencing leadership development, including personal experiences, the impact of education and family environment, and the role of individual psychological qualities. The goal is to encourage detailed responses, thereby providing rich qualitative data.

### *Step 2: Recruitment of Participants*

The next step is to recruit individuals for the semi-structured interviews. We invited 15 respondents who represent a wide range of disciplines, leadership experiences, and backgrounds. This diversity ensures that the research findings reflect a broad perspective on leadership development. The research team confirmed interview times with each respondent to ensure they had the time and willingness to participate in the study.

### *Step 3: Conducting Semi-Structured Interviews*

Once participants were recruited and interview questions prepared, the researchers conducted semi-structured interviews. These interviews allowed for flexible discussions, enabling interviewers to explore certain topics in greater depth as they arose. Each interview was conducted with an open mindset, allowing respondents to freely share their experiences and insights.

### *Step 4: Interview Recording*

To ensure the accuracy of data collection and analysis, all interviews were recorded with the participants' consent. Recording the interviews allows researchers to capture the full depth of the conversations, facilitating comprehensive analysis of the content. The recordings will be used solely for research purposes and will be kept confidential and anonymous for participants.

### *Step 5: Coding Analysis of Interview Content*

After conducting the interviews, the research team performed coding analysis of the interview content. This included listening to recordings and reading transcripts to identify common themes, patterns, and insights related to leadership development. The coding process was iterative; as more data were analyzed, the codes and themes were continuously refined. This systematic analysis aids in distilling qualitative data into meaningful conclusions.

### *Step 6: Qualitative Comparative Analysis of Small Sample*

Finally, this study employs Qualitative Comparative Analysis (QCA) to analyze data obtained from a small sample of interviews. QCA is a method that identifies commonalities and differences between cases, helping us gain deeper insights into the conditions affecting student leadership development. This analysis complements the coding process and provides a structured approach to understanding the complex interactions between various factors influencing leadership growth.

### 3.4. Analytic approach

In this study, we employed the thematic analysis method proposed by researchers to explore and understand the complex factors influencing student leadership development in Guangdong Province[45]. Thematic analysis is a flexible qualitative analysis method suitable for extracting potential patterns and themes from textual data, thereby revealing the diversity and complexity of the research topic.

The analysis process involves several stages: first, we conducted a detailed semantic unitization and preliminary coding of the large volume of semi-structured interview data collected. Next, we systematically organized the codes and identified potential themes to capture the facilitating and hindering factors of leadership development. Then, we verified and defined each theme through repeated review and discussion, ensuring that they adequately reflected the complexity and diversity of the data. Finally, we compared and interpreted the established thematic model with existing literature and theories to deepen our understanding of the factors influencing student leadership development in Guangdong Province.

Through this analytical approach, we were able to uncover key themes hidden within the textual data, revealing not only the multidimensionality of leadership development but also providing a theoretical and empirical foundation for designing and implementing effective interventions.

### 3.5. Reflexivity

In the thematic analysis process of this study, reflexivity is a crucial component for ensuring the quality and credibility of the research. According to Finlay[46], the researchers' subjectivity and background may influence the processes of data collection and analysis. Therefore, throughout the study, we remained aware of our own positions and reflected on how these might affect the interpretation of the data. As researchers, we endeavored to maintain an open attitude during interviews and data analysis, actively listening to participants' voices to gain a more comprehensive understanding of their experiences and perspectives[47].

Moreover, to enhance the transparency and reliability of the research, we engaged in team discussions and collective reflections during the data coding and theme formation process. This collaboration not only helped us identify themes more objectively but also ensured the integration of diverse perspectives, thereby reducing the influence of individual biases on the analysis results[48]. At each stage of the thematic analysis, we regularly reviewed and reflected on the study's objectives, processes, and outcomes to confirm that our analysis aligned with the participants' authentic experiences and backgrounds. This reflexive approach not only strengthened the rigor of the research but also enhanced the credibility of the results, making them more academically valuable.

