
Exploring The Entrepreneurial Intentions of Princess Nourah Bint Abdulrahman University Students and The University's Role Aligned with Vision 2030

[Nawal Al Eid](#)*, [Khalid Alkathlan](#), [Mohammad Imdadul Haque](#), [Tarek Yousef](#), [Doaa Mahmoud](#), [Moataz Eliw](#), [Anass Adow](#)

Posted Date: 21 August 2023

doi: 10.20944/preprints202308.1461.v1

Keywords: Entrepreneurial intentions; Female students; Saudi Arabia; Theory of Planned Behavior (TPB); University ecosystem



Preprints.org is a free multidiscipline platform providing preprint service that is dedicated to making early versions of research outputs permanently available and citable. Preprints posted at Preprints.org appear in Web of Science, Crossref, Google Scholar, Scilit, Europe PMC.

Copyright: This is an open access article distributed under the Creative Commons Attribution License which permits unrestricted use, distribution, and reproduction in any medium, provided the original work is properly cited.

Article

Exploring the Entrepreneurial Intentions of Princess Nourah Bint Abdulrahman University Students and the University's Role Aligned with Vision 2030

Nawal A Al Eid ^{1*}, Khalid Alkathlan ², Mohammad Imdadul Haque ³,
Tarek Tawfik Yousef Alkhateeb ⁴, Doaa H.I. Mahmoud ⁵, Moataz Eliw ⁶
and Anass Hamadelneel Adow ⁷

¹ Department of Islamic Studies, College of Arts, Princess Nourah bint Abdulrahman University, P.O. Box 84428, Riyadh 11671, Saudi Arabia

² Professor, Department of Economics, College of Business, King Saud University, PO Box 173 Riyadh 11942, KSA.kathlan@ksu.edu.sa

³ Associate Professor, Department of Economics, Aligarh Muslim University, India. Email: dr.imdad.amu@gmail.com

⁴ Professor, Department of Agricultural Economics, of Agricultural Economics, Kafrelsheikh University, Kafrelsheikh 33511, Egypt; tkhteb1@gmail.com , tkhteb@yahoo.com

⁵ Associate Professor , Economics and Agribusiness Department, Faculty of Agriculture, Alexandria University; Email: doaa.mahmoud@alexu.edu.eg_dhmahmoud@gmail.com

⁶ Department of Agricultural Economics, Faculty of Agriculture, Al-Azhar University, Assiut PO Box 71524, Egypt. Email: moatazeliw@azhar.edu.eg

⁷ Lecturer, Department of Accounting, College of Business Administration, Al-Kharj, Prince Sattam Bin Abdulaziz University, Al-Kharj, Saudi Arabia. Email: a.adow@psau.edu.sa

* Correspondence: Naalaed@pnu.edu.sa.

Abstract: This paper aimed to investigate the entrepreneurial intentions of female students in Saudi Arabia, utilizing the Theory of Planned Behavior (TPB) as the theoretical framework. Employing a quantitative research methodology, data was collected through a questionnaire administered to female students at Princess Nourah University. The results revealed a positive inclination towards entrepreneurship, with over 64% expressing a desire to pursue entrepreneurial ventures in the future. This optimistic trend among female students suggests a potential pool of future entrepreneurs. Interestingly, a small percentage (3.21%) categorically rejected entrepreneurship as a career option, indicating a relatively low level of disinterest in entrepreneurial pursuits. However, many respondents (32%) remained undecided, presenting a valuable opportunity for mentorship and support to cultivate their entrepreneurial intentions. These findings underscore the significance of providing guidance and education to encourage entrepreneurship among female students. The TPB analysis highlighted that attitudes and perceived behavioral control towards entrepreneurship were favorable among female students, indicating a positive mindset and belief in their ability to embark on entrepreneurial endeavors. However, societal norms still exert a negative influence on some student's entrepreneurial intentions, suggesting a need to address cultural barriers that might hinder female students' willingness to pursue entrepreneurship. The study suggests enhancing female entrepreneurship through societal encouragement and support from personal networks. It highlights the importance of fostering entrepreneurial aspirations in female students. Crucially, the study underscores the role of universities in cultivating entrepreneurial intentions by proposing the implementation of entrepreneurship-focused curricula and the creation of university-based training units or incubators.

Keywords: entrepreneurial intentions; female students; Saudi Arabia; Theory of Planned Behavior (TPB); university ecosystem

1. Introduction

Entrepreneurship, a crucial driver for economic dynamism, leads to innovation, job creation, and wealth generation (Alsharif and Alsharif, 2021) [1]. This study explores Princess Nourah bint

Abdulrahman University's (PNU) role in fostering entrepreneurial activities, aiming to align them with Saudi Arabia's Vision 2030. Evaluating PNU's resources, policies, and support mechanisms helps propose enhancements or new strategies tailored to students' needs and Saudi Arabia's entrepreneurial ecosystem (Al-Hanawi, et al., 2019) [2]. Furthermore, understanding PNU students' entrepreneurial intentions within the context of Vision 2030 expands our knowledge of entrepreneurship's impact on economic development. The research outcomes could guide policymakers, educational institutions, and stakeholders in cultivating a vibrant entrepreneurial environment (Saudi Arabian 2030 Vision, 2022) [3]. Despite existing initiatives, gaps remain in comprehending PNU students' entrepreneurial intentions,

Influencing factors, and ways the university can augment support in line with Vision 2030. This study aims to fill these gaps. Insights gained can bolster entrepreneurship promotion at PNU, contributing to wider conversations on female entrepreneurship in Saudi Arabia and its importance in achieving Vision 2030 goals (Alshebami and Al Marri, 2022) [4].

Entrepreneurship, a driver of economic growth, job creation, and market competitiveness, is particularly promoted among youth in countries like Saudi Arabia. Universities, such as (PNU), are pivotal in developing these entrepreneurial skills. Its influence is diverse but integral to sustainable development. Encouraging youth entrepreneurship boosts economic growth and community welfare. Prior research, including Alsharif and Alsharif's study (2021) [1], has explored students' entrepreneurial intentions worldwide, with Saudi Arabia and PNU offering unique insights due to societal and cultural shifts. Understanding PNU students' entrepreneurial aspirations aids in formulating initiatives promoting entrepreneurship that align with Vision 2030's goals (Alsharif and Alsharif, 2021; Al-Hanawi et al., 2019) [1,2]. Assessing PNU students' entrepreneurial readiness aids in devising programs and structures that promote entrepreneurship (Alghamdi and Alghamdi, 2023) [5]. It offers insights into future entrepreneurs' aspirations, motivations, and willingness to innovate and take risks (Gangwani and Ballout, 2020) [6] (GUESSS Survey, 2018) [7]. Saudi Arabia's Vision 2030 highlights youth entrepreneurship as a key to economic diversity and resilience. It accentuates entrepreneurship's role in economic diversification and sustainable growth, calling for supportive environments (Saudi Arabian 2030 Vision, 2021) [8]. Unprecedented reforms were initiated with Vision 2030 to enhance female economic participation. PNU, in line with Vision 2030, fostered an entrepreneurial mindset among students by establishing the Innovation and Entrepreneurship Institute (Badghish, 2019) [9]. Vision 2030 focuses on economic diversification, innovation, and sustainable growth, supporting entrepreneurship by offering resources and regulatory frameworks. PNU contributes to Vision 2030's goals by promoting student entrepreneurship, designing educational programs, and creating industry partnerships, preparing students for entrepreneurial success (Gangwani and Ballout, 2020) [6].

Saudi Arabia has made significant strides in fostering entrepreneurship, as reflected in its improved Ease of Doing Business ranking, from 62nd in 2020 to 24th in 2021. This jump is due to efficient business registration, simplified tax regulations, and easier credit access. Investments in the entrepreneurial ecosystem have increased with initiatives such as the Misk Innovation program and the Small and Medium Enterprises General Authority. Investment groups like the Saudi Venture Capital Company are providing essential funding for startups, further fueling growth.

The entrepreneurial culture benefits from a young, educated, tech-savvy populace, supported by government educational and training schemes. Digital infrastructure development has also progressed, assisting tech startups. Venture capital investment was at \$548 million in 2020, a 270% surge year-on-year, due to governmental backing, demographic factors, and Saudi Arabia's strategic Middle Eastern position. Successful startups, such as Careem, Jahez, Noon, STC Pay, and Tawseela, highlight the vibrant entrepreneurial ecosystem in the country.

Saudi Arabian universities play a vital role in fostering entrepreneurship, especially among female students. King Saud University introduced the 2016 Entrepreneurship Institute to cultivate entrepreneurial skills, with a particular focus on women. Similarly, PNU, the world's largest women-only university, operates the 'Dah' Innovation Center, providing workshops and support for women-led startups. Effat University established the Entrepreneurship Center to empower its female

students with entrepreneurial tools. These initiatives have reduced the gender gap in Saudi Arabia's entrepreneurial landscape.

Understanding the entrepreneurial intentions of (PNU) students is crucial for designing effective educational initiatives and support structures. By identifying their needs, the curriculum and programs can be tailored accordingly. Moreover, aligning these intentions with Saudi Arabia's Vision 2030 allows for evaluating PNU's contribution to this reform plan and identifying areas for enhanced entrepreneurial support. (Al-Mamary et al., 2023) [10].

