



Determinants Influencing the Choice of B.Voc Courses over Conventional Online Degree Programmes among Students in Delhi NCR

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Abstract

Background: Bachelor of Vocation (B.Voc) programs have become skill-based alternatives to the traditional online degree programmes in the vibrant field of higher-education, in India. These courses are driven by the University Grants Commission (UGC) in 2013 as part of the XII Five-Year Plan and are more practice-focused and industry-oriented than the theoretical orientation of online degrees, which have become popular after the pandemic.

Aim: The purpose of the study was to investigate the factors that affect the students to choose B.Voc courses over the traditional online degree programmes among the students in Delhi NCR.

Methods: A quantitative cross-sectional study was adopted, and primary data were gathered using a structured questionnaire based on Likert scale and distributed to students in 2025. Sampling was conducted through convenience sampling to ensure that they have recruited at least 10 participants who are conscious of both B.Voc and conventional online degree programmes. The data obtained were analysed with the help of IBM SPSS Statistics (version 26) by means of the descriptive statistics, correlation analysis, and multiple regression analysis to check the determinants affecting the programme choice behaviour.

Results: The study finds that students prefer B.Voc programmes due to their practical and industry-oriented approach. Significant differences were observed in career ($p < 0.001$) and economic factors ($p < 0.05$), with higher scores for B.Voc. Employability shows a strong positive impact on programme choice, while flexibility has a negative influence. Age is the only demographic variable significantly associated with programme selection.

Conclusion: The study concludes that employability is the key determinant influencing students' preference for B.Voc programmes. Students prioritize practical skills and career outcomes over flexibility, indicating a shift towards skill-based education. Strengthening vocational education can enhance its adoption among students.

Keywords: B.Voc programmes, Employability, Vocational education, Career choice, Student perception

1. Introduction

Indian higher education has been experiencing a tremendous structural change following the response to the labour-market demands, technological change and policy focus on skill development. Although there has been a rise in enrolment in tertiary education, there are still fears of employability and education to occupation disparities. Empirical studies have shown that enrolment in vocational education enhances labour-market formation and wage-earning opportunities and competency-based training opportunities should be developed in higher education systems (Kumar et al., 2019). Vocational programs like the Bachelor of Vocation (B.Voc) have thus come up as a significant program of incorporating industry-related skills and practical education into the academic structure.

The research on vocational education in India notes that vocational training that is skill-based helps students in improving their educational to employment life, especially in economies with high rates of growth and development (Agrawal, 2012; Agrawal, 2014). Vocational education models are trying to overcome the shortcomings of traditional academic degrees through prioritizing practical skills, structure of the curriculum through modules, and industry partnership. Nevertheless, social perception and awareness are still critical issues because a number of students still tend to pursue the conventional academic routes even though vocational programmes have high employability prospects (Agrawal and Agrawal, 2017).

In line with increasing vocational education, digital change has enhanced faster adoption of online higher education programmes. The growth of the virtual learning space has offered students with flexible and easily accessible education especially after the COVID-19 pandemic. A massive study by Pan-IIT Online Pedagogy Research Group (2020) examined the reactions of over 11 800 students and stated the mixed perception about online education, with flexibility being perceived as a major benefit and engagement and experiential learning mentioned as primary concerns. Other research works on the topic of virtual learning environments mention that despite the presence of a large number of students with high digital competence, issues associated with interaction and motivation affect their learning process (Subaveerapandiyam and Rajitha, 2022).

There are several determinants that influence the educational choice behaviour, namely, the demographic features, socio-economic background, reputation of the institution, and perceived career outcomes. Studies of vocational training attendance have indicated that urban dwelling and education level have a strong connection with the probability that students will participate in skill-based programmes (Kumar et al., 2019). In addition to that, education-occupation mismatch research indicates that students are starting grading their academic options by considering

employability opportunities and earning potential especially in the emerging economies (Bahl & Sharma, 2023). These results suggest that decisions between programmes of B.Voc and traditional online degrees use both behavioural and economic factor in making decisions by students.

The significance of skill-based education in enhancing the employment outcomes is also supported by international research on technical and vocational education and training (TVET). Research shows that vocational education programmes are able to improve employment preparation and have a decreasing effect on the disparity between education and industry demands (Arum and Shavit, 1995; Attanasio et al., 2011). The systematic reviews of TVET interventions also bring out the importance of organised training programmes in enhancing employability and career advancement, especially among the youth populations (Tripney and Hombrados, 2013). These world results give a conceptual basis to the study of vocational education in the Indian context.

