

An Overview of Various Factors Affecting Career Counseling: A Comparative Study of Final Degree Engineering Students in Vadodara District

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Aim/purpose – The main variables affecting the efficacy of career counseling services in private institutions are assessed in this study. Understanding the factors that contribute to effective career counseling has become crucial due to the escalating competitiveness in higher education and the growing significance of employability. Students' socio demographic traits, institutional support networks, counselor skills, resource accessibility, and students' knowledge of and attitudes toward counseling services are all examined in this study.

Data was gathered from engineering students using a mixed-method approach that included career counselor interviews and standardized surveys. The study finds the key elements—such as service accessibility, guidance relevance, counselor expertise, and institutional career development initiatives—that influence students' use of career counseling. Universities can use the data to improve student readiness for future employment prospects and fortify existing career counseling frameworks. There are suggestions made to enhance the creation of policies, counselor training,

and the general provision of career counseling services in private universities.

Design/methodology/approach –

The study gathers data from undergraduate and graduate engineering students enrolled in private universities in Vadodara, India, using a probability sampling methodology called the stratified sampling method. To guarantee sufficient representation of every group, the student body was separated into pertinent strata according to department and academic level. A systematic questionnaire was used to gather information on socio-demographic characteristics, opinions of career counseling services, the efficacy of counselors, institutional support, and variables affecting career decision-making. While cluster analysis was used to divide students into discrete groups according to their counseling needs and preferences, factor analysis was utilized to determine the major factors influencing career-counseling practices.

Findings – The study sheds light on the elements of career counseling and the variables that affect its efficacy. Students' perceptions of various parts of the guidance and assistance provided by their institutions can be revealed by segmenting them according to their counseling needs and preferences. The study provides a nuanced understanding of the factors that influence students' engagement

with and expectations from career counseling services by examining socio-demographic traits, academic level, and students' attitudes toward career development in conjunction with counseling-related factors.

Research implications/limitations –

This study's findings are limited by the use of a probability-based stratified sampling technique and its focus on students from private universities within a specific geographic region, which may influence the generalizability of the results. Future research could incorporate more diverse demographic groups, academic disciplines, and broader geographic locations to validate the identified student segments and strengthen external validity. Despite these limitations, the study offers meaningful practical implications for enhancing career-counseling practices. The insights can assist institutions in designing targeted counseling interventions, improving student engagement, and developing more responsive support systems to better address the varied career development needs of students.

Originality/value/contribution –

This study adds to the expanding corpus of information on career counseling procedures in higher education. It emphasizes how important it is for private colleges looking to improve their students' career preparedness and facilitate

their transition into the working world to implement systematic, student-centered counseling procedures. In order to effectively address the different needs of students, the findings highlight the necessity for institutions to make investments in counselor training, enhance counseling resources, and implement data-driven strategies.

Keywords: Socio Demographic Traits (SDT) Understanding of Factors (UoF), Career counseling (CC), Institutional Support Networks (ISN), Internal Factors and External Factors (IFAEF).

1. Introduction

A career is a continuous process of learning and professional advancement in which individuals choose, prepare for, enter, and move through occupations, influenced by personal interests, skills, and values, and social, economic, and cultural factors. Careers matter since they give identity, financial security, and room for development; yet, they are also subject to challenges like restricted guidance, labor market instability, skill mismatch, and personal Limitations. - Super, D.E. (1990).

In order to help students make educated academic and professional decisions, career counseling is essential (Brown & Lent, 2020). A number of institutional, individual, and

contextual factors influence the efficacy of career counseling at higher education institutions, particularly in developing nations like India. Despite its importance, research shows that a number of obstacles still limit the influence of career counseling services, especially for engineering students who must navigate challenging academic courses and quickly changing industry expectations (Niles & Harris-Bowlsbey, 2021). To improve counseling techniques and match them with the varied needs of students, it is crucial to comprehend these impacting elements.

The success of peer counseling is impacted by a number of factors, such as student awareness and motivation,

The availability of qualified counselors, institutional support, exposure to the labor market, and socio demographic traits. Fewer studies have integrated human and institutional characteristics to understand how they jointly impact counseling results, despite earlier research examining separate features such counselor competency or student engagement (Patton & McMahan, 2014). Furthermore, there are still gaps in our understanding of how personality factors, academic constraints, and cultural expectations affect students' openness to counseling interventions.

Social Cognitive Career Theory (SCCT) (Lent et al., 1994) provides

the theoretical framework for comprehending these factors by explaining how self-efficacy, outcome expectancies, and personal goals influence people's career decisions. In the context of counseling, SCCT emphasizes how guidance services, institutional resources, and environmental supports interact with students' perceptions of their skills and prospects. This approach aids in explaining why the same counseling inputs may have varied effects on children with comparable academic backgrounds.

By investigating how institutional, individual, and socio-demographic factors influence the efficacy of career counseling among engineering students in private colleges, this study seeks to close current gaps. The study specifically looks into how factors including students' awareness levels, self-efficacy, personality qualities, and academic background affect how they see and use career counseling services. The study divides participants into discrete groups according to their counseling needs, expectations, and preferences using factor and cluster analysis. The study aims to provide a nuanced understanding of the various factors that influence students' counselling experiences by concentrating on dimensions like Career Awareness (CA), Career Decision-Making Ability (CDM), Counsellor Support (CS), Institutional Facilitation (IF), Labour Market Exposure (LME), and Personal Readiness (PR).

