Project Report

On

A COMPREHENSIVE ANALYSIS OF FACTORS INFLUENCING HIGHER EDUCATION

Submitted

in partial fulfilment of the requirements for the degree of

BACHELOR OF SCIENCE

in

MATHEMATICS

By

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APRIL 2025

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CERTIFICATE

This is to certify that the dissertation entitled, A COMPREHENSIVE ANALYSIS OF FACTORS INFLUENCING HIGHER EDUCATION is a bonafide record of the work done by Aleena Anto under my guidance as partial fulfillment of the award of the degree of Bachelor of Science in Mathematics at St. Teresa's College (Autonomous),Ernakulam affiliated to Mahatma Gandhi University, Kottayam. No part of this work has been submitted for any other degree elsewhere.

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DECLARATION

I hereby declare that the work presented in the project entitled "A COMPREHENSIVE ANALYSIS OF FACTORS INFLUENCING HIGHER EDUCATION" is based on the original work done by me under the guidance of (write guide name here), Assistant Professor, Department of Mathematics, St. Teresa's College (Autonomous),Ernakulam and has not been included in any other project submitted previously for the award of any degree.

Ernakulam.

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ACKNOWLEDGEMENT

First and foremost, I express my deepest gratitude to the Almighty God for his countless blessings, guidance, and strength throughout this journey. His divine support has given me the courage, perseverance, and wisdom to successfully complete this statistical project. I am profoundly thankful to my mentor and supervisor, MS. Parvathy T S for their unwavering guidance, insightful suggestions, and constant encouragement. Their expertise in statistical methods and dedication to excellence have been invaluable in shaping the direction and outcomes of this project. I extend my heartfelt thanks to Department of mathematics and statistics, St. Teresa's college for providing the necessary resources, data, and tools that were fundamental to conducting this study. Their support was instrumental in achieving the objectives of this research. I am also immensely grateful to my peers and colleagues for their constructive feedback, collaboration, and thought-provoking discussions. Their contributions have helped refine this work and ensured its academic rigor.Finally, we thank everyone who directly or indirectly contributed to the successful completion of this project. This has been a remarkable learning experience, and I am humbled and grateful for the opportunity to grow both academically and personally through this journey.

Ernakulam.

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INDEX

Chapter 4

Methodology

Chapter 5

Data Analysis

Chapter 6

CHAPTER 1

INTRODUCTION

1.1 Complete Introduction

"A Comprehensive Analysis of Factors Influencing Higher Education Choices" aims to explore the various aspects that shape students' decisions in pursuing higher education. The study focuses on key factors such as the impact of academic guidance on student performance and career choices, the significance of academic grades in determining eligibility, and the relationship between institutional reputation and seat availability. Additionally, the project investigates the influence of career aspirations, personal interests, and technological advancements on educational choices, as well as the role of family and societal pressures on academic outcomes. Lastly, the study examines the advantages of studying abroad, particularly in terms of post-graduation employment and career advancement. Data for the project has been collected through a survey administered via Google Forms, offering insights into these influential factors based on student perspectives.

Statistics

Statistics is a branch that deals with every aspect of the data. Statistical knowledge helps to choose the proper method of collecting the data and employ those samples in the correct analysis process to effectively produce the results. In short, statistics is a crucial process which helps to make the decision based on the data. Statistics concerns the collection of data, organization, interpretation, analysis and data presentation. The main purpose of using statistics is to plan the collected data in terms of experimental designs and statistical surveys. Statistics is considered a mathematical science that works with numerical data. In short, statistics is a crucial process which helps to make the decision based on the data.

1.1.1 Population And Sample

The set of group about which information is required is called the population. The individuals constituting a population are called the units of the population. A population can be finite or infinite. The process of collecting data for the survey is called enumeration. This can be done by enumerating every unit of the population or enumerating only a representative part of it.

1.1.2 Variables

A variable is any characteristic, number, or quantity that can be measured or counted. A variable may also be called a data item. Age, sex, business income and expenses, country of birth, capital expenditure, class grades, eye color and vehicle type are examples of variables.

1.1.3 p-value

Error probability is expressed by the value. Specifically, it refers to the likelihood that the null hypothesis will be rejected when it is true. To put it another the likelihood that the statistic's value will fall imible the crucial range if the noll hypothesis is correct is what is meant by the term “P value. The likelihood that we would be wrong to reject the mall hypothesis decreases with decreasing Pvalue A common cut-off number is 0.05, meaning that if the P value is less than 0.05 the hypothesis should be rejected.

1.1.4 Significance of Study

The significance of this study or survey is to identify the factors that influence students in choosing their higher education.

1.2 OBJECTIVES

1. To evaluate the impact of academic guidance on student performance and career choices in higher education.

2. To investigate the role of academic grades in determining students’ eligibility and opportunities for higher education programs.

3. To examine the relationship between seat availability and institutional reputation in influencing student enrollment decisions.

4. To investigate how career aspirations, personal passions, and technological advancements influence students’ higher education choices.

5. To analyze the influential factors by the family and society on students academic.

6. To examine the advantages of studying abroad, particularly regarding post-graduation employment opportunities and career advancement.

CHAPTER 2

LITERATURE REVIEW

2.1 Determinants Driving the Student's Decision Making to Opt Institution for Higher Education in India.

Rachel Brooks' study examines how social class, gender, and family background influence students' decisions about higher education. She highlights disparities in access to information, financial constraints, and perceptions of university prestige, which often favor students from higher socio-economic backgrounds. Wealthier students are better positioned to choose prestigious or distant institutions, while lower-income students are more likely to opt for affordable or nearby options. Family influence plays a significant role, with parental education, expectations, and income shaping students' choices. Gender differences also emerge, with female students prioritizing stable career prospects and male students exploring broader fields. Challenges include a lack of guidance, emotional stress, and the influence of peers and media. Brooks emphasizes the complexity of decision-making, as students navigate personal interests, family expectations, and financial concerns. She advocates for improved counseling, policies to address inequities, and efforts to challenge stereotypes. Her research underscores the need for inclusive strategies that support underrepresented students, enabling them to make informed and confident choices. By addressing these barriers, educational institutions and policymakers can promote greater equity in higher education access and outcomes. Brooks' work provides valuable insights for creating a more supportive and accessible higher education system.

2.2 Factors Influencing the Choice of Higher Education Establishment for Marketing Strategies of Higher Education.

The choice of higher education institutions is influenced by various factors, including reputation, academic offerings, cost, location, career outcomes, and social fit. Institutional reputation and program quality remain top priorities for students, with many associating prestige with employability and academic excellence. Cost and financial aid are critical, especially for low- and middle-income students, highlighting the need for transparent information on tuition and scholarships. Location and campus environment also play a role, with urban settings and modern facilities being particularly attractive. Career services, such as internships, job placements, and alumni networks, are increasingly valued as students prioritize employability. Social and cultural fit, including diversity and extracurricular opportunities, is essential, especially for international and minority students. Digital marketing, including social media, virtual tours, and online reviews, is shaping how students perceive institutions.

