

Assessing the Digital Competence of (National Vocational and Technical Training Commission) NAVTTC'S Certified Graduates and its Effect on Their Employability

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HOW TO CITE:

Muhammad Javaid Toor, Shafia Baber, Hisham-Ul-Hassan (2026). Assessing the Digital Competence of (National Vocational and Technical Training Commission) NAVTTC'S Certified Graduates and its Effect on Their Employability. International Journal of Special Education, 41(9s), 747-760

ABSTRACT:

The aim of the present research was to assessing the digital competence of NAVTTC's certified graduates and its effect on their employability. The study in hand was conducted across the Punjab province. It was ex-post facto explanatory descriptive research based on mixed method data collection survey design in nature. Information was gathered from 324 NAVTTC's certified graduates who were enrolled in NAVTTC's TSPIs during 2024-25 academic session. Researcher employed proportionate stratified random sampling technique to select the sample from the population. Researcher developed questionnaire and observation check list to measure respondents' digital competence and their employability. The collected data were arranged, coded, and put into computer for analysis. SPSS software (V.29) was used to analyze the data. Inferential and descriptive statistics were employed to analyze the data. After analysis it was found that NAVTTC's graduates of different TSPIs had different level of digital competence. NAVTTC's certified graduates of the software houses/business training service provider institutes possessed very high level of digital competence. Moreover, it was found that digital competence highly effected to the NAVTTC's Certified Graduates' employability and most affected digital competence predictors were field related digital knowledge and field related digital skill. NAVTTC's certified graduates of software houses/ Business institutes had more employability skill because all of them were employed and/or were engaged in their own business/freelancing to earn their living. On the bases of finding, it was suggested that NAVTTC may target to Software houses while allocating short courses. It is also recommended that TSPIs should develop trainees' field related knowledge and field related digital skill to make them employable.

Keywords: Digital Competence, NAVTTC, Certified graduates, effect, and employability.

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1. Introduction

The growing hyper digitalized world of the day necessitates citizens to be digitally savvy (Carretero et al., 2019). Several policies and strategies such as the Digital Education Action Plan (2021-2027), call for international cooperation to foster digital education for all. Hence the objective of the Digital education is to enable citizens' basic digital skills through internet access. The economy at the worldwide front is welcoming the Fourth-Industrial-Revolution through Digital-Transformation (Baller et al., 2019), hinting an integration of technologies with infrastructures subsequently there is a highly sophisticated system existed at the digital milieu. Therefore, by this digital-transformation, knowledge-intensive jobs and industrial jobs are being heavily affected as a result (Bick & Murawski, 2021). According to Global-Industry-Survey conducted by Price Waterhouse (2016), the availability of digital competencies, which are becoming more and more crucial in 21st-century work environments, is the most crucial element for a successful implementation of digitalization (Bick & Murawski, 2024). The digital-competencies, media-cum-digital literacy and information literacy are considered as the most crucial element for successful digitalization (Oberlander et al., 2020). The phrase "digital literacy" was first used by Gilster (2018:1), who defined it as "the ability to understand and use information in multiple formats from a wide range of sources when it is presented via computers." Martin (2021) reinterpreted this definition as follows: "Digital literacy is the mindfulness, attitude, and capability of individuals to appropriately employ digital tools and facilities to identify, access, manage, integrate, evaluate, analyze, and synthesize digital resources, construct new knowledge, create media expressions, and communicate with others, in the context of specific life situations, in order to enable constructive social action; and to reflect upon this process."

According to Ferrari et al. (2021:30) the digital-competence is "the set of knowledge, skills, attitudes, abilities, strategies, and awareness that

are required when using ICT and digital-media to perform tasks" such as communicating, solving problems, or producing and disseminating knowledge. The various facets of digital life where digital competency is required are highlighted in this definition. Apropos, the phrase "digital competence" is used in this article (Schearz, 2024).