The Delhi NCR area provides an appropriate environment to study these determinants because it has a concentration of institutions of higher learning, vocational learning centres, and digital learning facilities. In urban schools, students receive more educational options and the decision-making process becomes complicated where students need to consider flexibility and employability results and long-term career opportunities. Although literature has discussed vocational education and online education separately, there is scanty research that has compared the preference of students towards the B.Voc programmes and the traditional online degree programs in a regional context. Thus, the research paper will examine the factors which drive the students to pursue B.Voc courses at the expense of the traditional online degree programmes among the students in Delhi NCR.

2. Objectives

- ❖ To examine the key determinants influencing students' preference for B.Voc courses over conventional online degree programmes in Delhi NCR.
- ❖ To analyse the relationship between demographic characteristics and programme choice behaviour among students.
- ❖ To evaluate students' awareness, perception, and attitudes towards vocational education and online degree programmes.
- ❖ To assess the influence of perceived employability, flexibility, and career expectations on students' educational decisions.
- ❖ To identify the major barriers and motivational factors affecting students' choice between B.Voc and online degree pathways.

3. Materials and methods

3.1. Research Design

The current study used quantitative and cross-sectional analytical design to discuss the factors that impacted students to choose B.Voc courses over traditional online programs of degree in the Delhi National Capital Region (NCR). An empirical data were derived by a structured survey tool thus allowing the determination of interrelations between behavioural, demographic and perception-based variables and the educational choice behaviour of the students.

3.2. Study Area

This research was conducted in Delhi NCR region which included Delhi and other urban centres; including Noida, Gurugram, Ghaziabad, and Faridabad.

3.3. Study Duration

The data collection was within a specified period from Dec '2024 to June 2025 .

3.4. Sample Size

This research involved 230 participants.

3.5. Sample selection criteria

3.5.1. Inclusion Criteria

- ❖ Students aged 18 years or above
- ❖ Students who were residing in the Delhi NCR during the study period
- ❖ Undergraduate or post graduate students were enrolled in B.Voc courses or conventional online degree programmes.
- ❖ Students who agreed to participate and provided the informed consent.

3.5.2. Exclusion Criteria

- ❖ Students below 18 years
- ❖ Participants who were neither students nor living in Delhi NCR.
- ❖ Students who had no prior information or exposure to B.Voc or online degree programmes.
- ❖ Incomplete or partially filled questionnaires that could affect the data accuracy
- ❖ Duplicate responses or inconsistent data entries

3.6. Study variables

3.6.1. Dependent Variable

The preference of the programme by the students was the dependent variable, which included the options of B.Voc courses and traditional online degree programmes. This variable acted as a result of the educational decision-making behaviour of students and included perceptions, career expectations and learning preferences. It measured the preference of respondents to vocational or online career choices by structural questionnaire answers, which further suggested assessments of employability opportunities, flexibility and hands-on exposure to disparate programmes. The use of measurement of this outcome enabled analysis of the effect of different determinants on students in their educational choice behaviour in Delhi NCR.

3.6.2. Independent Variables

The independent variables included demographic, behavioural and perception based determinants on the preferences in the programmes. Age, sex, education level, and socio-economic status were taken as chief predictors. The level of awareness, perception towards vocational education, and attitudes towards online learning were researched in a bid to explain the patterns of decision making. Aspects of behaviour, including motivations, career expectations, and perceived employability were also included. Other criteria like flexibility to learning, technological preparedness and reputation of the institution were considered. The combination of these variables explained the factors that influenced the choices made by students to pursue B.Voc courses or take online degree programmes.

3.7. Methods of Data Collection

Primary and secondary sources were used to gather data. Primary data collection was conducted with the help of a designed questionnaire following the objectives and available literature of the research. This measure was the close-ended items which were measured through the Likert scale to capture perceptions, awareness, behavioural factors and preferences towards the programme. The online platform and institutional networks were exploited to distribute to students in the Delhi NCR to optimise participation. Peer-reviewed journal articles, policy reports, and academic publications on the topic of vocational education, online learning, and educational choice behaviour were the sources of secondary data. The use of various sources of data promoted the reliability and the depth of the results.

3.8. Procedure

The research process began by formulating a structured questionnaire, which was developed systematically guided by the research objectives as well as the thorough examination of the existing literature on the subject vocational education and online learning behaviour. The operationalised constructs in the instrument were such as demographics, awareness, behaviour determinants, and preference to the programme. The questionnaire was reviewed before data collection to make sure that it was relevant, conceptually clear and related to the analytical framework.

The respondents within the survey were the students within the Delhi NCR through online disseminating channels and internal communication networks. The subjects were given a brief outlay of the research intent and asked to take part in the study at their own choice. The data were collected throughout the stipulated time to get the responses of the students who knew or heard about both B.Voc courses and traditional online degrees programmes.