These findings suggest that higher education marketing strategies should focus on strengthening institutional branding, emphasizing career outcomes, providing clear financial information, tailoring messages to diverse student segments, and promoting inclusivity and campus life. Institutions that adapt to these trends and effectively communicate their value proposition in terms of academic excellence and student support are more likely to succeed in the competitive global education market.

2.3 Discussing Higher Education Choices

This paper explores the factors influencing students' decisions when choosing higher education institutions in India. Academic reputation and quality emerged as the most critical determinant, with students prioritizing rankings, faculty expertise, and accreditation. Financial considerations, including tuition fees and scholarships, are significant, particularly for middle-income families. Campus facilities such as libraries, labs, and recreational spaces are also key in shaping students' preferences, as they contribute to a supportive learning environment. Employment opportunities and strong industry linkages attract students seeking better career outcomes. Location plays an important role, with proximity to urban centers and hometowns influencing decisions. Additionally, social and peer influences, including input from family, friends, and alumni, heavily impact students' perceptions in the Indian context.

The findings highlight the interplay of these factors, noting that cultural norms in India often prioritize family input over independent decision-making. The study suggests that institutions can leverage these insights by improving campus infrastructure, offering financial aid programs, strengthening alumni networks, and aligning marketing strategies with student priorities. Future research could examine emerging trends such as digital presence and online education. This analysis offers valuable recommendations for Indian higher education institutions to attract students and remain competitive in an evolving educational landscape.

CHAPTER 3

DATA

3.1Data Collected

Data collection is a crucial phase in any statistical study, serving as the foundation for analysis and conclusions. It involves gathering accurate and relevant information from well-defined sources to address the research objectives. Properly structured data collection ensures the validity and reliability of the study, minimizing errors or biases. For instance, data may be collected through surveys, experiments, observational studies, or secondary data sources, depending on the research design. Once gathered, the data must be organized and labeled clearly under appropriate headings, such as demographics, experimental variables, and outcome measures, to facilitate efficient analysis and interpretation. This meticulous approach helps researchers derive meaningful insights and make informed decisions. The study was conducted using an online self administered questionnaire.

3.2Questions Prepared

The survey questions were designed to align with the study's objectives, capturing both quantitative and qualitative data. Multiple-choice and Likert scale questions gathered structured responses, while open-ended questions provided detailed insights. Demographic questions, covering factors like age, gender, and education, helped contextualize findings. Organized into thematic sections, the questions were concise, clear, and unbiased, ensuring reliable data to address the research objectives.

The questionnaire was circulated using google form to the higher Secondary students and first ug students. The online questionnaire address several variables including the Academic Guidance, Parental Pressures, Academic Performance, Availability of Seats, Benefits of Studying Abroad and many more.

CHAPTER 4

METHODOLOGY

4.1 ANOVA

Analysis of Variance (ANOVA) is a statistical method used to determine whether there are significant differences between the means of three or more independent groups. It assesses the impact of one or more factors by comparing the means of different samples, helping to identify if at least one group mean is significantly different from the others. ANOVA is particularly useful in experimental studies where researchers aim to understand the effect of categorical independent variables on a continuous dependent variable.

ANOVA can be applied to:

Compare Multiple Groups: Evaluate whether different groups (e.g., treatment groups in an experiment) have different effects.

Identify Influential Factors: Determine which factors significantly impact the outcome variable.

Guide Decision-Making: Inform decisions based on statistical evidence of differences between group means.

4.2 CORRELATION

Karl Pearson correlation coefficient test

The Pearson correlation coefficient is a statistical measurement that assesses the relationship or association between two continuous variables. It is recognized as the most effective approach for evaluating the association between variables of interest due to its reliance on the covariance method. It provides details regarding the extent of the association or correlation, along with the direction of the relationship.

The sign of the correlation suggests the direction of the relationship;

a + sign indicates the positive relationship, while a- sign indicates the negative relationship.

Coefficient values range from negative 1 to positive 1, with positive 1 indicates the perfect positive relationship, negative 1 denoting a perfect negative relationship, and 0 indicating the non existence of any relationship. When the value approaches ± 1, it is considered a perfect correlation: when one variable increases, the variable tends to increase as well (for positive correlations) or fall (for negative correlation). Pearson correlation Measures only linear associations and may not capture non linear relationships.

4.3 FACTOR ANALYSIS

Factor analysis is a statistical technique used to identify underlying patterns and relationships within a dataset, reducing complexity and uncovering hidden factors. It involves analyzing correlations between variables to identify clusters or dimensions that explain the variance. By extracting underlying factors, researchers can identify meaningful relationships, simplify data interpretation, and inform theoretical models. Factor analysis consists of extraction methods (e.g., PCA, maximum likelihood), rotation techniques and factor retention decisions. Results provide factor loadings, factor scores, and eigenvalues, aiding interpretation. Applications span psychology, marketing, finance, and social sciences, facilitating insights into personality traits, customer segments, risk analysis, and attitude measurements. Effective factor analysis requires careful consideration of research questions, data quality, and method selection to ensure accurate and meaningful results.

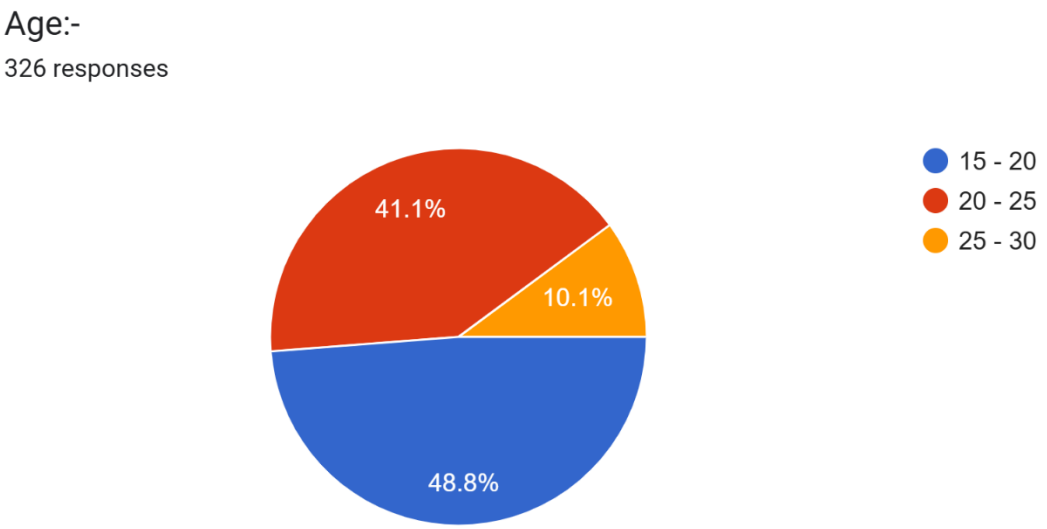
CHAPTER 5

DATA ANALYSIS

5.1 Frequency Analysis.

Age wise classification:

Age	No of Respondents	Percentage
15-20	159	48.8%
20-25	134	41.1%
25-30	33	10.1%

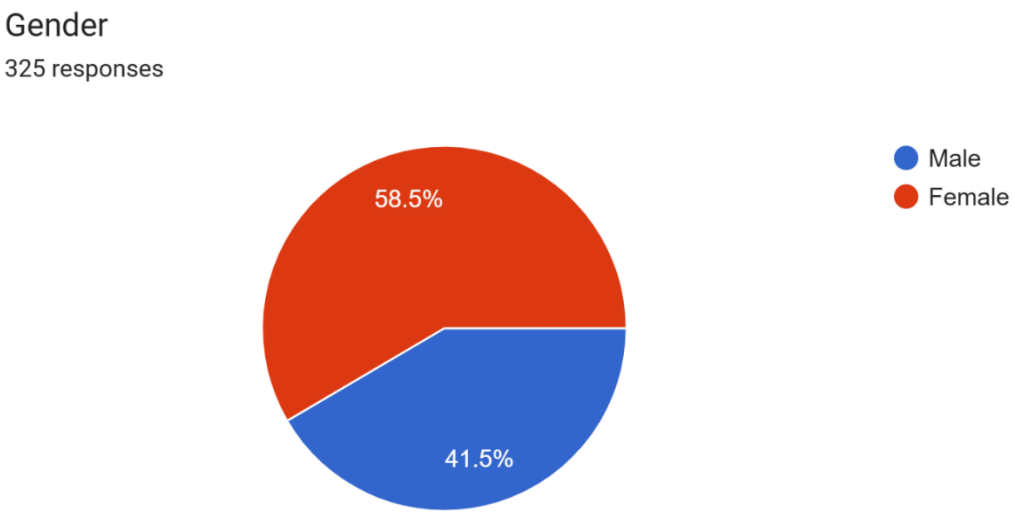


Interpretation

The chart depicts the age wise classification of the respondents. Out of the 326 responses, the majority of the responses are from the age group of 15 – 20, 159 that is 48.8%. 134 respondents that is 41.1% belong to the age group of 20 – 25. And the rest 33 respondents that is 10.1% belong to the age group of 25 – 30.

Gender Wise Classification:

Gender	No of Respondents	Percentage
Male	**135**	**41.5%**
Female	**190**	**58.5%**



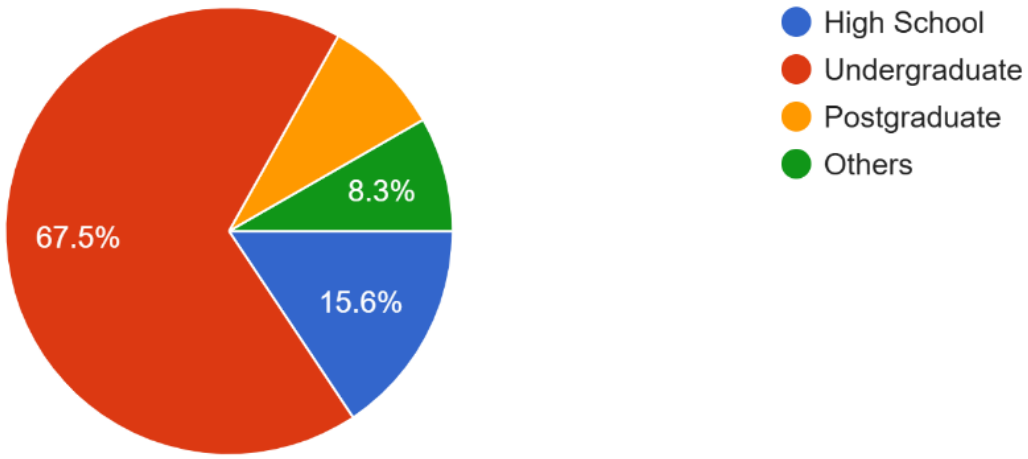
Interpretation

This chart shows the gender wise classification of collected samples. From the total of 220 samples 70% were females and 30% were males with no one belonging to other categories. Out of the 220 samples 164 are from women and rest 66 samples were collected from men.

Current Education Level:

Current Education Level	No: Of Respondents	Percentage
High school	**51**	**15.6**
Undergraduate	**220**	**67.5**
Postgraduate	**28**	**8.6**
Others	**27**	**8.3**

326 responses

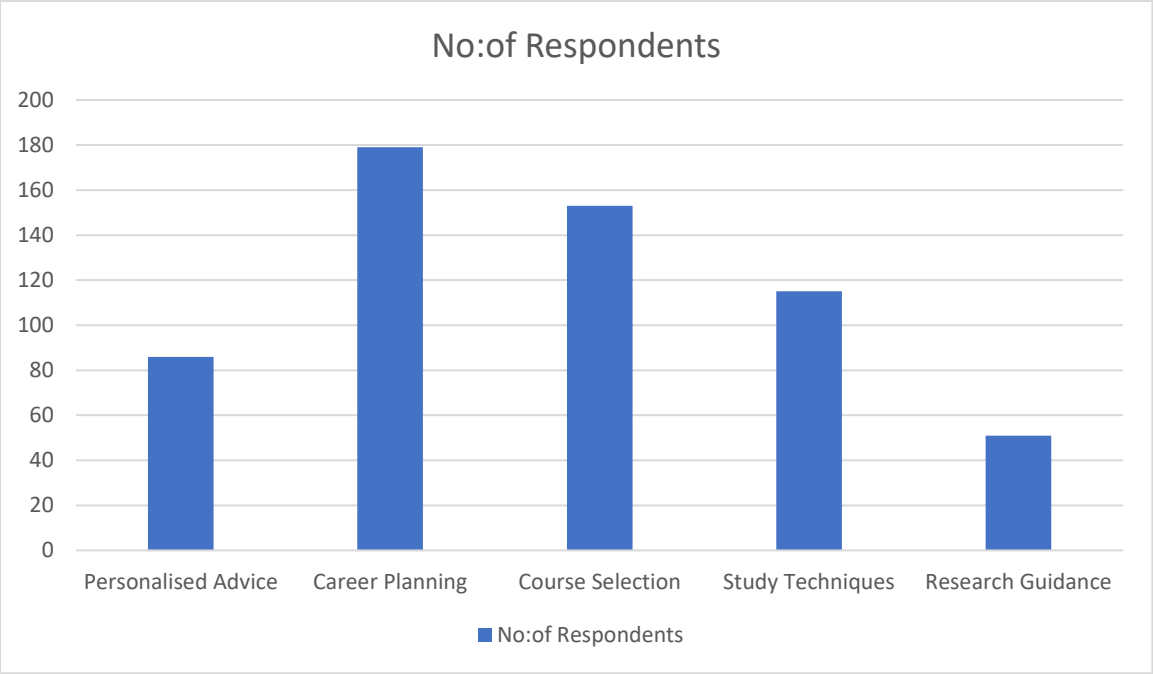


Interpretation

The data shows that the majority of respondents are undergraduates, making up 67.5% of the sample. High school graduates account for 15.6%, postgraduates represent 8.6%, and 8.3% fall into the "Others" category, which may include various non-traditional educational backgrounds. The data suggests a strong focus on undergraduate education within the sample.

