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THE COMPARISON BETWEEN HIGH-TECH TRADE AND CONVENTIONAL TRADE JOB OPPORTUNITY IN NAVTTC

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Abstract

Regarding the reform of Pakistan's TVET industry, NAVTTC has launched a plethora of projects. When companies rely on the IT support field, their operations run smoothly. Finding out how NAVTTC's high-tech trade and traditional trade programs stack up against one another was the driving force behind the research. In order to increase employment chances in developing industries, it is vital to compare high-tech trades with NAVTTC job opportunities. This will help identify growth sectors, link education initiatives, and bridge skill gaps. The research approach was a straightforward descriptive survey, and the study was quantitative in character. All of Lahore's technical and vocational schools made up the study's population. The one hundred students that made up the study's overall sample were chosen using a multistage random sampling process. A self-administered questionnaire was used to gather data. Expert opinion was used to establish validity, and following pilot testing, Cronbach's alpha reliability was found at 0.83. Following data collection, the research topics were examined using descriptive statistics (mean and standard deviation) and inference statistics (independent sample t-test and one-way ANOVA). The results showed that when it came to high tech career options, there was no significant difference between male and female pupils on average. In addition, the results show that there is no statistically significant difference ($p < 0.05$) in the levels of occupational anxiety and fulfilment at work among instructors when considering their age and educational background. Therefore, it is advised to keep NAVTTC's training and resources current so they can adapt to the changing needs of traditional and modern trade jobs. Job opportunity, NAVTTC, high-tech trade, conventional commerce.

KeyWords: High-Tech Trade, Conventional Trade, Job Opportunities

Introduction

Education is the act of fostering knowledge acquisition. The information, expertise, values, and practices of one group are transferred to another via dialogue, instruction, research, or study (Formica, 2002). According to John Dewey, learning is an action that requires re-creating past events. As an intangible service, education allows for more effective communication with consumers based on resource consumption and creation occurring simultaneously (Saltmarsh, 1996). When it comes to improving the employability and skills of Pakistan's workforce, the National Veterinary and Technical Training Commission (NAVTTC) is instrumental (Alvi, 2018). Amin and Husin (2017) note that the National Audiovisual and Technical Training Commission's (NAVTTC) high-tech trade job opportunities have been increasingly relevant and growing in recent years. Many high-tech job opportunities have arisen as a result of NAVTTC's dedication to fostering expertise in developing technological domains. These jobs mostly cover fields like IT, software engineering, telecoms, and online retail. People can get the skills they need to work in traditional industries including farming, textiles, construction, and production through NAVTTC's several vocational training programs. The goal of these programs is to improve employability and close the skills gap in traditional trades (Khan et al., 2023).

Regarding the reform of Pakistan's TVET industry, NAVTTC has launched a plethora of projects. Its first move was to create a thorough National Skills Strategy (NSS) in conjunction with a wide range of interested parties, including businesses, trade groups, universities, government officials, and international development partners. This policy aims to

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revitalise technical and vocational education and training (TVET) nationwide (Nawaz, 2016). The National Vocational Qualifications Framework (NVQF), a system for national qualifications for teachers, a code of behaviours, a recognition system, a Human Resource Learning (HRD) policy for TVET, requirements for skills, and priority area curricula are among the many recommendations from the NSS that NAVTTC has already put into action (Ashraf et al., 2024).

High-tech trade offers a myriad of job opportunities in various industries. With the continuous advancement of technology, skilled professionals are in high demand (Aldieri & Vinci, 2018). Jobs in this sector range from hardware and software development to IT support and cybersecurity (Schuster & Wu, 2018). However, conventional trade offers a diverse array of job opportunities across traditional industries. These jobs are essential for the smooth functioning of economies and the distribution of goods and services (Gentry et al., 2007). The IT support field is critical in ensuring smooth operations within organizations. IT support specialists assist with troubleshooting, system maintenance, and user assistance, ensuring that technology functions optimally. As technology expands, so does the need for cybersecurity experts. These professionals safeguard data and systems against cyber threats, such as hacking and malware attacks (Kundu & Manohar, 2012).

This phase has been characterized by the rapid integration of digital technologies, automation, and artificial intelligence into various aspects of our lives. High-tech trade, driven by products born from cutting-edge research and development, has flourished in this environment. While the growth of high-tech trade is undeniably promising, it also presents challenges (Silva, 2008). The integration of advanced technologies, such as robotics, artificial intelligence, and additive manufacturing, has the potential to revolutionize industries by introducing labor-saving processes. This can enhance efficiency and productivity but raises concerns about job displacement and the concept of 'technological unemployment (Grover et al., 1996; Lima et al., 2021).