# 4. Results analysis

## 4.1. Results summary

This study uses both questionnaires and interviews to achieve the three research objectives proposed for exploring the university student leadership development model. These three objectives are interrelated and advance each other. Objective 1 focuses on identifying the primary influences on student leadership

development, such as emotional intelligence, family support, and practical leadership experience. This foundational understanding lays the groundwork for achieving Objective 2, which explores the development of a leadership model appropriate for the unique characteristics of Guangdong Province. Insights gained from Objective 1 support the elements of the leadership model in Objective 2. Finally, Objective 3 aims to develop a leadership model that enhances students' leadership skills, personal development, and readiness for the global workforce. This model directly applies the findings from Objectives 1 and 2, integrating specific influences and global leadership demands.

Additionally, as shown in **Figure 1**, there is a close connection between the three research objectives and the model. **Figure 1** illustrates the core components of university student leadership development, including interpersonal relationships, motivation, attitude, and various contextual and self-awareness factors, which align with the research objectives. Objective 1 is linked to the model by identifying the primary factors influencing leadership development, which form the basis of the leadership model elements in Objective 2. Objective 2 focuses on a leadership model suited for Guangdong Province, examining how local characteristics and cultural context affect the model's components. Objective 3 is directly connected to the model, proposing a structured leadership model aimed at enhancing students' leadership skills and global employability, ensuring that the model incorporates both local and global elements. Section 4 ties these objectives to the model, discussing how the research findings can be applied to a comprehensive leadership development framework.
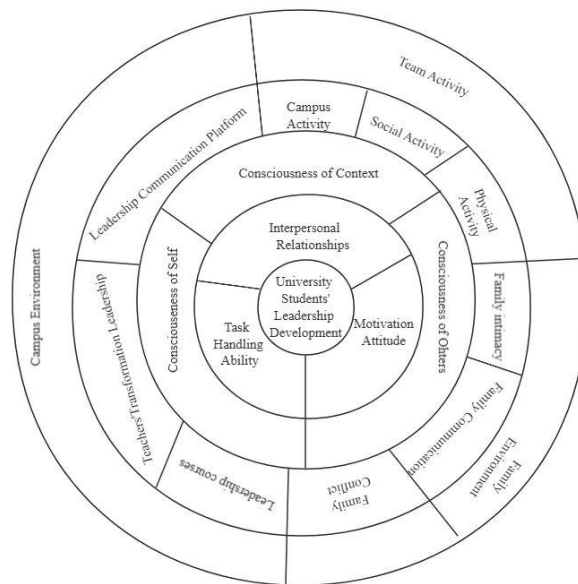


**Figure 1.** The Model of university student leadership development.

In the data analysis, four key thematic codes and their respective sub-themes were identified. Overall, 16 study participants indicated that group activities, family environment, and campus environment all have a certain influence on the leadership development of university students, with the cultivation of emotional intelligence playing a very important role in this process. Through a preliminary reading of the interview summaries and answers to open-ended questions, we identified some recurring themes. Therefore, we arranged the four key themes in a (provisional) logical order. The table below outlines all four thematic codes and their sub-codes, which represent the core findings of our interviews. **Table 1** lists the four key thematic codes used for data analysis, along with their sub-themes and illustrative quotes from respondents.

Each quote is marked with a pseudonym for anonymity. The following sections will further elaborate on each theme.