Aspects of academic guidance, students find beneficial.

Aspects	No: Of Respondents	Percentage
Personalised Advice	**86**	**26.9**
Career Planning	**179**	**55.9**
Course Selection	**153**	**47.8**
Study Techniques	**115**	**35.9**
Research Guidance	**51**	**15.9**



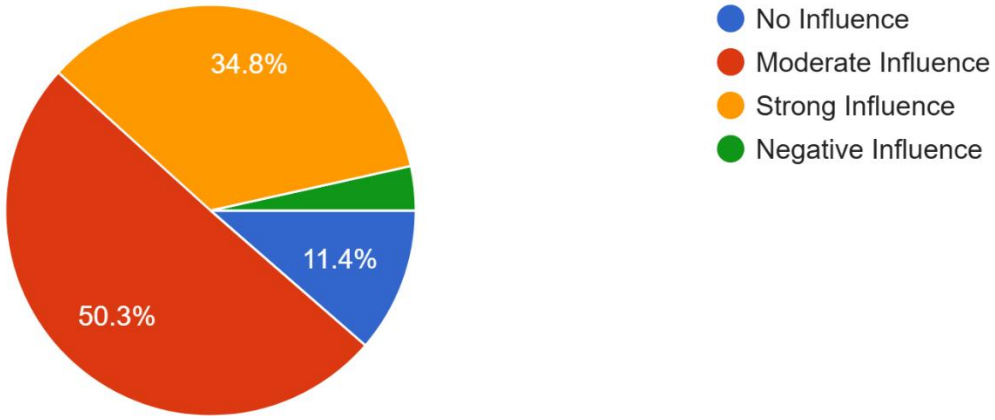
Interpretation

The data indicates that Career Planning is the most prioritized aspect, with 55.9% of respondents focusing on it. Course Selection follows at 47.8%, while Study Techniques is important to 35.9%. Personalized Advice appeals to 26.9%, and Research Guidance is the least sought, at 15.9%. This suggests a strong emphasis on future planning and academic choices over research or personalized support.

Influence of Family's Education Background

Influence	No Of Respondents	Percentage
No Influence	**36**	**11.4**
Moderate Influence	**159**	**50.3**
Strong Influence	**110**	**34.8**
Negative Influence	**11**	**3.5**

316 responses



Interpretation

The data shows that a majority of respondents feel their family's education background has a Moderate Influence (50.3%) or Strong Influence (34.8%) on them. A smaller portion reports No Influence (11.4%), and only 3.5% perceive it as a Negative Influence. This suggests that family education background generally plays a positive or significant role for most individuals.

Influence of Family's Financial Background

Influence	No of respondents	Percentage
Limited access to higher-paying careers	**87**	**27.5**
No impact on career options	**82**	**25.9**
Enables diverse career options	**71**	**22.5**
Determines the level of career ambition	**76**	**24.1**

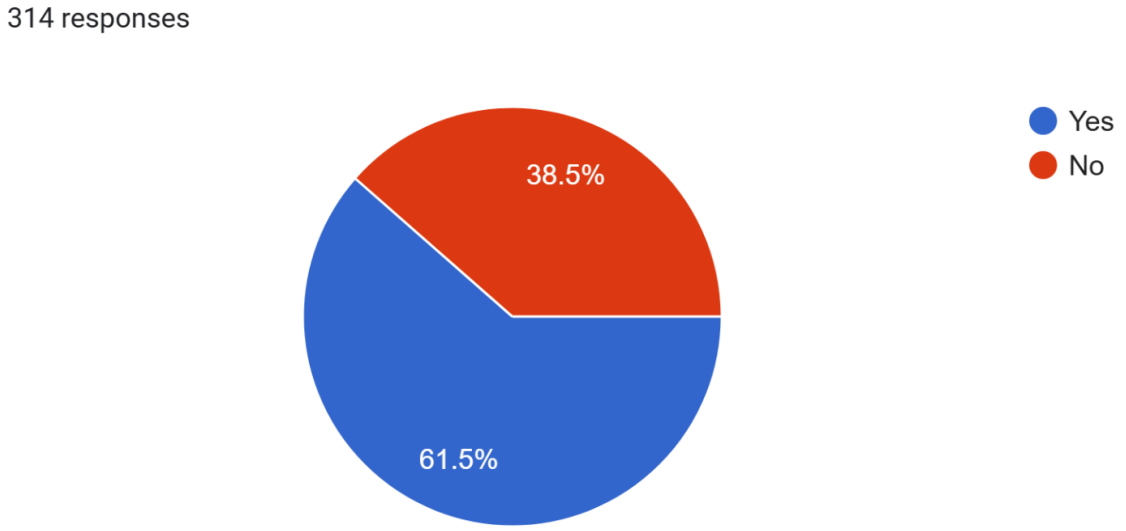
316 responses

Interpretation

The data highlights varying impacts of family financial background on career choices. Limited access to higher-paying careers is the most reported influence (27.5%), while No impact on career options accounts for 25.9%. Determines the level of career ambition affects 24.1%, and Enables diverse career options influences 22.5%. This suggests family financial background significantly shapes career opportunities and aspirations for many.