In conclusion, comprehending PNU students' entrepreneurial intentions sheds light on their aspirations and potential economic contributions, aiding in the development of impactful educational programs. It also ensures that university initiatives align with Vision 2030's objectives of economic diversification and innovation in Saudi Arabia. Problem Statement

Saudi Arabia's Vision 2030 recognizes entrepreneurship as an economic stimulant and diversification engine, highlighting entrepreneurial ventures' potential to bring innovative services and products, foster competition, and generate job opportunities. Yet, it's crucial to deepen our understanding of Saudi youth's entrepreneurial intentions, especially university students, to craft effective educational initiatives and programs promoting entrepreneurship culture and skills. (PNU), the largest global women-only university, presents a potential demographic contributing to Vision 2030's objectives through entrepreneurship. PNU has taken measures to encourage an entrepreneurial environment; however, an understanding of the entrepreneurial intentions among its students and the effectiveness of such nurturing remains insufficiently explored (Yusuf and Atassi, 2016) [11]. Such inadequacy prompts inquiries about the sufficiency and effectiveness of PNU's current support mechanisms and their alignment with Vision 2030's objectives. Furthermore, factors like societal views on risk-taking, gender roles, and family expectations in Saudi Arabia's unique cultural context may significantly influence students' entrepreneurial intentions. Besides, the understanding of transitioning from entrepreneurial intention to action among PNU students is still lacking, despite policy emphasis on entrepreneurial development (Swarupa and Goyal, 2020) [12]. Lastly, Vision 2030 underscores the importance of entrepreneurship, yet the specific role of universities like PNU in these objectives remains undefined. In essence, this study aims to address these gaps, thereby providing a clear understanding of PNU's role in fostering entrepreneurship aligned with Vision 2030's objectives.

2. Objective

- Assess the attitudes and perceptions of female university students in Saudi Arabia towards entrepreneurship, as well as the influence of a dynamic business environment on their entrepreneurial intentions.
- Examine the influence of societal norms on the entrepreneurial intentions of female students, using the Theory of Planned Behavior as a guiding framework.
- Detect opportunities and potential hindrances within the university system that might shape entrepreneurial intentions, such as the nature of academic programs and support mechanisms.

3. Study Questions

- How do female university students in Saudi Arabia perceive entrepreneurship, and how does the current business environment influence their entrepreneurial intentions?
- To what extent do social norms affect the entrepreneurial intentions of female university students in Saudi Arabia, as guided by the Theory of Planned Behaviour?
- What opportunities and potential barriers exist within the Saudi Arabian university system that can influence the entrepreneurial intentions of female students?
- What recommendations can be developed to promote entrepreneurship education, mentorship, and university-based incubators to foster future female entrepreneurship in Saudi Arabia?

4. Methodology

The methodology of the research will be elaborated upon by covering these aspects:

- Approach: This investigation will leverage a numerical descriptive analytical method to interpret field data derived from first-hand sources. Moreover, several statistical tests will be applied to check the authenticity and consistency of the data before proceeding with the analysis.
- This study utilizes quantitative research methodology and incorporates the Theory of Planned Behavior (TPB) proposed by Ajzen in 1991. The rationale behind choosing this model is its extensive use in examining intentions in the domain of entrepreneurial studies. This model comprises three constructs: attitude towards behavior (A), subjective norm (SN), and perceived behavioral control (PCB), which are instrumental in understanding entrepreneurial intention (EI) among budding entrepreneurs. (Shanti and Soepatini, 2018) [13]. This research applies the Theory of Planned Behavior (TPB) framework to examine entrepreneurial intention among potential entrepreneurs (Agolla, et al., 2019) [14]. The study employs a Theory of Planned Behavior (TPB) questionnaire with Princess Nourah University's female students. The 20-statement questionnaire, including 16 from TPB, uses a five-point Likert scale. TPB components include attitude (which contributes to half the variance in intentions), subjective norm (indicating social pressure), and perceived behavioral control (reflecting self-belief in performing the behavior).
- Data Collection: To address the research problem, the primary tool—a questionnaire rooted in the TPB—was designed and employed for data collection. This survey contained 20 statements evaluated on a five-point Likert scale, of which four specifically targeted gender-related entrepreneurial questions. The questionnaire also integrated a section to gather basic demographic information. This approach, along with the utilization of secondary data reflecting entrepreneurship activities in Saudi Arabia, formed a comprehensive strategy for data collection.
- Sampling: The research population comprised female students from Princess Nourah University in Saudi Arabia, seen as prospective entrepreneurs. This sampling strategy is consistent with previous studies exploring entrepreneurial intentions among university students. Out of 598 students, 218 were female, making up about 27% of the total population. The study relied on a steady random sample, representing nearly 27% of the whole statistical group. These female students, with plans to launch their own businesses, embody potential future entrepreneurs. This approach mirrors multiple studies within Saudi Arabia that investigate entrepreneurial intentions among university students on the brink of committing to entrepreneurial endeavors.
- Data Analysis: The data were analyzed using different statistical methods. A t-test was used to verify if the average score of the statements was 3, indicating a neutral response. The relationship among variables - attitude, subjective norm, perceived behavioral control, and entrepreneurial intention - was assessed using a Structural Equation Model (SEM). Regression coefficients determined factor loadings, and the estimation was carried out with AMOS 20. Validity and Reliability:
 - To ensure the validity of the scale if it is reused again to yield consistent results, the test was administered to a survey sample from the study population and outside of it, consisting of 20 students.
 - Cronbach's alpha is defined as a measure of internal consistency or reliability for a scale or test. It assesses the extent to which the items in a scale or test are correlated with each other and provides an estimate of the reliability of the scale or test scores, which we can calculate according to this formula:

$$\frac{k}{k-1} \left(\frac{\sum_{i \neq j}^k cov(x_i, x_j)}{var(x_0)} \right) = \frac{k}{k-1} \left(1 - \frac{\sum_{j=1}^k var(x_j)}{var(x_0)} \right)$$

Let $x_j = t_j + e_j$, where each e_j is independent of t_j and all the e_j are independent of each other. Also let $x_0 = \sum_{j=1}^k x_j$ and $t_0 = \sum_{j=1}^k t_j$. Then the reliability of $x_0 \geq \alpha$ where α is Cronbach's alpha.

Here we perceive the x_j as the measured values, the t_j as the true values, and the e_j as the values. Representing measurement errors (Using and Interpreting Cronbach's Alpha, 2023).

Cronbach's alpha serves as a valuable lower bound for reliability. The alpha coefficient tends to increase with higher item correlations, reflecting the internal consistency of the test. Its range is typically between 0 and 1, with a maximum value of 1. In some cases, it may even be negative.

A commonly accepted guideline suggests that an alpha of 0.7 (some argue 0.6) indicates acceptable reliability, while 0.8 or higher indicates good reliability. However, extreme reliability values above 0.95 may suggest redundancy among items, which is not necessarily desirable. It's important to note that these are general guidelines, and the specific value of Cronbach's alpha can vary depending on various factors. For example, an increase in the number of items typically leads to a higher alpha coefficient, even without a corresponding improvement in internal consistency. (Diedenhofen and Musch, 2017) [15].

Table 1. Statistical Summary of Reliability, Validity, and Descriptive Measures for the Questionnaire

	Alpha	Correlation	Spearman-Brown Coefficient	Guttman Split-Half Coefficient	Mean	Variance	Std. Deviation	Range
Part 1	0.915				62.97	268.709	16.39	3.408
Part 2	0.899				53.505	144.168	12.01	1.137
Both Parts	0.946	0.752	0.858	0.835	116.477	708.804	26.62	3.425

In this study, rigorous measures were taken to ensure the reliability and validity of the questionnaire used. To assess the internal consistency of the statements derived from the Theory of Planned Behavior (TPB), the internationally recognized Cronbach's alpha test was employed. The results of the test revealed strong Cronbach's alpha values for both Part 1 (0.915) and Part 2 (0.899) of the questionnaire, surpassing the commonly accepted threshold of 0.7. These high values indicate that the items within each part of the questionnaire were strongly interrelated, demonstrating robust internal consistency among the measured variables.

Moreover, the overall Cronbach's alpha value for the entire questionnaire was calculated to be 0.946. This exceptionally high value signifies an even higher level of reliability for the instrument, suggesting that the questionnaire items collectively form a highly consistent and reliable scale.

Furthermore, the Spearman-Brown coefficient was computed to measure the reliability of the questionnaire when split in half. The obtained value of 0.858 provides additional evidence for the reliability of the instrument, indicating a strong consistency between the two halves of the test.

The Guttman Split-Half Coefficient, with a value of 0.835, further bolsters the questionnaire's reliability. This coefficient reflects the degree of consistency between the first and second halves of the test, and a high value indicates that the questionnaire items are measuring the same underlying construct consistently.

In conclusion, the study's comprehensive approach to assessing reliability and validity, which includes Cronbach's alpha, SEM analysis, the Spearman-Brown coefficient, and the Guttman Split-Half Coefficient, provides strong evidence of the robustness of the questionnaire. These results affirm the study's ability to generate dependable and reproducible findings, underscoring the significance and reliability of the research outcomes.