Practically speaking, employability skills are the abilities graduates need to succeed in the job. The researchers classified these abilities into three groups. The first category of people skills includes interpersonal, leadership, teamwork, and communication abilities. Self-reliance, which encompasses self-awareness, proactive abilities, a readiness to learn, self-promotion, networking, and planning skills, is a second group of talents. General employment skills fall into a third category and include problem-solving, critical thinking, creative thinking, flexibility, business acumen, computer literacy, technological skills, numeracy skills, commitment skills, and job application skills like creating a compelling curriculum vitae, cover letter, and interview (Hussain, 2024).

The skill-set to ensure employability is a dire need of the day, addressing which a lot of educational organizations are failing to guarantee and the same was stressed on by Bridgstock (2019), who regarded institutes inadequate in attaining such set of digital skill that assure employability. Hence, students pursuing higher expectation of ensuring their job through these institutes with inadequate possibility suffer with low possibility of employability (Jackson, 2019). Furthermore, there are certain aspects due to which the internees undergoing technical education are unable to secure the optimal opportunities for their employment (Hennemann & Liefner, 2022). As a result of these shortcomings, the graduates of short courses from such institutes face problems in executing their digital responsibilities after being employed (Paadi, 2023). The federal institute of NAVTTC is functioning well in this field since long and it is performing in collaboration with public-private-partnership (PPP) and so far, it has imparted technical and

vocational training to more than hundreds and thousands of trainees yet only a few studies have been conducting to explore its graduate's employability (Agaba, 2023; Sodipo, 2022). Therefore, this study was designed to assess the digital competence of NAVTTC's certified graduates and its effect on their employability. Thus, in the present study, the researcher tried to assesses digital competence of NAVTTC's certified graduates and its effect on their employability. The researcher acknowledges that NAVTTC's certified graduates' demographic variables such as gender, trades, and institutes may have influence on the effect on their employability (Mattar et al., 2022).

Statement of the Problem

In the rapidly evolving digital are, digital competence has become essential for enhancing employability at workforce competitiveness. In Pakistan, the National Vocational and Technical Training Commission (NAVTTC) offers short-term digital skills programs to equip youth with market-relevant competencies to improve employment prospects. However, limited empirical evidence exists regarding the effectiveness of these programs for developing digital competencies that align with labor market demands and translate into employability outcomes. It has seen that at workplace that there is lacking of required skills to continue job. There is inadequate alignment between training content and industry needs that may contribute unemployment, underemployment, and the widening digital divide. Instead having contribution of NAVTTC short courses for developing digital skills, but no one knows that what are its impact of these courses on the employability. Little research has conducted in this field the level of digital competence among NAVTTC-certified graduates and its effect on their employability in the Pakistani context. Therefore, this study aims to assess the digital competence of NAVTTC-certified graduates and examine its influence on employability, providing evidence-based insights to enhance training effectiveness and better align vocational education with industry requirements. The study

was conducted under following research objectives;

1. To assess level of digital competence among the NAVTTC's certified graduates;
2. To assess the effect of digital competence on the NAVTTC's certified graduates' employability;
3. To analyze Training Service Provider Institutes (TSPs) wise employment status of the NAVTTC's certified graduates.

Research Hypotheses were designed accordingly as under;

H₀ 1: There are no significant TSPs wise difference in the level of digital competence among the NAVTTC's certified graduates;

H₀ 2: Digital competence has no significant effect on the NAVTTC's certified graduates' employability;

H₀ 3: There are no significant TSPs wise difference in the employment status of the NAVTTC's certified graduates.

The significance of this study lies in its potential to bridge the gap between digital skills training and market demand in Pakistan. By evaluating the effectiveness of NAVTTC's short courses in enhancing employability, the results of this research may provide actionable insights for improving NAVTTC's training programs. The results of present research may provide the information of all stakeholders by addressing the youth employment scenario in the labor market by ensuring that NAVTTC's certified graduates who possess the relevant skills what extent are being accommodated to improve today's digital economy. Curriculum play a vital role in the learning for students/trainees of areas of skill, the results of in hand research may provide the information to the curriculum developer that what extent designed curriculum trained the graduates in the relevant skills to foster or stronger industry collaborations, and expand practical training opportunities, ultimately supporting the sustainable economic growth of Pakistan through a skilled and adaptable workforce.

