

# The Influential Relationship between Technical and Vocational Education and Training (TVET) and Employment Competence: A Study from Yunnan Province, China

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## Abstract

*This study focuses on exploring the influential relationship between Technical and Vocational Education and Training (TVET) and the employment competence in Yunnan Province, China. Employment competence categorized into two main dimensions: the "hard" dimension consists of work stability and the ability to find a job (employability), and the "soft" level includes job satisfaction and salary level. In this study, 495 samples were collected through WenJianXing using stratified random sampling method with professional stratification (Industrial Engineering, Agriculture, Tourist Industry, Health, and Internet Engineering). This study used survey questionnaire to collect data and quantitative research method to explore the relationship between TVET and the employment competence in Yunnan Province, China. The present study analyzed the relationship between TVET and employment competence through descriptive and inferential statistics. A survey of the employment status of 495 TVET graduates found that the Pearson's coefficients range from 0.367 to 0.470, indicating varying degrees of moderate to strong positive relationships between the TVET and employment competence in Yunnan Province, China, and in particular a high relationship with job satisfaction and salary levels. Such results bring recommendations for educational institutions in Yunnan Province China: the development of high-quality TVET program can enhance employment competence and thus reduce the unemployment rate at present.*

**Keywords:** TVET; employment competence; employability; labor market; workforce.

## Introduction

Globally, there is a concerted effort to reform and enhance Technical and Vocational Education and Training (TVET) systems, which have gained significant attention from nations, particularly in relation to education and national development (Paryono, 2017). To meet the growing demand for professional and semi-professional technical workers, there has been an increasing emphasis on higher learning institutions, particularly TVET institutions, which are recognized as crucial platforms for developing the necessary workforce and reducing unemployment rates (Salleh, Subhi, Sulaiman, & Latif, 2016). The issue of rising unemployment remains particularly acute among young people, who often lack work experience and face job instability. Ryder (2020) underscores that the COVID-19 pandemic has exacerbated this crisis, placing young individuals worldwide in an even more precarious employment situation than before. The pandemic has led to a sharp decline in working hours and a contraction of the global job market, with evidence suggesting that the current situation is more severe than the 2009 financial crisis. According to Su et al. (2022), approximately 9% of global working hours have been lost, equating to 225 million full-time jobs, which has led to a significant income loss—around 4% of global GDP—disproportionately impacting female workers and individuals aged 15 to 24. This worsening employment landscape is expected to drive up unemployment rates and slow economic development. The World Bank forecasts a deceleration in global economic growth, with projections indicating a drop from 5.5% in 2021 to 4.1% in 2022, followed by a further decline to 3.2% in 2023.

The COVID-19 pandemic has profoundly affected global employment, resulting in increased unemployment rates across various sectors. A study by Forsythe et al. (2020) indicates that the pandemic triggered unprecedented disruptions in the labor market, primarily due to necessary public health measures such as lockdowns and social distancing. These measures forced many businesses to either reduce operations or close altogether, with the tourism, hospitality, and retail sectors being among the hardest hit due to their reliance on physical interactions. The study reveals that the swift rise in unemployment during

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the pandemic's initial months was largely attributable to these shutdowns, which severely curtailed consumer and business activity. Moreover, a report by the International Labour Organization (ILO) (2021) underscores that the pandemic not only resulted in immediate job losses but also fostered long-term economic instability. Many workers experienced reduced working hours or were furloughed, leading to permanent job losses as companies adapted to the changing economic landscape. The ILO also notes that while the shift to remote work benefited certain industries and workers, it was impractical for others, exacerbating unemployment disparities, particularly among low-income and less-skilled workers who could not transition to remote work. As a result, the ILO suggested placing greater emphasis on Technical and Vocational Education and Training (TVET) to equip workers with relevant skills.