5. Study limitations

- **Objective Limits:** The research focused on addressing the topic of "Exploring Entrepreneurial Intentions of (PNU) Students and the University's Role in Light of Vision 2030."
- **Time limits:** The field research was conducted from January 1, 2023, to June 30, 2023.

- Spatial limits: The research was conducted at (PNU) in the Kingdom of Saudi Arabia.
- Human limits: The study included female students only, with a total of 218 individuals.

6. Study significance

The significance of the present study rests on the subsequent points:

- This study holds significant value within Saudi Arabia's socio-economic context, providing insights into how the educational environment at (PNU) influences students' entrepreneurial intentions.
- The research contributes to a deeper understanding of Vision 2030, Saudi Arabia's strategic initiative emphasizing entrepreneurship, innovation, and economic diversification.
- The study aids in formulating effective strategies to achieve the ambitious goals set by Vision 2030 by exploring the intersection of education and entrepreneurship.
- The findings have practical implications for shaping curriculum and learning environments to encourage entrepreneurial behavior among students, nurturing the next generation of innovators and entrepreneurs.
- The research supports Saudi Arabia's transition towards an innovation-driven economy by investigating the impact of education on entrepreneurship.
- This study contributes to enhancing support structures for future entrepreneurs by providing insights into their motivations and educational influences, ultimately nurturing a more vibrant entrepreneurial culture crucial for economic growth and diversification in Saudi Arabia.

7. Key Terms

- Theory of Planned Behavior (TPB): The Theory of Planned Behavior (TPB), devised by Ajzen (1991), is a renowned model for understanding and predicting human behavior, including entrepreneurial intentions. TPB identifies attitudes towards entrepreneurship, subjective norms, and perceived behavioral control as the primary influencers of entrepreneurial intentions. Attitudes correspond to positive or negative assessments of entrepreneurship; subjective norms convey social pressure and familial, peer, and societal expectations about entrepreneurship; and perceived behavioral control denotes individuals' confidence in overcoming obstacles to pursue entrepreneurial activities successfully. In this research, TPB is employed to examine factors shaping PNU students' entrepreneurial intentions. (Sabah, 2016) [17].
- Entrepreneurial Intentions: Entrepreneurial intentions refer to an individual's conscious state of mind that precedes action and directs attention towards entrepreneurial behavior. This concept helps understand the factors motivating students at (PNU) to consider entrepreneurship as a potential career path. (Kobylińska, 2022) [18].
- Educational Environment: The educational environment encompasses the conditions, circumstances, and influences that affect students' learning. Research suggests that the educational environment plays a crucial role in shaping students' attitudes, beliefs, and career intentions. Understanding the influence of the educational context at (PNU) is essential in exploring students' entrepreneurial intentions. (Mousavi, et al., 2020) [19].
- Universities' Role: The role of universities extends beyond imparting education to fostering an environment conducive to the growth of entrepreneurial spirit. This study investigates how universities can nurture and promote entrepreneurship among (Kobylińska, 2022) [18].
- Vision 2030: it's a strategic plan developed by the Saudi Arabian government to diversify the country's economy, promote entrepreneurship and innovation, and empower its citizens. This vision provides a broader context and policy framework for promoting entrepreneurship in the Kingdom. The research will analyze how PNU aligns its educational strategies and initiatives with the objectives outlined in Vision 2030 to foster a culture of entrepreneurship among its students. (Allam et al., 2021) [20].

- Social Cognitive Career Theory (SCCT): Social Cognitive Career Theory (SCCT), introduced by Matlay, 2006 [21], underscores the interaction between personal traits, environmental factors, and behavioral influences in career choices. SCCT suggests that self-efficacy, outcome expectations, and personal goals crucially impact career behaviors, including entrepreneurial intentions. In this study, SCCT will be applied to investigate the influence of self-efficacy, entrepreneurship-related outcome expectations, and career objectives on PNU students' entrepreneurial aspirations. (Social Cognitive Career Theory, 2006) [22].
- Institutional Theory: The Institutional Theory, formulated by DiMaggio and Powell (1983), investigates how organizations and individuals comply with societal norms and institutional pressures. It studies how entities like universities modify their operations to match prevalent cultural norms. In this research, the theory will be used to scrutinize how PNU tailors its programs to Vision 2030's entrepreneurship objectives, and how these institutional practices sway students' entrepreneurial aspirations. (Saudi Vision 2030).

8. Literature Review

This section of the study will review several previous studies conducted between 2020 and 2022. It will explore the key findings of these studies and identify areas of consensus and divergence. This comparative analysis aims to identify the research gap and formulate the objectives of the current investigation as the follows:

Al-Mamary, et al., (2020) [23]. This study explores the determinants of entrepreneurial intentions among university students in Saudi Arabia using a combined model of Theory of Planned Behavior (TPB) and Entrepreneurial Orientation (EO). Conducted at the University of Hail with 261 participants, the research utilized a structured questionnaire and analyzed the data via structured equation modeling. The results show a significant impact of attitudes towards behavior, self-efficacy, autonomy, risk-taking, pro-activeness, and competitive aggressiveness on entrepreneurial intentions. However, no notable connections were found between social norms, innovativeness, and entrepreneurial intention. The study's findings can aid in refining university procedures related to entrepreneurship and advancing entrepreneurship among Saudi Arabian youth, aligning with national development objectives.

Alrubaishi, (2020) [24]. In this study, the entrepreneurial intentions of university students in Saudi Arabia are investigated, focusing on the effects of entrepreneurial attitude, subjective norms, self-efficacy, and the university entrepreneurial environment using the Theory of Planned Behavior. Conducted in the context of Saudi Arabia's ongoing economic reforms emphasizing entrepreneurship, the study analyzed a sample of 894 university students. The findings reveal that entrepreneurial attitudes and self-efficacy significantly contribute to entrepreneurial intentions, with the influence of subjective norms and self-efficacy being mediated by entrepreneurial attitudes. Notably, the university's entrepreneurial environment didn't have a significant impact on the students' entrepreneurial intentions. The study offers significant insights into the entrepreneurial intention literature and has implications for policymakers working to encourage entrepreneurship among university students in Saudi Arabia.

Kulothungan and Anbazhagi (2021) [25] in their study explore the entrepreneurial intentions of business students as a potential answer to increasing unemployment among business graduates. This research investigates students' propensity to start their own businesses, factoring in various psychological and societal influences. By utilizing Ajzen's Theory of Planned Behavior, the study delves into the roles of attitudes, subjective norms, and perceived behavioral control in shaping entrepreneurial aspirations. Data was gathered from undergraduate and postgraduate business students in Vellore City, with a total sample size of 240 students. Utilizing SPSS software for statistical analysis, including descriptive statistics, correlation, and multiple linear regression, the study affirms the importance of the Theory of Planned Behavior in influencing business students' entrepreneurial intentions. The findings provide vital insights for policymakers, curriculum designers, and educational institutions to bolster entrepreneurial skills among students.

Alshebami, and Seraj (2021) [26]. Alshebami and Seraj's study explores the factors driving saving behavior and entrepreneurial intention among students at Abqaiq's community college in Saudi Arabia. It investigates the impact of financial literacy, parental influence, peer influence, and self-control on saving behavior and the subsequent effect on entrepreneurial intentions. The research employed a questionnaire given to 270 students and applied SMART-PLS-SEM for data analysis. Findings suggest that financial literacy, parental, and peer influence positively affect saving behavior, while self-control negatively impacts it. The research further indicates that saving behavior significantly impacts students' entrepreneurial intentions. This study offers critical insights into saving behavior and its influence on entrepreneurship among Saudi students.

In 2021, Elnadi and Gheith [27] conducted a scientific study entitled "Entrepreneurial Ecosystem, Entrepreneurial Self-Efficacy, and Entrepreneurial Intention in Higher Education: Evidence from Saudi Arabia." The main purpose of this investigation was to empirically examine the influence of students' perceptions of entrepreneurial ecosystem factors on their entrepreneurial intentions, both directly and indirectly through entrepreneurial self-efficacy. Additionally, the study aimed to investigate the moderating role of students' gender in this relationship. Data for testing the hypotheses were collected through an online questionnaire distributed to undergraduate business students enrolled at a public university in Saudi Arabia. The study collected responses from 259 participants and utilized the partial least squares structural equation modeling technique (PLS-SEM) to analyze the hypothesized relationships. The results revealed that students' perceptions of the entrepreneurial ecosystem had both direct and indirect effects on their entrepreneurial intentions through entrepreneurial self-efficacy. Furthermore, the findings from the multigroup analysis indicated significant gender differences in the influence of entrepreneurial self-efficacy on students' entrepreneurial intentions. The study provides empirical evidence that policymakers in Saudi Arabia should focus on fostering an entrepreneurial ecosystem with appropriate institutional infrastructure, support structures, and a culture that encourages and enhances students' self-efficacy and intention to become entrepreneurs. The moderating effect of gender on the relationship between self-efficacy and intention suggests that policymakers should consider tailoring their strategies and programs to address gender-specific needs, as approaches that work with male students may not be suitable for females.