**Table 1.** Qualitative themes and subthemes alongside illustrative quotes.

| Thematic code | Subtheme | Illustrative quotes |
|---|---|---|
| Ways of Gaining Leadership Experience | Organizing Activities | *"In organizing activities, I learned how to coordinate differing opinions and inspire students' enthusiasm, thus fostering their sense of participation and belonging."* (Hu) |
| | Leading Student Teams | *"I served as the organizer for a club activity, where I learned how to coordinate the work of team members."* (Zhou) |
| | Class Representative | *"As the class representative, I successfully promoted class activities, which enhanced my communication skills."* (Li) |
| | Team Leader | *"As the leader of a research group, I guided members in completing a research project, which strengthened my sense of responsibility."* (Hua) |
| Skills Required for Leadership Development | Communication Skills | *"Organizing class discussion sessions has enhanced my listening skills and communication techniques."* (Zhang) |
| | Teamwork | *"I participated in a volunteer project, where I was responsible for organizing activities. This made me realize the importance of teamwork and that leaders need to motivate team members to work together towards common goals."* (Ke) |
| | Innovative Thinking | *"I was involved in an entrepreneurship club and served as the vice president, responsible for planning events and recruiting new members. This helped me understand that leaders need to possess innovative thinking and the ability to drive team development."* (Liu) |
| | Adaptability | *"I was responsible for organizing the volunteer team. This taught me how to delegate tasks and leverage each person's strengths to achieve common objectives."* (Wang) |
| The Role of External Factors | Increasing Practical Opportunities | *"Strengthening cooperation with enterprises to provide internships and project experiences enhances students' workplace adaptability."* (Yang) |
| | Interdisciplinary Courses | *"Promoting collaboration among different disciplines helps students understand leadership from multiple perspectives."* (Dong) |
| | Emotional Intelligence Training | *"Emotional intelligence training is an important area for improvement; enhancing students' emotional management and interpersonal skills will boost their leadership effectiveness."* (Ma) |
| | Leadership Style Awareness | *"The area most in need of improvement in current university leadership development programs is leadership style training, which can help students recognize and develop their own leadership styles to meet the diverse needs of teams."* (Lin) |
| Directions for Improvement in Leadership Development | School Resources | *"Schools can regularly hold workshops to enhance students' practical abilities and leadership skills."* (Xu) |
| | Family Support | *"Students from supportive families tend to be more confident, and the rich practical opportunities provided by schools can effectively enhance their leadership skills."* (Chang) |
| | Internship Experience | *"Schools should collaborate with enterprises to offer leadership internship opportunities, allowing students to develop their skills in real work settings."* (Zhu) |

## 4.2. Ways of gaining leadership experience

This thematic code generated three sub-themes: (a) organizing activities; (b) leading student teams; (c) class representative; (d) team leader. The first sub-theme involves students' experiences in organizing activities during their university years. For example, one respondent described their experience as an organizer in a club activity: "I learned how to coordinate the work of team members... After the event was successfully completed, I felt that my leadership skills had greatly improved." (Hua). Another respondent mentioned, "As the captain in an on-campus competition, I not only had to develop a plan but also motivate the members; this experience helped me a lot." (Ming). These experiences helped students enhance their organizational and team management skills.

The second sub-theme focuses on students' experiences in leading teams. Some students took on leadership roles in volunteer projects or academic groups. For instance, "Leading a small group to complete a course project required not only task delegation but also ensuring that each member completed their work on time, which taught me how to motivate and guide the team." (Li). These team leadership experiences allowed students to deeply understand that leadership is not just about directing, but also about enhancing the overall performance of the team through motivation and communication.

The third sub-theme is related to the role of class representatives. Several respondents mentioned the leadership skills they learned as class representatives: "As the study committee member of my class, I had to help my classmates review and communicate with teachers about the course schedule, which enhanced my communication skills." (Wei). This experience as a class representative helped students better understand the importance of communication in leadership, especially in team collaboration and task coordination.

The fourth sub-theme pertains to the experience of being a team leader. Students participating in large-scale projects both on and off-campus often take on team leader roles, responsible for coordinating and supervising the overall progress of the team. "I served as the group leader in a volunteer activity, overseeing the planning and implementation of the entire event, which taught me a lot about how to deal with unexpected issues." (Peng). This leadership experience strengthened their sense of responsibility and adaptability, better preparing them for complex leadership situations in their future careers.

