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Career Readiness: A Study of Vietnamese University Students' Views on Post-Graduation Prospects

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Abstract

This study examines Vietnamese university students' perceptions and attitudes towards post-graduation job prospects, which could serve as an economic indicator. Utilizing survey data from over 200 students across institutions and disciplines, the research investigates how factors such as confidence in educational preparation, chosen field of study, and perceived job readiness relate to demographic characteristics and intentions to pursue the same academic path.

The most significant findings of the study reveal that English language confidence and major fields of study were influential factors in shaping students' perceptions and attitudes. Students with higher English confidence had statistically significantly higher levels of job market confidence, and significant differences in confidence levels were found across major groups, with students in the Social Sciences exhibiting lower confidence compared to those in Business/Economics, Linguistics, and Other majors. A linear regression analysis confirmed the positive relationship between English language confidence and job market confidence.

The study highlights influential factors shaping students' confidence levels and attitudes, offering insights for supporting education-to-workforce transitions. As students' confidence in future employment opportunities could bode well for economic growth, the research contributes to understanding Vietnamese students' career aspirations and perceived job readiness. The findings provide actionable insights for policymakers, educators, and career counselors to develop targeted interventions and support programs that address the specific needs of different student groups, ultimately benefiting the nation's economic development.

Keywords: Vietnamese university students, post-university prospects, English language confidence, major, job market optimism, career preparedness, workplace preparedness, urban, rural

Table of Contents

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Introduction

Vietnam has experienced a remarkable period of economic growth and development over the past few decades, driven by a series of reforms and policies aimed at transforming the country into a market-oriented economy. These changes have had far-reaching impacts on Vietnamese society, affecting not only the economic landscape but also the aspirations and expectations of the younger generation, particularly university students who are on the cusp of entering the workforce (Trines, 2017). As Vietnam continues to pursue its ambitious goals for

economic advancement and international integration, it is crucial to understand how these shifts are shaping the career outlooks and preparedness of the country's future workforce.

One of the most pressing challenges facing Vietnam in its quest for sustained economic growth is the need to develop a highly skilled and educated labor force capable of meeting the evolving demands of the job market. A recent World Bank simulation exercise highlighted the magnitude of this challenge, projecting that Vietnam will need to generate an additional 200,000 to 450,000 university graduates per year beyond the current output to fulfill the anticipated demand for highly educated workers (World Bank, 2023). This demand forecast is based on Vietnam's own policy targets for enhancing workforce qualifications and benchmarks from upper-middle-income countries, suggesting that Vietnamese university students may encounter favorable job prospects upon graduation, provided they possess the requisite skills and competencies.

To gain a more nuanced understanding of the specific skills and attributes that are most highly valued in the Vietnamese labor market, it is instructive to consider the findings of a recent survey conducted by Economist Impact in collaboration with Google (Bhandari, 2023). This study, which examined workforce skills gaps and development priorities across the Asia-Pacific region, found that Vietnamese employers place a premium on analytical skills and digital capabilities, with advanced technical competencies such as UX design, AI/ML, cloud computing, and cybersecurity being in particularly high demand. These results suggest that university students pursuing degrees in fields such as computer science, data analytics, and other technology-related disciplines may be well-positioned to capitalize on the growing demand for these skill sets in the Vietnamese economy.

While these macro-level analyses of workforce supply and demand provide valuable context for understanding the broader landscape shaping students' career prospects, there remains a paucity of research on how Vietnamese university students themselves perceive their readiness and aspirations for the job market. This study seeks to address this gap by delving into the perceptions and attitudes of Vietnamese university students towards their post-graduation prospects, drawing inspiration from a similar investigation conducted by Strada-Gallup in the United States (Strada-Gallup, 2017).

By adapting the exact wording of questions on the Strada-Gallup survey to the Vietnamese context, this research aims to facilitate cross-cultural comparisons and contribute to a more comprehensive understanding of the complex interplay between higher education and

workforce readiness from the student perspective. The study will explore a range of factors that may influence students' career outlooks and confidence, including their major field of study, year of enrollment, university affiliation, and geographic background. By examining how these variables intersect with students' self-assessed job market readiness and aspirations, the research will shed light on the ways in which Vietnam's rapidly evolving economic landscape is shaping the career expectations and preparedness of the next generation of workers.

The insights generated by this study will not only fill an important lacuna in the existing literature on Vietnamese higher education and workforce development but also contribute to ongoing debates around the role of universities in fostering sustainable economic growth and social progress. By identifying the factors that promote or hinder students' confidence and readiness for the job market, the research will inform the development of targeted interventions and policies aimed at enhancing the employability and career prospects of Vietnamese graduates. Moreover, this study aligns with the broader goals of sustainable development by focusing on the critical role of human capital formation in driving inclusive and equitable economic growth. By investing in the education and skills development of university students, Vietnam can lay the foundation for a more resilient and adaptable workforce capable of navigating the challenges and opportunities of the 21st-century global economy. As such, this research has the potential to contribute to the evidence base needed to support sustainable human capital development policies and practices in Vietnam and beyond.

In summary, this study aims to address a significant gap in the current understanding of Vietnamese university students' career perceptions and readiness by examining the complex interplay of factors such as English language proficiency, academic major, year of study, university affiliation, and geographic background. By providing a more granular and student-centered perspective on these issues, the research will complement existing macro-level analyses of workforce supply and demand, yielding valuable insights for policymakers, educators, and other stakeholders invested in the sustainable development of Vietnam's human capital. Ultimately, this study seeks to contribute to a more holistic and nuanced understanding of the challenges and opportunities facing Vietnamese university students as they prepare to enter an increasingly competitive and dynamic job market, while also shedding light on the broader role of higher education in fostering sustainable economic and social progress

Methods

This study aimed to investigate the perceptions and attitudes of Vietnamese university students towards their post-university prospects, with a specific focus on the role of English language confidence and other factors such as major, year of study, university, and area type. To achieve this objective, an online survey was conducted using Google Forms, a platform that allowed for anonymous participation and streamlined data collection.

Sample

The selection of universities included in the study was based on two primary considerations. First, the researcher's academic director, Dr. Thanh, had established professional connections with these institutions, which facilitated access to the student population and increased the likelihood of participation. Second, the chosen universities were strategically located in various regions of Vietnam, spanning from the north to the south, and included institutions in rural areas such as Can Tho University. This diverse geographical distribution was intended to capture a more representative sample of Vietnamese university students, rather than focusing solely on those from the south or the metropolitan area of Ho Chi Minh City. By incorporating a range of universities from different parts of the country, the study aimed to account for potential regional variations in student experiences, perceptions, and aspirations.

Given the time constraints and limited resources available for this research, the sampling method employed was primarily based on convenience. The study relied on the responses received from the survey, as the researcher did not have the capacity to create a larger, more representative sample using probability-based sampling techniques. Consequently, the findings of this study should be interpreted with caution, as they may not be generalizable to the entire population of Vietnamese university students.

Survey Design

The survey questions were carefully designed to gather relevant data for analysis. Five of the questions were based on the 2017 Strada-Gallup survey, which was conducted in the United States. These questions were selected to facilitate a comparison between Vietnamese university students and their American counterparts, providing insights into potential similarities and differences in their perceptions and attitudes towards post-university prospects. The remaining six questions were created by the researcher to specifically analyze the unique demographics of

Vietnamese university students. These questions focused on age, urban versus rural background, English language confidence, and major field of study. By incorporating these Vietnam-specific questions, the study aimed to capture the nuances and complexities of the Vietnamese higher education context (Appendix Q, R).

It is important to acknowledge the limitations and shortcomings of the data collected in this study. One of the main limitations was the relatively small sample size, which may restrict the external validity of the findings. A larger sample size would have provided more robust results and increased the confidence in the conclusions drawn from the data. Another significant limitation was the omission of a question regarding the respondents' gender in the survey. This oversight prevented the researcher from conducting a potentially valuable gender-based analysis, which could have shed light on how gender differences influence career perceptions and aspirations among Vietnamese university students. The absence of this analysis is considered the researcher's biggest regret, as exploring gender dynamics could have yielded more impactful and nuanced results. Furthermore, the survey could have benefited from the inclusion of additional demographic questions, such as socio-economic status and region of Vietnam, to provide a richer dataset for analysis and enable a more comprehensive understanding of the factors shaping students' post-university prospects.

Ethics

To ensure ethical research practices, several measures were implemented in the survey design and administration. Before participating in the survey, students were asked to confirm that they were 18 years of age or older. Those who indicated they were under 18 were not allowed to proceed with the survey, ensuring that only adult participants were included in the study. Additionally, all potential respondents were provided with a brief description of the survey's purpose and the nature of the questions they would be asked. They were then required to give their informed consent before accessing the survey questions. This approach aimed to ensure that participants were fully aware of what the study entailed and that their participation was voluntary.

Platform

The online survey was launched on Monday, April 22, 2024, and remained open for responses until Tuesday, April 30th. While a longer data collection period would have been preferable to gather a larger sample, the survey had to be closed after eight days to allow sufficient time for data analysis and interpretation.

Google Forms was selected as the survey platform for several reasons. First, it is a cost-effective solution that does not require any financial investment, making it an ideal choice for a student research project with limited funding. Second, Google Forms offers a user-friendly interface that allows for the creation of professional-looking surveys without the need for advanced technical skills. Third, the platform enables researchers to send surveys to participants without requiring them to provide any personal information, such as their name or email address, ensuring anonymity and potentially increasing response rates. Finally, Google Forms automatically collates the responses into a pre-formatted Google Sheets document, greatly simplifying the data collection process and saving the researcher valuable time that would otherwise be spent on manual data entry.

Data Analysis

The data analysis for this study was conducted using R and RStudio, powerful statistical programming languages and environments that offer a wide range of analytical capabilities (Appendix S, T, U). In cases where respondents had missing data for specific questions, their responses were excluded from the analyses involving those particular variables. This approach, known as listwise deletion or complete case analysis, ensures that only complete observations are used in each analysis, maintaining the integrity of the results.

The statistical techniques employed in this study were selected based on the assumption that the data would follow a normal distribution. As a result, the primary methods used were regression analysis, the Kruskal-Wallis test, and Dunn's test.

Regression analysis was utilized to explore the relationship between English language confidence and job market confidence. This analysis aimed to determine whether English language confidence was a significant predictor of students' confidence in their ability to succeed in the job market, while controlling for other relevant variables.

The Kruskal-Wallis test, a non-parametric alternative to one-way ANOVA, was applied when analyzing differences in confidence levels across various factors such as major, year of

study, university, and age. This test is appropriate when the assumptions of ANOVA, such as normality and homogeneity of variances, are not met or when dealing with ordinal data.

In cases where the Kruskal-Wallis test indicated significant differences among groups, Dunn's test was employed as a post-hoc pairwise comparison test. Dunn's test helps identify which specific groups differ significantly from each other while controlling for the increased risk of Type I error when making multiple comparisons.

By employing these statistical techniques, the study aimed to provide a comprehensive and nuanced understanding of the complex interplay between variables such as English language confidence, major, year of study, university, and area type in shaping Vietnamese university students' perceptions and attitudes towards their post-university prospects. The use of both parametric and non-parametric tests ensured that the analysis was robust and appropriate for the nature of the data collected, based on the assumption of normality.

The combination of descriptive and inferential statistical techniques allowed for a multi-faceted exploration of the research questions, enabling the researcher to uncover meaningful patterns and associations within the data. The results of these analyses were interpreted in the context of existing literature and theories related to career aspirations, higher education, and workforce readiness, providing a foundation for drawing conclusions and making recommendations for policy and practice.

In summary, this study employed a systematic and rigorous approach to investigating the perceptions and attitudes of Vietnamese university students towards their post-university prospects. Despite the limitations imposed by the convenience sampling method and the relatively small sample size, the use of regression analysis, the Kruskal-Wallis test, and Dunn's test, based on the assumption of data normality, lends credibility to the findings. The insights gained from this research have the potential to inform efforts to enhance the employability and career readiness of Vietnamese university graduates, contributing to the sustainable development of the country's human capital.

Results

The survey conducted among Vietnamese university students yielded a total of 211 responses, providing valuable insights into their perceptions and attitudes towards post-university prospects. The demographic characteristics of the respondents were as follows:

- Age
    - The majority of the respondents (69.7%) were between the ages of 18 and 21, while 24.6% were in the 22-25 age range. Only 3.8% of the participants were 26 years or older, and 1.9% preferred not to disclose their age (Appendix A).
- University
    - Participants from various universities across Vietnam were represented in the sample. The University of Economics Ho Chi Minh City had the highest proportion of respondents at 23.2%, followed by Vietnam National University, Hanoi (21.3%), and Thai Binh Duong University (20.4%). Other universities included Can Tho University (13.7%), Hoa Sen University (11.8%), and other institutions (8.1%). A small percentage (0.9%) preferred not to disclose their university affiliation (Appendix B).
- Year of Study
    - The sample consisted of students from different years of study, with the largest group being 3rd-year students (30.3%), followed by 1st-year (24.2%) and 2nd-year (21.8%) students. Fourth-year students comprised 14.2% of the sample, while graduate students and those who preferred not to disclose their year of study accounted for 4.7% and 4.3%, respectively (Appendix C).
- Major
    - Business/Economics was the most common major among the respondents (41.7%), followed by Social Sciences (15.2%) and Linguistics/Languages (13.7%). Other majors included Computer Science/IT (5.2%), Humanities (5.7%), Tourism (4.3%), and various other fields such as Art/Design, Education, Healthcare, Law, and Real-estate (Appendix D).
- Area Type
    - The majority of the participants (64.0%) reported being from urban areas, while 33.6% were from rural areas. A small proportion (2.4%) preferred not to disclose the area they were from (Appendix E).

