

Perceived Value in Vocational Education: The Roles of Institutional Reputation, Curriculum Relevance, and Employability Outcomes

Pathom Sawatmuang^{1,2*}, Bordin Phayaphrom^{1,2,3}

¹ Advanced Executive Management School (ADVEX),
School of Business & Management, Bangkok 10250, THAILAND

² GlobalNxt University (GNU),
School of Business, Kuala Lumpur 50450, MALAYSIA

³ University of Geomatika Malaysia (UGM),
IQRA Business School, Kuala Lumpur 54200, MALAYSIA

*Corresponding Author: tommy@advex.ac.th

DOI: <https://doi.org/10.30880/jtet.2026.18.01.016>

Article Info

Received: 20 January 2026

Accepted: 27 April 2026

Available online: 23 June 2026

Keywords

Vocational education, institutional reputation, educational quality, perceived value, employability outcomes, industry-relevant curriculum, stakeholder perceptions

Abstract

The study examined the outcomes of vocational institution reputation, education quality, and employability on the perceived value of vocational education and the mediating effect of an industry-relevant curriculum through the Resource-Based View (RBV), Brand Equity Theory, Theory of Planned Behavior (TPB), and the Stakeholder Theory. The explanatory sequential mixed-method design was adopted. The quantitative analysis of survey data was based on 300 respondents: 150 employers and 150 learners in the vocational institution in Thailand. The in-depth interview included 10 employers and 10 learners using a qualitative thematic analysis. The statistical data through the Partial Least Squares Structural Equation Modeling (PLS-SEM) showed that internal quality and external market strengths are strong predictors of the perceived value, with the strength of the correlation on the relevance of the curriculum mediating. Turning to an industrial-focused curriculum was a better utilization of institutional strength, as suggested by the substantial mediation results. The multi-group analysis result showed no significant difference between employers and learners; hence, it suggests a high conversion rate in the perceptions of the stakeholders. The qualitative data analysis supported these findings and indicated that three key value drivers contributed to the perception: alignment of curriculum with industry needs, presence of evidence of employability outcomes, and consistent performance of the institution.

1. Introduction

Technical and Vocational Education and Training (TVET) has been critical in making people ready to handle the dynamic needs of the digital era's work environments. In the shifts of technology in the industries, there is a tendency for employers to seek employees with practical skills, flexible work practices, and high levels of digital skills (UNESCO-UNEVOC, 2021). The TVET programs offer a direct route to employment by enabling individuals to acquire hands-on, industry-specific skills along with personalized market competencies and opportunities for lifelong reskilling and upskilling (OECD, 2022). In Thailand, an increasing number of people are showing an

This is an open access article under the CC BY-NC-SA 4.0 license.



interest in TVET as the prices of traditional higher education are getting higher, and fewer people are registering to get it. Low-income families are attracted to programs in the vocational schools since they last a shorter period of study, their curriculum is different, and it is easier to secure a job (OECD, 2023). Digital learning tools, such as e-learning, work-integrated training, and hybrid learning modules, have also enhanced the accessibility of TVET (Chatterjee et al., 2021).

Thailand goes a notch higher in supporting the vocational learners by establishing a high transfer of credit and lifelong learning. Learners are also able to work towards credit banking, which allows them to accumulate learning outcomes at one institution and progress to take on either higher vocational or academic education (Hanaysha et al., 2023; UNESCO-UNEVOC, 2021). Commercial vocational institutions: These institutions offer courses related to business, e.g., accounting, marketing, finance, and business administration. Thailand has an economy that is driven by the SME, which explains why they are regarded as the commercially oriented vocational educational institutions. The reputation and brand strength of these institutions influence how learners and employers perceive the quality and employability of their programs (Amado et al., 2023; Pinar et al., 2020). However, many institutions struggle with outdated curricula, insufficient employer engagement, and a disconnect between industry demands and the skills of their graduates (Chatterjee et al., 2021). Perceived value is key to students' school choice and employers' opinions of graduates. Learners are seeking certified programs, robust industry networks, and access to quality employment opportunities (Parua & Yang, 2024). Employers focus on job readiness, competence at work, and both technical and soft skills (Li, 2022; Saniuk et al., 2021). Efforts to align the programs with these expectations are lacking, resulting in poor outcomes for learners and a decline in confidence among employers in the institutions (Karaca-Atik et al., 2023; OECD, 2023).