Alshagawi and Ghaleb (2022) [28]. This paper investigates the factors influencing entrepreneurial intentions among Saudi university students. It examines the role of Theory of Planned Behavior motivational factors, social valuation of entrepreneurship, and entrepreneurial risk perception using a quantitative approach and Structural Equation Modeling on a sample of 802 students. Findings reveal that risk perception negatively impacts entrepreneurial attitudes and intentions, while social valuation of entrepreneurship has a positive influence. The study partially supports the Theory of Planned Behavior, finding no significant impact of subjective norms on intentions. It recommends strategies to boost entrepreneurial motivation while reducing risk perception's negative effects, uniquely combining the psychology of risk, TPB, and social context in its analysis.

Barba-Sánchez et al. (2022) [29] This research by Barba-Sánchez and team investigates how environmental awareness influences university students' entrepreneurial intentions. Using a sample from the University of Oviedo, the study finds that attitudes towards entrepreneurship and perceived behavioral control significantly influence entrepreneurial intentions, while social norms do not. Interestingly, students' environmental awareness positively impacts their attitudes and mediates the relationship between proactive social norms and attitudes. The research suggests a modification to Ajzen's Theory of Planned Behavior, incorporating environmental awareness and mediating relationships, supporting the inclusion of ecological transition in Spain's entrepreneurial strategy.

Alshebami et al. (2021) [30] This investigation by Al-Ghamdi and Almamy examines the impact of personality traits on the entrepreneurial intentions of Saudi students, particularly young entrepreneurs. The study, based on responses from 165 students at King Faisal University, finds that innovativeness, internal locus of control, and risk-taking propensity positively correlate with entrepreneurial intention. Interestingly, the need for achievement shows no significant relationship.

Accounting for approximately 25% of the total variance in entrepreneurial intention, the study suggests the need for larger sample sizes and broader scopes in future research.

In conclusion It is clear from the presentation and discussion of the results of previous studies that there are several points of agreement between these studies and a few points of difference between them. All the discussed studies focus on understanding the factors influencing entrepreneurial intentions among university students in Saudi Arabia. They commonly utilize the Theory of Planned Behavior (TPB) framework and highlight the significance of self-efficacy in shaping students' entrepreneurial motivation. Additionally, the studies emphasize the importance of promoting entrepreneurship among young students to contribute to the country's economic development. However, the studies differ in their research methodologies, specific factors analyzed, and findings regarding subjective norms' impact on entrepreneurial intentions. They also vary in sample sizes, participant demographics, and consideration of gender differences. These distinctions underscore the diverse approaches and contextual factors influencing entrepreneurial intentions among university students in Saudi Arabia.

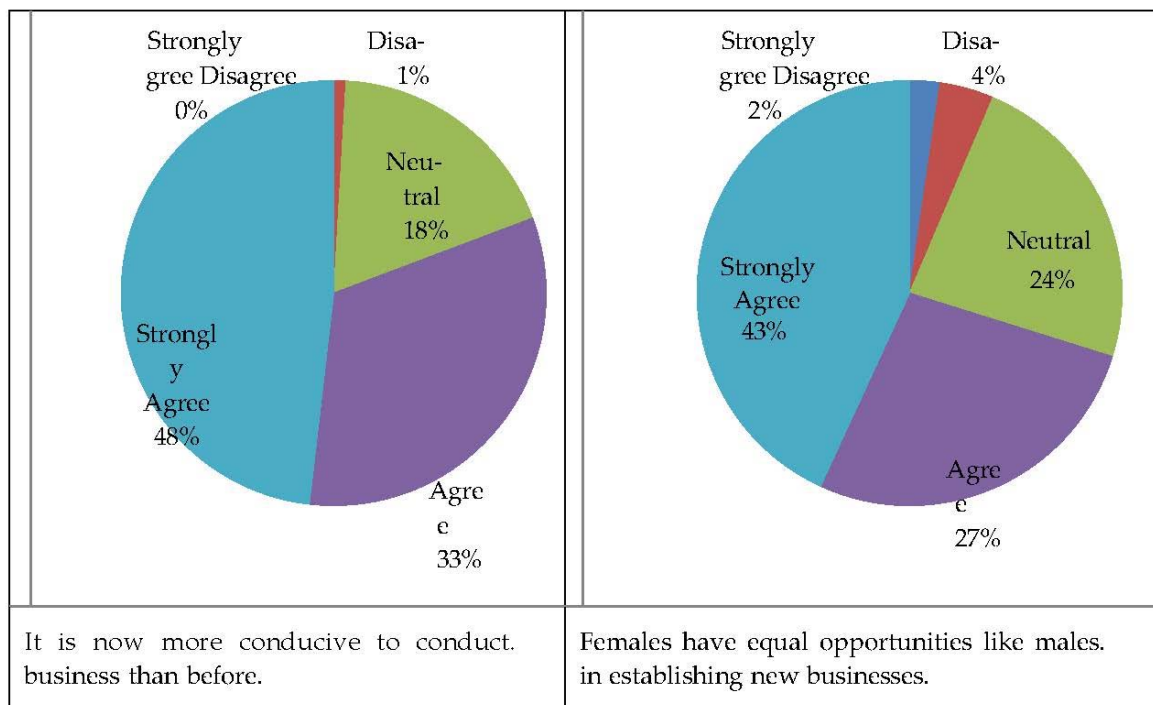
9. Results

The findings of this study are presented in Table 2, which provides a succinct overview of the respondents. A significant majority, accounting for 95%, are Saudi Arabian nationals. Similarly, a substantial fraction, comprising 93.58%, are currently pursuing undergraduate education. Their fields of study are distributed in descending order as follows: other specializations (60%), humanities (30%), scientific studies (6%), and applied sciences (2%). Regarding occupation, the highest percentage, nearly half at 49%, is employed within the governmental sector. This is closely followed by others (31%), individuals operating their own enterprises (10%), and employees in the private sector (9%). These important findings will be discussed in the following sections:

Table 2. Entrepreneurial Intentions among University Students in Saudi Arabia: A Demographic Analysis

Category	Frequency	Percentage
Nationality		
Saudi	209	95.87
Non-Saudi	9	4.13
Academic credentials		
Undergraduate	204	93.58
Postgraduate	14	6.42
Specialization		
Colleges of Humanities	67	30.73
Colleges of Sciences	15	6.88
Applied Colleges	5	2.29
Others	131	60.09
Father's Employment Status		
Government Employee	107	49.08
Own business	22	10.09
Private employee	20	9.17
Others	69	31.65
Do you want to become an entrepreneur in future?		
Yes	140	64.22
No	7	3.21
Undecided	71	32.57

The study begins by examining gender-specific perspectives within entrepreneurial culture. An impressive 80 percent of the respondents (comprising 48% who strongly agree and 33% who simply agree) perceive the current climate as more favorable for conducting business compared to previous times. This reflects the transformation in the Kingdom of Saudi Arabia that has streamlined business operations. Approximately 70% of those surveyed (with 43% strongly agreeing and 27% agreeing) attest that females have equal opportunities to initiate new businesses as their male counterparts. Moreover, 62% (34% strongly agreeing and 28% agreeing) believe that running a business does not entail gender-specific obstacles. Finally, a sizable 83% of respondents (46% strongly agreeing and 37% agreeing) support the idea that the current environment encourages female-led entrepreneurial endeavors. These positive metrics indicate the encouraging sentiment of female respondents towards entrepreneurship.



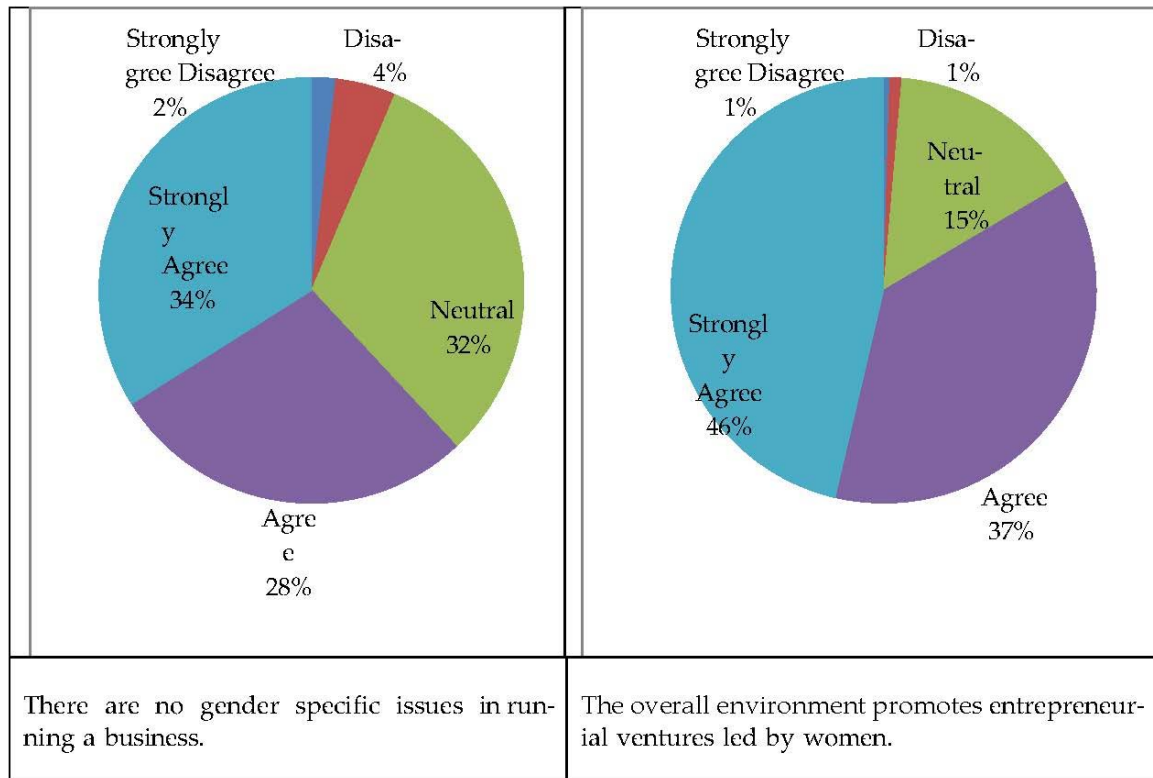


Figure 1: Gender-entrepreneurship statements graphs...