- English Confidence
    - When asked about their confidence in speaking English, 37.4% of the respondents rated their confidence as a 3 on a scale of 1 to 5. The second-largest group (24.2%) rated their confidence as a 2, followed by those who rated it as a 1 (19.9%). Only 13.3% and 5.2% of the participants rated their English confidence as a 4 or 5, respectively. The mean English confidence rating was 2.597, indicating an overall low to moderate level of confidence in speaking English among the respondents (Appendix F).
- Job Market Confidence
    - Combining the percentages of students who chose either 4 or 5, 56.4% of respondents indicated some level of confidence in their job market readiness. Regarding their confidence in graduating with the knowledge and skills needed to be successful in the job market, 42.2% of the respondents rated their confidence as a 4 on a scale of 1 to 5. The second-largest group (30.3%) rated their confidence as a 3, followed by those who rated it as a 5 (14.2%). A smaller proportion of participants rated their job market confidence as a 2 (10.9%) or 1 (2.4%). The mean job market confidence rating was 3.549, suggesting a moderate to high level of confidence in job market readiness among the respondents (Appendix G).
- Workplace Confidence
    - Combining the percentages of students who chose either 4 or 5, 56.9% of respondents indicated some level of confidence in their workplace readiness. When asked about their confidence in graduating with the knowledge and skills needed to be successful in the workplace, 40.3% of the respondents rated their confidence as a 4 on a scale of 1 to 5. The second-largest group (29.4%) rated their confidence as a 3, followed by those who rated it as a 5 (16.6%). A smaller proportion of participants rated their workplace confidence as a 2 (12.3%) or 1 (1.4%). The mean workplace confidence rating was 3.584, indicating a moderate to high level of confidence in workplace readiness among the respondents (Appendix H).
- Major Confidence

    - Combining the percentages of students who chose either 4 or 5, 55.8% of respondents indicated some level of confidence in their major leading to a good job. Regarding their confidence in their major field of study leading to a good job, 34.8% of the respondents rated their confidence as a 4 on a scale of 1 to 5. The second-largest group (33.8%) rated their confidence as a 3, followed by those who rated it as a 5 (21.0%). A smaller proportion of participants rated their major confidence as a 2 (8.1%) or 1 (2.4%). The mean major confidence rating was 3.642, suggesting a moderate to high level of confidence in the chosen major leading to a good job among the respondents (Appendix I).
- School Choice Confidence
    - Combining the percentages of students who chose either 4 or 5, 65.9% of respondents indicated some level of confidence in their school choice. When asked if they would still enroll at their current school if they had to do it all over again, 42.8% of the respondents rated their confidence as a 5 on a scale of 1 to 5. The second-largest group (23.1%) rated their confidence as a 4, followed by those who rated it as a 3 (17.8%). A smaller proportion of participants rated their school choice confidence as a 2 (9.1%) or 1 (7.2%). The mean school choice confidence rating was 3.852, indicating a relatively high level of confidence in the choice of school among the respondents (Appendix J).
- Major Choice Confidence
    - Combining the percentages of students who chose either 4 or 5, 51.4% of respondents indicated some level of confidence in their major choice. Regarding their confidence in selecting the same major if they had to do it all over again, 29.8% of the respondents rated their confidence as a 5 on a scale of 1 to 5. The second-largest group (22.1%) rated their confidence as a 3, followed by those who rated it as a 4 (21.6%). A smaller proportion of participants rated their major choice confidence as a 1 (13.9%) or 2 (12.5%). The mean major choice confidence rating was 3.406, suggesting a moderate level of confidence in the choice of major among the respondents (Appendix K).

Data Analysis

- English Language Confidence

- To investigate the relationship between English language confidence and job market confidence, a linear regression analysis was performed, with English language confidence as the independent variable and job market confidence as the dependent variable. The results showed a positive and statistically significant relationship ($\beta = 0.24821$, p-value = 1.88e-05), as seen in the regression graph in Appendix L. The positive beta coefficient (β) indicates that as English language confidence increases, job market confidence tends to increase as well. The p-value of 1.88e-05 is much smaller than the conventional significance level of 0.05, providing strong evidence against the null hypothesis of no relationship between the two variables.
- However, it is important to note that the R-squared value of the regression model was 0.08404, suggesting that English language confidence alone explains only 8.4% of the variance in job market confidence. This implies that while English proficiency is a significant predictor, there are likely other important factors influencing students' perceptions of their job market prospects. The low R-squared value indicates that the model's explanatory power is limited, and additional variables should be considered to better understand the factors shaping students' confidence in their future careers.

- <u>Major Choice</u>
  - To examine the impact of major choice on students' confidence levels, the Kruskal-Wallis test was employed. The groups were defined by the students' major fields of study: Business/Economics, Social Sciences, Linguistics, and Other. The Kruskal-Wallis test compared the median confidence levels across the major groups, as seen in the box plot in Appendix M.
  - The results of the Kruskal-Wallis test indicated a statistically significant difference in confidence levels across major groups (Kruskal-Wallis chi-squared = 18.547, p-value = 0.000336). The p-value of 0.000336 is less than the significance level of 0.05, suggesting that at least one major group differs significantly from the others in terms of confidence levels.
  - To identify which specific major groups differed significantly from each other, post-hoc pairwise comparisons using Dunn's test with Bonferroni correction were

conducted. The results showed that students in the Social Sciences major group had significantly lower confidence levels compared to those in Business/Economics (p-value = 0.0021), Linguistics (p-value = 0.0006), and Other (p-value = 0.0054) major groups.

- Year of Study
    - To investigate differences in confidence levels across years of study (1st year, 2nd year, 3rd year, 4th year, and graduate students), the Kruskal-Wallis test was used. The results indicated significant differences in confidence levels across years of study (Kruskal-Wallis chi-squared = 12.345, p-value = 0.0150), as seen in the box plot in Appendix N.
    - However, post-hoc pairwise comparisons using Dunn's test with Bonferroni correction revealed that these differences were not consistently significant across all pairwise comparisons. This means that while there were overall differences in confidence levels across years of study, not all years differed significantly from each other when compared individually.
- University
    - The Kruskal-Wallis test was also employed to analyze differences in confidence levels across universities. The results did not provide strong evidence of significant differences at the 0.05 level (Kruskal-Wallis chi-squared = 14.818, p-value = 0.06278), as seen in the box plot in Appendix O, indicating that university affiliation did not have a substantial impact on students' confidence levels.

- Area Type
    - The regression results indicated that there was no statistically significant relationship between area type and job market confidence ($\beta = 0.1493$, p-value = 0.285), as seen in the regression graph in Appendix P. The p-value of 0.285 is greater than the conventional significance level of 0.05, suggesting that the difference in job market confidence between rural and urban students is not significant.

- The regression coefficient (β) of 0.1493 suggests that, on average, students from urban areas have slightly higher job market confidence compared to those from rural areas. However, this difference is not statistically significant, as indicated by the high p-value.
- Furthermore, the R-squared value of the regression model was 0.005605, indicating that area type alone explains only 0.56% of the variance in job market confidence. This low R-squared value suggests that area type has a very weak explanatory power for job market confidence, and there are likely other important factors that influence students' perceptions of their job prospects.

Discussion

The results of this study provide valuable insights into the perceptions and attitudes of Vietnamese university students towards their post-university prospects. By examining factors such as confidence in educational preparation, chosen field of study, and perceived job readiness, the research sheds light on the complex interplay between higher education and workforce readiness in the Vietnamese context.

Key Findings

The first key finding of this study is the significant role of English language confidence in shaping students' job market optimism. Students who rated their English confidence as 4 or 5 on a scale of 1 to 5 had significantly higher levels of confidence in their ability to succeed in the job market compared to all students. This aligns with recent research highlighting the growing importance of English language proficiency in the Vietnamese workforce due to increased pressures of integrating into a globalized world. (Albright et al., 2018). The strong relationship between English confidence and job market confidence suggests that universities should put further emphasis on English language training and support to enhance students' employability and career prospects.

The second notable finding is the variation in confidence levels across major groups, with students in the Social Sciences exhibiting lower confidence compared to those in Business/Economics, Linguistics, and other majors. This may reflect differing perceptions of job market demand and career paths associated with these fields of study. However, it is important to

note that the relationship between major choice and career outcomes is complex and influenced by various factors beyond the scope of this study, such as individual skills, networking, and market conditions (Tran, 2018). Universities could use these findings to provide targeted career guidance and support to students in different major groups, helping them to understand and navigate the unique challenges and opportunities in their chosen fields.

Comparison to U.S. Students

Comparing the results of this study to the baseline statistics from the Strada-Gallup survey of U.S. college students reveals some interesting differences in student perceptions of job readiness. While only a third of U.S. students expressed strong agreement that they will graduate with the skills and knowledge needed to be successful in the job market (34%) and the workplace (36%) (Strada-Gallup, 2017), a smaller proportion of Vietnamese students strongly agreed with these statements (14.2% and 16.6%, respectively). Similarly, 21% of Vietnamese students strongly agreed that their major would lead to a good job, compared to 53% of U.S. students who believed the same (Strada-Gallup, 2017).

These differences may reflect a combination of cultural, economic, and educational factors. For example, the Vietnamese job market may place greater emphasis on practical skills and work experience, leading students to feel less confident in the immediate applicability of their university education (Tran, 2018). Additionally, the rapid pace of economic development and social change in Vietnam may contribute to greater uncertainty about future career prospects, particularly in emerging fields and industries (Trines, 2017).

However, it is important to note that the sample size and composition of the two studies differ significantly, which could impact the comparability of the results. The Strada-Gallup survey included a large, nationally representative sample of U.S. college students, while the Vietnamese study relied on a smaller, convenience sample of students from selected universities. These differences in sample size and representativeness should be considered when interpreting and comparing the findings. It should also be noted that the Strada-Gallup Survey was run in 2017 meaning there could have been shifts in American student opinions that were not accounted for in this data. The 2017 Gallup survey was also only run on undergraduate students in America whereas a small number of graduate students responded to the study of Vietnamese students.

Vietnamese universities could use these findings to strengthen career-oriented curricula, work-based learning opportunities, and employer partnerships to bridge the gap between student perceptions and market realities (Tran, 2018). Additionally, the strong influence of English language confidence on job market optimism suggests that universities should prioritize language training and support as a key component of career readiness initiatives.

In conclusion, this study contributes to a growing body of research on the relationship between higher education and workforce readiness in diverse global contexts. By comparing the perceptions and experiences of Vietnamese and U.S. college students, the findings highlight common challenges and opportunities for universities in preparing students for successful career transitions. As Vietnam continues to navigate rapid economic and social changes, the insights from this study can inform policy and practice to strengthen the alignment between university education and the evolving demands of the 21st-century workforce.

Limitations

While this study provides valuable insights into the perceptions and attitudes of Vietnamese university students towards their post-university prospects, it is essential to acknowledge the limitations of the research.

First, the sampling method employed in this study was based on convenience. Due to time constraints and limited resources, the researcher relied on personal connections and the willingness of university faculty members to distribute the survey to their students. As a result, the sample may not be fully representative of the entire population of Vietnamese university students. The findings should be interpreted with caution, as they may not be generalizable to all students in Vietnam. Future research could benefit from using a more robust sampling technique, such as stratified random sampling, to ensure a more representative sample.

Second, the research design and survey questions had some shortcomings. The researcher failed to include questions about important demographic factors such as gender, income, and region, which could have provided valuable insights into how these variables influence students' perceptions and attitudes. Gender, in particular, is a crucial factor to consider when examining career aspirations and job market readiness, as men and women may face different challenges and opportunities in the workforce. Additionally, students from different socio-economic backgrounds and regions of Vietnam may have varying levels of access to educational resources

and career support services, which could impact their confidence and preparedness for the job market. By omitting these questions, the study missed an opportunity to explore the intersectionality of these factors and their potential impact on students' post-university prospects.

Third, the researcher's limited expertise in data analysis may have affected the depth and sophistication of the statistical techniques employed in this study. Having only completed basic statistics courses, the researcher may not have been equipped with the advanced skills needed to conduct more complex analyses, such as structural equation modeling or multilevel modeling. These techniques could have provided a more nuanced understanding of the relationships between variables and the underlying factors influencing students' perceptions and attitudes. Future research could benefit from collaboration with experienced statisticians or data analysts to ensure the use of appropriate and rigorous analytical methods.