TVET is essential in the world of work, as it provides the workforce with the education and training necessary to enhance productivity across diverse economic sectors (Alam, 2015). Furthermore, Malaysia is moving away from traditional human resource practices, particularly in training and development, and is increasingly focusing on workforce competency trends to achieve positive outcomes and economic impacts (Salleh & Sulaiman, 2016). TVET holds significant potential for fostering economic growth and development, particularly in regions where industrialization is still emerging or where there is a pressing demand for skilled labor. As highlighted by Newhouse and Suryadarma (2011), in developing countries, TVET effectively bridges the gap between the education system and the labor market by imparting skills that are directly relevant to the local economy. This alignment not only enhances the employability of graduates but also contributes to reducing unemployment rates and bolstering overall economic productivity. China is facing a significant skilled worker shortage, which is being driven by several factors that impact salary and wage dynamics within the country. The shortage is largely due to demographic changes, urban-rural disparities, and evolving industry needs that outpace the current supply of skilled labor. According to reports, nearly 70% of Chinese businesses were struggling to find skilled blue-collar workers as of 2021, with manufacturing and related personnel among the most in demand (International Finance, 2021).

In recent years, the potential of Technical and Vocational Education and Training (TVET) to bridge the skills gap, combat unemployment, and provide a rapid return on educational investments has garnered increasing recognition. Acknowledged as a vital tool for enhancing employability, TVET equips both youth and adults with in-demand skills that facilitate a smoother transition to gainful employment, thereby improving overall livelihoods (Eichhorst et al., 2013). Moreover, TVET's influence extends beyond individual employability; by delivering industry-specific training, it ensures sectors can maintain a skilled workforce essential for sustained economic growth and competitiveness (Billett, 2011). In addition, as technology and automation render certain jobs redundant, TVET assumes a crucial role in job creation by preparing workers for emerging industries and evolving job roles (Chankseliani & Relly, 2016). Therefore, the aims of this study are to explore the impact of TVET on employability, examine its role in addressing the skills gap in the labor market, and assess its contribution to economic development and job creation in the context of a rapidly changing workforce landscape.

### *TVET and Employment*

The Human Capital Theory, articulated by Becker in the 1960s, posits that investments in education and training enhance worker productivity by imparting valuable knowledge and skills. These productivity gains, in turn, positively influence wages and employment rates. Technical and Vocational Education and Training (TVET) specifically offers targeted skills training that aligns closely with labor market demands. According to the European Centre for the Development of Vocational Training (CEDEFOP, 2020), TVET graduates in Europe had a significantly higher employment rate of 75.4% compared to the average employment rate of 70.3% across all educational pathways in 2020.

Additionally, the Skills Mismatch Theory, as proposed by Sparreboom and Tarvid (2016), suggests that unemployment and job instability arise when there is a disconnect between the skills possessed by workers and those required by employers. TVET programs can effectively address these mismatches by delivering industry-relevant training, thus enhancing job stability and ensuring that the workforce meets the evolving needs of the labor market.

Caves et al. (2021) employ the education-employment linkage theory to underscore the pivotal role of TVET in bridging the gap between educational systems and labor markets, particularly in developing countries. According to this theory, the effectiveness of TVET is maximized when both the educational and employment sectors collaboratively invest authority and resources in vocational training programs. This collaborative approach ensures that TVET curricula are closely aligned with current and emerging job market needs, thereby enhancing the direct employability of graduates. Chakroun (2015) identifies critical areas where reform in the TVET sector is essential for developing countries to enhance its responsiveness to the evolving economic climate and labor market demands. Key areas highlighted for improvement include modernizing curricula to reflect the latest industry trends and technologies, upgrading the skills and qualifications of TVET trainers, and forging stronger partnerships between TVET institutions and industries.

The effective matching of TVET and manufacturing jobs can promote the renewal and iteration of manufacturing industry, and also ensure the stability of manufacturing output (Wang, 2022). Tan and Wu (2018) mentioned in "Analysis of the path of higher vocational education to promote college students' employment and entrepreneurship" that China's employment rate of higher TVET graduates exceeded that of general higher education students for the first time in 2017, and the gap has been narrowing in the past decade, from 3.1% in 2010, 1.2% in 2011 to 0.3% in 2016.

## Methodology

This study employed quantitative research methods to examine the relationship between TVET and employment competence in Yunnan Province, China. Quantitative research is often used in studies on TVET and employment competence because it provides precise, objective, and generalizable data (Creswell, 2014). By enabling the collection of large datasets and applying statistical techniques, researchers can identify patterns and relationships effectively (Bryman, 2016). Additionally, the structured scientific process inherent in quantitative research, which includes identifying, locating, assessing, and analyzing data, supports the thorough investigation of research problems and questions (Salleh, Sulaiman & Gloeckner, 2023).