The most important process that links institutional advantages to stakeholder value is curriculum relevance. Curricula aligned to the industry are also more employable, as they incorporate digital skills, communication, problem-solving, and real-world workplace experience (Li, 2022; Parua & Yang, 2024). Institutions that maintain a favorable relationship offer internships, and current teaching methods have greater credibility among learners and employers (Cheng et al., 2022; Domagała-Zyśk et al., 2022). The study examined the impact of institutional reputation, educational quality, and employability outcomes on the perceived value of vocational education and the mediating role of industry-relevant curriculum. And considered the reasons why employees and trainees perceived these factors differently or similarly. This research enhanced the relevance of the curriculum, the reputation of the institutions, and workforce preparation by attending to the commercial vocational institutions in Thailand, which helped augment the nation's educational provision and competitiveness. This study addresses the following research questions:

RQ1: Are there significant differences between employers and learners in their perceptions of vocational institutional strength (internal and external), perceived value, and industry-relevant curriculum?

RQ2: To what extent does vocational institutional strength (internal and external) influence perceived value among employers and learners?

RQ3: To what extent does the perceived industry-relevant curriculum mediate the relationship between vocational institutional strength and perceived value?

RQ4: Why do employers and learners perceive vocational institutional strength and perceived value differently or similarly?

2. Literature Review

These four theories are related. RBV (Barney, 1991) describes the point of departure—resources such as teachers, labs, and employer networks provide vocational institutions with an advantage. Brand Equity Theory (Aaker, 1991) goes a step higher and demonstrates how such resources influence the perceptions of strangers of the institution. TPB (Ajzen, 1991) aids in understanding what individuals do in reality as per those perceptions, in which case they enroll, hire, or partner. Stakeholder Theory (Freeman, 1984) introduces the aspect of comparison as employers and learners might balance things differently, though they may be looking at the same institution. It is all combined in the curriculum. Making the curriculum relevant to industry needs bridges the institution's resources and stakeholders' views of its value, enhancing the alignment between educational outcomes and industry expectations. This alignment is the reason that Perceived Industry-Relevant Curriculum (PIRC) was conceptualized as an intermediary.

2.1 Resource-Based View (RBV)

A sustainable competitive advantage is based on the Resource-Based View (RBV), which states that resources are valuable, rare, inimitable, and non-substitutable (Barney, 1991). The resources of vocational education that simultaneously contribute to the institutional image, the topicality of the curriculum, and the attractiveness among learners and employers are qualified teachers, modern facilities, technology, and employer relations (Chatterjee et al., 2021; Pinar et al., 2020). According to RBV, long-term competitiveness is also founded on

sustained investment in innovation, governance, and digital learning infrastructure. RBV has been used in the current research to formulate the theoretical perspective on the relationships between internal and external institutional strengths and the perception of value, enrolment, and trust by the employers of the Thai vocational education sector, as well as to explain how the stakeholders manage to convert resource advantages, accreditation, and industry associations into their perceptions.

2.2 Brand Equity Theory

Brand awareness, the perceived quality, brand associations and brand loyalty have been discovered to be significant elements affecting stakeholder decision making as presented by Brand Equity Theory (Aaker, 1991). High brand equity, in vocational education, is associated with higher institutional reputation, higher enrolment, and improved employer relations (Amado et al., 2023; Pinar et al., 2020). Institutional appeal and employer credibility is further boosted by perceived quality, graduate outcomes, and accreditation. This research is based on the Brand Equity Theory that seeks to establish how the topicality of the curriculum, modernization of teaching and industry relevance can boost the positive brand association, and therefore impact the perception of the work value among the employers and students of the vocational education program.