Despite these limitations, this study serves as a valuable starting point for understanding the perceptions and attitudes of Vietnamese university students towards their post-university prospects. The findings highlight the importance of English language proficiency, major choice, and career support services in shaping students' confidence and readiness for the job market. By acknowledging the limitations of this research, future studies can build upon these findings and address the gaps in sampling, research design, and data analysis. This will contribute to a more comprehensive understanding of the factors influencing Vietnamese university students' career aspirations and job market readiness, ultimately informing policies and practices to support their successful transition into the workforce.

Conclusions

This study aimed to investigate the perceptions and attitudes of Vietnamese university students towards their post-university prospects, focusing on the role of English language confidence and other factors such as major, year of study, university, and area type. The findings reveal several key insights that contribute to our understanding of the complex interplay between higher education and workforce readiness in the Vietnamese context.

Firstly, English language confidence emerged as a significant factor in shaping students' job market optimism. Students who rated their English confidence as 4 or 5 on a scale of 1 to 5 had significantly higher levels of confidence in their ability to succeed in the job market compared to all students. This finding aligns with the growing importance of English language

proficiency in the Vietnamese workforce amidst Vietnam's entrance as a larger player in the global economy (Albright et al., 2018). It suggests that universities should prioritize English language training and support to enhance students' employability and career prospects.

Secondly, the study identified variation in confidence levels across major groups, with students in the Social Sciences exhibiting lower confidence compared to those in Business/Economics, Linguistics, and other majors. This highlights the need for targeted career guidance and support for students in different fields of study, helping them to understand and navigate the unique challenges and opportunities in their chosen careers.

Comparing the results of this study to the baseline statistics from the Strada-Gallup survey of U.S. college students revealed some notable differences in student perceptions of job readiness. While a higher proportion of Vietnamese students strongly agreed that they will graduate with the skills and knowledge needed for job market and workplace success, a lower percentage believed their major would lead to a good job compared to U.S. students. These differences may reflect cultural, economic, and educational factors specific to the Vietnamese context, such as a greater emphasis on practical skills and work experience in the job market (Tran, 2018).

Based on these findings, the study recommends that Vietnamese universities prioritize the following:

1. Strengthen English language training and support programs to boost students' confidence and employability.
2. Provide targeted career guidance and support for students in different major groups, particularly those in the Social Sciences.
3. Develop career-oriented curricula, work-based learning opportunities, and employer partnerships to bridge the gap between student perceptions and market realities.
4. Conduct further research on the factors influencing student perceptions of job readiness, such as cultural values, economic conditions, and educational experiences, to inform policy and practice.

In conclusion, this study contributes to the growing body of research on higher education and workforce readiness in Vietnam, highlighting the importance of English language proficiency and major-specific support in shaping students' career prospects. As Vietnam

continues to navigate rapid economic and social changes, the insights from this study can inform efforts to align university education with the evolving demands of the 21st-century workforce. Further research could explore the impact of specific interventions, such as language training programs or work-based learning initiatives, on student outcomes and employer satisfaction. Additionally, longitudinal studies tracking students' post-graduation experiences and career trajectories could provide valuable insights into the long-term effectiveness of university preparation for the workforce.

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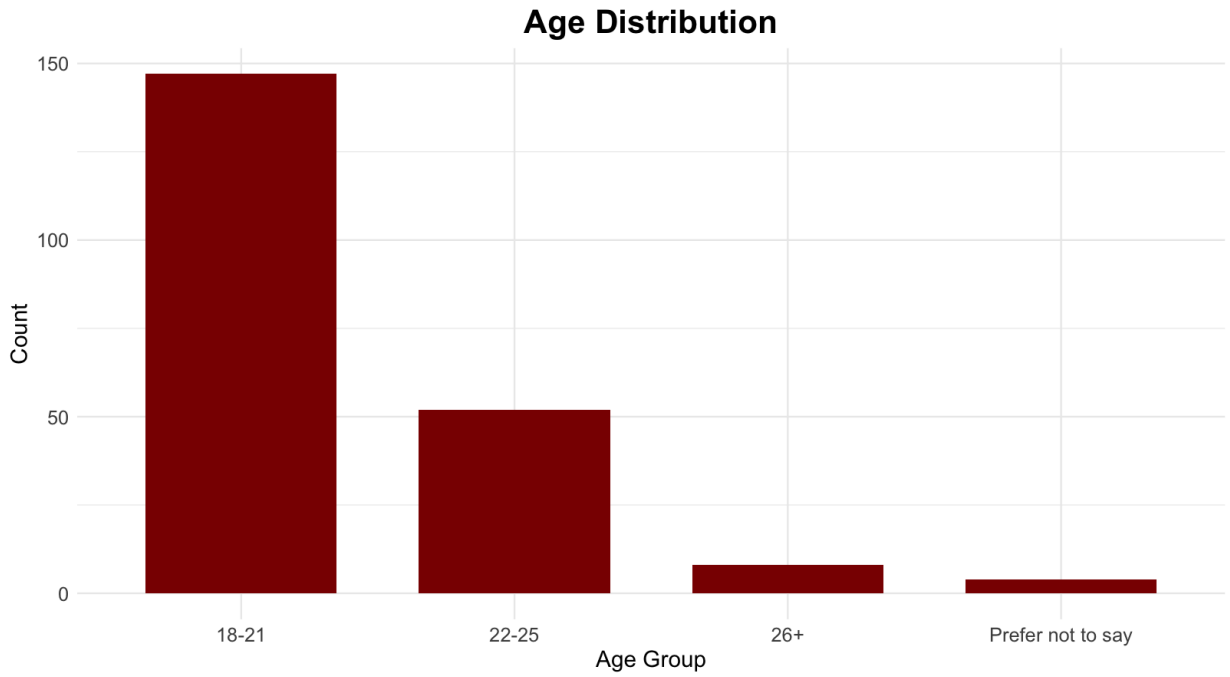
https://documents1.worldbank.org/curated/en/099062823070560888/P17811203471c7070ac1e0776974df430d.docx

Appendices

Appendix A:



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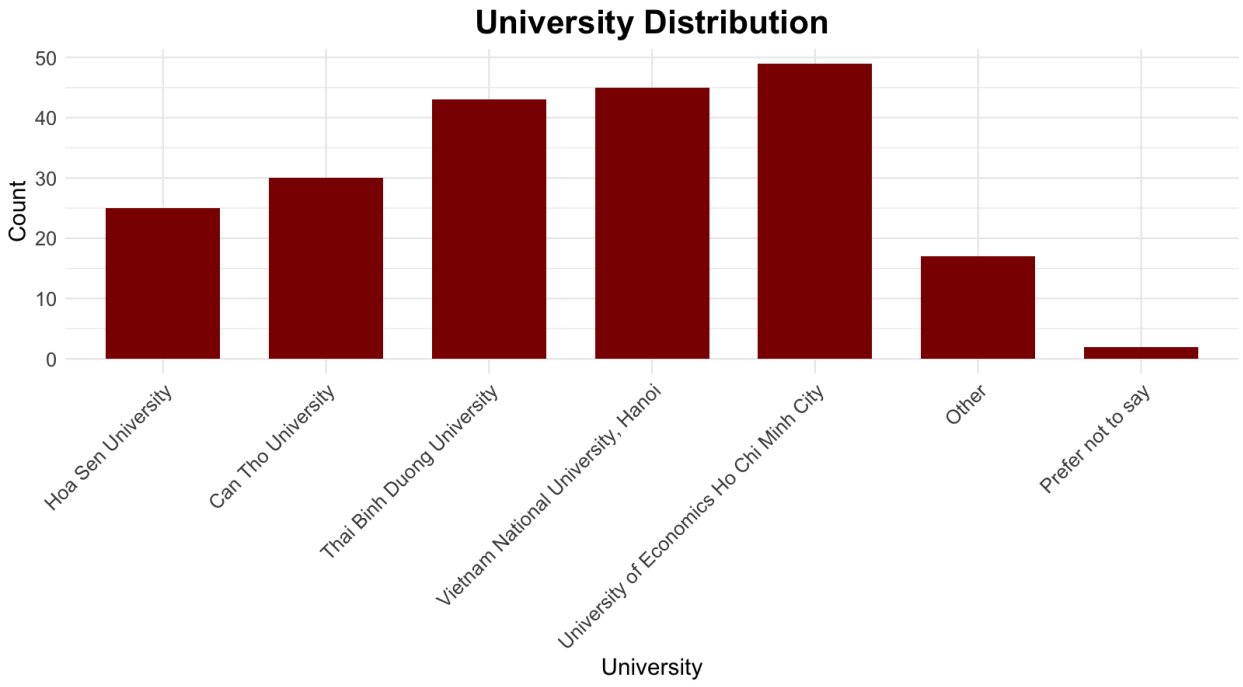

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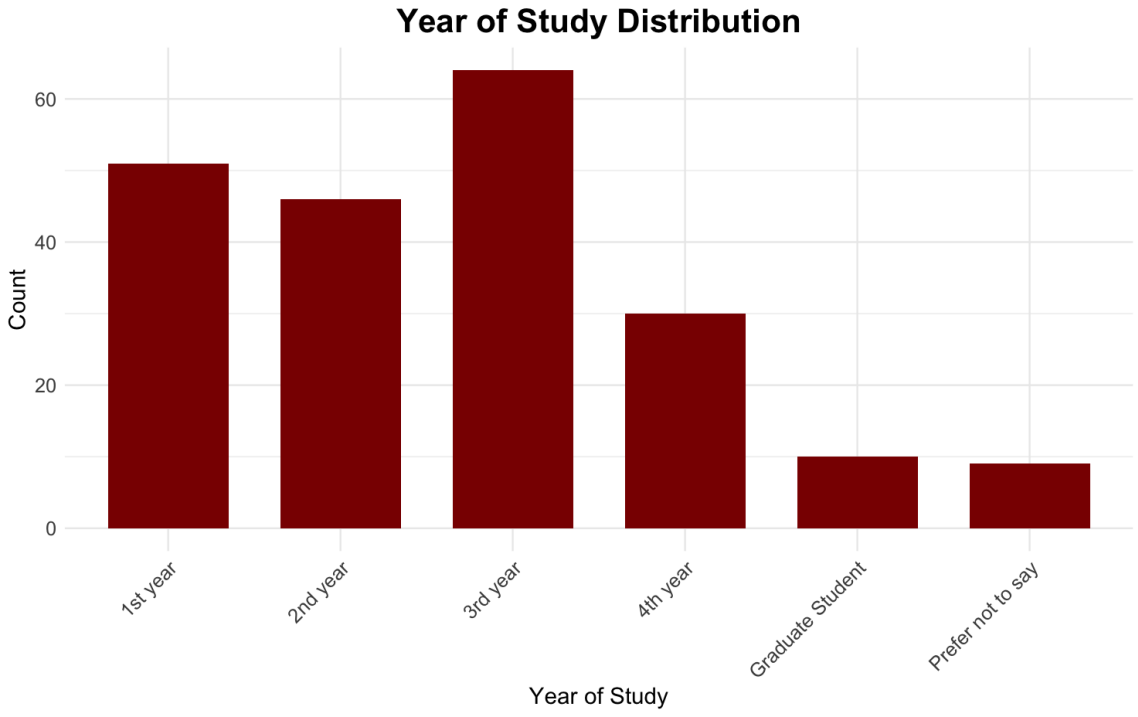