The Social Cognitive Career Theory (SCCT) (Lent et al., 1994), which holds that people's career behaviors and

decisions are influenced by the interaction of self-efficacy beliefs, outcome expectancies, and contextual supports or barriers, forms the theoretical basis of this study. This theory helps explain how students evaluate the worth and utility of counseling services in the context of career counseling based on their expectations for future success, their perception of their capacity to make professional decisions, and the support they receive from their institution and counselors. Additionally, the study offers useful insights into how universities might improve counseling methods to accommodate the varied requirements of engineering students by looking at the relationship between personal characteristics and institutional resources.

This paper's remaining sections are organized as follows: The pertinent research on career counseling, student characteristics, and institutional support systems is reviewed in Section 2. The research goals, methodology, and data collection techniques are described in Section 3. The factor and cluster analysis results are shown in Section 4, along with a discussion of the main conclusions. The implications of the results for educational institutions, the study's shortcomings, and suggestions for further research are highlighted in Section 5's conclusion.

2. Literature review and theoretical underpinning

Ambrose and Soomro (2024) investigated how women in educational leadership make career decisions, emphasizing how they manage work growth with personal

and household obligations. The study investigated the motives and difficulties faced by female department heads from different institutions in Karachi using a qualitative, narrative-based methodology. Eight participants were interviewed using purposive sampling in order to learn more about the sociocultural factors that affect women's ascent to leadership positions in a setting that has historically been controlled by men. The study emphasizes how these women balanced the conflicting demands of work and family, as well as the wider ramifications of their decisions on professional identity and gender norms.

Amin, Kansagra, and Tanna (2024) to determine the factors influencing undergraduate medical students' preferences for careers at a medical college in Gujarat, India. While internal medicine, surgery, and radiology were the most popular medical specialties overall, the study found that female students preferred community medicine and obstetrics and gynecology more than male students, who tended to favor surgical specialties like orthopedics and general surgery. The top choices of students were noticeably devoid of preclinical and preclinical areas. Personal interest was the main factor-affecting career Choice. Students did, however, also mention other important variables, such as expected salary, career stability, lifestyle concerns, peer and

family recommendations, potential for private practice, previous observation or clinical exposure, and perceived job prospects. According to the authors, more investigation may be able to reveal more profound patterns in the changing landscape of medical profession preferences.

Nguyen et al. (2023) investigated the main factors influencing students' choices to major in economics in the post-COVID-19 environment at a private university in Vietnam. The study found four important elements influencing career choices based on survey responses from students who had first-hand experience choosing a major: job opportunities (OPP), financial considerations (FIN), personal interest (INT), and influence from others (INL). The study emphasizes how important it is for students to carefully weigh these factors before choosing a career path because snap judgments can have long-term effects. The results also give institutions important information to help them develop plans to draw students to economics courses and encourage prospective students to make well-informed decisions.

Ladia and Evangelio (2023) investigated Trento District II, Agusan del Sur. Three internal and four external factors influencing students' choices were found by the study using a validated 38-item survey instrument in a descriptive research methodology. The findings

showed that the most important internal element was personal interest, which was followed by external factors including peer pressure, financial considerations, teacher supervision, school atmosphere, family influence, and future work prospects. The study concluded that both internal and external factors have a significant impact on senior high school career decision-making. It was recommended that schools enhance their guidance and counseling services to better support parents and students in making informed decisions about their educational and career paths.

Mutanga, Piyose, and Ndovela (2023) investigated the determinants impacting the career paths and preferences of IT students at the Mangosuthu University of Technology in South Africa by. Their results highlighted how students' career paths are shaped by both internal and external factors. The study emphasized the value of all-encompassing career 33 counseling programs, which ought to incorporate personalized counseling, the acquisition of necessary skills, and the encouragement of students' self-awareness. In addition to improving well-informed decision-making, this kind of assistance also boosts employability and success in the fast-paced IT industry. In order to develop an innovative and well-prepared generation of IT professionals, these factors must be addressed.

According to Dang Van Hai, Nguyen Thi Huong, Pham Van Son, and Ho Thi Thuy Le (2022), career guidance and counseling are crucial to accomplishing the goals of comprehensive education, particularly with regard to preparing students for life beyond high school and satisfying the demands of the nation's human resources in an era of global integration. Career counseling is recognized as a critical educational role in Vietnam's 2018 General Education Curriculum, with the goal of helping students make well-informed occupational choices. The study looked into a number of variables that affect middle school pupils in North Central Vietnam's career counseling and guidance programs. The researchers investigated both objective and subjective factors influencing career direction in secondary schools using a thorough survey. State policies, socio economic development, cultural customs, labour market forecasts, and national human resource planning strategies are examples of objective factors. Subjective influences include internal school conditions including curriculum content, staff professionalism, infrastructure, and pupils' psychological traits like self-awareness and family goals. Its underlined that in order to create and execute successful career advice and counseling programs in schools, education managers and legislators must take these complex factors into account.