## 4.3. Skills required for leadership development

This thematic code generated four sub-themes: (a) teamwork; (b) innovative thinking; (c) communication skills; (d) adaptability. The first sub-theme emphasizes the importance of teamwork in leadership development. Many respondents mentioned that successful leadership often relies on the ability to collaborate effectively within a team. One student noted, "While planning campus events, I learned how to work with members from different departments, clearly defining our roles, which ultimately led to the successful execution of the event. This made me deeply appreciate the importance of teamwork." (Wang). By working together with others, students not only enhanced their leadership abilities but also learned how to foster cooperation and trust among team members.

The second sub-theme revolves around innovative thinking. Creativity was viewed by several respondents as a vital trait of effective leaders. "While organizing an entrepreneurship competition, I tried some new methods to motivate team members to innovate, and as a result, our project achieved good results in the competition," said one respondent (Li). Through such experiences, students discovered that innovative thinking not only stimulates the creativity of the team but also injects new energy into their leadership styles.

The third sub-theme focuses on communication skills. Strong communication skills are considered one of the core competencies that leaders must possess. "As a class representative, I learned how to communicate effectively with classmates, teachers, and school officials, ensuring that everyone's opinions were balanced and conveyed," (Zhang). This experience made students realize that communication is not just about expressing oneself; it is equally important to listen and provide feedback to ensure that the voices of team members are valued.

The fourth sub-theme addresses adaptability, particularly in response to unexpected situations. "While organizing the campus sports meeting, the weather suddenly worsened, and I had to quickly adjust the event schedule and coordinate with all relevant personnel. This experience taught me how to calmly handle emergencies," (Liu). Through this experience, students improved their decision-making abilities and flexibility under pressure, ensuring that the team could continue to operate effectively amidst changes.

## 4.4. The role of external factors

This thematic code generated four sub-themes: (a) increasing practical opportunities; (b) interdisciplinary courses; (c) emotional intelligence training; (d) leadership style awareness. The first sub-theme is increasing practical opportunities. Many respondents emphasized that practical opportunities are crucial for enhancing leadership skills. One student stated, "As the team leader during my internship, I learned how to apply the leadership skills I learned in a real work environment. This practical opportunity has made me more confident about my future career development" (Chen). Through practice, students can hone their leadership abilities in real-life situations and reinforce the theoretical knowledge gained in the classroom.

The second sub-theme involves the establishment of interdisciplinary courses. Many students believe that leadership is not limited to a specific discipline but requires a multidisciplinary knowledge base to better address complex issues. "By taking elective courses in management and psychology, I learned how to view leadership issues from different perspectives, which helped me provide more constructive suggestions in the team" (Zhao). Interdisciplinary courses broaden students' horizons and help them integrate knowledge from various fields to enhance their decision-making abilities.

The third sub-theme is emotional intelligence training, which is considered key to enhancing leadership effectiveness. "In the emotional intelligence training, I learned how to better understand and manage my own emotions while also being able to perceive the emotional states of team members, which is very useful when leading a team" (Yang). Emotional intelligence training helps students better self-regulate in stressful situations while enhancing their ability to handle interpersonal relationships and conflicts.

The fourth sub-theme revolves around leadership style awareness. Respondents generally believe that understanding and developing a leadership style that suits oneself is key to becoming an excellent leader. "Through the leadership style assessment organized by the school, I found that I tend to favor participative leadership, which makes me more focused on listening and collaboration when leading a team" (Chu). Through this awareness, students can adjust their leadership styles based on different teams and situations, enhancing their leadership flexibility and adaptability.

## 4.5. Directions for improvement in leadership development

This thematic code generated three sub-themes: (a) school resources; (b) family support; (c) internship experiences. The first sub-theme is school resources. Many respondents believe that the resources provided by schools are one of the key factors in promoting leadership development. For example, one respondent mentioned, "The leadership workshops and lectures regularly held by the school have given me the opportunity to learn from successful leaders, and their experience sharing has been very helpful for my future career development" (Fen). Additionally, the school provides a comprehensive platform for enhancing leadership skills through various club activities, project management courses, and public speaking training. These resources help students apply their learned knowledge in practice, further enhancing their leadership abilities.