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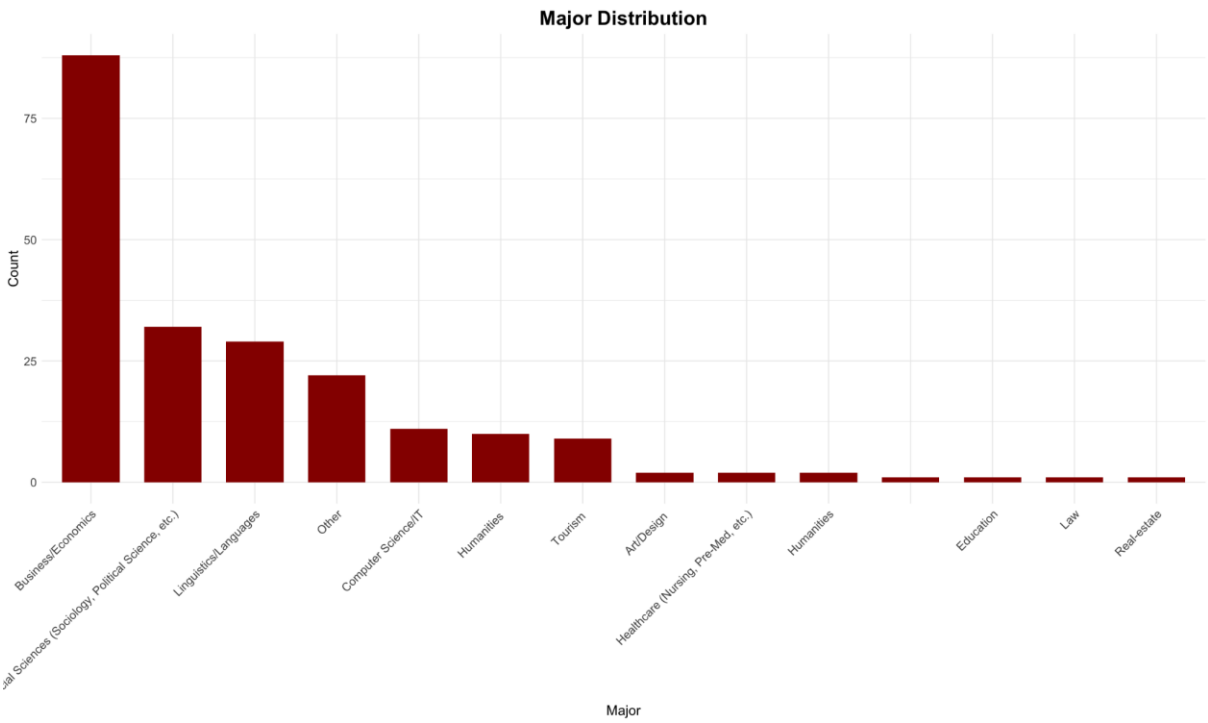
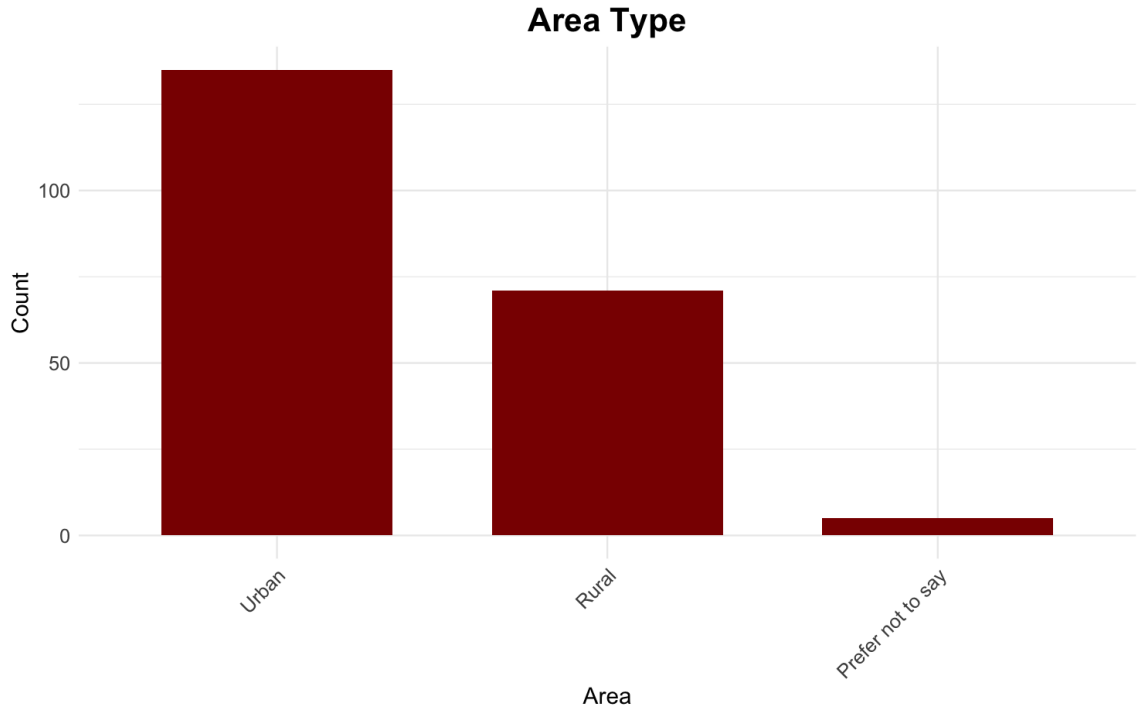
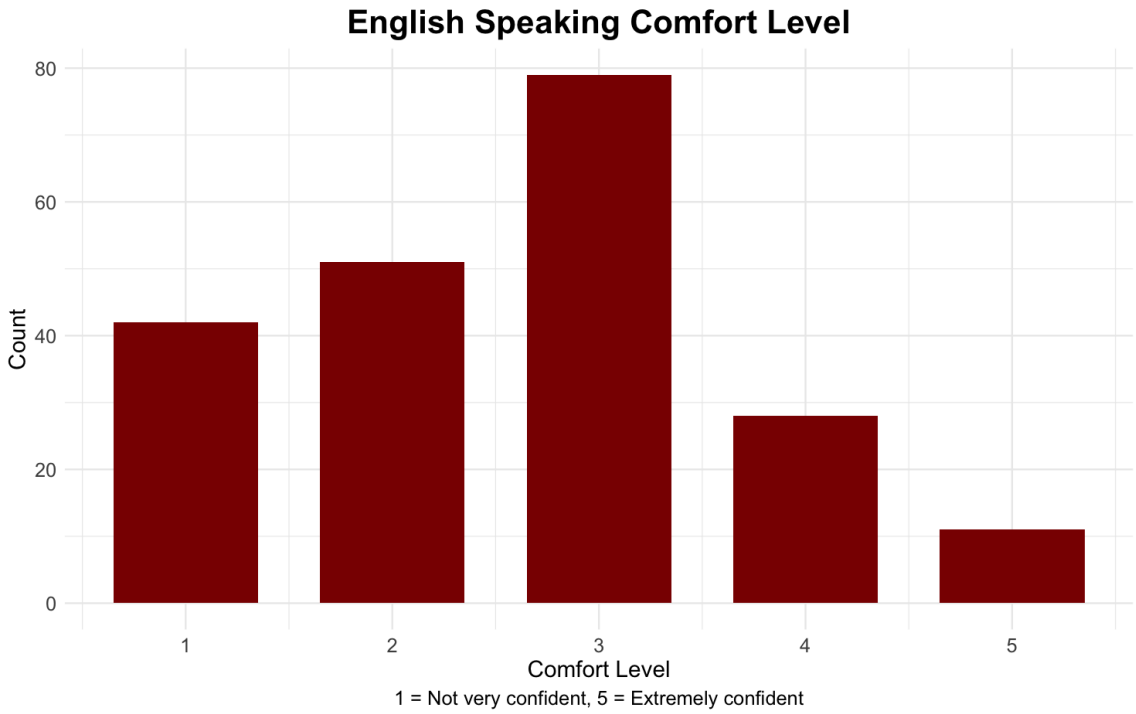


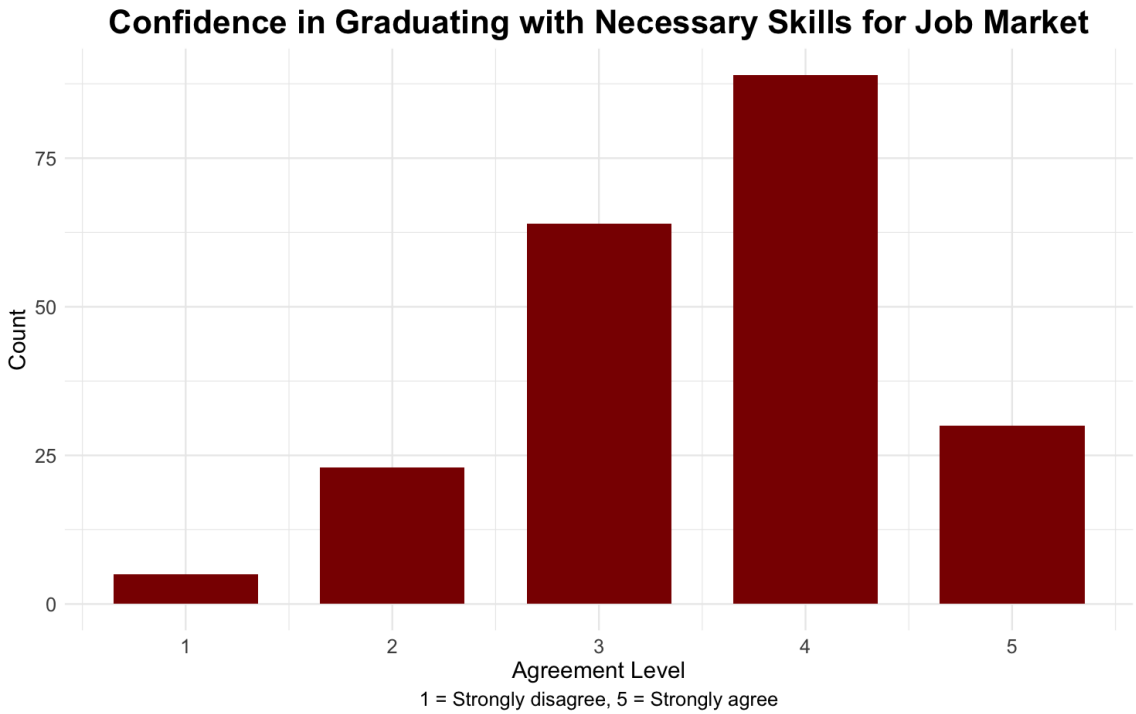
Appendix E:



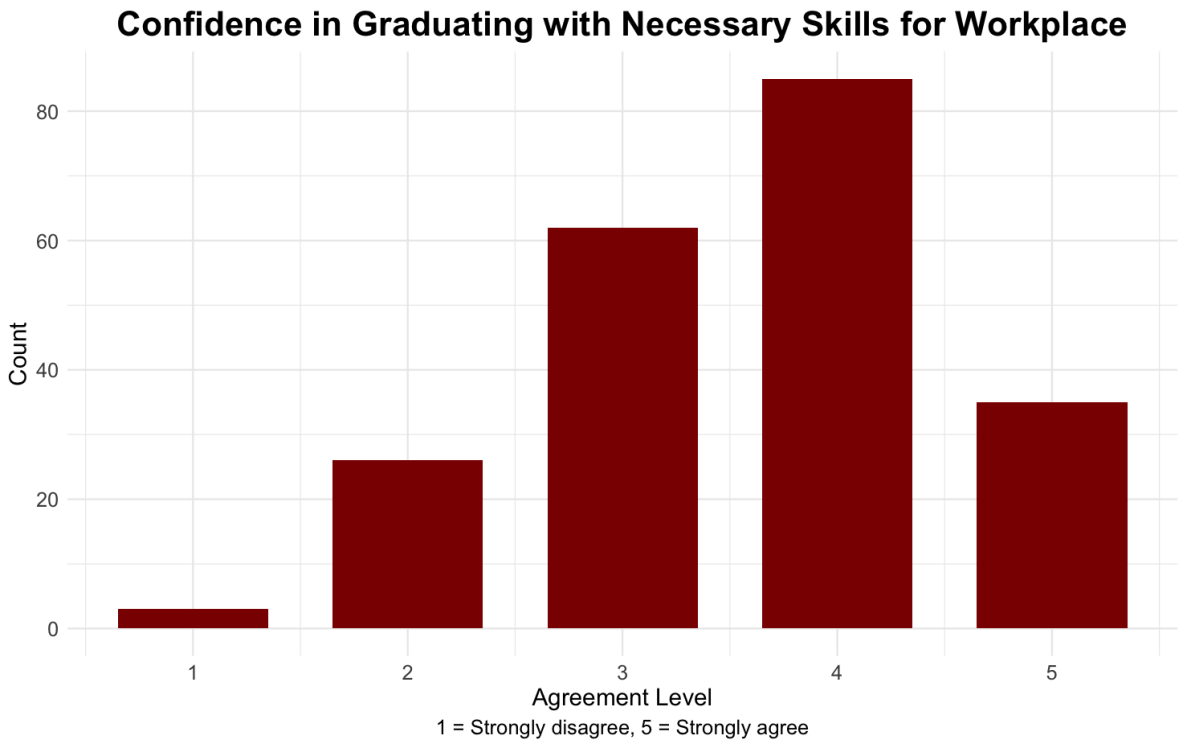
Appendix F:



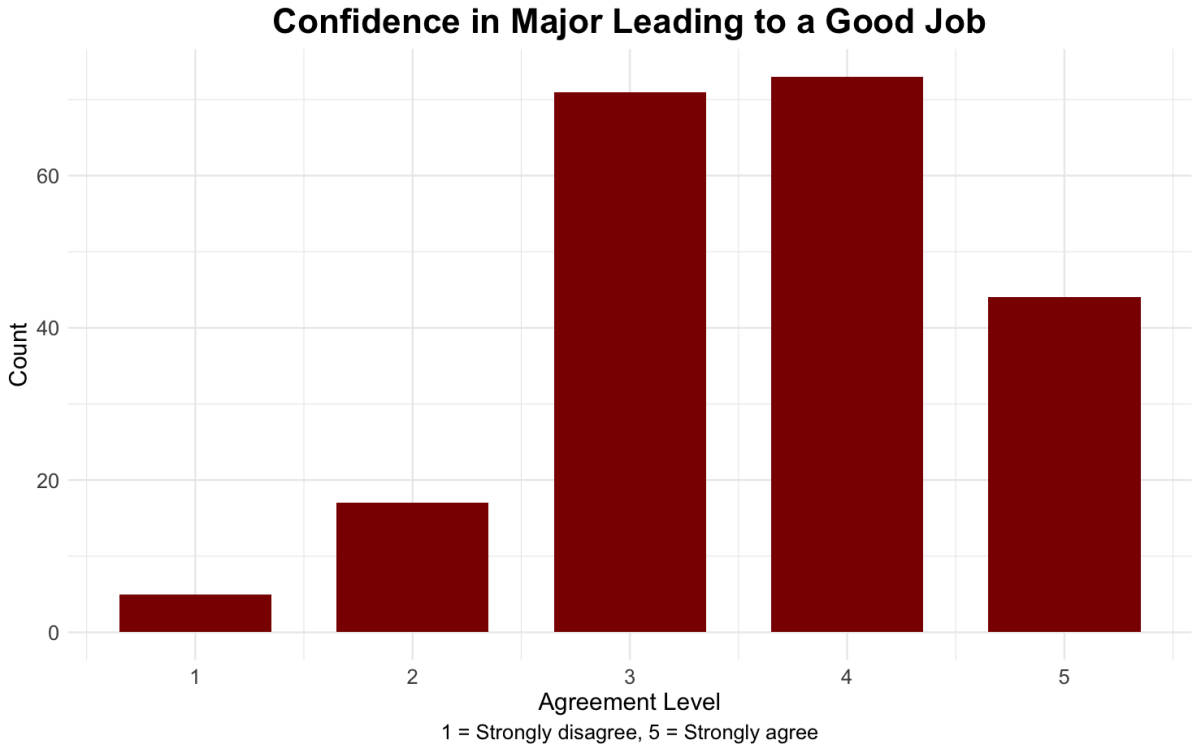
Appendix G:



Appendix H:



Appendix I:



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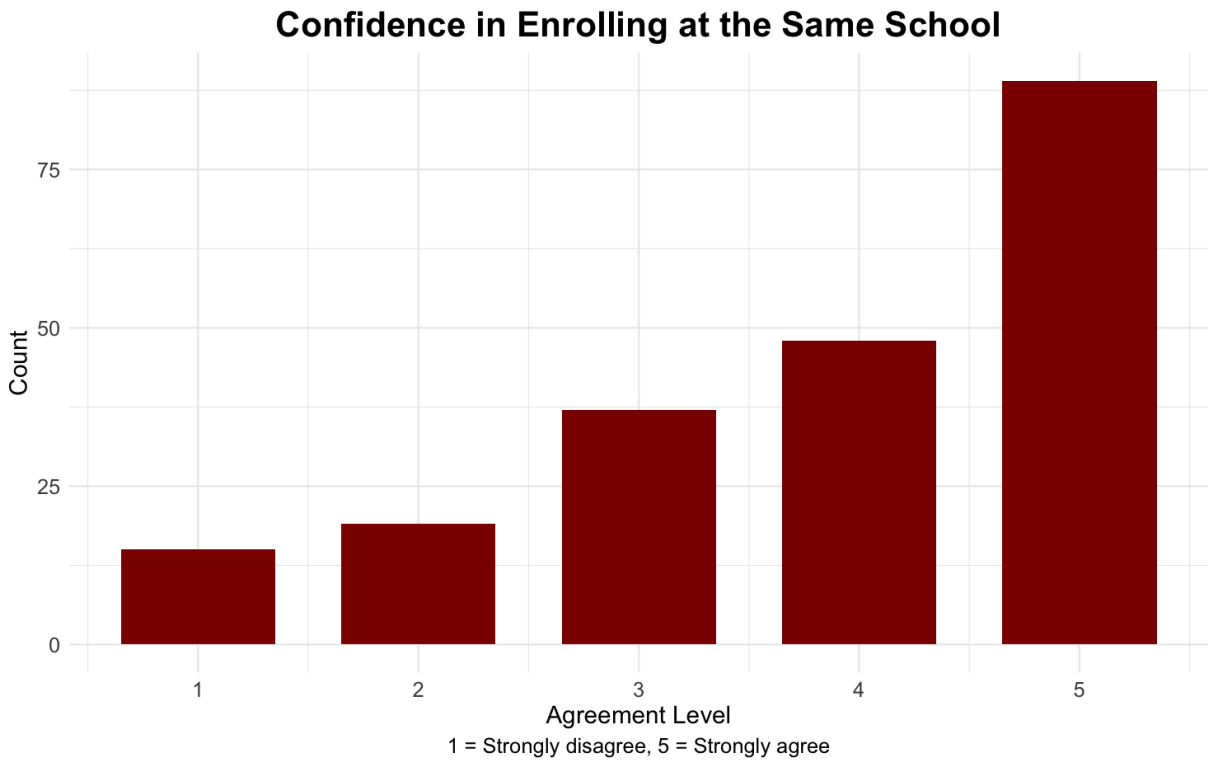
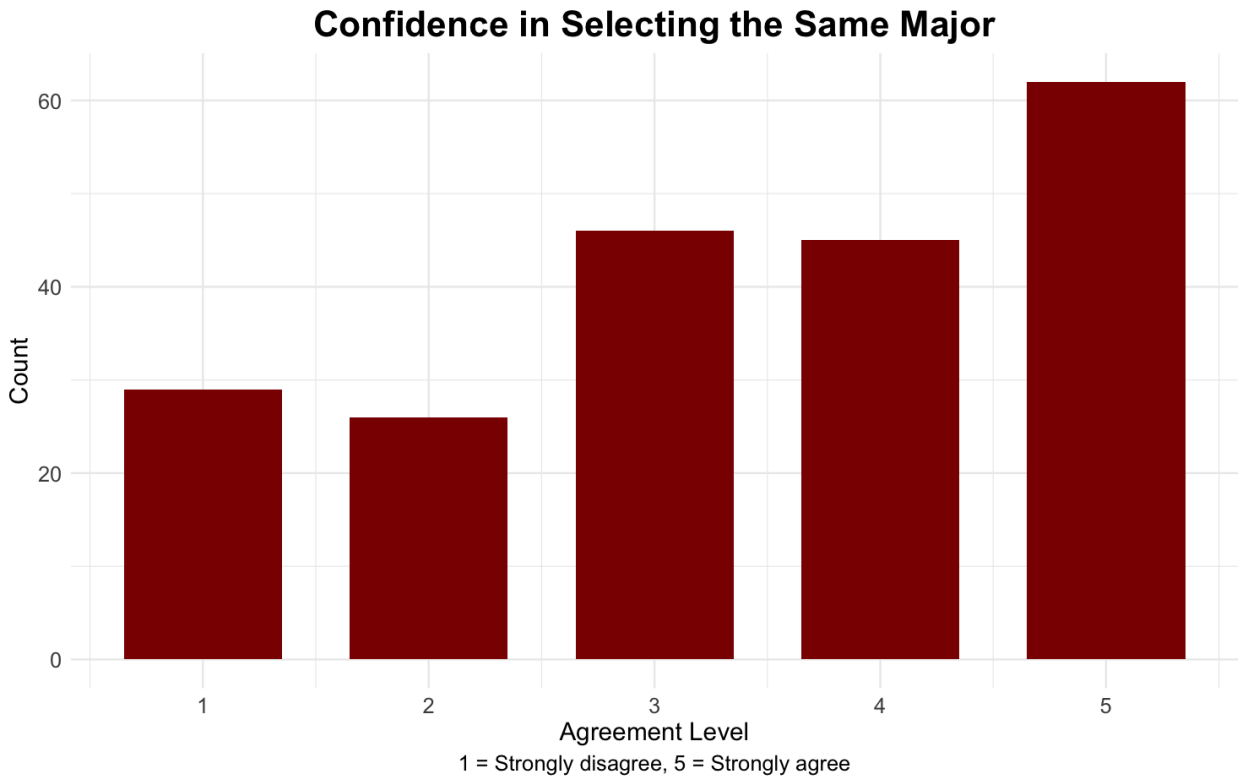


Appendix K:



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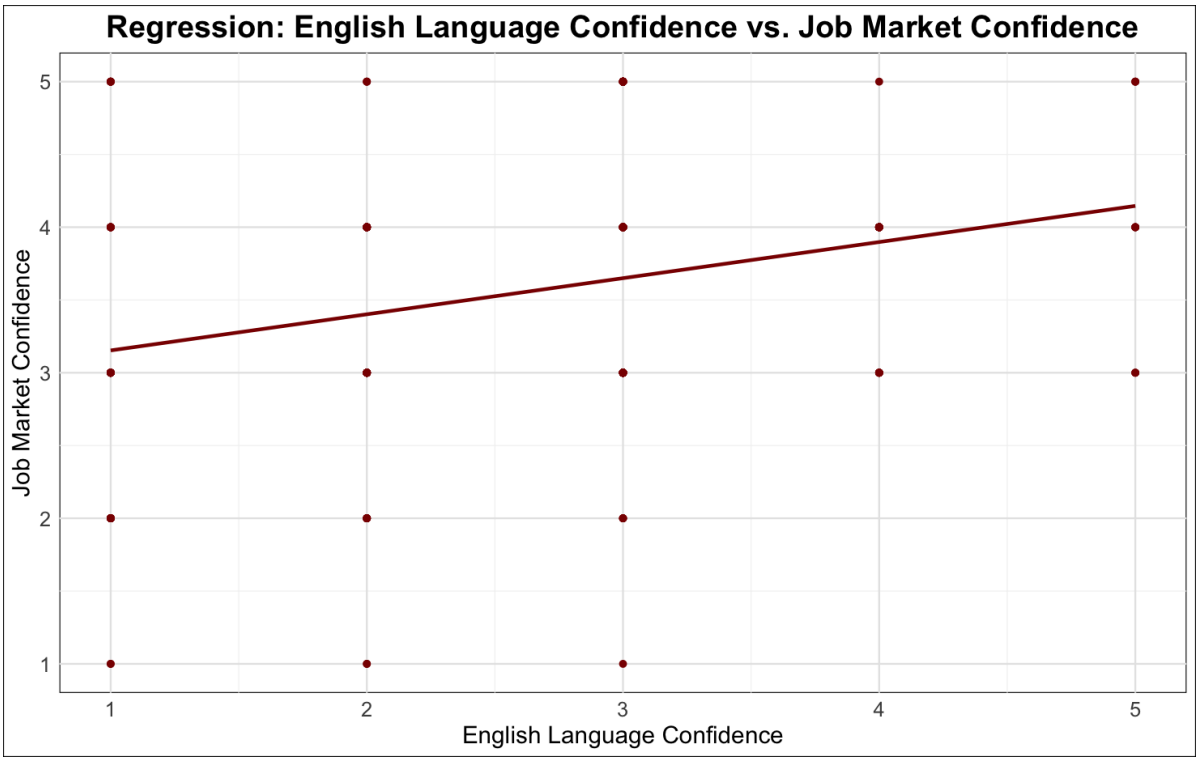

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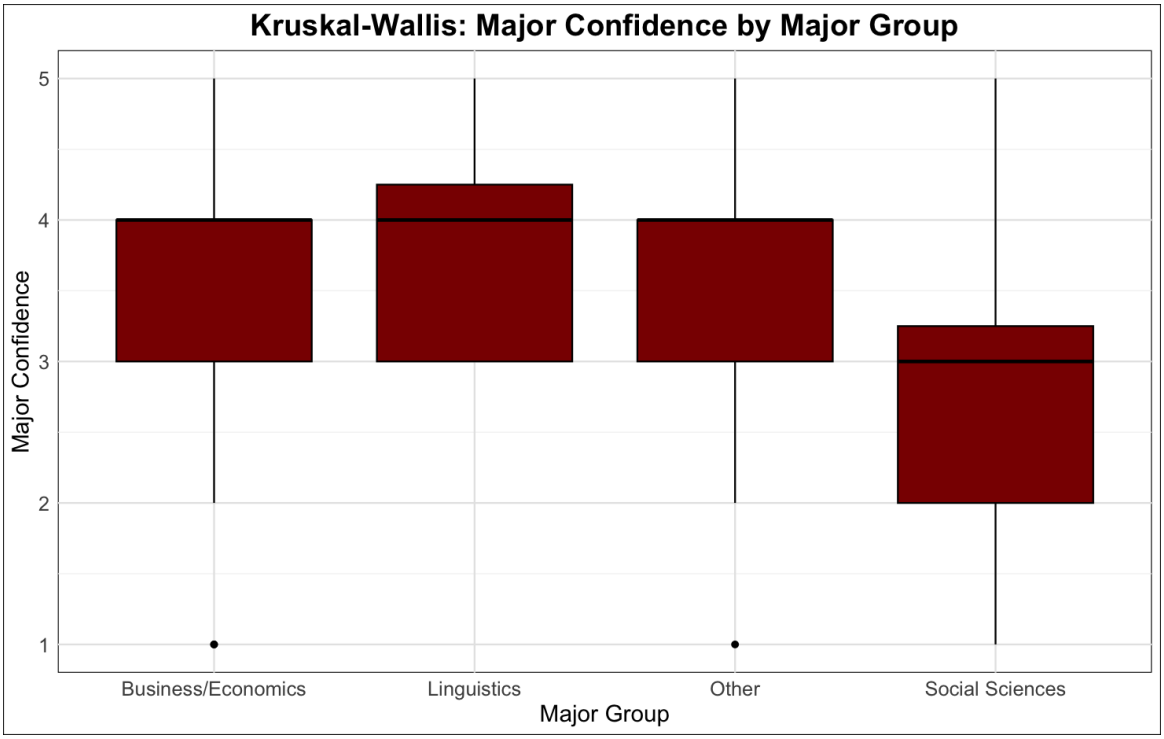