An introductory exploration of the Theory of Planned Behavior (TPB)-based statements is undertaken, as detailed in Table 2. This table outlines the mean, mode, and standard deviation for each of the 16 statements. Of these, 9 statements have a mode of 5, suggesting strong agreement, while an additional 4 reflect agreement. A mere 3 items register a mode of 3, indicating neutrality, whereas none of the statements record a mode of 1 (strongly disagree) or 2 (disagree). The Cronbach's alpha, when all items are omitted for each statement, exceeds 0.87, indicative of the questionnaire's high reliability. Lastly, each statement is scrutinized with the null hypothesis that the responses lean towards neutrality.

(3). Given that all t-statistics surpass 2, it can be inferred that the respondents do not maintain a neutral stance on any of the statements.

Table 3. Statistical Analysis of Survey Responses: Exploring Mean, Mode, Standard Deviation, and Cronbach's

Alpha						
S. No.	Statements	Mean	Mode	Std. Deviation	Cronbach's Alpha#	t
X6	I wish to be part of an entrepreneurial venture in future	4.422	5	0.79507	0.885	26.407*
X7	It's a matter of satisfaction for me to be an entrepreneur	4.3991	5	0.8154	0.882	25.334*
X8	Entrepreneurship is a prospective livelihood opportunity for me	4.4358	5	0.80207	0.885	26.43*
X9	The disadvantage of entrepreneurial venture is less than the advantages associated with it	3.445	3	0.88988	0.894	7.383*

X10	My family and friends will agree with my choice to start an entrepreneurial venture	4.3119	5	0.81118	0.889	23.879*
X11	Faculties of my institution mentor me to be an entrepreneur	3.3303	3	1.11591	0.898	4.37*
X12	People who know me are positive that I will Dowell as an entrepreneur	3.9862	5	1.02269	0.885	14.23*
X13	Entrepreneurship is social. Approved	4.4541	5	0.74993	0.89	28.629*
X14	I will be able to handle the risks involved in establishing an entrepreneurial venture	3.9541	4	0.88391	0.881	15.938*
X15	I can on my own manage the developments in a new an entrepreneurial venture	3.555	4	1.09005	0.885	7.518*
X16	I know the particulars needed to set up an entrepreneurial venture	3.1927	4	1.23301	0.889	2.307*
X17	If I start an entrepreneurial venture, I will succeed	3.8211	4	0.92588	0.884	13.094*
X18	I am determined to start a new an entrepreneurial venture	3.8165	5	1.06615	0.879	11.308*
X19	I will make all attempts to start an entrepreneurial venture	3.9679	5	1.05336	0.878	13.567*
X20	I would be more than happy to be an entrepreneur in the future	4.211	5	0.94624	0.879	18.896*
X21	Instead of being an employee in a company I will rather be an entrepreneur	3.5734	3	1.20162	0.887	7.046*

The coefficient of Attitude is 3.13, with a p-value of 0.01. It indicates a positive and significant relationship between attitude and entrepreneurial intentions. The coefficient of Social Norms is -5.05 with a p-value of 0.04. It indicates a significantly negative relationship between social norms and entrepreneurial intentions. This negative relationship indicates that social norms inhibit entrepreneurial intentions among the respondents. The coefficient of the third construct, perceived behavioral control, is 1.661 with a p-value of 0.00. It indicates a positive and significant relationship between perceived behavioral control and entrepreneurial intentions.

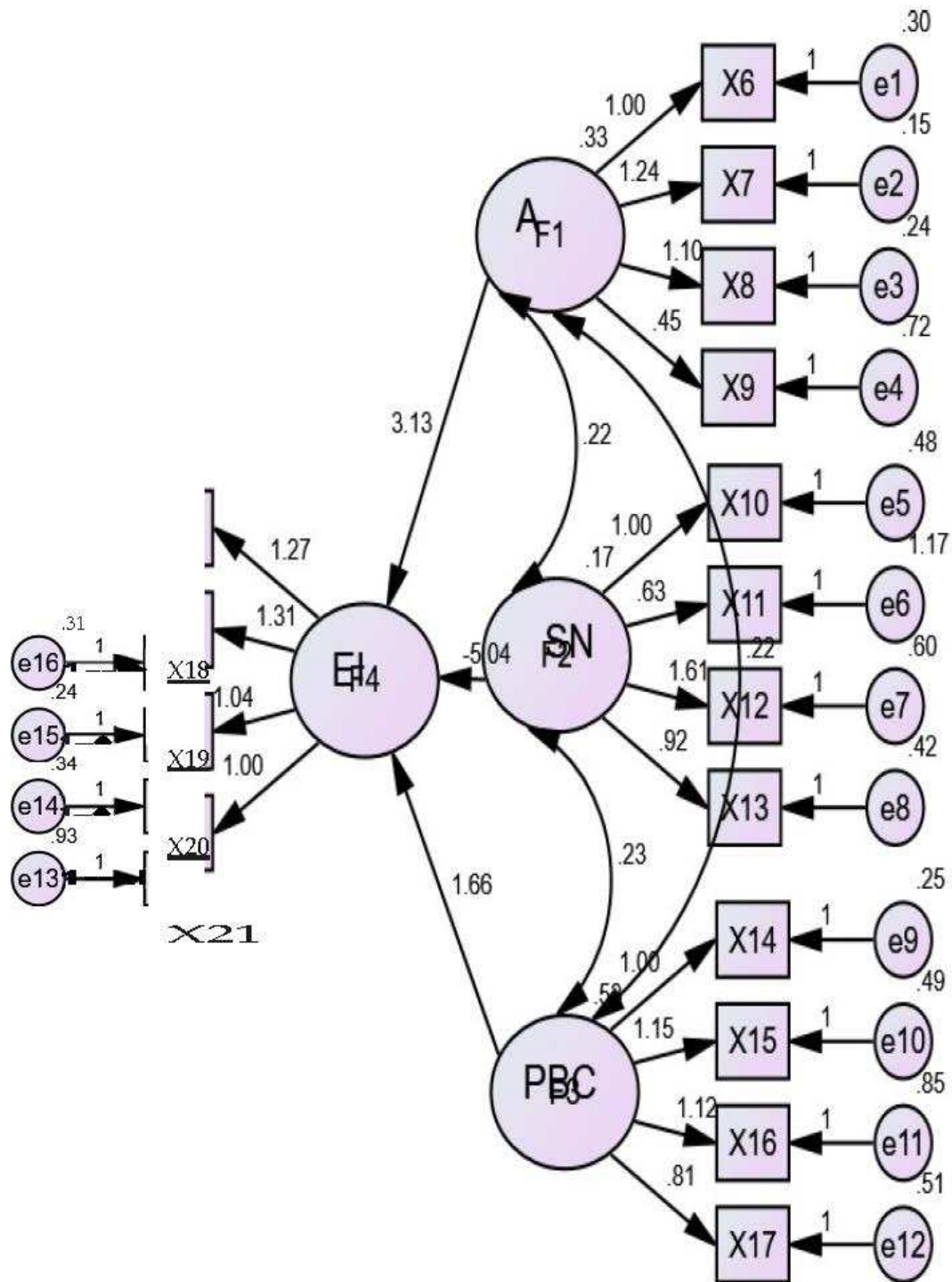


Figure 2. Path diagram

The absolute fit index, which is written as $CMIN/Df$, gives a value of 2.64 in relation to the model's congruency metrics. This means that the theoretical model and the sample data fit well together (Alshebami et al., 2021) [30]. A value below 5 is considered favorable, suggesting that the model adequately represents the observed data. The RMSEA (Root Mean Square Error of Approximation) stands at 0.08, which is below the acceptable threshold (Ali et al., 2019) [31]. RMSEA assesses the discrepancy between the observed covariance matrix and the model's predicted covariance matrix. A value of 0.08 or lower indicates a reasonable fit of the model to the data, further supporting the model's validity. The gradual fit indices, CFI (Comparative Fit Index) and IFI (Incremental Fit Index), have values of 0.899 and 0.90, respectively (Elnadi and Gheith, 2021) [27].