The second sub-theme involves family support. The influence of the family environment on leadership development cannot be overlooked. "My parents have always encouraged me to participate in various school activities, which has made me more confident and composed when facing leadership tasks" (Dong). Many respondents stated that family support not only provides material security but, more importantly, the emotional support and encouragement from their families give them the courage to take on leadership responsibilities when facing challenges. Furthermore, the role model effect of family members has a profound impact on students' leadership styles and values.

The third sub-theme is internship experiences. Internships are widely regarded as an effective way to enhance leadership skills. "During my internship at the company, I had the opportunity to be the leader of a small team, where I learned how to coordinate the work of team members and solve unexpected issues when faced with real projects" (Ma). Internships not only help students apply classroom theory in practice but also cultivate their adaptability, decision-making abilities, and team management skills in a real work environment. These experiences provide students with authentic leadership situations, better preparing them for their future careers.

# 5. Conclusion

Qualitative research highlights the complex interplay of factors shaping university students' leadership development, including emotional intelligence, family support, and practical experiences. As shown in **Figure 2**, these factors are interconnected through three primary dimensions: emotional intelligence, team integration, and environmental support. Strategies such as cultural adaptability training, fostering better interpersonal relationships, and organizing community projects within campus environments play a vital role in nurturing leadership abilities. This study identifies key influences such as communication, teamwork, self-regulation, and innovative thinking, alongside the critical roles of family encouragement and real-world practice opportunities like internships and volunteering. Emotional intelligence, family support, and practical experiences interact in ways that enhance leadership development. For example, emotional intelligence strengthens how students respond to family encouragement, while family support reinforces emotional regulation, boosting resilience in leadership challenges. Practical experiences, such as internships, allow students to apply emotional intelligence in real-world settings, receiving external feedback that complements familial support. These factors together foster leadership qualities like confidence, adaptability, and interpersonal effectiveness, suggesting that leadership growth is shaped by the synergy of emotional, familial, and experiential elements. These factors collectively enhance leadership skills by fostering confidence, adaptability, and interpersonal effectiveness. Conducted in Guangdong Province, the research provides localized insights, while semi-structured interviews offer nuanced perspectives on leadership development. Although exploratory in nature and context-specific, the findings contribute to theoretical understanding and practical recommendations for leadership training, emphasizing the need for broader research to validate and expand these results in diverse cultural settings.
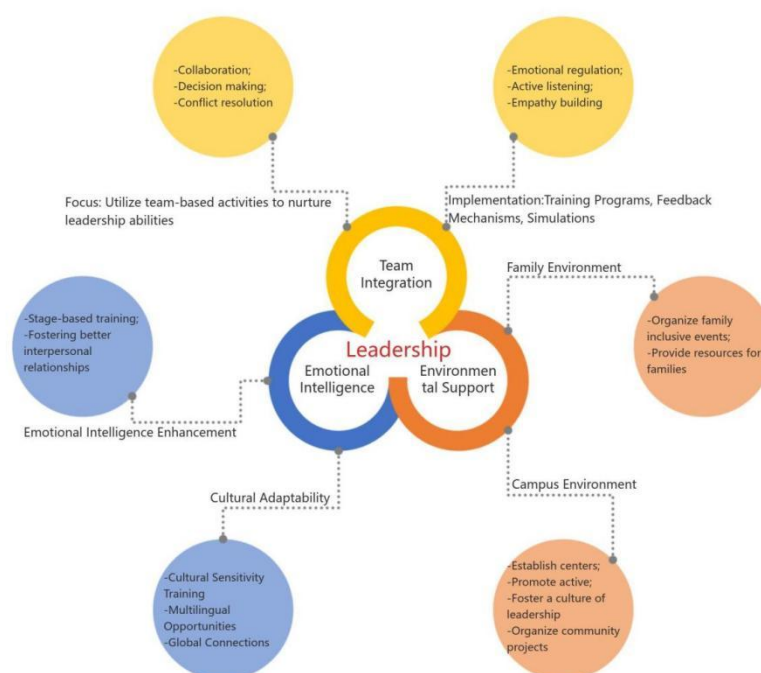
**Figure 2.** Key factors and strategies for leadership development in university students.