A recent report by UNESCO highlighted the potential of NAVTTC to help underprivileged communities around the world overcome obstacles including resource inequality caused by socioeconomic differences (Pirzada, 2020). Most experts agree that NAVTTC might help reduce unemployment in semi-urban areas, which would reduce the number of people moving to cities (Alla-Mensah et al., 2021). The educational process that goes beyond general education, including the study of technologies and related sciences as well as the development of practical abilities, mindsets, comprehension, and understanding relevant to various economic and social sectors, is referred to as vocational and technical education and training (TVET) by UNESCO (Huma et al., 2022).

Jobs in high-tech industries often involve working in modern offices or specialized laboratories. The work environment may be more comfortable and may offer flexible hours in some cases while Conventional trade jobs may involve physical labor, exposure to various weather conditions, and working in different locations. Work hours might be more rigid, depending on project schedules (Khan & Khan, 2019). High-tech jobs can offer good job security, especially for skilled and experienced professionals. However, there might be a risk of layoffs or restructuring if companies face financial difficulties or technological shifts while Conventional trade jobs can provide relatively stable employment, as the demand for skilled tradespeople usually remains consistent. These jobs can be recession-resistant due to their essential nature (Javed & Khan, 2017).

Jobs in high-tech industries often require specialized skills and advanced technical knowledge. Employees need to stay updated with the latest technologies and tools, making continuous training and education essential. High-tech jobs may also require proficiency in

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computer programming, data analysis, or other digital skills. While Conventional trade jobs typically require hands-on skills that are acquired through apprenticeships or vocational training. While training is necessary, it may not be as extensive as in high-tech industries (McKinsey & Company, n.d.).

Rapid technological advancements in high-tech industries, such as automation and artificial intelligence, can lead to job displacement. Certain tasks traditionally performed by humans may become automated, leading to a reduced demand for specific job roles. While automation can impact conventional trade to some extent, many of these jobs involve tasks that are difficult to automate completely. Thus, conventional trade jobs might be less susceptible to significant displacement (World Bank, 2019; Kaur, 2020).

High-tech industries are characterized by their demand for specialized skills and advanced technical knowledge. Employees in these sectors often require continuous training and education to stay current with the latest technologies and tools (Shaidullina et al., 2015). Proficiency in areas such as computer programming, data analysis, and digital skills is typically essential. In contrast, conventional trade jobs usually involve hands-on skills that are acquired through apprenticeships or vocational training. The training required for conventional trades may be extensive but is often less reliant on ongoing education. Masri et al. (2021) highlight the importance of skill development in hightech industries, emphasizing the role of universities, technical colleges, and online courses in preparing individuals for these jobs. On the other hand, Gupta et al. (2016) discusses the apprenticeship systems that support conventional trades, with a focus on hands-on training.

The comparison between high-tech trades and job opportunities in NAVTTC is essential to identify growth sectors, align training programs, and bridge skill gaps to boost employment prospects in emerging industries. Analyzing and comparing the job opportunities in both sectors helps individuals, policymakers, and businesses understand the current and future trends in the job market. This information can guide career choices, workforce development initiatives, and investment decisions. Understanding the specific skills and qualifications required for jobs in each sector helps in tailoring training and educational programs to meet industry demands. It ensures that the workforce is equipped with the appropriate skills to fill job vacancies in both high-tech and conventional trade fields. Thus, the objective of the study was to make the comparison between NAVTTC offers work opportunities in both conventional and high-tech trades. In order to achieve this goal, the study posed the following research questions:

1. Does the impression of high tech trade job potential vary across male and female students?
2. Does gender possess a role in how male and female students see traditional trade jobs?
3. Does a student's gender have a role in the disparity between traditional trade prospects and those in the high tech sector?
4. Does age play a role in determining whether students have more conventional or high-tech trade job opportunities?

Research Methodology

The current investigation made use of a quantitative research strategy based on survey research. Research design encompasses a wide range of activities, from formulating broad hypotheses to deciding on specific techniques for data collecting and analysis. Based on research conducted by Christensen et al. in 2011.

Population and sample of the Study

All of Lahore's technical and vocational schools made up the study's population. The researchers employed a multistage random sampling procedure. In the first phase of the

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research, a cluster of five vocational and fifteen technical institutions were randomly chosen to participate in the study. Considering that there were two groups (maleand female)studentsin the population, therefore in the second stage, samples were drawn from each stratum using the stratified random sampling technique. In the third the road, 10 students from each school were chosen at random. So, 100 students were chosen to be the study's group. The gender breakdown of the student body is 50% male and 50% female, as shown in Table 1.