Faced difficulty in securing a seat in respondents preferred educational institution

Yes/No	No Of Respondents	Percentage
Yes	**193**	**61.5**
No	**121**	**38.5**



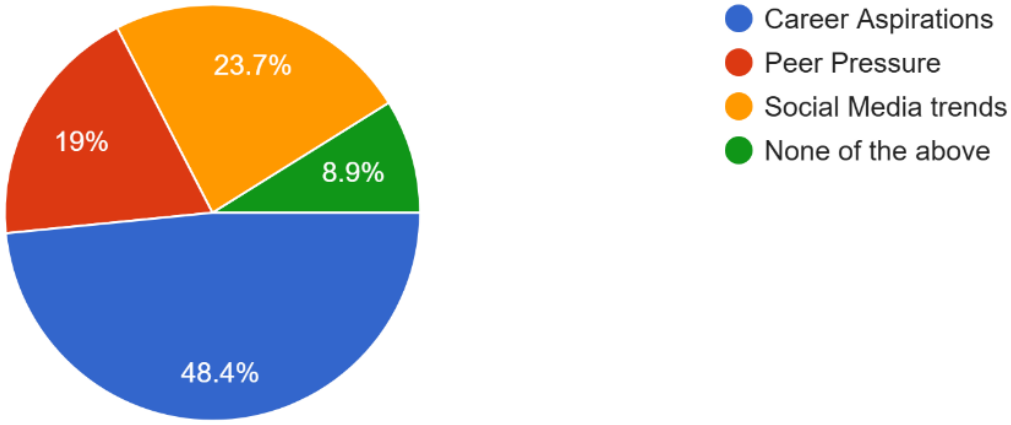
Interpretation

The data shows that 61.5% of respondents faced difficulties securing a seat in their preferred educational institution, while 38.5% did not encounter such challenges. This indicates that a majority experience obstacles in accessing their desired institutions, potentially highlighting issues like competition, availability, or other barriers.

Factors that influence the choice of higher education

Factors	No Of Respondents	Percentage
Career aspirations	**153**	**48.4**
Peer pressure	**60**	**19**
Social media trends	**75**	**23.7**
None of the above	**28**	**8.9**

316 responses

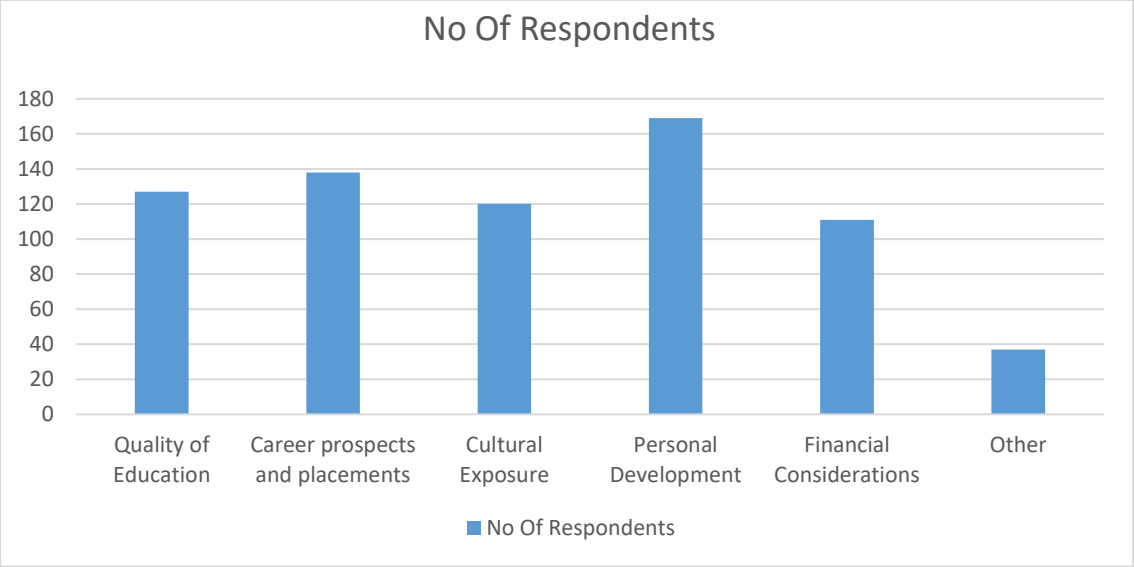


Interpretation

The data shows that Career Aspirations (48.4%) are the most influential factor in choosing higher education, followed by Social Media Trends (23.7%) and Peer Pressure (19%). Only 8.9% indicated that none of these factors influence their decision, suggesting that personal goals and external influences significantly shape educational choices.

Factors influencing the decision to study abroad

Factors	No Of Respondents	Percentage
Quality of Education	**127**	**40.3**
Career prospects and placements	**138**	**43.8**
Cultural Exposure	**120**	**38.1**
Personal Development	**169**	**53.7**
Financial Considerations	**111**	**35.2**
Other	**37**	**11.7**



Interpretation

The data indicates that Personal Development (53.7%) is the most influential factor in the decision to study abroad, followed by Career Prospects and Placements (43.8%) and Quality of Education (40.3%). Cultural Exposure (38.1%) and Financial Considerations (35.2%) also play significant roles, while Other factors influence a smaller portion (11.7%). This suggests that personal growth and career opportunities are key motivators for studying abroad.

5.2 Correlation Test

I. Comparing the correlation between "How do personal passions align with your career", and "Most influential element in higher education: Personal passions and technological advancements"

The correlation coefficient is r=0.2407 that indicates a weak to moderate positive correlation which implies there is a slight tendency for individuals who feel that their personal passions align with their career to also consider personal passions and technological advancements as influential factors in their higher education decisions.Therefore the personal passions may moderately influence career alignment and higher education choices,but the relationship is not dominant.Technological advancements may contribute to diluting the relationship.

II. Comparing the correlation between "Most influential element in higher education: Personal passions and technological advancements" and "Factor best supports career advancements"

The correlation coefficient is r=0.2677 which suggests weak to moderate positive correlation between the two variables.The weak positive correlation indicates that individuals who consider personal passions and technological advancements as influential in their higher education choices are slightly more likely to perceive these factors as supporting their career advancements.Therefore there may be some alignment between what influences education choices and what individuals believe supports their career. However,this alignment is not strong enough to imply that the two are closely tied.

III. Comparing the correlation between "How technological advancements changed students' approach", and "Factor best supports career advancements."

The correlation coefficient is r=0.3428 that indicates a moderate positive correlation between the variables.There is a moderate tendency for students who perceive technological advancements as having changed their approach to also view technological advancements as factors that best support career advancements.That is Educational institutions might want to emphasize the integration oftechnology into curricula, as students perceive this alignment between educational approaches and career success factors.

IV. Comparing the correlation between "How technological advancements changed students' approach", and "Clarity about your career aspirations."

The correlation coefficient which is r=0.2511 suggests a weak to moderate positive correlation between the variables. There is a slight tendency for students who believe technological advancements have influenced their approach to also report greater clarity about their career aspirations. The correlation suggests that while technological advancements may help students approach their studies or career planning differently, they are not a dominant factor in determining career clarity.

V. Comparing the correlation between "Significance of studying abroad: Advantages of studying abroad" and "Does studying abroad provide better placement?"

The correlation coefficient is r=−0.2602 which indicates a weak negative correlation between the variables. The weak negative correlation suggests that individuals who perceive studying abroad as highly advantageous may slightly tend to disagree with the notion that studying abroad leads to better job placements, or vice versa. This could indicate a disconnect between the general benefits of studying abroad and its perceived direct impact on career placements.