Disha, Pratiksha, Priya, and Kavya

(2023) investigated the impact of familial influences on first-year undergraduate and graduate students' confidence in their ability to make career selections. The study examined the degree to which family structures and parental work-related behaviors influence students' vocational development, acknowledging that self-efficacy is a crucial component in comprehending people's career behavior. To examine the predictive impact of family process-oriented characteristics, the researchers polled 300 college students using the Parent Career Behavior Checklist and the Career Decision-Making Self-Efficacy Questionnaire. According to the study, students' confidence in selecting professional decisions was greatly impacted by parental guidance and involvement as well as pressure from family members, such as friends and relatives who have finished or are pursuing higher education. The results demonstrate how family influence has two sides: it can be a source of social support and, occasionally, pressure that might steer 34 students into particular career routes. This underscores the importance of addressing family dynamics in career counselling, ensuring that students are empowered to make autonomous decisions aligned with their interests and goals, while also navigating familial expectations.

Abe and Chikoko (2020) examined the perspectives and experiences of STEM students at a South African institution in an exploratory study, emphasizing the variety of factors

influencing their career decisions. A mix of intrapersonal, interpersonal, and outcome-related factors influence STEM students' career decisions. According to the study, important elements that shape students' professional decisions include personal traits, familial influence, and expectations for the future. The research goals of this study are listed below based on the literature review mentioned above.

RO1: To Study the impact of Gender on Career Counseling for the final year Degree Engineering Students in Vadodara.

The body of research indicates that students' experiences and access to career guidance are significantly influenced by their gender. According to research, male and female engineering students frequently have different expectations for counseling treatments, information-seeking behaviors, and career goals (Patton & McMahan, 2014). Research indicates that whereas male students typically concentrate more on wage prospects, technical jobs, and quick career advancement, female students may place more attention on recommendations relating to career-family balance, workplace inclusiveness, and long-term career stability (Schultheiss, 2006). Additionally, students' confidence levels, professional decision-making approaches, and willingness to participate in counseling procedures are influenced by gendered socialization patterns and

stereotypes (Betz & Hackett, 2006). Additionally, academics contend that contextual factors including institutional support networks, counselor gender sensitivity, and cultural expectations around engineering jobs in India influence the efficacy of career counseling (Gore et al., 2019). Designing equitable and effective career advising methods requires an awareness of gender-specific issues that affect the counseling experience as engineering education grows more diverse.

RO2: To identify the factors affecting Career Counselling for the final year Degree Engineering Students Vadodara.

Numerous human, institutional, and environmental factors influence students' participation with and benefits from counseling services, as the literature on career counseling regularly demonstrates. Researchers point out that students' propensity to seek and use counseling support is greatly influenced by personal factors like vocational clarity, self-efficacy, academic success, and socioeconomic background (Lent, Brown & Hackett, 1994). Effective career guidance is also found to be significantly influenced by institutional factors, such as the availability of qualified counselors, the frequency of counseling sessions, the integration of counseling with placement activities, and the general supportiveness of the university environment (Naz & Murad, 2017). Further research

highlights the significance of contextual factors that have a significant impact on students' career decision-making processes, particularly in technical fields like engineering, such as industry expectations, labor market awareness, and exposure to internships or professional networks (Singh & Sharma, 2018). Furthermore, research suggests that students' profession choices and willingness to participate in counseling interventions are significantly influenced by cultural norms, family influence, and peer expectations (Gati & Saka, 2001). Finding the various elements that affect career counseling efficacy is crucial for improving final-year students' career readiness as engineering education grows in the face of growing competition and changing business demands.

3. Research methodology

3.1. Data collection

Final-year engineering students enrolled in Vadodara's private universities make up the study's target demographic. Because engineering students are among the most sought-after talent pools in India's technical and industrial sectors and because structured career assistance is necessary for their transition from academia to employment, they were chosen (Agarwala, 2008). Previous studies on career development and counseling techniques (e.g., Patton & McMahan, 2014; Lent et al., 1994)

usually concentrate on engineering or STEM students because they encounter particular difficulties like quickly changing skill requirements, competitive placement environments, and high employability expectations.

Limiting the study to engineering students ensures disciplinary relevance and allows for a focused examination of factors influencing career-counselling outcomes within a technically oriented cohort. Students from other disciplines—such as arts, commerce, or management—were excluded to maintain methodological consistency, as their career trajectories, counselling needs, and industry expectations differ significantly and could introduce additional variability into the analysis. This disciplinary restriction is acknowledged as a limitation, but it supports a more precise understanding of career counselling effectiveness among engineering graduates.

The data collection was conducted for final year degree engineering Students in Vadodara using Probability Stratified Sampling. The data was collected in different private Universities in Vadodara.