The result of the in-hand research may improve the quality and access to market relevant skills in graduate of NAVTTC's short courses through technical training programs in priority sectors in Punjab. Significance of NAVTTC's short course is accelerating graduate employability skill that may develop in work-integrated learning process in the training provided institutes.

Literature Review

Digital Competence often evident through the ability to effectively, critically, and responsibly use, manage, evaluate, and create digital technologies, tools, and resources for academic, professional, and personal purposes. It encompasses a multidimensional set of knowledge, skills, attitudes, and behaviours that enable individuals to navigate, adapt to, and thrive in digitally mediated environments (Toor, et al., 2025).

NAVTTC's short-course graduates are individuals who have completed a specific skill-oriented training program offered by the National Vocational and Technical Training Commission (NAVTTC), of three months duration, designed to equip individuals with specialized skills in a particular trade or technology (Martin, 2026).

Employability: An ability of an individual to obtain and maintain employment in the competitive labor market refers as Employability (Toor, 2026).

Effect of Digital Competence on Employability: The effect of digital competence on employability refers to the degree to which the level of digital skills possessed by an individual influences their ability to secure, perform well in, and advance in employment (Qutieshat & Yangailo, 2023).

Short-Term Training Programs: The training programs that focused non-degree programs designed to provide specific vocational skills within a period of three months offered by NAVTTC are called Short-term training programs (Baah, 2024).

National Policy for TVET (Technical and Vocational Education and Training)

In March 2015, the Federal Ministry of Education and Professional Education started work on drafting a National Policy for Technical and Vocational Education and Training (TVET). The Objectives of the National TVET Policy are to:

1. Obtain a national commitment from the federal and provincial governments, businesses, employees, and community groups to help individuals develop their skills and abilities so they may contribute to the creation of national wealth and make valuable contributions to their communities.
2. Expand training programs and opportunities for youth, job seekers, and current employees. Approximately 300,000 publicly financed training opportunities were made available in 2014.
3. Establish a system of certification, evaluation, and qualification based on national standards. Employers and trainees must have faith that national credentials will be accepted abroad and that training provided in Peshawar, Sialkot, Karachi, or Quetta will be equivalent.
4. Promote connections with the unorganized sector by offering chances for evaluation that acknowledge past knowledge and expertise.
5. Keep the public TVET sector's reform and revival going. The 2009 National Skills Strategy lays out the necessary adjustments to make publicly sponsored TVET more sensitive to both individual needs and labor market demands. Public sector reform must go on (Government of the Pakistan, 2025).

The National Skills for All Strategy: A Roadmap for Skill Development in Pakistan 2018 (NSS-2) was recently developed by the Pakistani government. A framework for enhancing eight crucial TVET fields in Pakistan was described in this strategy paper (Narosy, et al., 2024). In terms of planning, standard-setting, and quality assurance, it recommended certain functions for both national and local governments. It enhances capacity building and directs budget allocations for the TVET industry. Additionally, it offers a

foundation for equity, access, and quality control to all individuals. Additionally, it provides guidance for increased industry participation and talent development for both domestic and global markets (Alarcon, 2026).

National skills strategy

In order to achieve continuous economic and social growth, maintain global competitiveness, and adapt to changes in technology and work patterns, the Pakistani government made skills development a political priority. Skilling Pakistan: National Skills Strategy 2009-2013 (NSS-1), a strategy document created by the NAVTEC, serves as a gauge for the advancement of TVET education in Pakistan. The NSS-1 was created after eighteen months of cooperation and intensive consultation with a wide range of stakeholders, including regional and global specialists, pertinent ministries, provincial governments, training providers, trainees, associations in the corporate sector, and chambers of commerce (Casillas, 2025).