These values are close to 1, indicating a good fit between the model and the data. A CFI and IFI value near 1 suggest that the model provides a good representation of the observed data and fits well. The parsimonious fit metrics, PCFI (Parsimonious Comparative Fit Index) and PNFI (Parsimonious Normed Fit Index), have values of 0.74 and 0.7, respectively (Naushad, 2018) [32]. These values above 0.50 suggest an acceptable fit of the model, even with a more straightforward model structure. Regarding the questionnaire's concluding segment, the results reveal interesting insights into the university's ties with entrepreneurship. A noteworthy 34% of the university's scholars have not engaged in any entrepreneurship coursework (Ali et al., 2019) [31]. This finding suggests that there is a portion of students who have not been exposed to entrepreneurship-related educational opportunities, which might impact their entrepreneurial intentions and aspirations. 62% of the student body reported that their institution had not provided any entrepreneurship-related seminars, workshops, or training in the previous year (Ali et al., 2019) [30]. This lack of exposure to entrepreneurship-focused events and activities could potentially limit students' access to valuable entrepreneurial resources and networking opportunities, hindering their interest and motivation in pursuing entrepreneurial ventures. An alarming 62% of the respondents revealed that their university lacked training units or incubator facilities (Ali et al., 2019) [31]. This deficiency in dedicated spaces for nurturing and supporting entrepreneurial ventures might result in a lack of practical experience and mentorship opportunities for aspiring student entrepreneurs. Similarly, 57% of the participants reported receiving no support or guidance on entrepreneurship from their university (Ali et al., 2019) [31]. This lack of support from the educational institution might leave students feeling unsupported in their entrepreneurial endeavors, further impacting their intention to pursue entrepreneurship. Furthermore, over half, at 52%, expressed dissatisfaction over the absence of entrepreneurship courses in their curriculum (Ali et al., 2019) [31]. This highlights a potential gap in the university's offerings, as students desire more comprehensive educational programs to equip them with the necessary skills and knowledge to embark on entrepreneurial ventures. The same percentage, 52%, also expressed dissatisfaction with the lack of university-supported entrepreneurship initiatives (Ali et al., 2019) [31]. This dissatisfaction indicates a need for more initiatives and programs that promote and encourage entrepreneurship within the university setting.

Table 4. University and entrepreneurship

S. No	Statement	Yes %	No%
1	Have you studied any courses on Entrepreneurship at Princess Noura University?	65.60	34.40
2	Did Princess Noura University conduct any seminar/ Workshop/training on entrepreneurship in last one year?	59.17	40.83
3	Is there an entrepreneurship training unit or incubator available at Princess Noura University that provides tuition?	37.16	62.84
4	Have you received any support or guidance on? entrepreneurship from Princess Noura University?	42.20	57.80
5	Does your curriculum in Princess Noura University have any? course related to entrepreneurship?	47.71	52.29
6	Do you think the support directed towards entrepreneurship at Princess Noura University is sufficient?	47.71	52.29

The findings highlight that a considerable number of respondents perceive a positive business environment in Saudi Arabia, with no gender bias hindering female-led enterprises. They believe in equal business opportunities for both genders and a supportive atmosphere for women's entrepreneurial ventures. However, societal norms negatively influence the entrepreneurial aspirations of female university students. Implementing the Theory of Planned Behavior reveals that attitudes and perceived behavioral control among female students favor entrepreneurial inclinations. Encouragement from friends, family, and academic faculty is crucial in promoting entrepreneurship

among females, and societal acceptance of entrepreneurship as a viable pursuit should be fostered. The study's outcome indicates an optimistic trend towards entrepreneurship, with 64% of respondents expressing a desire to venture into entrepreneurship in the future. Only a small percentage (3.21%) categorically dismissed entrepreneurship as a potential career choice, and the remaining 32% were uncertain. This presents an opportunity for mentorship to cultivate future entrepreneurs among the undecided individuals. Interestingly, none of the 16 statements derived from the Theory of Planned Behavior scale were outright dismissed. Only a few statements recorded some disagreement, indicating areas for necessary interventions. The study advocates for the promotion of entrepreneurial benefits, university-level mentorship, and the cultivation of an entrepreneurial mindset rather than a focus on traditional employment.

Furthermore, this study has another objective: examining the potential of university ecosystems to foster entrepreneurial intentions among students. Key recommendations emanating from this research include the introduction of entrepreneurship courses in universities, the proliferation of seminars, workshops, and training sessions focused on entrepreneurship, and the establishment of university-based training units or incubators. Such measures would undeniably nurture an entrepreneurial interest among female students, potentially shaping them into future entrepreneurs. It is evident that the respondents view Saudi Arabia's business environment optimistically, identifying no adverse gender bias in female-run businesses, affirming equal opportunities for both sexes, and noting that the environment is conducive to female-led entrepreneurial initiatives. However, societal norms cast a shadow on the entrepreneurial aspirations of female university students. Within the framework of the Theory of Planned Behavior, it is evident that the attitudes and perceived behavioral control of female university students favor entrepreneurial ambitions. As such, the societal acceptance of entrepreneurship must be ingrained, with friends, families, and faculty playing a pivotal role in fostering this acceptance.

I can help you with that! Here's the improved and more elegant version of your paragraph:

The findings of this investigation reveal a positive inclination towards entrepreneurship, with over 64 percent of the respondents expressing a desire to pursue entrepreneurship in the future. Only a mere 3.21 percent of respondents strictly rejected entrepreneurship as a career path. The remaining 32 percent of respondents remained undecided on the matter, presenting a significant opportunity to mentor and guide these individuals towards entrepreneurship. Consequently, the study highlights the statements that received neutral or negative scores, signaling areas where interventions are required. Interestingly, none of the 16 statements based on the Theory of Planned Behavior scale were deemed disagreeable. However, three statements had a mode of 3, suggesting that these areas require additional attention. Therefore, the study recommends that emphasis be placed on educating individuals about the benefits of entrepreneurship and that universities provide mentoring and support programs for aspiring entrepreneurs.

Moreover, this study underscores the role of a university ecosystem in fostering entrepreneurial intentionality among students. The primary recommendations that emerge from this study are that universities should introduce entrepreneurship courses, offer more seminars, workshops, and training on entrepreneurship, and establish a training unit or incubator. These measures will facilitate the development of an interest in entrepreneurship among female students, empowering them to become successful entrepreneurs soon.

10. Discussion

The findings indicate a positive shift in the perception of the business environment in the Kingdom of Saudi Arabia, with most respondents feeling that it has improved (Nieva, 2015) [33]. Moreover, there is no discernible gender bias, as both males and females are perceived to have equal business opportunities (Santos, et al., 2016) [34]. The overall environment is seen as supportive of entrepreneurial ventures by women (Abou-Moghli and Al-Abdallah, 2019) [35]. However, the study highlights a concerning factor: the negative impact of social norms on the entrepreneurial intentions of female university students. Despite this, the application of the Theory of Planned Behavior in the Saudi context reveals that female students' attitudes and perceived behavioral control are favorable

towards entrepreneurial intentions. To foster female entrepreneurship, it is essential for friends, families, and faculties to be accepting and encouraging of such aspirations. Additionally, promoting the acceptability of entrepreneurship in society is crucial for empowering aspiring female entrepreneurs.

The results of this study are consistent with the findings of previous research. The study indicates a positive trend towards entrepreneurship among female students, with over 64 percent expressing a desire to become entrepreneurs in the future. This is consistent with the findings of a study by Kabonga and Zvokuomba (2021) [36] on entrepreneurial intentions among university students in Bindura, Zimbabwe.

Moreover, only a small percentage (3.21 percent) of the respondents in this study categorically rejected entrepreneurship as a career option, which is in line with the results of Mohamad and Hussain's (2021) [37] study on entrepreneurial readiness among female students. The study conducted by Alzamel et al. (2022) [38] on factors influencing e-entrepreneurial intention among female students in Saudi Arabia also supports these findings, as it focuses on the factors influencing entrepreneurial intentions, which may explain the low percentage of students rejecting entrepreneurship.

The study identifies that a significant proportion (32%) of the respondents were undecided about entrepreneurship, providing an opportunity for mentorship and support to cultivate entrepreneurial intentions. This finding is consistent with the results of Abderrahim et al. (2022) [39], who examined the role of entrepreneurship education in the development of female entrepreneurial intention among students at Hassan II University in Casablanca, Morocco. Both studies emphasize the importance of providing guidance and education to encourage entrepreneurship among female students.

Additionally, this study highlights the significance of the university ecosystem in fostering entrepreneurial intentions among students. The major recommendations proposed in the study align with the importance of introducing entrepreneurship courses, conducting seminars, workshops, and training on entrepreneurship, and establishing training units or incubators within universities. These suggestions are in line with the findings of a study by Alzamel et al. (2022) [38] which also examined the variables influencing female students' e-entrepreneurial intention in Saudi Arabia.

Overall, the results of this study are in line with previous research, providing further support for the importance of encouraging and supporting female students in developing entrepreneurial intentions. By implementing the recommended strategies, universities can play a pivotal role in fostering a culture of entrepreneurship and empowering female students to become future entrepreneurs.