The data collection was conducted between September 2023 and December 2023 using a non-probability convenience sampling method. To facilitate distribution, quick data collecting, and effective response handling, a structured

questionnaire was created and sent via Google Forms. Final-year engineering students enrolled in private universities throughout Vadodara were given access to the survey. In order to increase reach and participation, faculty members and placement coordinators helped with the distribution process by sharing the survey link across their departmental and academic networks. Vadodara was selected as the study site because it is a well-known and expanding educational center in Gujarat that is home to a wide range of engineering students from different academic, socioeconomic, and cultural backgrounds. This diversity promotes the findings' generalizability and improves the sample's representativeness. In order to promote truthful and objective responses throughout the data collection process, respondents were guaranteed anonymity and confidentiality, and participation in the study was optional.

There are around 600 valid responses that were initially gathered from final-year engineering students from different private Universities were kept. Each of the 600 responders was a final-year engineering student from a variety of disciplines, including mechanical, computer, electrical, Information Technology Engineering and civil engineering. The internal consistency of the instrument enhances the credibility of the results, even if the study relied on Stratified sampling because of practical limitations linked to institutional access and student

availability, which may limit the findings' wider generalizability. The career counseling strategies used by private institutions in Vadodara, with an emphasis on engineering students, were examined in this study using a descriptive research methodology. In order to characterize current practices, views, and results pertaining to career counseling services, this design was chosen since it allows for the methodical gathering and analysis of data.

The descriptive approach enabled the researcher to assess the existing state of career counselling activities, evaluate their effectiveness, and gain insights into students' experiences within an actual academic environment. Quantitative data was mainly gathered through structured questionnaires, offering objective and measurable information on the nature and impact of the counseling initiatives.

This design was suitable for identifying factors that influence your decision-making regarding your future career path, to compare the career counseling procedures at several Vadodara institutions, to recognize the issues experienced by final-year engineering students, and to comprehend the significance of these students.

3.2. Instrument development

It took five to ten minutes to complete the three well-structured portions of the online questionnaire. Age, gender, engineering discipline, academic achievement, parents' educational backgrounds, and monthly household

income were among the sociodemographic data gathered in the first phase. These factors were included in order to investigate the background traits that could affect students' views of and access to career counseling services.

Using a modified Career Counseling Effectiveness Scale that was adapted from well-known tools used in higher education research, the second segment-evaluated students' experiences with and opinions of career counseling. On a five-point Likert scale, respondents indicated how much they agreed with statements about the influence, relevance, and accessibility of counseling services. "To what extent has the career counseling received contributed to your career clarity and decision-making?" was a crucial question in this section.

Using categories related to self-efficacy, career readiness, and awareness of labor market trends—constructs frequently looked at in earlier studies on student career development—the third segment recorded students' professional decision-making criteria (Lent et al., 1994). To guarantee dependability and simplicity of use, validated short scales were used to measure each construct.

Results

Demographics

The demographic profile of the respondents is summarized in Table A.1. The age of participants varied from 20 to 24 years, which corresponds to the normal age bracket of final-year engineering students in India. The gender breakdown was reasonably balanced, with 55.33% male and 44.67% female responders. All

participants were enrolled in final-year degree engineering programs across areas such as mechanical, computer, electrical, and civil engineering. In keeping with national engineering education trends (AICTE, 2021), the majority of respondents were pursuing undergraduate degrees, while postgraduate enrolment remained substantially lower, mirroring the broader pattern observed in technical institutions across the country.

4.2. Hypothetical Analysis

Objective:-1 To Study the impact of Gender on Career Counseling in different Private Universities.

Hypothesis 1: There will be no significant difference in the perception of factors

Affecting career counselling based on gender among engineering students in private universities.

This hypothesis aims to examine whether male and female engineering students differ in their views about the

elements that influence career counselling. It proposes that students, regardless of gender identity, tend to interpret and assess the contributing factors of career counselling similarly. These factors might include accessibility, relevance of information, guidance quality, or emotional support during the counselling process. The central idea is to explore whether gender has any meaningful influence on how these factors are perceived. An Independent Samples t-test is suitable to assess this hypothesis. Comparing the mean scores of two different groups—in this case, male and female students—is the specific purpose of this parametric test. The exam aids in determining whether there is a statistically significant difference between the genders' average perception scores. Given that the data is drawn from independent samples and follows a normal distribution, the use of this test is both logical and statistically valid.

Group Statistics - Table -1

Gender		N	Mean	Std. Deviation	Std. Error Mean
Overall Mean	Male	332	3.4271	.21216	.01164
	Female	268	3.4325	.21502	.01313

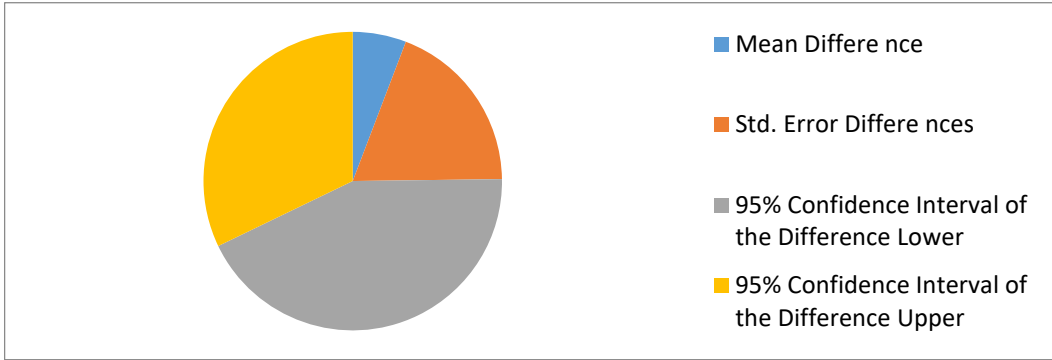
The Group Statistics table provides a basic summary of the mean scores and standard deviations for male and female students. The mean perception score for male students (N = 332) was 3.4271 with a standard deviation of 0.21216, but the mean score for female students (N =