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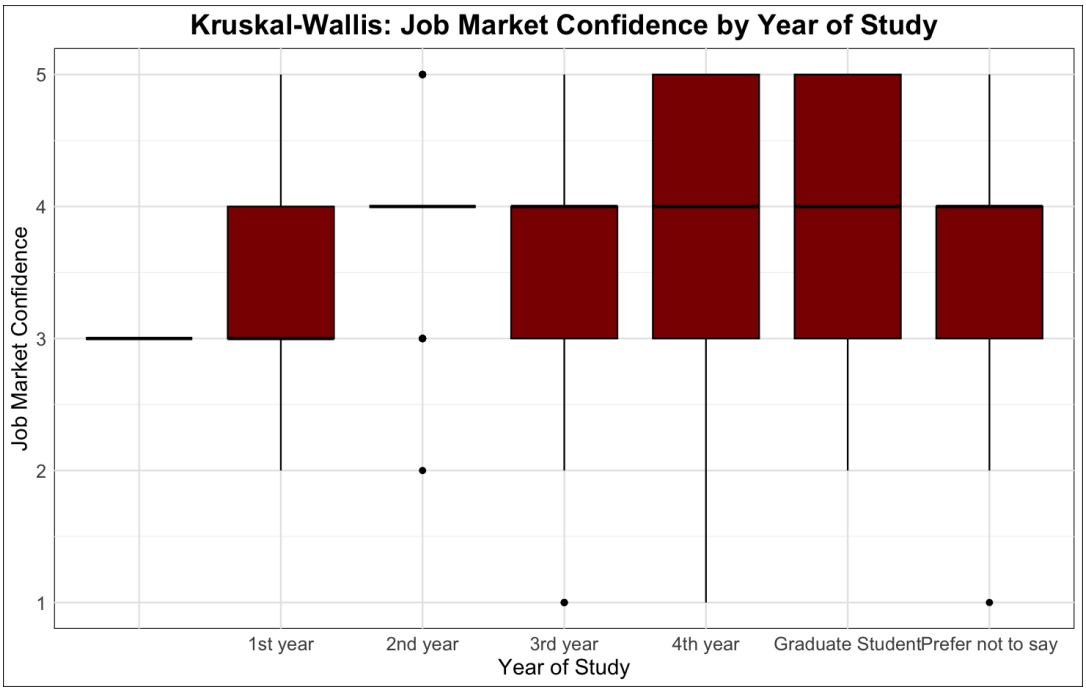
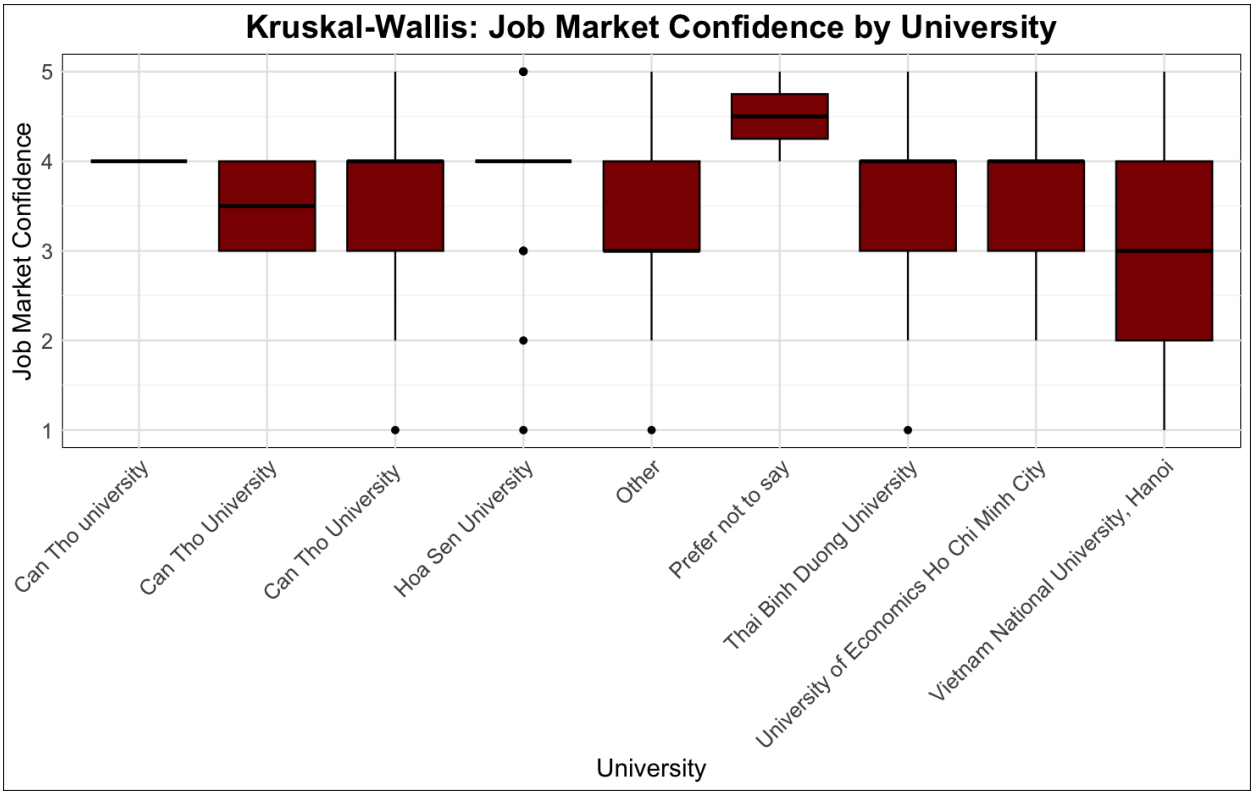


Appendix O:



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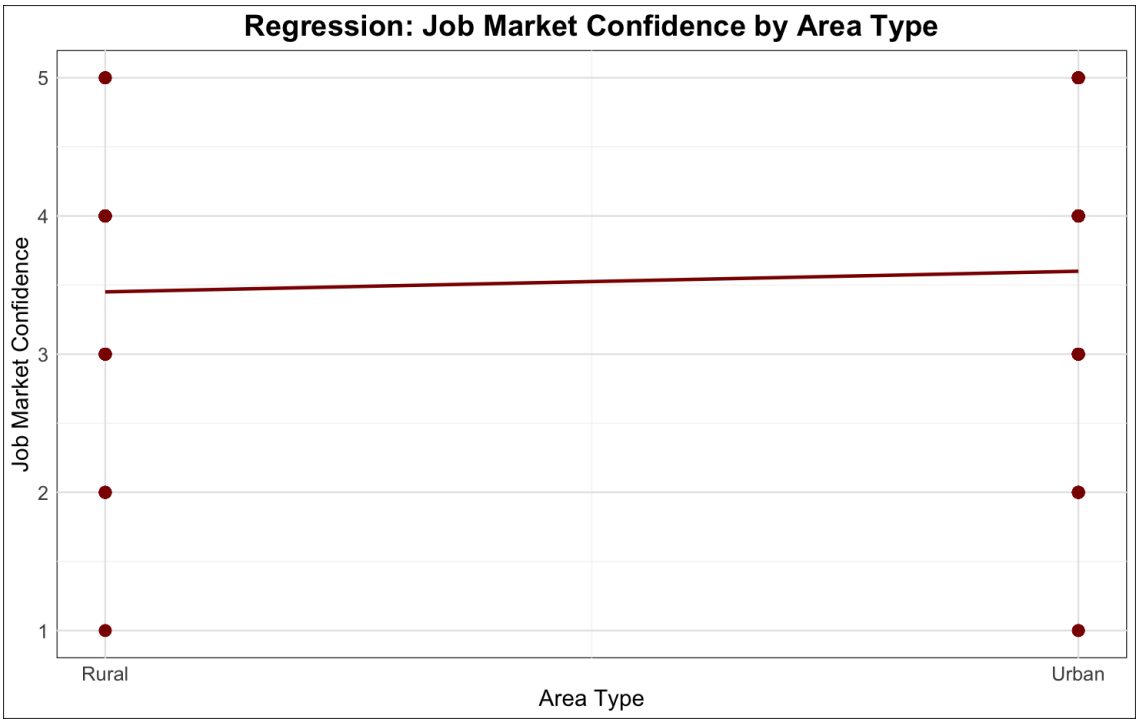

Appendix Q:

Survey in English

Age Verification

To participate in this survey, you must be 18 years of age or older. Please select the option that applies to you:
I confirm that I am 18 years of age or older
I am younger than 18 years of age

Consent Disclaimer:

This survey is being conducted as part of a research study to understand, career aspirations, gender dynamics and attitudes towards the university education system among students in Vietnam. Your participation is completely voluntary, and your responses will remain anonymous. No personally identifiable information will be collected or stored. If you feel at all

uncomfortable answering any of the questions, feel free to select "Prefer not to say" or simply do not answer the question.

Do you consent to participate in the survey?

I consent to participate.
I do not consent to participate

(If participant is not 18 years old or does not consent to taking part in survey, this message will appear) No worries, thank you for your time!

Demographics
What is your age?
18-21
22-25
26+
Prefer not to say

What University do you attend?
University of Economics Ho Chi Minh City
Hoa Sen University
Can Tho University
Da Lat University
Thai Binh Duong University
Vietnam National University, Hanoi
Prefer not to say
Other:

What year of university are you in?
1st year
2nd year

3rd year

4th year

Graduate Student

Prefer not to say

What are you studying in University?

Business/Economics

Engineering

Computer Science/IT

Mathematics/Statistics

Natural Sciences (Biology, Chemistry, etc.)

Social Sciences (Sociology, Political Science, etc.)

Linguistics/Languages

Education

Law

Arts/Design

Healthcare (Nursing, Pre-Med, etc.)

Agriculture

Prefer not to say

Other:

Would you consider the area you are from to be rural or urban?

Rural

Urban

Prefer not to say

How comfortable are you speaking English?

1 (Not Very Comfortable)

2

3

4

5 (Very Comfortable)

Post-University Prospects

Please indicate the extent to which you agree or disagree with the following statements. Use the scale below, where 1 means "strongly disagree" and 5 means "strongly agree":

1 - Strongly Disagree

2 - Somewhat Disagree

3 - Neither Agree nor Disagree

4 - Somewhat Agree

5 - Strongly Agree

I am confident I will graduate with the knowledge and skills I need to be successful in the job market.

1 (Strongly Disagree)

2

3

4

5 (Strongly Agree)

I am confident I will graduate with the knowledge and skills I need to be successful in the workplace.

1 (Strongly Disagree)

2

3

4

5 (Strongly Agree)

I am confident my major field of study/studies will lead to a good job.

1 (Strongly Disagree)

2

3

4

5 (Strongly Agree)

If I had to do it all over again, I would still enroll at my school.
1 (Strongly Disagree)
2
3
4
5 (Strongly Agree)

If I had to do it all over again, I would select the same major
1 (Strongly Disagree)
2
3
4
5 (Strongly Agree)
Appendix R:
Vietnamese Survey:

Khảo sát Kỳ vọng Nghề nghiệp của Sinh viên Đại học Việt Nam

Xác minh Tuổi tác
Để tham gia khảo sát này, bạn phải đủ 18 tuổi trở lên. Vui lòng lựa chọn phương án phù hợp với bạn:

- Tôi xác nhận rằng tôi đủ 18 tuổi trở lên
- Tôi chưa đủ 18 tuổi

Tuyên bố Đồng ý
Cuộc khảo sát này đang được tiến hành như một phần của một nghiên cứu nhằm hiểu biết thêm về nguyện vọng nghề nghiệp, quan điểm giới tính và quan điểm về hệ thống giáo dục đại học trong sinh viên tại Việt Nam. Việc tham gia của bạn hoàn toàn tự nguyện và câu trả lời của bạn

sẽ được giữ ẩn danh. Không có thông tin nhận dạng cá nhân nào sẽ được thu thập hoặc lưu trữ. Nếu bạn cảm thấy khó chịu khi trả lời bất kỳ câu hỏi nào, hãy cảm thấy tự nhiên và lựa chọn "Không muốn trả lời" hoặc đơn giản là không trả lời câu hỏi đó.

Bạn có đồng ý tham gia khảo sát này không?

- Tôi đồng ý tham gia.
- Tôi không đồng ý tham gia.

(Nếu người tham gia chưa đủ 18 tuổi hoặc không đồng ý tham gia khảo sát, thông báo sau sẽ xuất hiện)

- Không sao cả, cảm ơn bạn đã dành thời gian!

Thông tin cá nhân:

Bạn bao nhiêu tuổi?

- 18-21
- 22-25
- 26+
- Không muốn trả lời

Bạn đang theo học tại trường Đại học nào?