Table 1

Number of Male and Female Students Respondent

Types of Respondents	Selected Students	Percentage
Male	50	50%
Female	50	50%
Total	100	100%

Instrumentation

Evidence from prior studies and reviews of relevant literature formed the basis for the self-administered questionnaire. Job opportunities in both high-tech and conventional trades at NAVTTC were considered in this study. The survey had two sections: one asking about the respondent's demographics, and the other asking about their experiences with NAVTTC's high-tech and classic trade job opportunities. Using a five-point Likert scale, the questionnaire was created. One might choose to "Strongly Disagree" (SD), "Disagree" (D), "Neutral" (N), "Agree" (A), or "Strongly Agree" (SA) on the survey. The questionnaire's reliability was examined using Cronbach's Alpha Coefficient, which was 0.83 for this study.

Data Collection and Analysis

The researcher gathered the data by conducting the survey. Printed instructions were made available to participants to assist them in completing the surveys. The questionnaires that were filled out were gathered by the researcher. One hundred students' data sets were able to be collected successfully because of this. A official Permission letter was provided by the relevant department so that data collection and evaluation of the selected sample could commence. The researcher personally visited the sample locations after receiving consent from the esteemed supervisor and the leaders of the chosen institutions. All participants received clear instructions on how to complete the survey before any data was collected. We also made sure that the respondents would remain anonymous in addition to their data will only be utilised for academic purposes. The participants willingly provided the data without receiving any compensation. We coded and input the replies it received to the initial information into spreadsheets using SPSS. Reason being, the original intent was to focus solely on the challenges faced by primary school educators. Use of descriptive statistics (mean and standard deviation) and inferential statistics inference statistics of autonomous sample and one-way ANOVA) allowed for an analysis of the research issues suggested by this study.

Results

Research question 1: Is there any difference between male and female students' perception about high tech trade job opportunities?

Table 2

Comparison of male and female students' perception about high tech-trade job opportunities

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Variables	Gender	N	M	SD	t-value	Df	Sig.
High-Tech Trade Job	Male Female	49 51	63.31 64.86	7.54 8.33	-0.978	98	0.331

For a comparison of how men and women view career opportunities in the high tech trades, Table 2 displays the results of an independent sample t-test. At the $p \leq 0.05$ level of significance, there was no statistically significant mean difference in the scores among males (M=81.27, SD=12.43) and females (M=86.59, SD= 13.99), p = 0.331, when it came to high tech career chances. Therefore, in terms of high tech job chances, there was no statistically significant mean difference across students.

Research question 2: Is there any difference between male and female students' perception about conventional trade job?

Table 3

Comparison of male and female students' perception about conventional trade job

Variables	Gender	N	M	SD	t-value	df	Sig.
Conventional Trade Job	Male Female	49 51	27.14 29.27	7.52 6.9	-0.1.477	98	0.143

Table 3 shows the results of a t-test of independent that we may use to compare men's and women's perceptions of traditional trade employment opportunities. There was no statistically significant difference in the mean scores between males (M=27.14, SD=7.52) and females (M=29.27, SD= 6.91) regarding traditional trade career opportunities (p = 0.143). So, it's safe to state that, generally speaking, students did not vary greatly in terms of the availability of traditional trade positions. Male and female students' averages differ significantly.

Research question 3: Is Does gender play a role in the disparity amongst male and female pupils when it comes to conventional trade chances and high tech trade prospects?

Table 4 (a)

Mean and Standard Deviation of Students about High Tech and Conventional Trade Job Opportunities

Variable	Educational Background	N	M	SD
High Tech Trade	High School Diploma	27	60.48	7.71
	Associate's Degree	67	65.67	7.76
	Bachelor's Degree	6	62.83	6.43
	Total	100	64.10	15.02
Conventional Trade	High School Diploma	27	25.37	6.91
	Associate's Degree	67	29.40	7.19
	Bachelor's Degree	6	28.00	6.99
	Total	100	28.23	7.25

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The mean scores of learners regarding conventional trade chances and high tech trade prospects, broken down by educational background, are shown in Table 4 (a). According to the results, students with an associate's degree had better mean scores in High-Tech Trade and Ordinary Trade compared to those with a high school diploma or a bachelor's degree.