The study reveals a positive shift in the perception of Saudi Arabia's business environment, with equal opportunities for both genders (Nieva, 2015; Santos et al., 2016; Abou-Moghli and Al-Abdallah, 2019) [32,34,35]. The Theory of Planned Behavior demonstrates favorable attitudes and perceived behavioral control towards entrepreneurship among female students. Encouragement from friends, family, and faculties is crucial in promoting entrepreneurship among females (Kabonga and Zvokuomba, 2021; Mohamad and Hussain, 2021) [36,37]. Mentorship and education can further cultivate entrepreneurial intentions (Abderrahim et al., 2022) [39]. The study emphasizes the university's role in fostering entrepreneurship, aligning with previous research on entrepreneurship education (Alzamel et al., 2022) [38].

Overall, the study highlights the importance of fostering an entrepreneurial culture and supporting female students to become future entrepreneurs (Nieva, 2015; Santos et al., 2016; Abou-Moghli and Al-Abdallah, 2019) [31,33]. By implementing recommended strategies, universities can empower female students and nurture a culture of entrepreneurship (Kabonga and Zvokuomba, 2021; Mohamad and Hussain, 2021; Alzamel et al., 2022; Abderrahim et al., 2022) [36–39].

11. Conclusion

The conclusion of this paper refers to the fact that this research sheds light on the encouraging sentiment towards entrepreneurship among female university students in Saudi Arabia. The study reveals a positive business environment, promoting equal opportunities for

both genders and a supportive atmosphere for female-led entrepreneurial ventures. Despite this, societal norms pose a challenge to female students' entrepreneurial aspirations. The application of the Theory of Planned Behavior shows that attitudes and perceived behavioral control favor Entrepreneurial inclinations among female students. To further promote entrepreneurship, it is crucial to cultivate acceptance and support from friends, families, and academic faculty.

The study finds a significant proportion of students interested in entrepreneurship, with a minority ruling it out. The undecided group offers mentorship and guidance opportunities. No statements from the Theory of Planned Behavior were fully dismissed, indicating potential intervention areas. The research underscores the university ecosystem's role in encouraging entrepreneurial intentions and suggests the introduction of entrepreneurship courses, events, and incubators. By doing so, universities can empower female students to become successful entrepreneurs.

Overall, this study contributes to the understanding of the factors influencing female entrepreneurship in Saudi Arabia and underscores the importance of creating a conducive environment that encourages and supports women's entrepreneurial endeavors. Through a collective effort from universities, society, and policymakers, Saudi Arabia can foster a thriving ecosystem for female entrepreneurship, driving economic growth and innovation in the country.

12. Policy recommendations

Based on the findings of the study, the following policy recommendations can be made as the follows:

- Encourage Entrepreneurship Education: Introduce entrepreneurship courses in the university curriculum to foster an entrepreneurial mindset and equip students with the necessary entrepreneurial tools.
- Establish Incubator Facilities: Create dedicated spaces like incubators within universities to provide practical experience, mentorship, and resources for aspiring student entrepreneurs.
- Promote a supportive university culture: Encourage faculty members and academic advisors to guide students in their entrepreneurial endeavors and provide mentorship to aspiring entrepreneurs.
- Establish Mentorship Programs: Implement programs where successful entrepreneurs and professionals guide and support students interested in entrepreneurship, inspiring them to navigate the challenges of starting and running a business.

13. Study Limitation and Future Directions

This paper encountered several limitations, which are listed below:

- Potential self-report and social desirability biases in questionnaire responses
- A Cross-sectional design restricts causal relationships and long-term outcomes.
- incomplete exploration of cultural barriers and external factors influencing intentions.
- Lack of comparative analysis with male students' entrepreneurial intentions

In terms of future directions, they are as follows:

- Conduct longitudinal research to establish causal relationships over
- Use mixed methods approaches for a comprehensive understanding of attitudes and
- Investigate the influence of cultural factors on entrepreneurial.

14. Study Implications

- The study shows a positive outlook on female entrepreneurship in Saudi Arabia, despite facing challenges from societal norms.
- The Theory of Planned Behavior highlights the significance of attitudes and perceived control in fostering entrepreneurial intentions among female students.

- Personal networks and support from academic faculty are crucial to creating a supportive entrepreneurial environment.
- Introducing entrepreneurship courses, seminars, workshops, and training within universities is essential to promoting female entrepreneurship.
- Establishing training units or incubators can further encourage female students to explore entrepreneurship.
- These measures are vital to nurturing an entrepreneurial culture and empowering female students to become successful entrepreneurs.
- The study emphasizes the important role universities play in promoting female entrepreneurship.
- By implementing the recommended strategies, universities can create a thriving entrepreneurial ecosystem that enables female students to pursue entrepreneurial paths.

Data availability statement: The data support this study are available in the manuscript.

Funding: This work was supported by princess Nourah bint Abdulrahman University Project number (PNURSP2023R380). The funders had no role in the study design, data collection, analysis, the decision to publish, or the preparation of the manuscript.

Acknowledgements: Princess Nourah bint Abdulrahman University Researchers Supporting Project number (PNURSP2023R380), Princess Nourah bint Abdulrahman University, Riyadh, Saudi Arabia.

Conflict of interest: The authors declare that the research was conducted in the absence of any commercial or financial relationships that could be construed as a potential conflict of interest.

References

1. Alsharif, N. N., and Alsharif, A. A. Saudi Arabian 2030 Vision and Entrepreneurial Intention Among University Students. *Revista de Administração de Empresas*, (2021) 61(1), 43-56. https://www.researchgate.net/publication/358777464_Saudi_Arabian_2030_Vision_and_Entrepreneurial_Intention_Among_University_Students
2. Al-Hanawi, M. K., Khan, S. A., and Al-Borie, H. M. Healthcare human resource development in Saudi Arabia: emerging challenges and opportunities—a critical review. *Public Health Reviews*, (2019) 40(1), <https://publichealthreviews.biomedcentral.com/articles/10.1186/s40985-019-0112-4>
3. Saudi Arabian 2030 Vision and Entrepreneurial Intention Among University Students. SciELO Colombia. (2022). http://www.scielo.org.co/scielo.php?pid=S1692-02792021000100043&script=sci_arttext
4. Alshebami, A. S., and Al Marri, S. H. The Impact of Financial Literacy on Entrepreneurial Intention: The Mediating Role of Saving Behavior. *PMC - NCBI*. (2022). Retrieved from <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9226410/>
5. Alghamdi, A. A., and Alghamdi, M. A. Entrepreneurial intention of Saudi students: role of Saudi Arabian universities in achieving The Goal of Vision 2030. *Journal of Entrepreneurship and Innovation in Emerging Economies*, (2023). 10(4), 171-183. Retrieved from <https://ideas.repec.org/a/ssi/jouesi/v10y2023i4p171-183.html>
6. Gangwani, S., and Ballout, S. Factors influencing the entrepreneurial intention of business graduate students of Saudi Arabia University. *Academy of Entrepreneurship Journal*, (2020). 26(4). <https://www.abacademies.org/articles/Factors-influencing-the-entrepreneurial-intention-of-business-graduate-students-of-saudi-arabia-1528-2686-26-4-425.pdf>
7. GUESS Survey. The Entrepreneurial Career Intentions and Behavior of University Students. KSA (2018). Retrieved From https://www.guesssurvey.org/resources/nat_2018/GUESS_Report_2018_SaudiArabia.pdf
8. Saudi Arabian 2030 Vision and Entrepreneurial Intention Among University Students. *SciELO Colombia*. (n.d). http://www.scielo.org.co/scielo.php?pid=S1692-02792021000100043&script=sci_arttext
9. Badghish, H. Can entrepreneurship help transform the lives of Saudi women? Harvard Kennedy School. (2019). <https://epod.cid.harvard.edu/sites/default/files/2019-10/Badghish%20-%20Female%20Entrepreneurship.pdf>
10. Al-Mamary, Y. H. S., Abdulrab, M., Alwaheeb, M. A., and Alshammari, N. G. M. Entrepreneurial intention of Saudi students: role of Saudi Arabian universities in achieving The Goal of Vision 2030. *Journal of*