NAV TTC (National Vocational and Technical Training Commission)

The National Vocational and Technical Training Commission (NAV TTC) is a self-governing body established by the National Vocational and Technical Training Act (NAV TTC Act 2011) to oversee and provide coordination and policy direction for technical education and vocational trainings across Pakistan and to create international connections with respectable TVET organizations worldwide.

NAV TTC's Functions

- a. Create and execute skill-training initiatives to close the gap between supply and demand;
- b. Describe and carry out certification and accreditation;
- c. Create Curricula and Skill Standards;
- d. Boost the TVET Sector with Industrial Engagement and Public-Private Partnership;
- e. Keeping track of skilled youth databases and their industrial placement (Khan, et al. 2025).

Prime Minister's Youth Skill Development Program (PMYSDP)

The program's goal is to raise youth capacity to worldwide standards by providing them with market-driven conventional and high-tech skills necessary for career advancement. PMYSDP is a tool for empowering young people and utilizing their potential to advance human development and impact Pakistan's destiny. The initiative consists of a number of intervention components designed to encourage the nation's TVET system to change.

NAV TTC Benefits & Features:

1. Free Admission
2. Free Course
3. Monthly Stipend
4. Free Hostel Accommodation for specific areas
5. Better Employment Opportunities
6. Certificates would be given after completion (Wible, 2019)

2. Methodology

The aim of the study in hand was Ex-post Facto explanatory descriptive research based on mixed method data collection survey design in nature to evaluate the current situation, and explains relationships among variables using both quantitative and qualitative data. Ex-post facto explanatory descriptive research based on a mixed-method data collection survey design appropriate and comprehensive research approach because researcher combined quantitative and qualitative data collection technique to assess the causes or effects (Digital Competence of Certified Graduates and their employability) of a phenomenon (NAV TTC's short courses) that has already occurred. In hand research study was conducted in Punjab province. Population was comprised all Certified graduates (8749) who were enrolled in NAV TTC's selected Training Service Provider Institutes (TSPIs) in the 2024-25 academic year in the Punjab Province. Theoretically, the researcher followed digital identity and human computer interaction theory. Philosophically, the researcher followed phenomenological school of

thought. Information was gathered from 324 randomly selected certified graduates. The researcher employing proportionate stratified random sampling technique through to draw the sample from the population. Researcher developed questionnaire and observation check list to measure respondents' digital competence and their employability. The researcher used self-developed questionnaire as tools for data

collection information from the NAVTTC's graduates regarding their perceived digital competence. All participants voluntarily participated in this research. The collected data were coded. The coded data were entered into computer for analysis. Inferential statistics were employed to analyze the data. All hypotheses were accepted or rejected at $\alpha = .05$ level of significance.

3. Results

Training Service Providers Institutes (TSPIs) wise Level of Digital Competence among the NAVTTC's Certified Graduates

Table 3: Analysis of Variance to find out Types of TSPIs wise Difference in the level Digital Competence among NAVTTC's Certified Graduates

	SS	df	MS	F	Sig.
Between Groups	1360.262	3	453.421	6.191	.000
Within Groups	23437.293	320	73.242		
Total	24797.556	323			

The above table (3) disclosed that generated F – value $6.191 > \text{table } 2.63$ at 3, 323 df and generated $p = .000 < \alpha = .05$. So, rejected null hypothesis that was there are no significant TSPIs wise difference in the level of digital competence among the NAVTTC's certified graduates. It showed that TSPIs wise significant difference was existed in the level of digital competence among NAVTTC's certified graduates.

Concluding that NAVTTC's certified graduates of different Training Service Providers Institutes (TSPIs) had different level of digital competence.

Further, to know that NAVTTC's certified graduates of which TSPIs had different level digital competence level, post-Hoc test employed (table 3a).