2.3 Theory of Planned Behavior (TPB)

The Theory of Planned Behavior (TPB) explains the correlation between attitudes, subjective norms and perception of behavioral control and the intentions and behavior of individuals (Ajzen, 1991). In this study, TPB is used in the decision making by vocational students and employers about school choice, employment and cooperation. The usefulness, employability, and social expectations allow learners to consider the programs, whereas the competence, readiness, and reputation are considered by employers (Cheng et al., 2022). The way to form perceived control under the influence of external factors, such as family, peers, affordability, and access to digital learning, also defines how the stakeholders assess the institutional strength and relevance of the curriculum (Wang, 2024).

2.4 Stakeholder Theory

Stakeholder Theory maintains that organizational success should be based on addressing the needs of the various stakeholder groups (Freeman, 1984) and that there is no domineering group in the vocational education environment. When the stakeholders are included in developing the curriculum, partnering, and ensuring quality, institutions perform better (Hanaysha et al., 2023); high employer interest leads to better job preparedness and credibility, and learner-centered practices enhance satisfaction and trust. Stakeholder Theory is used in this paper to examine similarities and differences in employer and learner perceptions of the strength of institutions, curriculum relevance, value, as well as to explain the effects of stakeholder expectations on employability, branding, and program alignment.

2.5 Previous Research

Past studies were very convincing in terms of coming up with the model, variables, and hypotheses for the research. Previous research indicated that the internal institutional resources, teaching quality, facilities, governance, and accreditation played a significant role in determining the perception of the stakeholders regarding the value and credibility of the vocational institutions (Albornoz-Toyohama et al., 2025; Pinar et al., 2020). This was the reason to investigate the influence of internal strengths on perceived value. It was also found that external strengths, such as employer partnerships, internships, industry recognition, and graduate employment outcomes, were significant in the development of trust among learners, as well as employers (Castro-Gómez et al., 2024; Kebede et al., 2024). These results also justified including external and market-related strengths as additional predictors in the model. This fact was also emphasized by numerous studies that curriculum relevance was the process that turned the institutional strengths into employment rewards (Ho et al., 2022; Yusop et al., 2023). This directly favored the mediating role that was experienced in this study. Lastly, previous studies established the variation in the way employers and learners perceived the quality of education, which was the reason why a multi-group comparison could be conducted to verify whether both groups valued the institutions in the same way (Hirudayaraj et al., 2021; Rizwan et al., 2021)

2.6 Hypotheses Development

The eleven hypotheses proposed in this study are grounded in prior empirical work. Table 1 summarizes the theoretical rationale, supporting literature, and hypothesis statements.

Table 1 Hypotheses and supporting literature

No.	Hypothesis	Rationale	Supporting Literature
H1	VIPS → PV	Internal institutional perceived quality (IR, QET, FR) directly shapes stakeholder perceived value	Albornoz-Toyohama et al. (2025); Pinar et al. (2020); Fernández-Gubieda & Gutiérrez-García (2025)
H2	VIPS → PIRC	Internal quality enables curriculum alignment with industry through PA, CU, and IEI	Albornoz-Toyohama et al. (2025); Pinar et al. (2020); Fernández-Gubieda & Gutiérrez-García (2025)
H3	VIPME → PV	External market strengths (EOCS, IVE) are antecedents to perceived value	Castro-Gómez et al. (2024); Kebede et al. (2024)
H4	VIPME → PIRC	External strengths (EOCS, IVE) drive curriculum relevance through industry engagement	Castro-Gómez et al. (2024); Kebede et al. (2024)
H5	PIRC → PV	Industry-aligned curricula enhance perceived value (FV, EV, SV, EcV)	Ho et al. (2022); Yusop et al. (2023)
H6	PIRC mediates VIPS → PV	Curriculum relevance translates internal strengths into perceived value	Nguyen et al. (2022)
H7	PIRC mediates VIPME → PV	Curriculum relevance translates external strengths into perceived value	Nguyen et al. (2022)
H8	Group difference: PV	Prior findings are inconsistent on group differences in perceived value	Hirudayaraj et al. (2021); Rizwan et al. (2021)
H9	Group difference: VIPS	Groups may differ in how they assess internal institutional strength	Hirudayaraj et al. (2021); Rizwan et al. (2021)
H10	Group difference: VIPME	Groups may differ in how they assess external institutional strength	Hirudayaraj et al. (2021); Rizwan et al. (2021)
H11	Group difference: PIRC	Groups may differ in how they assess curriculum relevance	Hirudayaraj et al. (2021); Rizwan et al. (2021)