268) was somewhat higher at 3.4325 with a standard deviation of 0.21502. The difference between the two means is very minimal, only 0.0054, which already indicates that the perceptions across genders are quite similar.

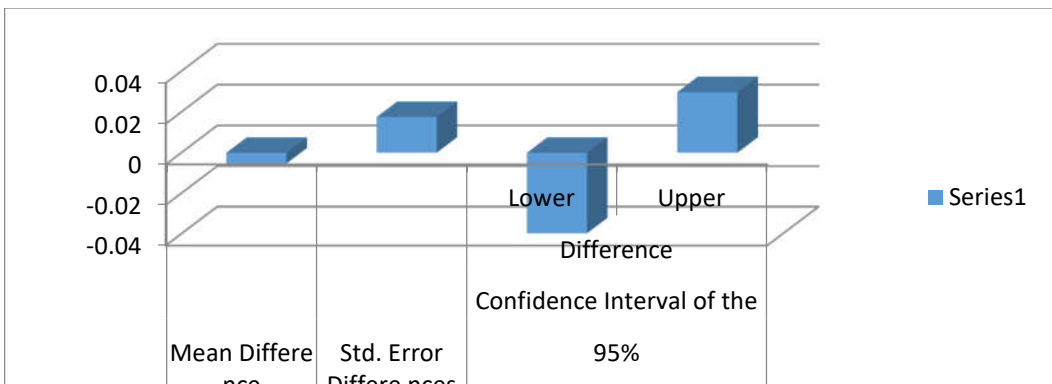
Table-2 Independent Samples Test

Overall Mean YMER	Levene's Test for Equality of Variances		t-test for Equality of Means						
	ISSN: 0044-0477		https://ymerdigital.eu/						
	F	Sig.	t	df	Sig. (2-tailed)	Mean Differences	Std. Error Differences	95%	
								Confidence Interval of the Difference	
							Lower	Upper	
Equal variances assumed	0.025	0.874	-0.305	598	0.76	-0.00535	0.01753	-0.03977	0.0297

Pie Chart of an Independent Sample Test: Table-2



Semiotic Model of an Independent Sample Test in bar graph : Table-2



The actual t-test findings, which are used to assess whether the observed difference in mean scores is statistically significant, are shown in this table. First, the validity of the assumption that the variances of the male and female groups are equal was evaluated using Levene's Test for Equality of Variances. Levene's test yielded a significance value of 0.874, much over the 0.05 cutoff. This indicates that we move on to the first row of the t-test findings and presume that the two groups have equal variances. A t-value of -

0.305 and a **p-value (Sig. 2-tailed) of 0.760** are displayed by the t-test for equality of means. The p-value is significantly higher than 0.05, indicating that there is no statistically significant difference between the mean perception scores of male and female students. There is no discernible difference between the two groups, as evidenced by the mean difference of just -0.00535 and the 95% CI for the difference, which includes zero, ranging from -0.03977 to 0.02907.

The Independent Samples t-test results indicate that there is no statistically significant difference between male and female engineering students' perceptions of the factors influencing career development.

Rather than a true gender-based perceptual difference, the slight discrepancy in mean scores is probably the result of chance. Thus, the hypothesis that "engineering students in private universities will not significantly differ in their perception of factors affecting career counseling based on gender" is accepted. This finding suggests that, regardless of gender, students tend to view the factors influencing career counseling in a similar manner. This insight can be valuable external factors affecting students' Career Counseling Perceptions.

The hypothesis "There will be no significant difference in the underlying factor structure between internal and external factors affecting students' career counseling perceptions" aims to explore whether students view personal influences and external pressures as structurally similar when it comes to making career-related decisions. Internal factors may include self-confidence, academic interest, or personal goals, while external factors may involve family expectations, financial limitations, or social guidance. This hypothesis assumes that both types of influences shape student perceptions in a similar manner, and it seeks to examine whether the patterns among these influences differ or remain consistent.

To test this hypothesis, factor analysis was selected as the appropriate statistical method because it helps identify hidden patterns or structures within large sets of variables. Since the study involved many questionnaire items related to both internal and external factors, factor analysis allows the researcher to group these items into meaningful categories, called components or factors, based on how closely related they are. By applying factor analysis separately to internal and external items, it becomes possible to compare the number of components, the strength of relationships among variables, and the nature of the resulting themes.

This method is particularly useful when the goal is to explore whether different sets of items reflect similar or different underlying dimensions.

for university administrators and career counseling services, as it supports the idea of designing gender-neutral strategies and programs that cater effectively to all students.