Table 3a: Post Hoc analysis to find out NAVTTC's Graduates of which Institute has more Digital Competence level than the others

(I) Institute	(J) Institute	MD (I-J)	Std. E	Sig.
Software House/ Business Institute	Technical	7.910(*)	1.959	.000
	Vocational	3.607(*)	1.808	.047
	Educational	4.732(*)	1.791	.009

* The mean difference is significant at the .05 level.

The above table (3a) indicated that NAVTTC's certified graduates of Software houses/business institutes were enjoying different level of digital competence than the other TSPIs' graduates.

Further, to know that which level of digital competence does the NAVTTC's certified graduates of Software houses/business had, chi-square test was employed (table 3b).

Table 3b: Chi –Square analysis to find level of digital competence does the NAVTTC's certified graduates of Software houses/business Institutes

Institutes	Count	Level of Digital Competence			
		Low	Medium	High	V. High
Technical	Count	16	15	24	5
	% within Institute	26.7%	25.0%	40.0%	8.3%
	% within L. of Digital Competence	50.0%	15.3%	19.2%	7.2%
Vocational	Count	12	16	71	13
	% within Institute	10.7%	14.3%	63.4%	11.6%
	% within L. of Digital Competence	37.5%	16.3%	56.8%	18.4%
Educational	Count	4	67	29	24
	% within Institute	3.2%	54.0%	23.4%	19.4%
	% within L. of Digital Competence	12.5%	68.4%	23.2%	34.8%
Software House/ Business Institute	Count	0	0	1	27
	% within Institute	.0%	.0%	3.6%	96.4%
	% within L. of Digital Competence	.0%	.0%	0.8%	39.1%

Chi square = 110.153, df = 9, sig = .000

The above table (3b) discloses that the generated χ^2 statistics = 16.919 > table value = 16.919 at 9 df, and generated $p = .000 < \alpha = .05$ which evident that TSPIs wise significant difference existed in the digital competence level of NAVTTC's certified graduates. Moreover, table (3b) disclosed that 40.0% (24) NAVTTC's certified graduates of the technical and 63.0% (71) NAVTTC's certified graduates of vocational training service provider institutes possessed high level of digital competence. 54.0% (67) NAVTTC's certified graduates of the educational training service provider institutes possessed medium level of digital competence while 96.0%

(27) NAVTTC's certified graduates of the software houses/business training service provider institutes possessed very high level of digital competence. Concluding that most of the NAVTTC's certified graduates of the software houses/business training service provider institutes possessed very high level of digital competence, NAVTTC's certified graduates of the technical and vocational training service provider institutes possessed high level and NAVTTC's certified graduates of the educational training service provider institutes possessed medium level of digital competence

Effect of Digital Competence on the NAVTTC's Certified Graduates' Employability

Relationship between Digital Competence on the NAVTTC's Certified Graduates' Employability

Table 1: Pearson analysis to find the relationship between NAVTTC's graduates digital competence and their employability, (n = 324)

Variables	R	Sig
Digital Competence	.820(**)	.000
Employability		

The table (1) discloses that the generated r- value .820 and generated $p = .000$ indicated that there is significant strong relationship NAVTTC's certified graduates' digital competence and their

employability. Rejected the null hypothesis that was digital competence has no significant effect on the NAVTTC's certified graduates' employability. Concluding that digital

competence highly effected to the NAVTTC's Certified Graduates' employability.

Regression Analysis to know about the Contribution of Constructs (Field related

Knowledge, Field related digital skill, Attitude, and human technology communication) of independent variable (Digital Competence) in the prediction of its effect on dependent variable (Employability)

Table 2: Regression analysis to find out the contribution of constructs of independent variable in the prediction of its effect on dependent variable

Model	R	R Square	Adjusted R Square	Std. E of Estimate
1	.713(a)	.613	.015	2.445

a Predictors: (Constant), Communication Skill, Attitude, Field knowledge, Field Skill

b. Dependent Variable: Employability

The above table (2) discloses that generated r .713 indicated that strong relationship existed between digital competence and correlation between NAVTTC's certified graduates' employability.