After acquiring, screening of responses was done to create a preliminary sift to eliminate incomplete, duplicate or inconsistent responses. The valid answers were coded and arranged into a structured dataset to be further statistically analysed and achieve the reliability of data and, consequently, conduct effective analysis concerning the determinants affecting educational choice behaviour.

3.9. Data Analysis

The data were analysed with the help of the IBM SPSS Statistics (version 26). Preliminary descriptive statistics like frequency distributions, percentages, mean values, and the like were useful in summarising demographic data and responding patterns. Correlation tests were used to determine the relationship between independent variables and the dependent variable, whereas multiple regression tests were used to determine the significant predictors of preference between B.Voc courses and conventional online degree programmes among students. The use of SPSS version 26 enabled the management of data systematically, accurate computation of results as well as trustworthy interpretation of the results.

4. Results

Age Distribution

Table 1 shows that majority of respondents (69.6%) fall within the 18–21 years age bracket, followed by 24.8% in the 22–25 years category, while only 5.7% are above 25 years. This means that most of these students are at the decision-making points of their careers and they are still young and are commencing their tertiary education. Thus, their preferences provide valuable insight into the ongoing shift of students' seeking B.Voc as opposed to conventional online degrees.

Gender Distribution

As shown in Table 1, 53.9 % of the respondents were males while 46.1 % were females. The gender distribution is said to be equal, with adequate representation of male and female students in the analysis of preferences for the programmes under study.

Location of Respondents

In contrast, the least significant number of respondents are from Panipat (6.3%). Gurgaon and Ghaziabad stand at 13.5% and 10.9%, respectively, and 7.8% belong to other areas. This distribution indicates that the respondents are well representative of the major regions in Delhi NCR in geographical terms for the purpose of this study.

School Type

45.7% of those who participated in the study have studied at private schools, while 36.5% of respondents are from government schools according to Table 1. The Kendriya Vidyalaya and other types of schools stood at 8.7% and 9.1%, respectively. It is to be noted that such a structure also means varying levels of awareness and career guidance for students, as well as assorted inclinations towards vocational or traditional education.

Family Income

Table 1 indicates that the largest proportion of respondents (43.0%) belong to the ₹2–5 lakh income group, followed by 27.8% from below ₹2 lakh. Besides, 21.3% fall under the ₹5–10 lakh category, while only 7.8% belong to families earning above ₹10 lakh. Employability and cost-effectiveness factors be significant considerations in the respondents' preferences since most of the respondents belong to middle- and lower-income groups.

Parents' Education

As depicted in Table 1, parents of respondents whose education level is graduation constitute 37.8%, followed by 34.8% with secondary education. A smaller proportion of the respondents' parents are postgraduates (14.8%) and those below secondary (12.6%). This is an indicator that the majority of respondents come from moderately educated family backgrounds and which can affect their level of awareness, aspirations and decision making process when it comes to choosing higher education institutions.

Table 1: Demographic Characteristics of Respondents

Variable	Category	Frequency	Percent
Age	18–21 years	160	69.6
	22–25 years	57	24.8
	Above 25 years	13	5.7
Gender	Male	124	53.9
	Female	106	46.1
Location	Delhi	76	33.0
	Faridabad	38	16.5
	Ghaziabad	25	10.9
	Gurgaon	31	13.5
	Noida	42	18.3
	Others	18	7.8
School Type	Government	84	36.5
	Private	105	45.7
	Kendriya Vidyalaya	20	8.7
	Other	21	9.1
Family Income	Below ₹2 Lakh	64	27.8
	₹2–5 Lakh	99	43.0
	₹5–10 Lakh	49	21.3
	Above ₹10 Lakh	18	7.8

Parents' Education	Below Secondary	29	12.6
	Secondary	80	34.8
	Graduate	87	37.8
	Postgraduate	34	14.8