- Đại học Kinh tế TP.HCM
- Đại học Hoa Sen
- Đại học Cần Thơ
- Đại học Đà Lạt
- Đại học Thái Bình Dương
- Đại học Quốc gia Hà Nội
- Không muốn trả lời
- Khác:

Bạn đang học năm thứ mấy ở đại học?

- Năm 1

- Năm 2
- Năm 3
- Năm 4
- Học viên cao học
- Không muốn trả lời

Bạn đang học ngành gì ở đại học?

- Kinh doanh/Kinh tế
- Kỹ thuật
- Khoa học Máy tính/Công nghệ Thông tin
- Toán học/Thống kê
- Khoa học Tự nhiên (Sinh học, Hóa học, v.v.)
- Khoa học Xã hội (Xã hội học, Khoa học Chính trị, v.v.)
- Ngôn ngữ học/Ngôn ngữ
- Sư phạm
- Luật
- Nghệ thuật/Thiết kế
- Chăm sóc Sức khỏe (Điều dưỡng, Đại học Y khoa, v.v.)
- Nông nghiệp
- Không muốn trả lời
- Khác

Bạn xem nơi bạn cư trú là vùng nông thôn hay thành thị?

- Nông thôn
- Thành thị
- Không muốn trả lời

Bạn tự tin về khả năng sử dụng tiếng Anh của mình đến mức nào?

- 1 (Không tự tin lắm)
- 2
- 3

- 4
- 5 (Rất tự tin)

Triển vọng sau Đại học

Vui lòng chỉ ra mức độ đồng ý hoặc không đồng ý của bạn với các câu sau. Sử dụng thang điểm dưới đây, trong đó 1 có nghĩa là "hoàn toàn không đồng ý" và 5 có nghĩa là "hoàn toàn đồng ý":

- 1 - Hoàn toàn không đồng ý
- 2 - Hơi không đồng ý
- 3 - Không đồng ý cũng không phản đối
- 4 - Hơi đồng ý
- 5 - Hoàn toàn đồng ý

Tôi tự tin rằng mình sẽ tốt nghiệp với đầy đủ kiến thức và kỹ năng cần thiết để thành công trên thị trường lao động.

- 1 (Hoàn toàn không đồng ý)
- 2
- 3
- 4
- 5 (Hoàn toàn đồng ý)

Tôi tự tin rằng mình sẽ tốt nghiệp với đầy đủ kiến thức và kỹ năng cần thiết để thành công tại nơi làm việc.

- 1 (Hoàn toàn không đồng ý)
- 2
- 3
- 4
- 5 (Hoàn toàn đồng ý)

Tôi tự tin rằng ngành học chính của mình sẽ đưa tôi đến một công việc tốt.

- 1 (Hoàn toàn không đồng ý)
- 2
- 3
- 4
- 5 (Hoàn toàn đồng ý)

Nếu tôi phải chọn làm lại từ đầu, tôi vẫn sẽ đăng ký vào trường của mình.

- 1 (Hoàn toàn không đồng ý)
- 2
- 3
- 4
- 5 (Hoàn toàn đồng ý)

Nếu tôi phải chọn làm lại từ đầu, tôi vẫn sẽ chọn cùng một chuyên ngành

- 1 (Hoàn toàn không đồng ý)
- 2
- 3
- 4
- 5 (Hoàn toàn đồng ý)

Appendix S:

```
install.packages("FSA")
install.packages("dplyr")
library(dplyr)
library(FSA)
library(ggplot2)

data <- read.csv("ISP DATA FINAL.csv")


data <- data %>%
  rename(
    age = What.is.your.age.,
    university = What.University.do.you.attend.,
    year_of_study = What.year.of.University.are.you.in.,
    major = What.do.you.study.in.University.,
```

```
    area_type = Would.you.consider.the.area.you.are.from.to.be.rural.or.urban.,
    english_confidence = How.comfortable.are.you.speaking.English.,
    job_market_confidence =
I.am.confident.I.will.graduate.with.the.knowledge.and.skills.I.need.to.be.successful.in.the.job.ma
rket.,
    workplace_confidence =
I.am.confident.I.will.graduate.with.the.knowledge.and.skills.I.need.to.be.successful.in.the.workpl
ace.,
    major_confidence = I.am.confident.my.major.field.of.study.studies.will.lead.to.a.good.job.,
    school_choice_confidence = If.I.had.to.do.it.all.over.again..I.would.still.enroll.at.my.school.,
    major_choice_confidence = If.I.had.to.do.it.all.over.again..I.would.select.the.same.major
  )


# English Language Confidence
regression_model_english <- lm(job_market_confidence ~ english_confidence, data = data)
summary(regression_model_english)

regression_model_confident_english <- lm(job_market_confidence ~ english_confidence, data =
confident_english)
summary(regression_model_confident_english)

# Filter data to include only "Rural" and "Urban" area types
data_filtered <- data %>% filter(area_type %in% c("Rural", "Urban"))

# Regression: Area Type (Urban vs. Rural)
regression_model_area <- lm(job_market_confidence ~ area_type, data = data_filtered)
summary(regression_model_area)

# Create a new variable 'major_group' based on the 'major' variable
data <- data %>%
```

```
  mutate(major_group = case_when(
    major %in% c("Business/Economics", "Real-estate") ~ "Business/Economics",
    major == "Linguistics/Languages" ~ "Linguistics",
    major == "Social Sciences (Sociology, Political Science, etc.)" ~ "Social Sciences",
    TRUE ~ "Other"
  ))

# Major Confidence
kruskal_test_major_confidence <- kruskal.test(major_confidence ~ major_group, data = data)
print(kruskal_test_major_confidence)
dunn_test_major_confidence <- dunnTest(major_confidence ~ major_group, data = data, method
= "bonferroni")
print(dunn_test_major_confidence)

# Major Choice Confidence
kruskal_test_major_choice <- kruskal.test(major_choice_confidence ~ major_group, data = data)
print(kruskal_test_major_choice)
dunn_test_major_choice <- dunnTest(major_choice_confidence ~ major_group, data = data,
method = "bonferroni")
print(dunn_test_major_choice)

# University
kruskal_test_university <- kruskal.test(job_market_confidence ~ university, data = data)
print(kruskal_test_university)
dunn_test_university <- dunnTest(job_market_confidence ~ university, data = data, method =
"bonferroni")
print(dunn_test_university)

# Year of Study
kruskal_test_year <- kruskal.test(job_market_confidence ~ year_of_study, data = data)
print(kruskal_test_year)
```

```
dunn_test_year <- dunnTest(job_market_confidence ~ year_of_study, data = data, method =
"bonferroni")
print(dunn_test_year)

# Age
kruskal_test_age <- kruskal.test(job_market_confidence ~ age, data = data)
print(kruskal_test_age)
dunn_test_age <- dunnTest(job_market_confidence ~ age, data = data, method = "bonferroni")
print(dunn_test_age)

# Regression: English Language Confidence
ggplot(data, aes(x = english_confidence, y = job_market_confidence)) +
  geom_point(color = "darkred") +
  geom_smooth(method = "lm", se = FALSE, color = "darkred") +
  labs(title = "Regression: English Language Confidence vs. Job Market Confidence",
       x = "English Language Confidence",
       y = "Job Market Confidence") +
  theme_minimal() +
  theme(plot.background = element_rect(fill = "white"),
        panel.background = element_rect(fill = "white"),
        panel.grid.major = element_line(color = "gray90"),
        panel.grid.minor = element_line(color = "gray95"),
        plot.title = element_text(size = 18, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12))

# Kruskal-Wallis: Major Confidence
ggplot(data, aes(x = major_group, y = major_confidence)) +
  geom_boxplot(fill = "darkred", color = "black") +
  labs(title = "Kruskal-Wallis: Major Confidence by Major Group",
       x = "Major Group",
```

```
      y = "Major Confidence") +
  theme_minimal() +
  theme(plot.background = element_rect(fill = "white"),
        panel.background = element_rect(fill = "white"),
        panel.grid.major = element_line(color = "gray90"),
        panel.grid.minor = element_line(color = "gray95"),
        plot.title = element_text(size = 18, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12))

# Kruskal-Wallis: Year of Study
ggplot(data, aes(x = year_of_study, y = job_market_confidence)) +
  geom_boxplot(fill = "darkred", color = "black") +
  labs(title = "Kruskal-Wallis: Job Market Confidence by Year of Study",
       x = "Year of Study",
       y = "Job Market Confidence") +
  theme_minimal() +
  theme(plot.background = element_rect(fill = "white"),
        panel.background = element_rect(fill = "white"),
        panel.grid.major = element_line(color = "gray90"),
        panel.grid.minor = element_line(color = "gray95"),
        plot.title = element_text(size = 18, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12))
```