The computed R-Square .613 indicted that 61.3% of the variance in employability occurred due to change in digital competence of NAVTTC certified graduates.

Table 2a:

Model		SS	df	MS	F	Sig.
1	Regression	24.518	4	6.130	11.025	.004(a)
	Residual	1906.849	319	5.978		
	Total	1931.367	323			

a. Predictors: (Constant), Communication Skill, Attitude, Field knowledge, Field Skill

b. Dependent Variable: Employability

The above table (2a) discloses that computer F-value 11.025 < table value (2.41) and generated

sig > α = .05 which showed that regression model significantly predicting the dependent variable.

Table 2b:

Model	Digital Competence	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. E	β		
1	(Constant)	16.699	2.643		6.317	.000
	Field related digital knowledge	.741	.052	.699	2.049	.025
	Field related digital Skill	.652	.043	.637	1.096	.000
	Attitude toward Digital Tool	.426	.039	.461	.040	.009
	Human Technology Communication Skill	.332	.033	.431	.059	.032

a. Dependent Variable: Employability

The above regression table (2b) discloses that the generated unstandardized B .741 indicated that one unit increase in field related knowledge may change 74.1% NAVTTC' certified graduates' employability. The generated standardized β .699 showed that there is strong relationship between

field related knowledge of NAVTTC's certified graduates and their employability.

The above regression table (2b) discloses that the generated unstandardized B .652 indicated that one unit increase in field related digital skill may

change 65.2% NAVTTC' certified graduates' employability. The generated standardized β .637 showed that there is moderate relationship between field related digital skill of NAVTTC's certified graduates and their employability.

The above regression table (2b) discloses that the generated unstandardized B .461 indicated that one unit increase in attitude towards digital tools may change 42.6% NAVTTC' certified graduates' employability. The generated standardized β .461 showed that there is moderate relationship between attitude towards digital tools of NAVTTC's certified graduates and their employability.

The above regression table (2b) discloses that the generated unstandardized B .332 indicated that one unit increase in human technology communication skill may change 33.2% NAVTTC' certified graduates' employability. The generated standardized β .431 showed that there is moderate relationship between human technology communication skill of NAVTTC's certified graduates and their employability. Concluding that digital competence of NAVTTC's certified graduates strongly affected their employability. Among the predictors of the digital competence, field related digital knowledge and digital skill were the most important factors for employability.

Training Service Provider Institutes (TSPIs) wise Employment Status of the NAVTTC's Certified Graduates

Table 4: Analysis of variance to find out training service provider institutes (TSPIs) wise Employment Status of the NAVTTC's Certified Graduates

	SS	df	MS	F	Sig.
Between Groups	.985	3	.328	9.463	.042
Within Groups	42.669	320	.133		
Total	43.654	323			

The above table (4) disclosed that the generated F - value = 9.463 is > than table = 2.63, at 3, 232 df and generated $p = .040 < \alpha = .05$ which indicated that significant training service provider institutes (TSPIs) wise difference existed in employment status of the NAVTTC's certified graduates. Concluding that NAVTTC's certified

graduates of different TSPIs had different employment status.

Further, to know that NAVTTC's certified graduates of which TSPI differ in employment status, post-Hoc test employed in (table 4a).

TSPIs Wise Employability Status of NAVTTC's Graduates

Table 4a: Post Hoc analysis for analysis to find out NAVTTC's certified graduates of which TSPI differ in employment status

(I) Institute	(J) Institute	MD(I-J)	Std. E	Sig.
Software House/ Business Institute	Technical	2.200(*)	.084	.001
	Vocational	1.143(*)	.077	.045
	Educational	3.194(*)	.076	.012

* The mean difference is significant at the .05 level.

The above table (4a) discloses that NAVTTC's certified graduates of software houses/ Business Institutes significantly differ in the employment status than the other TSPIs graduates. Concluding that NAVTTC's certified graduates

of software houses/ Business institutes had more employability skill because their employability status differs than the other TSPIs graduates. Further to know that what is employment status of NAVTTC's certified graduates of software

houses/ Business Institutes, chi-square statistics employed in (table 4b).