A total of 495 respondents participated in this study, with data collected using the WenJuanXing platform. All participants provided complete responses to the questionnaire. In total, 261 (52.73%) were male, and 234 (47.27%) were female. The sample was obtained using a stratified sampling technique, ensuring proportional representation from different majors. The distributions are from various industries including 149 participants Industrial Engineering (30.1%), 109 from Agriculture (22%), 89 from the Tourism (17.9%), 70 from Health (14.1%), and 79 from Internet Engineering (15.9%). The overall demographic profile of the participants is presented in Table 1.

**Table 1 Demographic profile of respondents (n=495)**

Variables		Frequency	Percentage
Gender	Male	261	52.73%
	Female	234	47.27%
Age	18 – 24 years old	64	42.02%
	25 – 34 years old	42	37.78%
	≥ 35 years old	44	20.00%
Industries	Industrial Engineering	149	30.10%
	Agriculture	109	22.00%
	Tourism	89	17.90%
	Health	70	14.10%
	Internet Engineering	79	15.90%

## Findings and Discussion

Descriptive statistics for each dimension were performed in this study using descriptive and inferential statistics, Level of skill acquisition (LS), Quality of TVET (Q), Work stability (WS), Employability (E), Job satisfaction (JS), Salary Level (SL), and Table 2 shows the specific details.

**Table 2 Descriptive Statistics (n=495)**

Variable	Mean	Std. Dev.	Mean Interpretation
Level of skill acquisition (LS)	3.30	0.97	moderate level
Quality of TVET (Q)	3.32	0.94	moderate level
Work stability (WS)	3.38	0.95	moderate level
Employability (E)	3.34	0.95	moderate level
Job satisfaction (JS)	3.33	1.00	moderate level
Salary Level (SL)	3.36	0.98	moderate level

According to Table 2, The findings indicate generally positive perceptions across several key variables related to TVET and employment competence. Respondents rated their **skill acquisition** ( $M=3.30$ ,  $SD=0.97$ ), **TVET quality** ( $M=3.32$ ,  $SD=0.94$ ), **work stability** ( $M=3.38$ ,  $SD=0.95$ ), **employability** ( $M=3.34$ ,  $SD=0.95$ ), **job satisfaction** ( $M=3.33$ ,  $SD=1.00$ ), and **salary level** ( $M=3.36$ ,  $SD=0.98$ ) slightly above the midpoint of the scale. The standard deviations for these variables ranged from 0.94 to 1.00, reflecting moderate variability in responses, with **job satisfaction** showing the widest range of opinions. Overall, respondents have a moderately positive outlook on their TVET experiences and related employment competence.

At this stage of the study, it is evident that both the level of skill proficiency and the quality of education in TVET programs have a positive relationship with the four key variables of employment competence in Yunnan Province, China. Specifically, improving the quality of TVET education and enhancing skill proficiency directly contribute to strengthening employment competence in the region. Notably, the positive impact of TVET on job stability and income levels stands out as significant, indicating that workers who have undergone TVET training in Yunnan tend to experience greater satisfaction in terms of job security and earnings. These findings underscore the critical role of TVET in not only equipping individuals with in-demand skills but also in fostering better employment competence, particularly in work stability.

Regarding the contribution of TVET to the job stability of graduates, Winthrop and McGivney (2015) highlight that TVET programs focus on developing skills that are in immediate demand in the labor market. TVET programs help graduates secure employment quickly after completing their education, reducing the time between schooling and job placement. Moreover, the practical and applicable nature of the skills taught in TVET programs leads to higher job retention rates, enhancing overall job stability for graduates. Kumar and Singh (2021) argue that ongoing training and upskilling are essential for workers to keep up with technological changes and innovations in their industries. By integrating cutting-edge technology and up-to-date industry practices, high-quality TVET programs ensure that workers remain competitive, thereby improving their job security and extending their career longevity. These studies explain why TVET contributes to employment competence, especially in work stability.