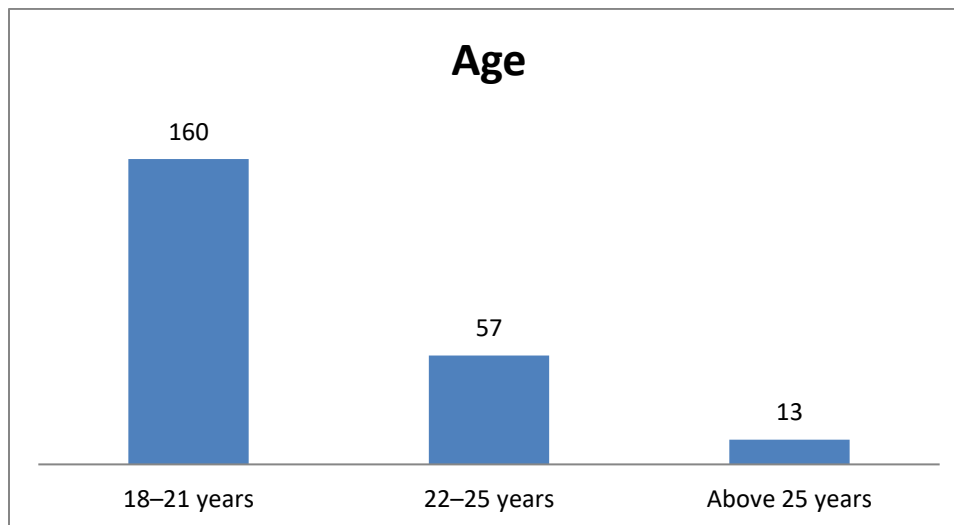


Fig 1 Age distribution

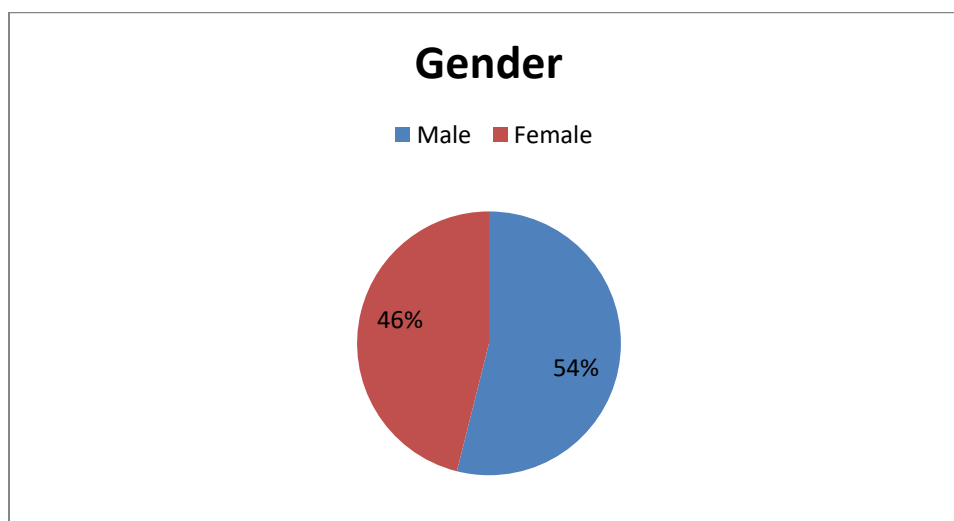


Fig 2 Gender Distribution

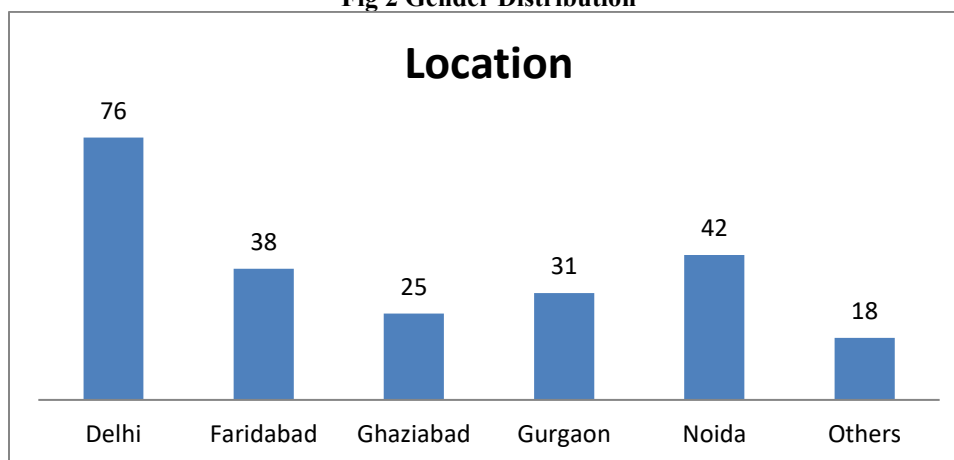


Fig 3 Distribution of participants on the basis of location

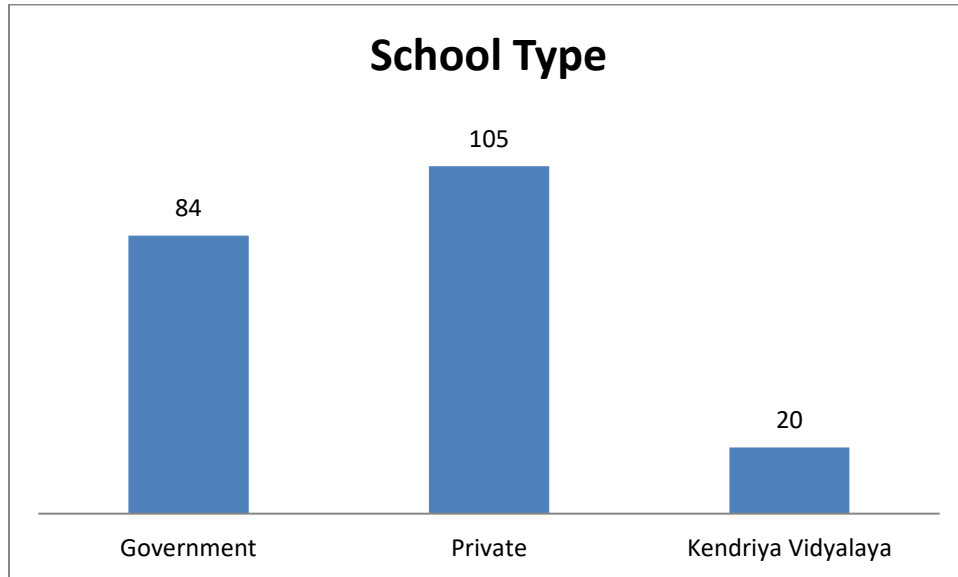


Fig 4 Distribution of participants on the basis of School Type

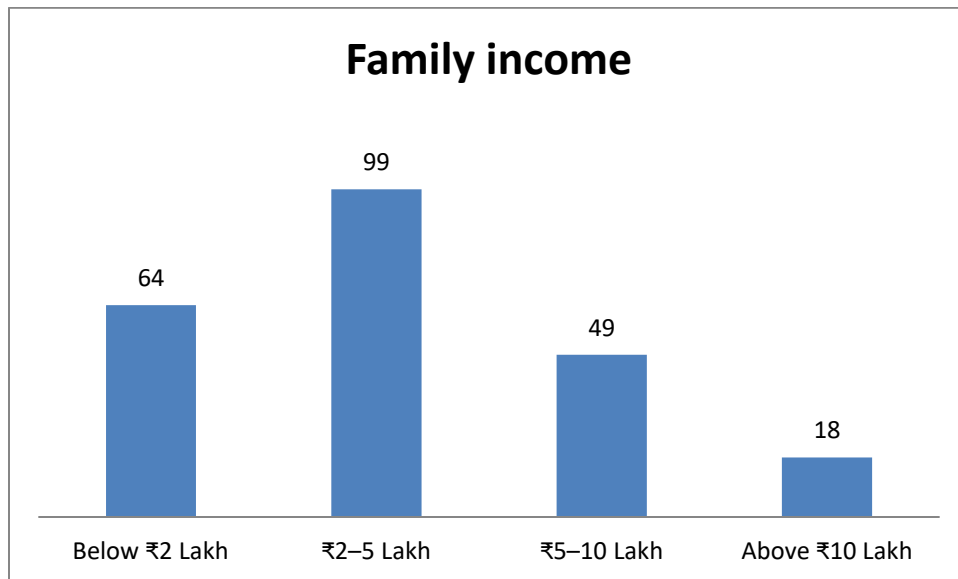


Fig 5 Distribution of participants on the basis of Family income

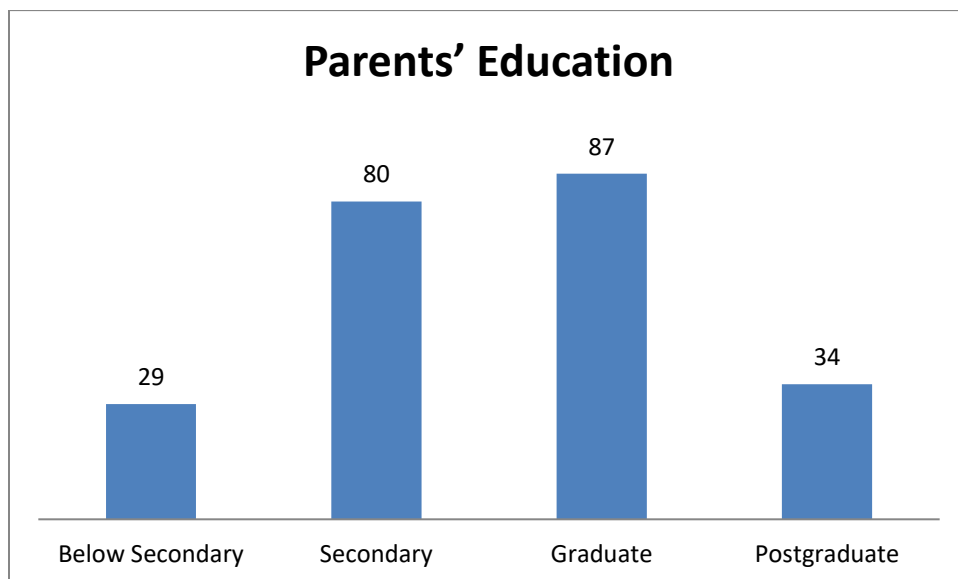


Fig 6 Distribution of participants on the basis of Parents' Education

Table 2 shows the main sources through which students get to know about their degree programmes. Parents and family members (26.1%) are, as per the findings, primary sources of information, followed by social media and the internet (23.9%). Other sources including college brochures (12.6%), friends/peers (12.2%), and teachers/career counsellors (11.7%) have a moderate influence on information, while government campaigns have a little influence (4.8%). The informal network and online platforms are more critical than the formal institutional channels in awareness creation about available educational opportunities.

Table 2 further reveals that 49.6 per cent of the respondents are only partially aware of the UGC approved status and NSQF alignment of their programmes, with 25.2 per cent being fully aware, and an equal proportion, unawares. In terms of decision-making behaviour, 54.3 per cent of the students have compared their present course with others available, 31.3 per cent are under comparison, and 14.3 per cent have not done any comparison. This means that most students make an informed choice by comparing and analyzing factors related to opting for B.Voc or conventional online degree programmes.