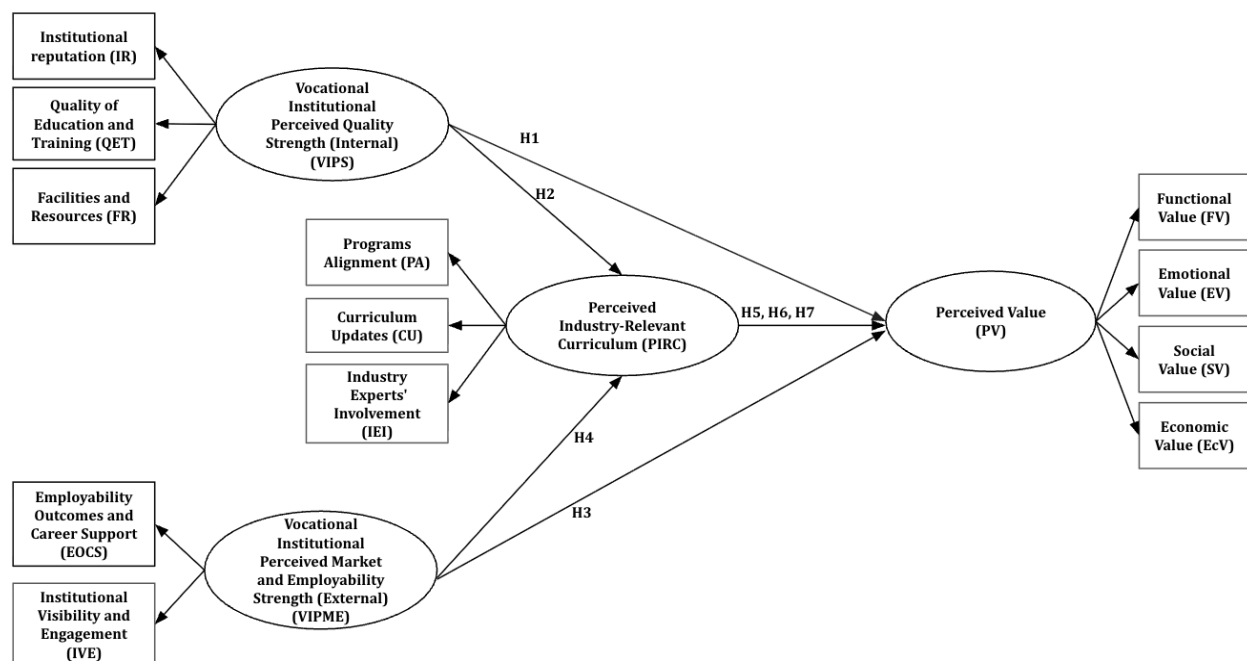
**Fig. 1** Conceptual framework 1 (H1-H7)



Fig. 2 Conceptual framework 2 (H8-H11)

3. Methodology

In this research, the explanatory, sequential mixed-method design was used to address the multidimensionality of stakeholder perceptions in vocational education (Ho et al., 2022; Scott & Guan, 2023). The study began with a quantitative phase that utilized survey data from employers and learners to investigate the variance in perceptions, the impact of institutional strengths on perceived value, and the influence of curriculum relevance. The use of Partial Least Squares Structural Equation Modeling (PLS-SEM) was associated with its method of using complex models, latent variables, and middle-to-intensive sample sizes (Hair, Hult, et al., 2021). Multi-group analysis (MGA) was used to compare the structural relationships among the groups of stakeholders (Sarstedt et al., 2024). Considering that only quantitative data might fail to identify contextual subtleties, the research was subsequently conducted by semi-structured qualitative interviews (Bell et al., 2022). The qualitative stage contributed to the explanation of the unforeseen or insidious pattern (Thornberg et al., 2022), especially why employers and learners evaluated institutional quality and relevance to curriculum in a similar or different way. The combination of both types of data facilitated credibility and depth, as well as practical relevance, by supporting both theoretical and practical contributions to the research on vocational education.