Objective:-2 to identify the factors affecting Career Counseling.

Hypothesis: 2

- a) There will be no significant difference in the underlying factor structure between internal and

Factor analysis was therefore used since it offers a straightforward method for identifying and contrasting the internal structure of two sets of variables in connection to students' impressions of career counseling.

Factors:

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.502
Bartlett's Test of Approx. Chi-Square	241.00
Sphericity	3
	Df
	210
	Sig.
	.070

The analysis of internal factors began with the Kaiser-Meyer-Olkin (KMO) measure, which yielded a value of 0.502. This result is slightly above the minimum cut-off point of 0.5, suggesting marginal adequacy for factor analysis. However, the Bartlett’s Test of Sphericity returned a non-significant result (Chi-Square = 241.003, df = 210, p = 0.070). A non-significant result implies that the correlation matrix among the internal items is not sufficiently different from an identity matrix, meaning the

Internal items are not strongly correlated. As a result, the internal data set demonstrates weak factorability, and the factor analysis on these items may not produce very reliable dimensions. Ten components with eigenvalues greater than one were nevertheless retrieved, accounting for 55.94% of the variance. The screen plot showed a slight bend around the 10th component, indicating a complex structure without a clear dominant factor. The themes that emerged from these components were scattered across ideas such as self-confidence, academic understanding, and career uncertainty, suggesting that students’ internal experiences of career planning are diverse and fragmented.

Table -4 Analysis of the External Factors

KMO and Bartlett's Test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.541
Bartlett's Test of Approx. Chi-Square	260.99
Sphericity	9
	df
	190
	Sig.
	.000

With a KMO value of 0.541, which is greater than that of the internal set but still falls within the marginal range, the external factors demonstrated marginally improved sampling adequacy. More significantly, the results of the Bartlett's Test showed that the external items are sufficiently correlated and appropriate for factor analysis (Chi-Square = **260.999**, d.f = 190, $p < 0.001$). From this analysis, nine factors were extracted, explaining a cumulative variance of 53.40%. The screen plot showed an elbow around the 9th component, indicating a clearer structure than the internal factors. The factors derived from external items formed more coherent themes such as family influence, financial barriers, and access to institutional resources, pointing to the more defined and structured nature of external influences on career decision-making.

Table -5 Comparison of Internal and External Factors

Criteria	Internal Factors	External Factors
KMO Measure	0.502 (Below acceptable threshold – marginal adequacy)	0.541 (Below acceptable threshold – marginal adequacy)
Bartlett’s Test (Sig.)	$\chi^2 = 241.003$, df = 210, $p = .070 \rightarrow$ Not significant. (Factorability is weak)	$\chi^2 = 260.999$, df = 190, $p =$
		.000 \rightarrow Significant
		(Factorability is acceptable)
No. of Factors Extracted	10 components (Eigen values > 1)	9 components (Eigen values > 1)
Total Variance Explained (%)	55.94% cumulative variance explained by first 10 components	53.40% cumulative variance explained by first 9 components
Screen Plot	Elbow around 10th component (mild slope decline after 8)	Elbow around 9th component (mild slope decline after 7)
Themes of Components	Mixed personal constructs: self-confidence, career uncertainty, academic clarity	External domains: family pressure, financial

The above table presents a comparison between the factor analysis results of both factors that influence students' career counseling perceptions. The aim of this comparison is to understand whether students perceive internal and external influences as similar or different in structure. The Kaiser-Meyer-Olkin measure was used to check sampling adequacy for both sets of variables. The KMO value for internal factors was 0.502, which is below the acceptable threshold of 0.5, indicating marginal sampling adequacy. The Bartlett's Test of Sphericity was applied to test whether the variables are sufficiently correlated. For internal factors, the result was not significant ($\chi^2 = 241.003$, $p = .070$), meaning the

slightly higher at 0.541. Both numbers are regarded as indicating minimal adequacy even though they are above the minimum cut-off of 0.5. This implies that the data is not optimal, but just suitable for factor analysis.

The Bartlett's Test of Sphericity was applied to test whether the variables are sufficiently correlated. For external factors, the result was significant ($\chi^2 = 260.999$, $p = .000$), meaning the variables are sufficiently correlated. The screen plot showed an elbow around the 9th component, indicating a clearer structure than the internal factors. The factors derived from external items formed more coherent themes such as family influence, financial barriers, and access to institutional resources, pointing to the more defined and structured nature of external influences on career decision-making.

variables did not show strong enough correlations to confidently apply factor analysis. In contrast, the Bartlett's test for external factors was quite significant ($\chi^2 = 260.999$, $p = .000$), indicating that the variables were appropriately correlated and suitable for factor extraction. Regarding the number of components extracted, factor analysis identified 10 components in internal factors and 9 components in external factors, each with eigenvalues greater than one. This shows that both sets of variables are multidimensional, but the internal factors had slightly more dimensions.