Table 2: Awareness and Information about Programmes

Variable	Category	Percent
Source of Information	Parents/Family	26.1
	Social Media	23.9
	College Brochure	12.6
	Friends/Peers	12.2
	Teacher/Counsellor	11.7
	Others	8.7
	Govt Campaigns	4.8
Awareness Level	Fully aware	25.2
	Partially aware	49.6
	Not aware	25.2
Comparison with other courses	Yes	54.3
	Still comparing	31.3
	No	14.3

Based on mean scores, table 3 presents the perception of respondents towards B.Voc and conventional online degree programmes. Practical and industry relevance (Mean = 4.33) has garnered the highest mean score, succeeded by 'Prefer hands-on learning' (Mean = 4.23) and 'Alignment with career goals' (Mean = 4.22). 'Personal interest' (Mean = 4.15) and 'Industry alignment' (Mean = 4.05) also got high mean scores respectively. These findings indicate that students strongly value practical exposure, skill based learning and career oriented education, which are key characteristics associated with B.Voc programmes. The low SD values further indicate a similar perception among the respondents on the mentioned attributes or values.

On the other hand, the perceptions on conventional online degree have moderate agreement. Statements such as 'Social prestige of online degrees' (Mean = 3.93) and 'Better higher education pathways' (Mean = 3.89) indicate that students still acknowledge certain advantages of online programmes. However, the statement 'Online lacks practical exposure' (Mean = 3.78) mirrors a perceived limitation in their practical learning outcomes. Besides, 'Flexibility in