VI. Comparing the correlation between "Seek advice from a guidance counselor" and "Access to an advisor"

The correlation coefficient (r=0.4154) indicates a **moderate positive correlation** between the following variables. The moderate positive correlation suggests that students who have better access to an advisor are more likely to seek advice from a guidance counselor, or vice versa. This relationship indicates that having access to guidance or counseling resources is an important factor in whether students seek advice on their educational or career decisions.

VII. Comparing the correlation between "To what extent do your parents influence your education and career choices", and "How do you feel about the expectations set by your parents."

The correlation coefficient (r=0.3432) indicates a moderate positive correlation between the following variables:

There is a moderate positive relationship between the degree of parental influence on education and career choices and how individuals feel about the expectations set by their parents. The result highlights that family expectations and influence are interconnected and could play a significant role in a student's education and career decisions.

VIII. Comparing the correlation between "How well do you feel your parents' expectations match your own academic and career goals?" and "To what extent do your parents influence your education and career choices?"

The correlation coefficient (r=0.3328) indicates a moderate positive correlation between the following variables. There is a moderate positive relationship between the extent of parental influence on education and career choices and how well students feel their parents' expectations align with their own goals. While there is a positive correlation, it does not mean perfect agreement. There might still be cases where parental influence is strong but expectations and goals do not fully align.

IX. Comparing the correlation between "To what extent do your parents influence your education and career choices?" and "Overall, how positive or negative is the influence of your parents' expectations on your academic and career decisions?"

The correlation coefficient is r=0.2762 which indicates a weak to moderate positive correlation between the following variables. There is a slight positive relationship between the extent of parental influence and the overall positivity of that influence. This suggests that when parental influence on education and career decisions is high, it is somewhat more likely to be perceived as positive rather than negative.

X. Comparing the correlation between "How do you feel about the expectations set by your parents?" and "Overall, how positive or negative is the influence of your parents' expectations on your academic and career decisions?"The correlation coefficient is r=0.4759 which indicates a moderate to strong positive correlation between the following variables. The correlation suggests that individuals who have more positive feelings about the expectations set by their parents are more likely to perceive

their parents' expectations as having an overall positive influence on their academic and career decisions. While the correlation is moderate to strong, it still leaves room for variability. Some individuals may feel neutral or negative about parental expectations, which can influence whether they perceive this influence as positive.

XI. Comparing the correlation between "How do you feel about the expectations set by your parents?" and "How well do you feel your parents' expectations match your own academic and career goals?"

The correlation coefficient is r=0.3857 which indicates a moderate positive correlation between the following variables. There is a moderate positive relationship between how students feel about their parents' expectations and how well those expectations align with their own academic and career goals. This result highlights the importance of communication and understanding between parents and students. When expectations are aligned, they are more likely to be seen as supportive rather than as pressure.

XII. Comparing the correlation between "How well do you feel your parents' expectations match your own academic and career goals?" and "Overall, how positive or negative is the influence of your parents' expectations on your academic and career decisions?"

The correlation coefficient is r=0.4263 which indicates a moderate positive correlation between the following variables. There is a moderate positive correlation between the alignment of parental expectations with students' goals and the overall perception of those expectations as positive or negative. A moderate positive correlation supports the idea that when parental expectations are seen as aligned with students' own aspirations, the influence is perceived as supportive and helpful rather than restrictive or negative.

XIII. Comparing the correlation between "Influence of social expectations" and "Effect of financial background on career choice"

The correlation coefficient is r=0.2458 which indicates a weak positive correlation between the following variables. There is a weak positive relationship between the influence of social

expectations and the effect of financial background on career choice. This suggests that while both factors are somewhat related, the relationship is not strong. The result indicates that, to a small extent, individuals who feel more influenced by social expectations might also be more likely to perceive financial background as an important factor in shaping their career choices. However, this influence is relatively weak.

XIV. Comparing the correlation between "Factor considered more important than academic grades" and "Effects of grades post-graduation"

The correlation coefficient (r=0.2056) indicates a weak positive correlation between the following variables. There is a weak positive relationship between the factors considered more important than academic grades and the effects of grades after graduation. This means that as individuals place more importance on factors other than grades, there is a slight tendency for them to also perceive the effect of grades after graduation in a more positive or relevant way.

5.3 Anova

Relation between age and Access to Advicer

SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Column 1	151	217	1.437086	0.247682		
Column 2	129	224	1.736434	0.195615		
Column 3	33	60	1.818182	0.153409		

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	7.979704	2	3.989852	18.43295	2.73E-08	3.024869
Within Groups	67.10017	310	0.216452			
Total	75.07987	312				

Since the F-statistic (18.4318.4318.43) is much greater than the critical F-value (3.0253) and the p-value (2.73×10^{-8}) is much smaller than 0.05, we reject the null hypothesis. This indicates that there are significant differences between the group means.

Relation between age and effect of Financial background

SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Column 1	151	345	2.284768	1.338366		
Column 2	129	342	2.651163	1.213299		
Column 3	33	79	2.393939	1.121212		

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	9.444111	2	4.722056	3.734888	0.024957	3.024869
Within Groups	391.9361	310	1.26431			
Total	401.3802	312				

The F-statistic (3.735) is greater than the critical F-value (3.025), and the p-value (0.025) is less than 0.05. This means we reject the null hypothesis that all group means are equal. There is a statistically significant difference between the group means.

Relation between current education and access to advicer

SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Column 1	**210**	**334**	**1.590476**	**0.242971**		
Column 2	**27**	**46**	**1.703704**	**0.216524**		
Column 3	**49**	**85**	**1.734694**	**0.19898**		
Column 4	**27**	**36**	**1.333333**	**0.230769**		

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	**3.11827**	**3**	**1.039423**	**4.463238**	**0.004366**	**2.633827**
Within Groups	**71.9616**	**309**	**0.232885**			
Total	**75.07987**	**312**				

The F-statistic (4.463) is greater than the critical F-value (2.634), and the p-value (0.004) is less than 0.05. Therefore, we reject the null hypothesis, indicating that there are significant differences between the means of the four groups.

Relation between age and influence of social expectation

SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Column 1	**151**	**354**	**2.344371**	**0.960618**		
Column 2	**129**	**308**	**2.387597**	**0.89547**		
Column 3	**33**	**82**	**2.484848**	**0.820076**		

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	**0.559082**	**2**	**0.279541**	**0.30411**	**0.737999**	**3.024869**
Within Groups	**284.9553**	**310**	**0.919211**			
Total	**285.5144**	**312**				

The F-statistic (0.304) is much smaller than the critical F-value (3.025). The p-value (0.738) is much greater than 0.05, indicating no statistically significant difference between the group means. The null hypothesis cannot be rejected, meaning there is no evidence to suggest that the means of the three groups are significantly different.