Table 4 (b)

One-way Analysis of Variance Summary Table for Students about High Tech and Conventional Trade Opportunities

Variable	Comparison	df	Sum of Squares	Mean Square	F	Sig
High-Tech Trade	Between groups	2	528.65	264.32	4.46	.014
	Within groups	97	5738	59.15		
	Total	99	6267			
Conventional Trade	Between groups	2	313.29	156.67	3.099	.050
	Within groups	97	4902.416	50.54		
	Total	99	5215.71			

Using the high-tech trade employment opportunities and traditional trade job opportunities as measures, we used one-way estimation of variance to examine the differences in the educational backgrounds of male and female teachers (Table 4b). Group 1 consisted of participants with a high school diploma or equivalent, Group 2 of participants with a high school diploma, and Group 3 of participants with a bachelor's degree. Regarding educational background, there was a statistically significant disparity at the $p \leq 0.05$ level of significance. As a result, the study found no statistically significant difference between traditional trade prospects and high tech trade chances for students according to their level of education.

Research Question 4: Is there any difference between male and female students about high tech trade job opportunities and conventional trade opportunities based on their age?

Table 5 (a)

Mean and Standard Deviation of Male and Female Students about High Tech and Conventional Trade Job Opportunities in Terms of Age.

Variable	Age	N	Mean	SD
High Tech Trade	Under 18	23	93.91	9.41
	18-24	28	63.96	8.03
	25-34	31	65.58	7.71
	35-44	18	61.83	6.01
	Total	100	64.10	64.10
Conventional	Under 18	23	29.22	7.59
Trade	18-24	28	29.36	7.56
	25-34	31	28.97	6.49
	35-44	18	23.56	5.56
	Total	100	28.23	7.25

The mean scores of pupils regarding conventional trade prospects and high tech trade chances are broken down by age in Table 5 (a). Students in the age bracket of 18–24 and 35–44 had lower mean scores when it came to chances in the high tech trades than students in the age brackets of 25–34 and 35–44. Students in the 18–24 age bracket had higher mean scores

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than those in the under-18, 25–34, and 35–44 age brackets when it came to traditional trade employment possibilities.

Table 5 (b)

One-way Analysis of Variance Summary Table for Students about High Tech and Conventional Trade Opportunities Based on their Age.

Variable	Comparison	Df	Sum of Squares	Mean Square	F	Sig
High Tech Trade	Between groups	2	528.65	264.32	2.16	.091
	Within groups	97	5738	59.15		
	Total	99	6267			
Conventional Trade	Between groups	2	313.29	156.67	.902	.440
	Within groups	97	4902.416	50.54		
	Total	99	5215.71			

TIn order to examine the effect of students' ages on the high tech trade work prospects and conventional trade job opportunities according to their ages, a one-way analysis of variability was utilised (see ability 5 (b)). A participant's age was used to categorise them into one of four groups: (1) those under the age of 18, (2) those between the ages of 18 and 1, (3) those between the ages of 41 and 50, and (4) those aged 50 and up. Regarding occupational anxiety and fulfilment at work in relation to age, there was no statistically significant difference at the $p \leq 0.05$ level of significant in teachers' job satisfaction.

Discussion and Conclusion

This study set out to compare the job opportunities available at NAVTTC, Lahore's Technical and Vocational Institution, in the high-tech sector with those in the conventional trade. Only schools in the Lahore District that offered technical and vocational programmes were included in the research. The sample size was 100 students, drawn from 5 complex and 5 vocational centres. NAVTTC needs to make sure its programs are up-to-date with what employers are looking for, make traditional and high-tech trades more appealing, and give students all the career advice they need to make the right choices. Further, in order to develop the program, it is essential to keep lines of communication open with students and to periodically analyse their views and requirements.

Concerning the availability of high-tech jobs, there was no statistically significant variation in the means of the pupils. In addition, when it came to traditional trade jobs, there was no statistically significant variation in the means of the students. According to the results, students with an associate's degree had better mean scores in High-Tech Commerce and Conventional Trade compared to those with a high school diploma or a bachelor's degree. In terms of high tech trade career chances, the results demonstrate that students in the age group of under 18 had higher mean scores than students in the age categories of 25–34 and 35–44. Students in the 18–24 age bracket had higher mean scores than those in the under-18, 25–34, and 35–44 age brackets when it came to traditional trade employment possibilities.

Recommendation

The subsequent recommendations are made in light of the findings of the present study.

1. NAVTTC should integrate more innovative and project-based learning approaches into its technical programs to nurture creativity and problem-solving skills among students.
2. NAVTTC should focus on improving the alignment of its programs with industry needs, ensuring that students are adequately prepared for job placements.
3. Ensure that NAVTTC's training and resources remain up-to-date and relevant to the

evolving requirements of both high-tech and conventional trade roles.

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