terms of the Academic Bank of Credits (ABC) system' (Mean = 3.70) points to a moderate level of agreement when it comes to flexibility-related perceptions. Thus, there is a strong preference for B.Voc programmes because of their practical and industry-oriented nature while online degrees enjoy value for flexibility and academic progression.

Table 3: Perception towards B.Voc and Online Degrees

Statement	Mean	SD
Practical & industry relevant	4.33	0.836

Prefer hands-on learning	4.23	0.925
Aligns with career goals	4.22	0.902
Personal interest	4.15	0.988
Industry alignment	4.05	0.990
Social prestige of online degrees	3.93	1.113
Better higher education pathways	3.89	1.019
Flexibility (ABC system)	3.70	1.185
Online lacks practical exposure	3.78	1.139

Table 4 shows the mean and standard deviation for career score and economic score, which are the critical variables. Career is characterized by a mean value of 3.52 and a standard deviation of 0.566. By comparison, the economic score has a mean value of 3.26 and a standard deviation of 0.474, indicating moderate economic considerations, such as cost and financial incentives. However, both career and economic factors are deemed important in the research findings, career-related considerations have more weight in student decision regarding B.Voc and conventional online degree programmes.

Table 4: Descriptive Statistics

Variable	Mean	SD
Career Score	3.52	0.566
Economic Score	3.26	0.474

In the table 2, we have demonstrated how B.Voc programme students perceive their programme positively when compared to online programme students and how this perception is reflected in their related career and economic scores.