3.1 Quantitative Data

The quantitative section of the research entailed the collection of structured numerical information to influence the perception of the employers and learners as to the quality of vocational institutions, curriculum, and perceived value. A questionnaire was used to gather the data using a 5-point Likert scale (Likert, 1932), through which the participants had to indicate whether they agreed with the key construct statements or not. PLS-SEM was used as the main analytical tool because it is suitable to analyze complex models that have a number of latent representations and mediation cycles with a variety of perceptual variables. The tests of measurement reliability and validity were done by composite reliability, outer loadings, and average variance extracted (AVE), as well as discriminant validation through HTMT. Bootstrapping, R^2 , f^2 , Q^2 , and VIF were used to test the structural paths. Purposive sampling was used to select proper and reachable subjects. The employer group was composed of SME leaders and managers under the membership of the Thai Chamber of Commerce, while the learner group included current students and graduates of vocational institutions in Bangkok. Considering the 10-times rule by (Hair, Hult, et al., 2021), 120 per group would have been a sufficient sample size; yet the research work managed to obtain 150 employers and 150 learners to enhance the statistical reliability. The research team conducted a pilot test of the questionnaire, based on prior studies, to ensure its clarity, contextual fit, and reliability before rolling it out.

Common Method Bias Test. Since the entire data was gathered on a single respondent at one time, the risk of the common method bias (CMB) has been measured by the full collinearity method measure of SmartPLS. The VIFs of all the structural paths were between 1.32 and 1.63, nowhere close to Hair and Alamer's (2022) suggested 5.0 level of variance inflation. These findings suggest that there is no material common method bias issue in this study.

3.2 Qualitative Data

The qualitative stage expanded the research scope by exploring how employers and learners interpret the brand strength of vocational institutions and the relevance of the curriculum. This step was based on the explanatory sequential design of (Babbie & Edgerton, 2023), which provides the researchers the opportunity to examine the more profound meanings of the quantitative patterns. Intensive, semi-structured interviews with 20 participants—10 employers of SMEs in the Thai Chamber of Commerce and 10 learners assisted by the Office of the Vocational Education Commission—were held. This approach was selected as it delivered qualitative and profound information, which could not be represented by the survey data due to their motivations, personal experience, and situational background (Bell et al., 2022; Scott & Guan, 2023). The exploratory qualitative approach was utilized to process the emerging issues, narrow comprehension, and discover the perspectives of the stakeholders that were used to form the whole picture of the interpretation of institutional value (Creswell, 2021; Taylor, 2022). In-depth interviews provided the participants with the opportunity to describe their perceptions in a free way and also contributed to triangulation by confirming or clarifying the quantitative data (Flick, 2022). Transcripts were coded using thematic analysis and the same identified recurring concepts, patterns, and themes. The coding process was conducted using an inductive approach, whereas NVivo software

was employed to organize a set of data in a systematic way and to improve transparency and methodological rigor (Goyal & Deshwal, 2023). This extensive qualitative research process enhanced the credibility and the context of the study.

4. Analysis and Findings

4.1 Quantitative Results

Table 2 indicates the demographic characteristics of the respondents, showing that the majority of learners were female (67.3%), while males represented 32.7%. The majority of respondents were ages less than 20 (54%), and 46% were ages 20–30. In terms of education status, 60% were current learners, and 40% were graduates. In terms of occupation, 60% were learners, and 40% were working as officers.

Table 2 Demographic profile of learners (n=150)

Variable	Category	Frequency	Percentage (%)
Gender	Male	49	32.7
	Female	101	67.3
Age group	Below 20	81	54
	20–30	69	46
Status	Current Learners	90	60
	Graduates	60	40
Occupation	Learner	90	60
	Officer	60	40

Table 3 outlines the demographic features of the respondents who are employers. The respondents who were the employers were also split into 58% females and 42% males. The age category with the highest representation was 31–40 years at 43.33%, followed by 41–50 years at 34.67%, and those above 51 years at 22%. As regards work positions, 38.7% were in executive positions, 33.33% were business owners, and 28% were in managerial positions. In the business industry, 42.67% of participants were in the manufacturing sector, 38% were in the services sector, and 19.33% were in the retail sector.