Relation between age and plan on studying abroad

SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Column 1	181	303	1.674033	0.220933		
Column 2	132	247	1.871212	0.113058		

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	2.967764	1	2.967764	16.91094	5.02E-05	3.871533
Within Groups	54.57856	311	0.175494			
Total	57.54633	312				

The F-statistic (16.9111) is much greater than the critical F-value (3.872).The P-value (5.02×10^{-5}) is much smaller than 0.05, indicating strong evidence to reject the null hypothesis.

Relation between Education and Quality of academic guidance

SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Column 1	210	351	1.671429	1.207314		
Column 2	27	57	2.111111	1.717949		
Column 3	49	141	2.877551	1.943027		
Column 4	27	65	2.407407	1.481481		

ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	64.76087	3	21.58696	15.55666	1.9E-09	2.633827
Within Groups	428.7791	309	1.387635			
Total	493.5399	312				

The F-statistic (15.5571) is much greater than the critical F-value (2.634). The P-value ($1.9\times10-9$) is much smaller than 0.05, indicating strong evidence to reject the null hypothesis.

5.4 Factor Analysis

KMO Measure and Bartlett's Test

- **KMO:** 0.664 suggests moderate adequacy of the dataset for factor analysis.
- **Bartlett's Test:** $\chi 2=1839.16$, df = 780, $p < 0.001$, confirming the presence of sufficient inter-correlations for PCA.

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.664
Bartlett's Test of Sphericity	Approx. Chi-Square	1839.156
	df	780
	Sig.	.000

Since the KMO value is over 0.664, we can say that there is a substantial correlation in the data and the data is fit for the Factor Analysis.

Here, the Factor Analysis was done using the given 40 variables. As a result, out of the 40 variables, 14 factors are identified that influence the choice of higher education.

The first few factors explain a significant portion of variance:

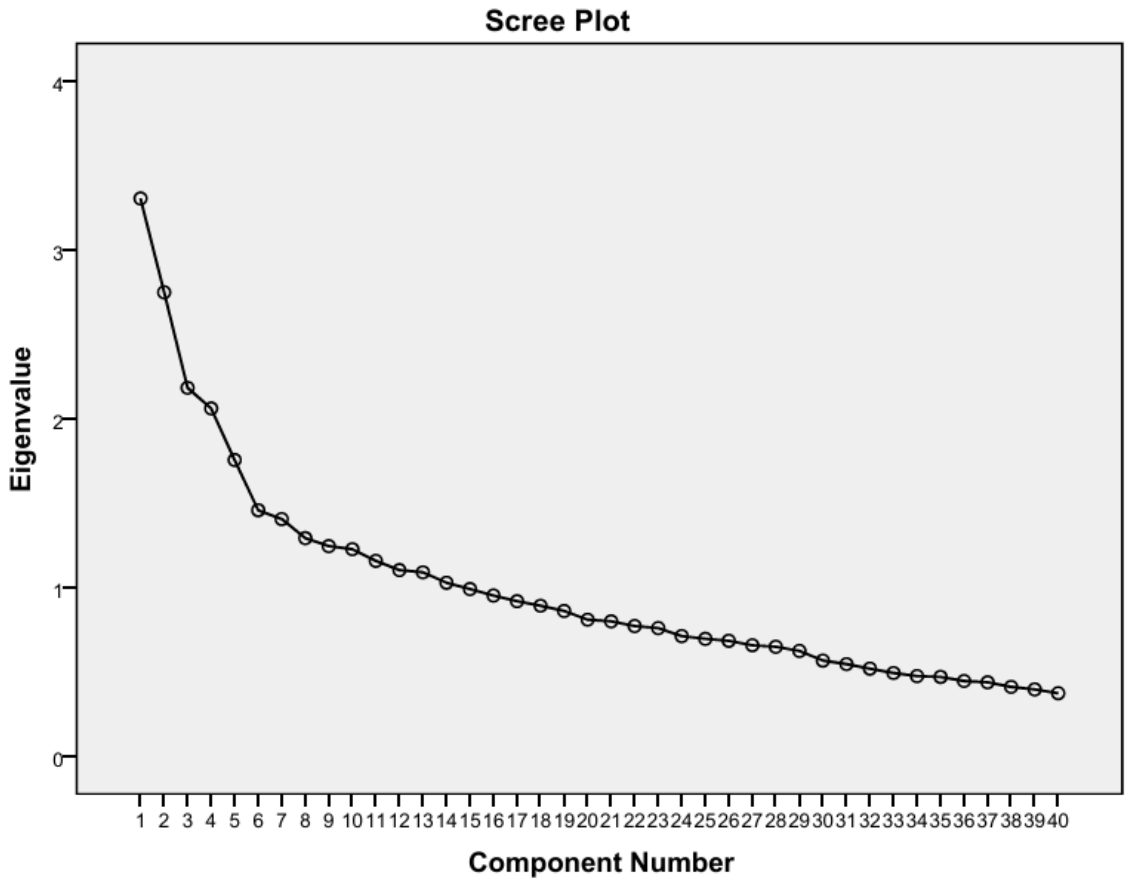
- **Factor 1 (8.26%): Likely represents career confidence and guidance quality.**
- **Factor 2 (6.87%): Family and financial influences.**
- **Factor 3 (5.46%): Technological impact on career decisions.**

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	3.304	8.261	8.261	3.304	8.261	8.261
2	2.749	6.871	15.132	2.749	6.871	15.132
3	2.183	5.458	20.590	2.183	5.458	20.590
4	2.061	5.153	25.743	2.061	5.153	25.743
5	1.756	4.389	30.132	1.756	4.389	30.132
6	1.459	3.647	33.779	1.459	3.647	33.779
7	1.406	3.515	37.294	1.406	3.515	37.294
8	1.293	3.232	40.526	1.293	3.232	40.526
9	1.245	3.114	43.640	1.245	3.114	43.640
10	1.227	3.069	46.708	1.227	3.069	46.708
11	1.159	2.896	49.605	1.159	2.896	49.605
12	1.103	2.759	52.363	1.103	2.759	52.363
13	1.091	2.727	55.090	1.091	2.727	55.090
14	1.029	2.573	57.663	1.029	2.573	57.663
15	.991	2.478	60.141			
16	.953	2.382	62.522			
17	.919	2.298	64.820			
18	.893	2.232	67.052			
19	.861	2.154	69.206			
20	.810	2.025	71.231			
21	.800	2.000	73.231			
22	.773	1.932	75.163			
23	.760	1.901	77.064			
24	.713	1.782	78.846			
25	.696	1.741	80.587			
26	.685	1.713	82.300			
27	.659	1.647	83.947			
28	.649	1.623	85.570			
29	.625	1.563	87.134			
30	.568	1.420	88.553			
31	.547	1.368	89.921			
32	.520	1.301	91.222			
33	.494	1.236	92.458			
34	.476	1.190	93.648			
35	.471	1.178	94.826			
36	.447	1.117	95.944			
37	.439	1.097	97.041			
38	.412	1.030	98.071			
39	.397	.992	99.063			
40	.375	.937	100.000			

Initial eigen values

The initial eigenvalues represent the amount of variance each extracted factor explains before rotation. The analysis identified 14 factors with eigenvalues greater than 1, aligning with the kaiser criterion for retention. The first component had the highest eigenvalue (3.304), explaining 8.26% of the total variance, followed by the second (2.749) and third components (2.183), which accounted for 6.87% and 5.46% of the variance, respectively. Together, these 14 factors explained 57.66% of the cumulative variance, indicating that they sufficiently represent the complexity of the dataset.