In terms of variance explained, the internal factors accounted for a total of 55.94%, and the external factors explained 53.40% of the variance. Both percentages fall within the acceptable range, showing that a reasonable amount of variability in student responses is explained by the identified components. The scree plot gives a visual summary of how many components are meaningful. For internal factors, the bend or "elbow" appeared around the 10th component, while for external factors it appeared around the 9th. This suggests that meaningful patterns exist in both sets, but the external factors show a slightly clearer structure, with a gradual drop in variance after the seventh component. When examining the themes of the components, a noticeable difference is seen. Internal factors showed a mix of personal concerns such as self-confidence, career uncertainty, and academic clarity. These themes suggest that students have varied and scattered internal thoughts about their career paths. On the other hand, external factors revealed more defined groupings such as family pressure, financial limitations, and institutional

access, showing that students perceive external influences more clearly and consistently. This overall comparison highlights a clear structural difference between how students experience internal and external influences on their career decisions.

When comparing the two sets, it is evident that the factor structures differ in several key aspects. The external items not only showed stronger inter-item correlation but also led to more interpretable and organized factors. Internal items, on the other hand, lacked strong correlations and produced a more scattered pattern of components. This contrast suggests that students tend to respond more systematically to external influences, while their internal views appear more complex and varied. Based on these findings, the null hypothesis is rejected. There is a significant difference in the underlying factor structures between internal and external factors influencing students' career counselling perceptions. The structural variation in components, along with the statistical differences in Bartlett's test results, supports this conclusion.

5. Discussion

According to the study, students' professional decision-making processes are significantly impacted by the job aspirations of their parents or guardians. Many respondents said they felt under pressure to match their professional choices to their parents' or guardians' expectations or objectives.

The results show that students' job decisions are greatly impacted by peer influence. Many students admitted that

their friends' future intentions and job decisions have an impact on their own, frequently resulting in comparisons and similar goals. Peer pressure can be inspiring and increase self-assurance when making decisions, but it can also lead to decisions that are more influenced by group norms or trends than by individual desires, which can occasionally lead to uncertainty or regret.

According to the report, students firmly believe that their academic achievement has a big impact on their employment choices. While students with lower scores tend to restrict their selections based on perceived eligibility or self-doubt, high-performing students are frequently inspired to seek prominent or competitive industries. When choosing a vocation, academic achievement was viewed as a motivator and a limitation, influencing students' self-esteem, prospects, and course for future preparation.

Students overwhelmingly concur that their passions and personal interests influence their professional decisions. Many responders underlined that long-term success and fulfillment depend on matching their employment with their passions or areas of enjoyment. This points to a change in decision-making toward self-motivation, where kids put their own internal drive ahead of outside influences like peer pressure, parental expectations, or academic achievement alone.

Students recognize the impact of reputation and social standing while choosing a vocation. Many respondents acknowledged that their employment preferences were influenced by the perception of respect and the image that

society attached to particular professions. This implies that students' job decisions are greatly influenced by factors such as the need for a respected social identity and outside recognition, which go beyond academic aptitude or personal interests.

The results show that students' decisions about their career paths are significantly influenced by the availability of financial aid. Many students stated that their decision to enroll in inexpensive courses or pursue careers with higher financial returns was impacted by their limited financial means. It was discovered that parental financial capability, school loans, and scholarships all had a direct impact on the institution chosen as well as the topic of study, underscoring the real-world limitations that influence career planning for a sizable percentage of students. Students Capabilities affect the Students Career Choices.

According to the findings, students recognize that their quality of life is directly impacted by the occupations they choose and that education and training have a significant role in these selections. This highlights how important skill development and future lifestyle considerations are when picking a vocation.

According to the report, the majority of students concur that their personal skills have a big influence on the careers they choose. Before choosing a job route, students frequently evaluate their academic prowess, strengths, and capabilities, suggesting that self-awareness and confidence in one's ability are important considerations. Students also concurred that training and education play a big role in career decision-making.

The findings demonstrate that students agree that financial factors and the overall health of the economy have a significant impact on

their career choices. When planning their careers, many respondents took into account factors like work security, income potential, and economic trends. This suggests that practical financial considerations are just as important as academic success and personal interests in determining career choices.

The findings indicate that students gave a neutral response to the statement. This suggests that while some students may experience a sense of autonomy in their career planning, others may feel limited by external factors such as family expectations, financial constraints, academic performance, or societal pressures. The neutral stance reflects a mixed perception of control over their career paths.

According to the results, some students didn't agree with the statement, This implies that these students think economic conditions, job market demand, and necessary qualifications have a greater impact on employment prospects than do personal interests. It displays a pragmatic approach in which landing a job is seen as more reliant on outside circumstances than on pursuing one's own interests.

This suggests that students recognize the critical role that their academic and practical knowledge plays in shaping their career prospects. They understand that possessing relevant knowledge and skills enhances their employability, improves job performance, and increases their chances of securing desirable positions in the competitive job market.

The students are aware of the importance of matching their unique skills and talents to the requirements of a certain vocation. Before deciding on a career, individuals frequently assess their own abilities, including their academic background, talents, and aptitudes, to make sure they can actually match the demands of the field they have selected. A pragmatic and self-aware attitude to career planning is shown in this alignment.