- Entrepreneurship in Emerging Economies*, (2023). 10(4), 171-183. <https://ideas.repec.org/a/ssi/jouesi/v10y2023i4p171-183.html>
11. Yusuf, N., and Atassi, H. M. Promoting a culture of innovation and entrepreneurship in Saudi Arabia: Role of the Universities. *International Journal of Higher Education Management (IJHEM)*, (2016). 2(2).
 12. Swarupa, G., and Goyal, R. K. Entrepreneurial intentions of students: Review of academic literature. *International Journal of Scientific and Engineering Research*, (2020). 11(1), 1146-1168. <https://doi.org/10.14299/ijser.2020.01.02>
<https://www.ijser.org/onlineResearchPaperViewer.aspx?Entrepreneurial-Intentions-of-Students-Review-of-Academic-Literature.pdf>
 13. Shanti, A. M., and Soepatini, S. Entrepreneurial intention among management department students (An application of theory planned behavior on entrepreneurial intention in Universitas Muhammadiyah Surakarta). *Business*. (2018). <https://www.semanticscholar.org/paper/%22Entrepreneurial-Intention-Among-Management-Of-On-Shanti-Soepatini/9b01198fb56025ea162a4768b5e1165d445ba305>
 14. Agolla, J. E., Monametsi, G. L., and Phera, P. Antecedents of entrepreneurial intentions amongst business students in a tertiary institution. *Asia Pacific Journal of Innovation and Entrepreneurship*. (2019). <https://doi.org/10.1108/APJIE-06-2018-0037>
 15. Using and Interpreting Cronbach's Alpha. Using and Interpreting Cronbach's Alpha. (2023). Retrieved August 16, 2023, from <https://data.library.virginia.edu/using-and-interpreting-cronbachs-alpha/>
 16. Diedenhofen, B., and Musch, J. cocron: A Web Interface and R Package for the Statistical Comparison of Cronbach's Alpha Coefficients. *Psychology*. (2017). <https://www.semanticscholar.org/paper/cocron%3A-A-Web-Interface-and-R-Package-for-the-of-Diedenhofen-Musch/bf4a2f33c964cd4080409b3993424b767ca70a72>
 17. Sabah, S. Entrepreneurial Intention: Theory of Planned Behavior and the Moderation Effect of Start-Up Experience. In M. Franco (Ed.), *Entrepreneurship - Practice-Oriented Perspectives*. (2016). DOI: 10.5772/65640.
 18. Kobylińska, U. Attitudes, Subjective Norms, and Perceived Control Versus Contextual Factors Influencing the Entrepreneurial Intentions of Students from Poland. *WSEAS Transactions on Business and Economics*. (2022). <https://doi.org/10.37394/23207.2022.19.10>
 19. Mousavi, A., Mohammadi, A., and Rashidi, H. E-learning educational atmosphere measure (EEAM): a new instrument for assessing e-students' perception of educational environment. *Research in Learning Technology*. (2020). <https://doi.org/10.25304/rlt.v28.2308> [https://www.semanticscholar.org/paper/E-learning-educational-atmosphere-measure-\(EEAM\)%3A-a-Mousavi-Mohammadi/32174a7e2a93437190c552bd56ff2ed6698f34a3](https://www.semanticscholar.org/paper/E-learning-educational-atmosphere-measure-(EEAM)%3A-a-Mousavi-Mohammadi/32174a7e2a93437190c552bd56ff2ed6698f34a3)
 20. Allam, A. A., AbuAli, A. N., Ghabban, F. M., Ameerbakhsh, O., Alfadli, I. M., and Alraddadi, A. S. Citizens Satisfaction with E-Government Mobile Services and M-Health Application during the COVID-19 Pandemic in Al-Madinah Region. *Journal of Service Science and Management*, (2021). 14(6).
 21. Matlay, H. Researching entrepreneurship and education: Part 2: what is entrepreneurship education and does it matter? (2006). 48. <https://doi.org/10.1108/00400910610710119>
 22. Social Cognitive Career Theory. In J.H. Greenhaus and G.A. Callahan (Eds.), *Encyclopedia of career development* (2006). (Vol 2). Sage. DOI: 10.1037/0000339-003. Gail Hackett. https://www.researchgate.net/publication/303257953_Social_cognitive_career_theory
 23. Al-Mamary, Y. H. S., Abdulrab, M., Alwaheeb, M. A., and Alshammari, N. G. M. Factors Impacting Entrepreneurial Intentions among University Students in Saudi Arabia: Testing an Integrated Model of TPB and EO. *Education and Training*, (2020). 62(7/8), 779-803. Retrieved from <https://doi.org/10.1108/ET-03-2020-0081>
 24. Alrubaishi, D. The entrepreneurial intention of university students in Saudi Arabia. *International Journal of Management (IJM)*, (2020). 11(9), 1494-1504. DOI: 10.34218/IJM.11.9.2020.144. <http://iaeme.com/Home/issue/IJM?Volume=11andIssue=9>.
 25. Kulothungan, K., and Anbazhagi, J. Entrepreneurial Intention of Business Students. *Journal of Interdisciplinary Cycle Research*, (2021). 12(10), 54. https://www.researchgate.net/publication/351088394_ENTREPRENEURIAL_INTENTION_OF_BUSINESS_STUDENTS
 26. Alshebami, A., and Ali Seraj, A. H. The Antecedents of Saving Behavior and Entrepreneurial Intention of Saudi Arabia University Students. *Educational Sciences: Theory and Practice*, (2021). 21(2), 67-84. DOI: 10.12738/jestp.2021.2.005.

27. Elnadi, M., and Gheith, M. Entrepreneurial Ecosystem, Entrepreneurial Self- efficacy, and Entrepreneurial Intention in Higher Education: Evidence from Saudi Arabia. *Int. J. Manag. Educ.* (2021). 19, 1–12. <https://doi.org/10.1016/j.ijme.2020.100420>
28. Alshagawi, M., and Ghaleb, M. M. Entrepreneurial intentions of university students in the Kingdom of Saudi Arabia. *International Journal of Innovation Science*, (2022). 15(3). <https://doi.org/10.1108/IJIS-05-2021-0083> https://www.researchgate.net/publication/356507687_The_Antecedents_of_Saving_Behavior_and_Entrepreneurial_Intention_of_Saudi_Arabia_University_Students
29. Barba-Sánchez, V., Mitre-Aranda, M., and del Brío-González, J. The Entrepreneurial Intention of University Students: An Environmental Perspective. *European Research on Management and Business Economics*, (2022). 28(2), 100184. Retrieved from <https://www.sciencedirect.com/science/article/pii/S2444883421000437>
30. Alshebami, A., Al-Jubari, I., Alyoussef, A., and Raza, M. Entrepreneurial Education as a Predictor of Community College of Abqaiq students' Entrepreneurial Intention. *Manag. Sci. Lett.* (2021). 10, 3605–3612. <https://doi.org/10.5267/j.msl.2020.5.005>
31. Ali, I., Ali, M., and Badghish, S. Symmetric and Asymmetric Modeling of Entrepreneurial Ecosystem in Developing Entrepreneurial Intentions among Female university Students in Saudi Arabia. *Int. J. Gen. Entrep.* (2019). 11, 435–458. <https://doi.org/10.1504/IJGE.2019.10021466> <https://www.semanticscholar.org/paper/Symmetric-and-asymmetric-modeling-of-ecosystem-in-Ali-Ali/c01bc20c561e5002b315cb0b61327a133bd9011d>
32. Naushad, M. A study on the Antecedents of Entrepreneurial Intentions among Saudi Students. *Entrep. Sustain. Cent.* (2018). 3, 1-11. (14) <https://doi.org/10.9770/jesi.2018.5.3>
33. Nieva, F. O. Social women entrepreneurship in the Kingdom of Saudi Arabia. *Journal of Global Entrepreneurship Research*, (2015). 5(11), 1-33. Springer, Heidelberg. ISSN 2251-7316. <https://www.econstor.eu/handle/10419/161770>
34. Santos, F. J., Roomi, M. A., and Liñán, F. About Gender Differences and the Social Environment in the Development of Entrepreneurial Intentions. *Journal of Small Business Management*, (2016). 54(1), 49-66. <https://doi.org/10.1111/jsbm.12129>
35. Abou-Moghli, A. A., and Al-Abdallah, G. A Systematic Review of Women Entrepreneurs Opportunities and Challenges in Saudi Arabia. *Journal of Entrepreneurship Education*, (2019). <https://www.semanticscholar.org/paper/A-Systematic-Review-of-Women-Entrepreneurs-and-in-Abou-Moghli-Al-Abdallah/5dd81d3bee655c7e99499450d2595875a9b3e320>
36. Kabonga, I., and Zvokuomba, K. Entrepreneurship among university students in Bindura, Zimbabwe. *Cogent Social Sciences, Education, Business.* (2021). <https://www.semanticscholar.org/paper/Entrepreneurship-among-university-students-in-Kabonga-Zvokuomba/11512a5f224845bac0e5c117a7500b34b0f3ed76>
37. Mohamad, N., and Hussain, N. Entrepreneurial Readiness among Female Students: Does the Effectiveness of Time Management Matters in Attempting Businesses? *International Journal of Academic Research in Business and Social Sciences.* (2021). <https://www.semanticscholar.org/paper/Entrepreneurial-Readiness-among-Female-Students%3A-of-Mohamad-Hussain/7b99d7677be54d803c96511c008fed5fbd7a5fde>
38. Alzamel, S., Nazri, M., and Omar, S. Factors Influencing E-Entrepreneurial Intention among Female Students in Saudi Arabia. *International Journal of Criminology and Sociology.* (2022). <https://www.semanticscholar.org/paper/Factors-Influencing-E-Entrepreneurial-Intention-in-Alzamel-Nazri/23491e8cb2a714bd8c16d1949a25d98cf6f5cfd3>
39. Abderrahim, F., Mohamed, R., and Lahyani, K. The Role of Entrepreneurship Education in the Development of Female Entrepreneurial Intention among Students at Hassan II University in Casablanca, Morocco. *Business* (2022). <https://www.semanticscholar.org/paper/The-Role-of-Entrepreneurship-Education-in-the-of-at-Abderrahim-Mohamed/db37af76be4e9a5c0841b8b11e47f6504194d927>

Disclaimer/Publisher's Note: The statements, opinions and data contained in all publications are solely those of the individual author(s) and contributor(s) and not of MDPI and/or the editor(s). MDPI and/or the editor(s) disclaim responsibility for any injury to people or property resulting from any ideas, methods, instructions or products referred to in the content.