## 5.1. Contribution to theory

This study makes significant theoretical contributions to understanding leadership development among university students. By integrating comprehensive literature reviews and empirical research, it identifies key influencing factors such as personal traits, family background, social environment, and emotional intelligence. Emotional intelligence, in particular, is highlighted as a decisive factor in leadership development, aligning with theories like reciprocal determinism[49] and ecological systems theory[50], which emphasize the dynamic interactions among individuals, environments, and behaviors. This finding supports prior research[20] and underscores the importance of incorporating emotional intelligence training into educational practices. Furthermore, the integration of Developmental Systems Theory (DST) and Developmental Context Theory (DCT) offers a multidimensional framework for understanding leadership development, focusing on environmental influences and the interaction between individuals and their contexts. The study also identifies the pivotal roles of family support and school resources, echoing research by Day, Gu [11], which highlights the contribution of family and educational environments to holistic student development. These findings provide a robust theoretical foundation for designing effective leadership training programs and inform educational policies that emphasize the interplay of emotional, social, and environmental factors in fostering student leadership.

## 5.2. Contribution to practice

This study provides valuable insights for higher education institutions to enhance leadership development policies. By emphasizing emotional intelligence and teamwork, universities can incorporate targeted training programs and collaborate with businesses to offer practical experiences, equipping students to face future challenges. The study highlights the role of emotional intelligence in leadership, encouraging educators to design programs that enhance emotional management and interpersonal skills, supporting both leadership growth and workplace adaptability. Additionally, strengthening home-school collaboration through parent education can enhance family support for leadership development. Practical opportunities

such as internships and community projects, along with interdisciplinary curricula, are recommended to broaden students' perspectives, improve problem-solving skills, and elevate their leadership capabilities.

This study provides valuable insights for higher education institutions to enhance leadership development policies. When implementing leadership models, it is essential to adjust them according to different socio-cultural contexts. For example, in Western cultures, leadership often emphasizes individualism and innovative thinking, whereas Eastern cultures place more value on collectivism and teamwork. Educators should design training modules that align with local cultural norms to ensure leadership development is culturally relevant. Additionally, institutional policies play a critical role in supporting such efforts. Governments should formulate policies that encourage universities to collaborate with external organizations, such as businesses and community groups, to offer practical experiences like internships and community projects, helping students develop leadership skills in real-world settings. Furthermore, family support is crucial in leadership development and strengthening home-school collaboration through parent education can significantly enhance this support.

### 5.3. Limitations and future research

This study explores factors influencing university students' leadership development but has several limitations. First, its focus on Guangdong Province limits generalizability, and cross-regional or cross-cultural research would enhance applicability. Second, while qualitative methods provided in-depth insights, they are prone to subjective bias and lack generalizability. Combining qualitative and quantitative methods in future research could improve reliability. Third, it examines leadership development only during university; longitudinal studies could track its evolution beyond graduation. Additionally, macro-environmental factors like social reforms and policy changes were not considered, yet they may significantly impact leadership development. Future research should include these factors. Finally, the study's emphasis on emotional intelligence could benefit from standardized assessments, and including variables such as gender, personality traits, and social support would enrich the findings. Lastly, while emphasizing emotional intelligence, the study lacks systematic assessments of this complex construct. Employing standardized tools in future research could enhance accuracy and provide deeper insights into its role in leadership development. Expanding research to include variables such as gender, personality traits, and social support would further enrich the theoretical framework and practical recommendations for educational policies.

# Conflict of interest

The authors declare no conflict of interest.

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