According to the results, most students concur that students understand how their job choices are shaped by outside forces including opportunities, timing, family dynamics, unforeseen events, or socioeconomic constraints. Many students modify their job choices depending on the chances that present themselves at various times, rather than only depending on predetermined objectives or hobbies.

According to the results, students concur that "career choice is impacted by insufficient career opportunities." This implies that students may reevaluate or change their desired career pathways due to a lack of employment options or a restricted scope in particular disciplines. Many students are forced to make professional decisions based on the practicality of finding work as well as their passion or aptitude, underscoring the significance of job market conditions in career decision-making.

Students agree with the statement, "My family has actively encouraged and supported my career goals," according to the research. This suggests that families have a beneficial and encouraging influence on students' professional growth. When their families are involved, whether it be through financial assistance, career guidance, or emotional support, many students feel inspired and directed. This kind of family support gives kids the confidence to follow their chosen professional routes and creates a sense of stability during the career planning process.

According to the results, a large number of students concur with the statement, "During my upbringing, conversations regarding careers and future plans were prevalent in my family." This implies that for a number of students, career-related discussions were a frequent occurrence in their families, which may have influenced their awareness, goals, and decision-making at a young age. A deeper grasp of prospects and expectations as well as more informed job choices may have resulted from such candid conversations within families.

The findings indicate that most students agree that "my family's expectations, educational background, and profession have significantly shaped my career choices." This demonstrates the significant impact that families have on students' job choices. A lot of students have a tendency to match their job choices with the standards and professional customs of their families, frequently taking inspiration or direction from the educational and professional experiences of their parents or guardians. This illustrates the cultural and societal significance of family in determining one's professional goals and path.

According to the results, students concur that "my family's expectations, educational background, and profession have significantly shaped my career choices." This implies that a student's family has a significant influence on their job choices. Many students view their family's professional and intellectual backgrounds as influencing influences, and they frequently feel inspired—or compelled—to pursue comparable careers. These expectations have the power to influence students' final decisions by influencing how they view prominent or appropriate occupations.

Students agree with the statement, "My family's financial situation has influenced the career path I have considered," according to the research. This implies that family financial circumstances have a big influence on students' profession choices. The cost of education, the possible return on investment, and the financial security that particular professions provide are all factors that many students consider. They might therefore give preference to career paths that offer faster employment, greater pay, or less financial strain for study or training.

Students' responses to the statement, "My career choices have been influenced by my family's guidance, advice on various career options, and their experiences and stories about their own careers," were found to be neutral. This implies that although some students might have valued their family's

advice, others might have thought it had little bearing on their choice of vocation. The neutral position displays a balanced viewpoint in which family influence is recognized but not viewed as the main or deciding element in determining one's career path.

6. Conclusions

This thesis examines the efficacy, organization, and contribution of career counseling practices followed by private universities in Vadodara, with a focus on engineering students. This study was carried out due to the increasing demand for systematic career guidance in higher education, particularly in technical education where students tend to get confused in matters of career choices, industry demands, and skill matching. The research starts by sketching out the career counselling concept, tracing its history, its theoretical basis, and its growing significance in today's competitive educational and career environment.

A mixed-method study design was followed; integrating quantitative information gathered using structured questionnaires with qualitative information from interviews and observations. Engineering students from many Vadodara private universities were included in the sample. The study's objectives were to assess student satisfaction and outcomes as well as the availability, accessibility, content, frequency, and perceived value of career counseling services.

Major findings indicated that while the majority of private universities have put in place career counseling systems, there is important disparity in their implementation. While some provide formal sessions with professional counselors, others rely on faculty members or placement cells for advice. The majorities of students are not even aware of the services being offered or fail to benefit from them because they lack interest, confidence, or awareness. It was also established that most students belong to nuclear families and comparatively affluent economic backgrounds, with a significant majority reporting family incomes of ₹8 to ₹12 lacs and more.

This socio-economic stability determines their career options, expectations, and

resource availability. Additionally, the gender analysis also indicated an uneven ratio with more male students opting for engineering than female students.

Private universities, the study contributes to academia and offers useful insights for enhancing institutional practice, policy, and future studies. Since students [1] consider education and training to be crucial before making occupational decisions, internal factors like these have a significant influence on job choice. As a result, people put off making job decisions until they are ready and secure. Chances and situations have a significant impact on career decisions since students' capacity to seek more education or training is frequently shaped by their financial situation and the chances that are accessible to them. These outside limitations The research also investigated external and internal factors that shape students' career choices, including pressure from parents, peer influence, self-interest, exposure to industry, and institutional assistance. Students indicated the need for more individualized guidance, exposure to the real world, interaction with the industry, and training in psychological readiness through career guidance. Although there have been some effective interventions, most students indicated that existing practices are generic, obsolete, or inadequate to address their changing needs.

Finally, the thesis stresses that private universities need a stronger, student-focused, and evidence-informed mode of career guidance. Suggestions also include the recruitment of professionally qualified counselors, adoption of technology in counseling services, routine needs assessment, industry partnerships, and feedback systems. By filling a research gap on career counseling practices in Indian may cause even highly driven students to postpone or modify their career choices.

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