Previous studies have also mentioned TVET's contribution to employment competence in China, for example, World Bank (2018) highlights how China's TVET system, driven by government policies and collaboration with industries, has significantly improved employment competence. The demand-driven approach ensures that TVET programs are aligned with market needs, resulting in high employment rates for graduates. The integration of practical training and industry involvement in curriculum design has led to the production of skilled graduates who meet the labor market's requirements. The study notes that over 90% of Chinese TVET graduates secure employment within six months of graduation, showcasing the

effectiveness of China's TVET system in enhancing job market integration.

However, most of the previous studies have only shown the contribution of TVET to the employment rate, ignoring “soft” factors such as quality of employment (job satisfaction and salary level). This study adds both “hard” and “soft” factors to explore the relationship between TVET and the employment competence from a more comprehensive perspective in Yunnan Province, China.

To explore the relationship between TVET and the employment competence in Yunnan province, this study used Pearson's coefficient to analyze skill proficiency and the extent to which the quality of TVET education is associated with the four dimensions of the job market, as Table 3 will show in detail.

**Table 3 Person's Correlation (n=495)**

Variables	Q	LS	WS	E	JS	SL
Level of skill acquisition (LS)	--	.43**	.39**	.37**	.47**	.42**
Quality of TVET (Q)		--	.43**	.42**	.43**	.47**
Work stability (WS)			--	.43**	.46**	.39**
Employability (E)				--	.44**	.39**
Job satisfaction (JS)					--	.45**
Salary Level (SL)						--

Note : \*\*  $p < 0.01$  level (2-tailed)

Table 3 shows the Pearson correlation coefficients among six key variables: Level of Skill Acquisition (LS), Quality of TVET (Q), Work Stability (WS), Employability (E), Job Satisfaction (JS), and Salary Level (SL), based on data from 495 respondents. The correlations range from 0.367 to 0.470, representing moderate to strong positive relationships. The highest correlation, 0.470, is found between Quality of TVET (Q) and Job Satisfaction (JS), suggesting that better perceptions of TVET quality are associated with higher job satisfaction. Similarly, the correlation between Level of Skill Acquisition (LS) and Salary Level (SL) is also 0.470, indicating that as individuals acquire more skills, their salary levels tend to increase. All correlations are significant at the 0.01 level (2-tailed), indicating a high level of statistical confidence in these relationships. This suggests that higher skill acquisition, better TVET quality are consistently linked to positive employment outcomes such as job satisfaction and salary level.

The findings of many scholars agree with the results of this study, for example, in the study of Leh and Ibrahim (2019), high-quality TVET programs align educational training with industry-specific demands by offering hands-on experience. This practical training reduces the anxiety and uncertainty graduates face in the workplace, thus enhancing their job satisfaction. By mastering both technical and soft skills, students feel more prepared and confident in their professional roles. Wesselink et al. (2015) note that access to appropriate resources allows students to practice with industry-relevant tools, which improves their proficiency and ensures that their skills meet market demands.

In addition, McGrath and Lugg (2022) emphasize that TVET should not only provide technical skills but also foster problem-solving, teamwork, and communication abilities. These competencies are crucial in modern, collaborative workplaces. They also stress the importance of work-based learning, which helps students build professional networks and understand workplace expectations.

## Conclusion

This study highlights the critical role that TVET plays in enhancing employment competence, particularly within the unique economic context of Yunnan Province, China. The findings underscore the potential for TVET institutions not only to elevate their own standing but also to serve as key drivers

in mitigating unemployment, especially during economic downturns. Yunnan's distinctive economic structure, exemplified by its dominance in the national flower market, suggests that regional economies strongly influence employment opportunities, with certain majors benefiting more than others. This variability presents a limitation to generalizing findings across China, as employment dynamics in Yunnan may differ significantly from those in more developed provinces.

Despite these regional differences, the study provides valuable insights for policymakers and education authorities in Yunnan. To address the province's high unemployment rate and foster economic development, it is crucial to increase student enrollment in TVET programs and invest further in these institutions. By improving the quality of education and skill acquisition, Yunnan can enhance the employability of its workforce, not only meeting local labor market demands but also positioning the region for broader economic growth. Ultimately, strengthening TVET can serve as a pivotal strategy in boosting both employment outcomes and the long-term economic resilience of Yunnan Province.

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