Training Service Provider Institutes Wise Employability Status of NAVTTC's Certified Graduates

Table 4b Chai-square analysis to find training service provider institutes wise employability status of NAVTTC's certified graduates

Institutes	Count	Employment Status	
		Employed	Un-employed
Technical	Count	48	12
	% within Institute	80.0%	20.0%
	% within Employment Status	17.7%	22.6%
Vocational	Count	96	16
	% within Institute	85.7%	14.3%
	% within Employment Status	35.4%	30.2%
Educational	Count	99	25
	% within Institute	79.8%	20.2%
	% within Employment Status	36.5%	47.2%
Software House/ Business Institute	Count	28	0
	% within Institute	100.0%	.0%
	% within Employment Status	10.3%	.0%

$\chi^2 = 17.720$, $df = 3$, $sig = .043$

The above table (4b) discloses that the generated χ^2 statistics = 17.720 > table value = 7.815 at 3 df, and generated $p = .000 < \alpha = .05$ which evident that TSPIs wise significant difference existed in the employment status of NAVTTC's certified graduates. Moreover, table (4b) disclosed that 80.0% (48) NAVTTC's certified graduates of the technical, 85.0% (96) NAVTTC's certified graduates of the vocational, and 79.8% (99) NAVTTC's certified graduates of the educational training service provider institutes were employed or were engaged in their own business/freelancing to earn their living while 100.0% (28) NAVTTC's certified graduates of the software houses/ business training service provider institutes were employed and/or were engaged in their own business/freelancing to earn their living. Concluding that NAVTTC's certified graduates of the software houses/ business training service provider institutes were more digitally competent than that NAVTTC's certified graduates of the others institutes because all of them were employed and/or were engaged in their own business/freelancing to earn their living.

4. Discussion

The aim of the present research was assessing the digital competence of NAVTTC's certified graduates and its effect on their employability. In hand research was conducted in across the Punjab province and data was collected from 324 NACTTC's certified graduates of TSPIs across Punjab. So, conclusion was drawn from the findings that arose from the analysis. It was found that training service providers (TSPs) wise significant difference was existed in the level of digital competence among NAVTTC's certified graduates because most of the NAVTTC's certified graduates of the software houses/business training service provider institutes possessed very high level of digital competence, NAVTTC's certified graduates of the technical and vocational training service provider institutes possessed high level and NAVTTC's certified graduates of the educational training service provider institutes possessed medium level of digital competence. Same study was conducting by Taqueem (2024), found that there is significant impacts of digital training on the employment of qualified trainees. Moreover, he found that after the employment, in the

perspective of women, digital skill development training had beneficial impact on their skills training that not only unfold in an such enabling environment that allows women to put their new knowledge into practice for their earning. Present study found that digital competence highly affected to the NAVTTC's Certified Graduates' employability but Bates (2023), found that although digital competence effected to the trainees' employability yet these effects are not seen in trainees who completed the NAVTTC' short course training because it may not be consider employment in field or areas as 'related industries' for the purposes of this training, unless the position was also in the other field or areas of the training. In hand research also evaluated that the most affected digital competence predictors were field related digital knowledge and field related digital skill that severely affected the employability. It was found in the present research that there is significant difference in the employment status of NAVTTC's certified graduates of different Training Service Provider Institutes (TSPIs). It was analyzed that NAVTTC's certified graduates of software houses/ Business institutes had more employability skill because their employability status differs from the other TSPIs graduates because all of them were employed and/or were engaged in their own business/freelancing to earn their living. Moreover, in hand study found that the most of NAVTTC's certified graduates of the technical institutes were employed and/or were engaged in their own business/freelancing to earn their living and most of the NAVTTC's certified graduates of the vocational institutes/ TSPIs were employed and/or were engaged in their own business/freelancing to earn their living while many of the NAVTTC's certified graduates of the educational training service provider institutes were employed or were engaged in their own business/freelancing to earn their living. Datta and Gupta (2023), second to this finding and found in their research study that graduates institutes wise very in the employment because TSPIs different in developing field related knowledge, skill, job related soft skill and attitude. It is recommended