Appendix T:

```
#VISUAL AIDS
install.packages("forcats")
library(forcats)
install.packages("dplyr")
library(dplyr)
```

```
data <- read.csv("ISP DATA FINAL.csv", stringsAsFactors = FALSE)

data <- data %>%
  rename(
    age = What.is.your.age.,
    university = What.University.do.you.attend.,
    year_of_study = What.year.of.University.are.you.in.,
    major = What.do.you.study.in.University.,
    area_type = Would.you.consider.the.area.you.are.from.to.be.rural.or.urban.,
    english_confidence = How.comfortable.are.you.speaking.English.,
    job_market_confidence =
I.am.confident.I.will.graduate.with.the.knowledge.and.skills.I.need.to.be.successful.in.the.job.ma
rket.,
    workplace_confidence =
I.am.confident.I.will.graduate.with.the.knowledge.and.skills.I.need.to.be.successful.in.the.workpl
ace.,
    major_confidence = I.am.confident.my.major.field.of.study.studies.will.lead.to.a.good.job.,
    school_choice_confidence = If.I.had.to.do.it.all.over.again..I.would.still.enroll.at.my.school.,
    major_choice_confidence = If.I.had.to.do.it.all.over.again..I.would.select.the.same.major
  )

library(ggplot2)

ggplot(data, aes(x = age)) +
  geom_bar(fill = "darkred", width = 0.7) +
  labs(title = "Age Distribution",
       x = "Age Group",
       y = "Count") +
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
```

```
      axis.title = element_text(size = 14),
      axis.text = element_text(size = 12))

# Install and load the required packages
install.packages("tidyverse")
library(tidyverse)

# University
# Combine "Can Tho University" values
data$university <- ifelse(grepl("Can Tho [Uu]niversity", data$university), "Can Tho University",
data$university)

# Create the university plot

# Create the university plot
university_plot <- ggplot(data, aes(x = fct_infreq(university))) +
  geom_bar(fill = "darkred", width = 0.7) +
  labs(title = "University Distribution",
       x = "University",
       y = "Count") +
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text.x = element_text(size = 12, angle = 45, hjust = 1),
        axis.text.y = element_text(size = 12)) +
  scale_x_discrete(limits = c(rev(setdiff(levels(fct_infreq(data$university)), c("Other", "Prefer
not to say"))), "Other", "Prefer not to say"))
# Year of Study
data_filtered <- data[!is.na(data$year_of_study) & data$year_of_study != "", ]

# Year of Study plot
```

```
year_plot <- ggplot(data_filtered, aes(x = year_of_study)) +
  geom_bar(fill = "darkred", width = 0.7) +
  labs(title = "Year of Study Distribution",
       x = "Year of Study",
       y = "Count") +
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text.x = element_text(size = 12, angle = 45, hjust = 1),
        axis.text.y = element_text(size = 12))
# Major
major_plot <- ggplot(data, aes(x = fct_infreq(major))) +
  geom_bar(fill = "darkred", width = 0.7) +
  labs(title = "Major Distribution",
       x = "Major",
       y = "Count") +
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text.x = element_text(size = 12, angle = 45, hjust = 1),
        axis.text.y = element_text(size = 12))
# Area Type
data$area_type <- factor(data$area_type, levels = c("Rural", "Urban", "Prefer not to say"))



# Major
area_plot2 <- ggplot(data, aes(x = fct_infreq(area_type))) +
  geom_bar(fill = "darkred", width = 0.7) +
  labs(title = "Area Type",
       x = "Area",
       y = "Count") +
```

```
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text.x = element_text(size = 12, angle = 45, hjust = 1),
        axis.text.y = element_text(size = 12))

area_plot <- ggplot(data, aes(x = "", fill = area_type)) +
  geom_bar(width = 1, color = "white") +
  coord_polar("y", start = 0) +
  labs(title = "Area Type",
       fill = "Area") +
  theme_void() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        legend.title = element_text(size = 14),
        legend.text = element_text(size = 12)) +
  scale_fill_manual(values = c("darkred", "red", "lightpink"))

# English Confidence
english_plot <- ggplot(data, aes(x = english_confidence)) +
  geom_bar(fill = "darkred", width = 0.7) +
  labs(title = "English Speaking Comfort Level",
       x = "Comfort Level",
       y = "Count",
       caption = "1 = Not very confident, 5 = Extremely confident") +
  scale_x_continuous(breaks = 1:5, labels = c("1", "2", "3", "4", "5")) +
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12),
        plot.caption = element_text(size = 12, hjust = 0.5))
```

```
# Job Market Confidence
job_market_plot <- ggplot(data, aes(x = job_market_confidence)) +
  geom_bar(fill = "darkred", width = 0.7) +
  labs(title = "Confidence in Graduating with Necessary Skills for Job Market",
       x = "Agreement Level",
       y = "Count",
       caption = "1 = Strongly disagree, 5 = Strongly agree") +
  scale_x_continuous(breaks = 1:5, labels = c("1", "2", "3", "4", "5")) +
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12),
        plot.caption = element_text(size = 12, hjust = 0.5))

# Workplace Confidence
workplace_plot <- ggplot(data, aes(x = workplace_confidence)) +
  geom_bar(fill = "darkred", width = 0.7) +
  labs(title = "Confidence in Graduating with Necessary Skills for Workplace",
       x = "Agreement Level",
       y = "Count",
       caption = "1 = Strongly disagree, 5 = Strongly agree") +
  scale_x_continuous(breaks = 1:5, labels = c("1", "2", "3", "4", "5")) +
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12),
        plot.caption = element_text(size = 12, hjust = 0.5))

# Major Confidence
major_confidence_plot <- ggplot(data, aes(x = major_confidence)) +
  geom_bar(fill = "darkred", width = 0.7) +
```

```
  labs(title = "Confidence in Major Leading to a Good Job",
       x = "Agreement Level",
       y = "Count",
       caption = "1 = Strongly disagree, 5 = Strongly agree") +
  scale_x_continuous(breaks = 1:5, labels = c("1", "2", "3", "4", "5")) +
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12),
        plot.caption = element_text(size = 12, hjust = 0.5))

# School Choice Confidence
school_choice_plot <- ggplot(data, aes(x = school_choice_confidence)) +
  geom_bar(fill = "darkred", width = 0.7) +
  labs(title = "Confidence in Enrolling at the Same School",
       x = "Agreement Level",
       y = "Count",
       caption = "1 = Strongly disagree, 5 = Strongly agree") +
  scale_x_continuous(breaks = 1:5, labels = c("1", "2", "3", "4", "5")) +
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12),
        plot.caption = element_text(size = 12, hjust = 0.5))

# Major Choice Confidence
major_choice_plot <- ggplot(data, aes(x = major_choice_confidence)) +
  geom_bar(fill = "darkred", width = 0.7) +
  labs(title = "Confidence in Selecting the Same Major",
       x = "Agreement Level",
       y = "Count",
```

```
      caption = "1 = Strongly disagree, 5 = Strongly agree") +
  scale_x_continuous(breaks = 1:5, labels = c("1", "2", "3", "4", "5")) +
  theme_minimal() +
  theme(plot.title = element_text(size = 20, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12),
        plot.caption = element_text(size = 12, hjust = 0.5))
print(university_plot)
print(job_market_plot)
print(major_choice_plot)
print(major_confidence_plot)
print(major_plot)
print(school_choice_plot)
print(area_plot)
print(workplace_plot)
print(year_plot)
print(english_plot)
print(area_plot2)

install.packages("dplyr")
library(dplyr)

# Age
age_percentage <- prop.table(table(data$age)) * 100
print(age_percentage)

# University
university_percentage <- prop.table(table(data$university)) * 100
print(university_percentage)

# Year of Study
```

```
year_of_study_percentage <- prop.table(table(data$year_of_study)) * 100
print(year_of_study_percentage)

# Major
major_percentage <- prop.table(table(data$major)) * 100
print(major_percentage)

# Area Type
area_type_percentage <- prop.table(table(data$area_type)) * 100
print(area_type_percentage)

# English Confidence
english_confidence_percentage <- prop.table(table(data$english_confidence)) * 100
print(english_confidence_percentage)

# Job Market Confidence
job_market_confidence_percentage <- prop.table(table(data$job_market_confidence)) * 100
print(job_market_confidence_percentage)

# Workplace Confidence
workplace_confidence_percentage <- prop.table(table(data$workplace_confidence)) * 100
print(workplace_confidence_percentage)

# Major Confidence
major_confidence_percentage <- prop.table(table(data$major_confidence)) * 100
print(major_confidence_percentage)

# School Choice Confidence
school_choice_confidence_percentage <- prop.table(table(data$school_choice_confidence)) *
100
print(school_choice_confidence_percentage)
```

```
# Major Choice Confidence
major_choice_confidence_percentage <- prop.table(table(data$major_choice_confidence)) * 100
print(major_choice_confidence_percentage)


#Means

english_confidence_mean <- mean(as.numeric(data$english_confidence), na.rm = TRUE)
cat("English Confidence Mean:", english_confidence_mean, "\n")
print(english_confidence_mean)

# Job Market Confidence
job_market_confidence_mean <- mean(as.numeric(data$job_market_confidence), na.rm =
TRUE)
cat("Job Market Confidence Mean:", job_market_confidence_mean, "\n")
print(job_market_confidence_mean)

# Workplace Confidence
workplace_confidence_mean <- mean(as.numeric(data$workplace_confidence), na.rm = TRUE)
cat("Workplace Confidence Mean:", workplace_confidence_mean, "\n")
print(workplace_confidence_mean)

# Major Confidence
major_confidence_mean <- mean(as.numeric(data$major_confidence), na.rm = TRUE)
cat("Major Confidence Mean:", major_confidence_mean, "\n")
print(major_confidence_mean)

# School Choice Confidence
school_choice_confidence_mean <- mean(as.numeric(data$school_choice_confidence), na.rm =
TRUE)
```

```
cat("School Choice Confidence Mean:", school_choice_confidence_mean, "\n")
print(school_choice_confidence_mean)

# Major Choice Confidence
major_choice_confidence_mean <- mean(as.numeric(data$major_choice_confidence), na.rm =
TRUE)
cat("Major Choice Confidence Mean:", major_choice_confidence_mean, "\n")
print(major_choice_confidence_mean)
```

Appendix U:

```
library(ggplot2)
library(dplyr)
library(FSA)

data <- read.csv("ISP DATA FINAL.csv")


data <- data %>%
  rename(
    age = What.is.your.age.,
    university = What.University.do.you.attend.,
    year_of_study = What.year.of.University.are.you.in.,
    major = What.do.you.study.in.University.,
    area_type = Would.you.consider.the.area.you.are.from.to.be.rural.or.urban.,
    english_confidence = How.comfortable.are.you.speaking.English.,
    job_market_confidence =
I.am.confident.I.will.graduate.with.the.knowledge.and.skills.I.need.to.be.successful.in.the.job.ma
rket.,
```

```
    workplace_confidence =
I.am.confident.I.will.graduate.with.the.knowledge.and.skills.I.need.to.be.successful.in.the.workpl
ace.,
    major_confidence = I.am.confident.my.major.field.of.study.studies.will.lead.to.a.good.job.,
    school_choice_confidence = If.I.had.to.do.it.all.over.again..I.would.still.enroll.at.my.school.,
    major_choice_confidence = If.I.had.to.do.it.all.over.again..I.would.select.the.same.major
  )

# Create a new variable 'major_group' based on the 'major' variable
data <- data %>%
  mutate(major_group = case_when(
    major %in% c("Business/Economics", "Real-estate") ~ "Business/Economics",
    major == "Linguistics/Languages" ~ "Linguistics",
    major == "Social Sciences (Sociology, Political Science, etc.)" ~ "Social Sciences",
    TRUE ~ "Other"
  ))

# Handle missing data
data$area_type[is.na(data$area_type)] <- "Prefer not to say"
data$year_of_study[is.na(data$year_of_study)] <- "Prefer not to say"
data$age[is.na(data$age)] <- "Prefer not to say"

# Regression: English Language Confidence
ggplot(data, aes(x = english_confidence, y = job_market_confidence)) +
  geom_point(color = "darkred") +
  geom_smooth(method = "lm", se = FALSE, color = "darkred") +
  labs(title = "Regression: English Language Confidence vs. Job Market Confidence",
       x = "English Language Confidence",
       y = "Job Market Confidence") +
  theme_minimal() +
  theme(plot.background = element_rect(fill = "white"),
```

```
        panel.background = element_rect(fill = "white"),
        panel.grid.major = element_line(color = "gray90"),
        panel.grid.minor = element_line(color = "gray95"),
        plot.title = element_text(size = 18, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12))
# Filter data to include only "Rural" and "Urban" area types
data_filtered <- data %>% filter(area_type %in% c("Rural", "Urban"))

# Convert area_type to a numeric variable
data_filtered$area_type_numeric <- as.numeric(data_filtered$area_type == "Urban")

# Regression: Area Type (Urban vs. Rural)
regression_model_area <- lm(job_market_confidence ~ area_type_numeric, data = data_filtered)
summary(regression_model_area)

# Regression Line: Area Type (Urban vs. Rural)
ggplot(data_filtered, aes(x = area_type_numeric, y = job_market_confidence)) +
  geom_point(color = "darkred", size = 3) +
  geom_smooth(method = "lm", se = FALSE, color = "darkred", size = 1) +
  scale_x_continuous(breaks = c(0, 1), labels = c("Rural", "Urban")) +
  labs(title = "Regression: Job Market Confidence by Area Type",
       x = "Area Type",
       y = "Job Market Confidence") +
  theme_minimal() +
  theme(plot.background = element_rect(fill = "white"),
        panel.background = element_rect(fill = "white"),
        panel.grid.major = element_line(color = "gray90"),
        panel.grid.minor = element_line(color = "gray95"),
        plot.title = element_text(size = 18, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
```

```
        axis.text = element_text(size = 12))
# Kruskal-Wallis: Major Confidence
ggplot(data, aes(x = major_group, y = major_confidence)) +
  geom_boxplot(fill = "darkred", color = "black") +
  geom_smooth(method = "lm", se = FALSE, color = "darkred") +
  labs(title = "Kruskal-Wallis: Major Confidence by Major Group",
       x = "Major Group",
       y = "Major Confidence") +
  theme_minimal() +
  theme(plot.background = element_rect(fill = "white"),
        panel.background = element_rect(fill = "white"),
        panel.grid.major = element_line(color = "gray90"),
        panel.grid.minor = element_line(color = "gray95"),
        plot.title = element_text(size = 18, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12))

# Kruskal-Wallis: Major Choice Confidence
ggplot(data, aes(x = major_group, y = major_choice_confidence)) +
  geom_boxplot(fill = "darkred", color = "black") +
  geom_smooth(method = "lm", se = FALSE, color = "darkred") +
  labs(title = "Kruskal-Wallis: Major Choice Confidence by Major Group",
       x = "Major Group",
       y = "Major Choice Confidence") +
  theme_minimal() +
  theme(plot.background = element_rect(fill = "white"),
        panel.background = element_rect(fill = "white"),
        panel.grid.major = element_line(color = "gray90"),
        panel.grid.minor = element_line(color = "gray95"),
        plot.title = element_text(size = 18, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
```

```
        axis.text = element_text(size = 12))

# Kruskal-Wallis: Job Market Confidence by University
ggplot(data, aes(x = university, y = job_market_confidence)) +
  geom_boxplot(fill = "darkred", color = "black") +
  geom_smooth(method = "lm", se = FALSE, color = "darkred") +
  labs(title = "Kruskal-Wallis: Job Market Confidence by University",
       x = "University",
       y = "Job Market Confidence") +
  theme_minimal() +
  theme(plot.background = element_rect(fill = "white"),
        panel.background = element_rect(fill = "white"),
        panel.grid.major = element_line(color = "gray90"),
        panel.grid.minor = element_line(color = "gray95"),
        plot.title = element_text(size = 18, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12),
        axis.text.x = element_text(angle = 45, hjust = 1))

# Kruskal-Wallis: Job Market Confidence by Year of Study
ggplot(data, aes(x = year_of_study, y = job_market_confidence)) +
  geom_boxplot(fill = "darkred", color = "black") +
  geom_smooth(method = "lm", se = FALSE, color = "darkred") +
  labs(title = "Kruskal-Wallis: Job Market Confidence by Year of Study",
       x = "Year of Study",
       y = "Job Market Confidence") +
  theme_minimal() +
  theme(plot.background = element_rect(fill = "white"),
        panel.background = element_rect(fill = "white"),
        panel.grid.major = element_line(color = "gray90"),
        panel.grid.minor = element_line(color = "gray95"),
```

```
        plot.title = element_text(size = 18, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12))

# Kruskal-Wallis: Job Market Confidence by Age
ggplot(data, aes(x = age, y = job_market_confidence)) +
  geom_boxplot(fill = "darkred", color = "black") +
  geom_smooth(method = "lm", se = FALSE, color = "darkred") +
  labs(title = "Kruskal-Wallis: Job Market Confidence by Age",
       x = "Age",
       y = "Job Market Confidence") +
  theme_minimal() +
  theme(plot.background = element_rect(fill = "white"),
        panel.background = element_rect(fill = "white"),
        panel.grid.major = element_line(color = "gray90"),
        panel.grid.minor = element_line(color = "gray95"),
        plot.title = element_text(size = 18, face = "bold", hjust = 0.5),
        axis.title = element_text(size = 14),
        axis.text = element_text(size = 12),
        axis.text.x = element_text(angle = 45, hjust = 1))
```