The scree plot

The scree plot is a graphical representation of the eigenvalues associated with each component in a factor analysis, plotted in descending order of magnitude. In this project, the scree plot revealed a noticeable "elbow" after the sixth component, indicating that the first few factors capture the majority of the meaningful variance in the dataset. The eigenvalues for the first components are significantly higher, with the first component at 3.304, gradually decreasing for subsequent factors. Beyond the sixth component, the eigenvalues level off and fall below 1, signifying that these components contribute marginally to the explained variance. This visualization helps confirm that retaining the first 14 components, which collectively explain 57.66% of the variance, is appropriate for summarizing the dataset while minimizing dimensionality.

Components Matrix

	Component					
	1	2	3	4	5	6
How do personal passions align with career	.498					
Clarity about your career aspirations	.474					
Most influential element in higher education	.465					
Influence of social expectation	.443					
How Technological advancements changed students approach	.429	.362				
Significance of studying abroad advantages of Studying Abroad	.390	-.369				.359
How parents expectation match your career goal Family Education	.388		.338		.365	
Influence of parents Family Education Financial Background	.365		.355			
Would you recommend studying abroad		.503				-.350
Effects of grades postgraduation	.341	.477				
Factor best supports career advancements	.387	.476				
Gender		.472				
Quality of academic guidance		.448				
Education Level		.440				
Ever faced difficulty in seat availibility		.410			.306	
Positivity and negativity of parents expectation Family Education	.361		.494		.351	
Feel about the expectation of parents	.404		.493		.391	
Influence of guidance in career decisions			.442		-.381	

Component Matrix

	Component					
	7	8	9	10	11	12
How do personal passions align with career						
Clarity about your career aspirations						
Most influential element in higher education						
Influence of social expectation				.368		
How Technological advancements changed student approach						
Significance of studying abroad Advantages of Studying Abroad						
How parents expectations match your career goal Family Education						
Influence of parents family education financial background						
Would you recommend studying abroad						
Effects of grades postgraduation						
Factor best supports career advancements	-.309					
Gender					.333	
Quality of academic guidance						
Education Level						
Ever faced difficulty in seat availability		-.317				
Positivity and negativity of parents Expectations Family Education						
Feel about the expectation of parents Family Education Financial						
Influence of guidance in career decisions						

Component Matrix

	Component	
	13	14
Influence of seat availability relationship between seat availability		
How do you plan to finance your education in abroad		
Role of grades in scholarship opportunity		
Do Career aspirations are aligned with current job market trends		
What extent do you feel that the competition for limited seats		
Seek advice from guidance counselor		.327
Do studying abroad provides better placement		
Rate the availability of seats in your preferred program		
Do technological advancements led you to adjust your go also		
Areas of guidance to improve		
Access to advisor		
Type of academic guidance		
Most beneficial aspects of academic guidance		
Effect of financial background on career choice		
Confidence level in your career path		
Factors influencing your decision to study abroad		
What extent has guidance helped you in selecting courses		
Age		
Factor considered more important than academic grades		

Component Matrix

	Component					
	1	2	3	4	5	6
Effect of academic grade Role of Academic Grades in higher education	.409					
Influence of family education level					-.364	
Relationship between institutional reputation and student career	.329					

Component Matrix

	Component					
	7	8	9	10	11	12
Effect of academic grade Role of Academic Grades in higher education	358				-.345	
Influence of family education level						
Relationship between institutional reputation and student career		.347				

Component Matrix

	Component	
	13	14
Effect of academic grade Role of Academic Grades in higher education	-.415	
Influence of family education level		.457
Relationship between institutional reputation and student career		-.380

Extraction method: Principal component Analysis.

a.14 components extracted.

As shown in the table above, all the 40 components were considered for analysing the factors influencing higher education choices. In which 14 factors are found to be the most significant factors as these shows the highest values among all 14 components.

CHAPTER 6

CONCLUSION

Conclusion

This project aimed to identify the key factors influencing higher education choices, providing valuable insights for educational institutions, policymakers, and students. Through a comprehensive analysis of 40 components, 14 significant factors were identified, explaining 57.66% of the cumulative variance. The scree plot confirmed that these 14 factors capture the majority of the meaningful variance, supporting the factor analysis approach.

The results highlight the importance of considering multiple factors when making decisions about higher education. The identified factors can be grouped into academic, career, personal, and environmental categories, emphasizing the complexity of this decision-making process. Academic reputation, career opportunities, and campus resources emerged as crucial factors, underscoring the need for institutions to prioritize these aspects to attract and retain students.

The study's findings also underscore the significance of personal factors, such as personal passions and technological advancements, in shaping higher education choices. This suggests that students are increasingly driven by their individual interests and aspirations, rather than solely by institutional or external factors. Moreover, the influence of social expectations and parental expectations on higher education decisions was found to be moderate, indicating that students are also considerate of the opinions and expectations of their social networks.

The implications of this study are far-reaching. Educational institutions must prioritize factors such as academic reputation, career opportunities, and campus resources to attract and retain students. Policymakers should develop initiatives that address the importance of career opportunities, cost, and financial aid in higher education decision-making. Students, meanwhile, should consider multiple factors, including academic, career, personal, and environmental aspects, when making decisions about their higher education pathways.

Furthermore, the study's findings suggest that institutions and policymakers should prioritize student-centered approaches, taking into account individual students' passions, interests, and aspirations. This might involve offering personalized academic advising, flexible course options, and experiential learning opportunities. By doing so, institutions can foster a more supportive and inclusive learning environment, ultimately enhancing student satisfaction, retention, and success.

In conclusion, this study provides valuable insights into the complex factors influencing higher education choices. By understanding these factors, stakeholders can work together to improve the higher education landscape, supporting informed decision-making and fostering a more student-centered approach. Ultimately, this research contributes to the development of more effective policies, programs, and practices, aimed at enhancing student success and promoting a more equitable and inclusive higher education system.

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