that while selection of TSPs, NAVTTC may give preference to the Software houses/business institutes to award short courses because these TSPs are more equipped with latest computer labs and tools to train the trainees as compare to other TSPs. Moreover, these TSPs (Software houses) understand the job market and had more industrial linkage to allocate their trainees than the other TSPs. It is suggested to all TSPs while training their trainees, must develop their trainees' field related digital knowledge and digital skill so that they may get employment as they complete their short courses. It is suggested for further researchers that there are lots of gap in the present research that the present research tried to evaluate digital competence of graduates in four areas e.g. field related knowledge, digital skill, attitude and human technology communication, further researcher may conduct same research on other than these dimensions of digital competence e.g. safety skill, productivity skill etc. Moreover, to predict the employability, a respondent of the present study was only the graduates who were enrolled in AI, Cyber Security, and Python that were enrolled in 2024-2025 academic session. It is recommended for further researcher; the same study may conduct by selected graduates other than these short courses of any academic session.

5. Conclusion

The aim of the present research was assessing the digital competence of NAVTTC's certified graduates and its effect on their employability. In hand research was conducted in across the Punjab province and data was collected from 324 NACTTC's certified graduates of TSPIs across Punjab. So, conclusion was drawn from the findings that arose from the analysis. It was found that training service providers (TSPs) wise significant difference was existed in the level of digital competence among NAVTTC's certified graduates because most of the NAVTTC's certified graduates of the software houses/business training service provider institutes possessed very high level of digital competence, NAVTTC's certified graduates of the technical and vocational training service

provider institutes possessed high level and NAVTTC's certified graduates of the educational training service provider institutes possessed medium level of digital competence. Present study found that digital competence highly affected to the NAVTTC's Certified Graduates' employability and the most affected digital competence predictors were field related digital knowledge and field related digital skill that severely affected the employability.

Moreover, it was found in the present research that there is significant different in the employment status of NAVTTC's certified graduates of different Training Service Provider Institutes (TSPIs). Concluded that NAVTTC's certified graduates of software houses/ Business institutes had more employability skill because most of their graduates' employability status differs from the other TSPIs graduates because all of them were employed and/or were engaged in their own business/freelancing to earn their living. Moreover, in hand study found that the most of NAVTTC's certified graduates of the technical institutes were employed and/or were engaged in their own business/freelancing to earn their living and many of the NAVTTC's certified graduates of the vocational institutes/ TSPIs were employed and/or were engaged in their own business/freelancing to earn their living while many of the NAVTTC's certified graduates of the educational training service

provider institutes were employed or were engaged in their own business/freelancing to earn their living. It is recommended that while selection of TSPs, NAVTTC may give preference to the Software houses/business institutes to award short courses because these TSPs are more equipped with latest computer labs and tools to train the trainees as compare to other TSPs. Moreover, these TSPs (Software houses) understand the job market and had more industrial linkage to allocate their trainees than the other TSPs. It is suggested to all TSPs while training their trainees, must develop their trainees' field related digital knowledge and digital skill so that they may get employment as they complete their short courses. It is suggested for further researchers that there are lots of gap in the present research that the present research tried to evaluate digital competence of graduates in four areas e.g. field related knowledge, digital skill, attitude and human technology communication, further researcher may conduct same research on other than these dimensions of digital competence e.g. safety skill, productivity skill etc. Moreover, to predict the employability, a respondent of the present study was only the graduates who were enrolled in AI, Cyber Security, and Python that were enrolled in 2024-2025 academic session. It is recommended for further researcher; the same study may conduct by selected graduates other than these short courses of any academic session.

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