Using means of their respective scores on the Career and Economic scales, we were able to find statistically significant differences in perceptions of benefit between B.Voc and online programme students. Specifically, B.Voc students perceived themselves as having greater career-related benefits than did online programme students (B.Voc Mean = 3.94, Online Mean = 3.13; p-value = 0.000). The statistical significance (p-value) indicates that the difference between the two categories of students' perceptions of overall career benefit is greater than expected to occur by chance alone. Similarly, for the Economic Scale, students in B.Voc programmes reported receiving slightly higher levels of economic benefit than did those enrolled in online programmes (B.Voc Mean = 3.33; online Mean = 3.19; p-value = 0.034). The difference in means of both categories of students' Economic Scores is also statistically significant.

Analysis of both Career and Economic scales suggests that attendance and participation in B.Voc programmes provide increased levels of perceived benefit (career and economic) than are perceived by students who attend and participate in online programmes, with the difference between career benefits being larger than between economic benefits.

Table 5: Independent Sample t-test

Variable	Mean (Online)	Mean (B.Voc)	t-value	p-value
Career Score	3.13	3.94	-15.465	0.000
Economic Score	3.19	3.33	-2.131	0.034

Table 6 illustrates how employment opportunities and ability to adjust when pursuing your career are related. Significant correlations exist between employment opportunities and career aspirations ($r = 0.838$); thus, if you perceive that you will have a lot of employment opportunities, it makes sense that your aspirations would be high, which is what we would expect from students. Conversely, both employment opportunities and career aspirations correlate negatively with the flexibility of your course ($r = -0.326$, $r = -0.298$), which means students who perceive flexibility as being very important may also perceive their ability to find employment in the future as somewhat less positive. Thus, it appears when students consider their potential outcomes (career aspirations) through their course and its level of employment opportunities versus the level of flexibility offered by that course, they place more importance on employment opportunities than flexibility.

Table 6: Correlation Matrix

Variable	Employability	Flexibility	Career Expectation
Employability	1	-0.326	0.838
Flexibility	-0.326	1	-0.298
Career Expectation	0.838	-0.298	1

Table 7 details a regression analysis that assesses how the combination of employment opportunities (independently measured) and flexibility (independently measured), along with career aspirations (independently measured), impacts students' decisions regarding which vocational programme they select. The model was statistically significant ($F = 120.268$, $p < 0.001$), and together the independent variables explained 61.5% of the variation in students' decisions ($R^2 = 0.615$). Thus, the model has good explanatory value. Employment opportunities have been determined to be the most important predictor of students selecting a B.Voc programme ($\beta = 0.726$, $p < 0.0001$), indicating that students will select a B.Voc programme based on having a higher degree of perceived employment opportunities than would likely be the case if students did not perceive to have high levels of employment opportunities. Flexibility as a predictor shows a negative association ($\beta = -0.192$, $p < 0.000$) in terms of students selecting a B.Voc programme when there is an emphasis on flexibility in their education compared to if they do not show concern about having flexibility in their education. However, the analysis indicated that career aspirations do not have a statistically significant effect ($p = 0.680$) when controlling for the other independent variables in the regression.

Table 7: Multiple Regression Results

Variable	Beta	t-value	p-value
Employability	0.726	9.491	0.000
Flexibility	-0.192	-4.397	0.000
Career Expectation	-0.031	-0.413	0.680

Model Summary:

$R^2 = 0.615$, $F = 120.268$, $p < 0.001$

Table 8 demonstrates the relationship between demographic variables and programme choice. The results revealed that there is a statistically significant relationship between age and programme choice ($p=0.048$), which means that different ages have different preferences towards B.Voc and online programs. However, other variables, such as gender ($p=0.647$), location ($p=0.948$), school type ($p=0.329$), family income ($p=0.211$), and parents' education ($p=0.470$), were not found to be statistically significant. This means that these variables have no significant impact on students' programme choice. The results revealed that students' programme choice is more affected by behavioral and perception-based factors rather than most demographic variables, except for age.

Table 8: Chi-Square Test Summary

Variable	Chi-square	p-value
Gender	0.870	0.647
Age	6.065	0.048
Location	1.172	0.948
School Type	3.438	0.329
Family Income	4.517	0.211
Parent Education	2.530	0.470

5. Discussion

The findings of the current study show that the factors related to employability have a significant impact on the choice of B.Voc programmes compared to the online education programmes. From the findings, it is evident that the students value the practical experience and hands-on learning experience, which is one of the important aspects of vocational education. These findings support the views of Oketch M. (2007), which highlighted the importance of vocational

education in the context of enhancing the labor market preparedness of the students. Moreover, the importance of competency-based education in the context of labor market preparedness is highlighted by Wheelahan L. (2015). The findings show the high preference for skill-based education, which is one of the important aspects of the current education scenario. Students in the current education scenario prefer job-oriented education compared to theoretical education.

Another important finding is the low preference for online education programmes. From the regression findings, it is evident that flexibility is negatively related to the choice of B.Voc programmes. These findings support the views of Means B. et al. (2014), which revealed that online learning environments do not have the experiential and interactive components required for skill development. Additionally, Guri-Rosenblit S. (2005) pointed out that distance education may not have the same level of effectiveness as traditional classroom-based education. Therefore, despite the popularity of online education, its effectiveness in skill development influences student preferences.

Further, the results revealed that demographic factors do not have a significant influence on programme choice, except for age. This indicates that students are increasingly making programme choices based on outcome-based considerations rather than demographic factors. This is supported by the research of Psacharopoulos G. (1997), which emphasized that returns to education, especially vocational training, are a major factor in educational programme choice. In addition, Hanushek E. et al. (2017) revealed that vocational education is an important factor for better employment outcomes in the initial years of a student's career and is an attractive option for younger students. Therefore, the study supports the growing significance of vocational education in influencing student preferences and highlights the need for strengthening vocational education to cater to the changing needs of the labour market.

6. Conclusion

The current research concludes that the most significant determinant for students' preference towards B.Voc programs over traditional online courses in Delhi NCR is their employability. The results show that students are more focused on learning than flexibility and theoretical knowledge. Even though online courses are highly valued in terms of their flexibility and academic progression, they are still found to be lacking in terms of learning and exposure. The statistical analysis also proved that flexibility has a negative impact, while employability has a strong positive influence on students' preferences, showing a change in students' priorities.

Moreover, this research found that demographic factors are not significant in influencing students' preferences, showing a shift in students' decision-making, which is now rational and outcome-based. The increase in students' preferences for B.Voc programs is a result of a change in higher education, where competency-based learning is now a priority, and students are looking for programs that provide them with employability. The current research recommends a change in the current higher education system, where vocational education needs to be integrated with existing programs in order to meet students' needs and industry requirements.

References

1. Agrawal, T. (2012). Vocational education and training in India: challenges, status and labour market outcomes. *Journal of Vocational Education & Training*, 64(4), 453-474.
2. Agrawal, T. (2014). Skill development in India: an examination. *Journal of Education and Work*, 27(6), 629-650.
3. Agrawal, T., & Agrawal, A. (2017). Vocational education and training in India: a labour market perspective. *Journal of Vocational Education & Training*, 69(2), 246-265.
4. Arum, R., & Shavit, Y. (1995). Secondary vocational education and the transition from school to work. *Sociology of education*, 187-204.
5. Attanasio, O., Kugler, A., & Meghir, C. (2011). Subsidizing vocational training for disadvantaged youth in Colombia: Evidence from a randomized trial. *American Economic Journal: Applied Economics*, 3(3), 188-220.
6. Bahl, S., & Sharma, A. (2024). Informality, education-occupation mismatch, and wages: evidence from India. *Applied Economics*, 56(19), 2260-2294.
7. Guri-Rosenblit, S. (2005). 'Distance education' and 'e-learning': Not the same thing. *Higher education*, 49(4), 467-493.
8. Hanushek, E. A., Schwerdt, G., Woessmann, L., & Zhang, L. (2017). General education, vocational education, and labor-market outcomes over the lifecycle. *Journal of human resources*, 52(1), 48-87.
9. Kumar, R., Mandava, S., & Gopanapalli, V. S. (2019). Vocational training in India: determinants of participation and effect on wages. *Empirical Research in Vocational Education and Training*, 11(1), 1-17.
10. Means, B., Toyama, Y., Murphy, R., & Baki, M. (2013). The effectiveness of online and blended learning: A meta-analysis of the empirical literature. *Teachers college record*, 115(3), 1-47.
11. Oketch, M. O. (2007). To vocationalise or not to vocationalise? Perspectives on current trends and issues in technical and vocational education and training (TVET) in Africa. *International Journal of Educational Development*, 27(2), 220-234.
12. Pan IIT Group. (2020). PAN IIT survey on online education: A report. arXiv preprint arXiv:2007.03613.
13. Psacharopoulos, G. (1997). Vocational education and training today: challenges and responses1. *Journal of vocational education and training*, 49(3), 385-393.
14. Rajitha, A. (2022). Virtual learning environment is pleasure or pressure. arXiv preprint arXiv:2210.10373.

15. Tripney, J., Hombrados, J., Newman, M., Hovish, K., Brown, C., Steinka-Fry, K., & Wilkey, E. (2013). Technical and vocational education and training (TVET) interventions to improve the employability and employment of young people in low-and middle-income countries: A systematic review. *Campbell systematic reviews*, 9(1), 1-171.
16. Wheelahan, L. (2015). Not just skills: What a focus on knowledge means for vocational education. *Journal of Curriculum Studies*, 47(6), 750-762.