Table 3 Demographic profile of employers (n=150)

Variable	Category	Frequency (n)	Percentage (%)
Gender	Male	63	42
	Female	87	58
Age group	31–40	65	43.33
	41–50	52	34.67
	Over 51	33	22
Occupation	Manager	42	28
	Executive Level	58	38.7
	Busniess Owners	50	33.33
Business Sector	Retail	29	19.33
	Service	57	38
	Manufacturing	64	42.67

4.1.1 Structural Model Results

Figure 3 provides the results of the structural model produced by using SmartPLS software, showing how institutional strength constructs relate to perceived industry-relevant curriculum (PIRC) and perceived value (PV). R^2 values of the endogenous variables have also been reported in the diagram, in which PIRC ($R^2 = 0.816$) and PV ($R^2 = 0.887$) are found to have strong explanatory power. (Hair, Page, et al., 2021) state that above 0.50, the values indicate that a predictor has a high predictive power, implying that the predictors in this case jointly explain a significant amount of variance in the two outcomes. This number provides a conceptual picture of the relevance of curricula with respect to internal and external institutional capabilities, which shape the perception of value. The specific results of the statistical analysis (path coefficients, the levels of significance (t-values and p-values), reliability and validity tests, model fit, and the results of the multi-group analysis) are provided in the following tables (Hair, Hult, et al., 2021; Sarstedt et al., 2022). The figure with the tables presents a complete picture of how the model performs and how effective the relationships being studied in the current study are according to reporting recommendations stipulated by (Creswell, 2021).

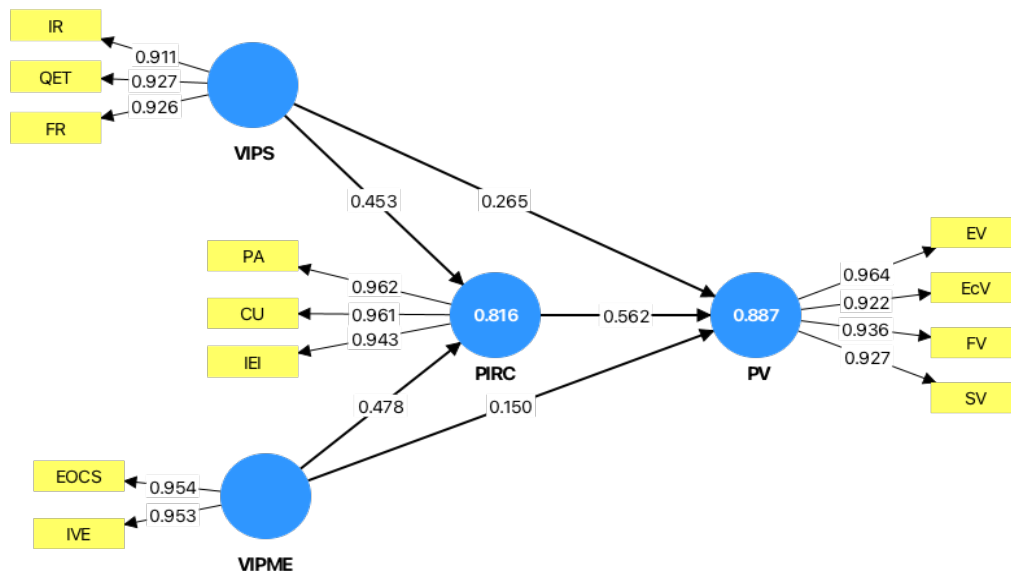


Fig. 3 Measurement model test results

Table 4 indicates the reflective construct loadings and reliability of all the reflective constructs used in the measurement model. The standardized loading of all indicators (0.911–0.964), which exceeds the recommended 0.70, indicates high standards of indicator reliability (Hair, Hult, et al., 2021). All the constructs have a Cronbach's Alpha of 0.900–0.954 and have high internal consistency. The construct reliability is also supported by composite reliability (CR) values, which are 0.944–0.969, and are higher than the accepted cut-off of 0.70 (Sarstedt et al., 2022). The average variance extracted (AVE) values are between 0.809 and 0.913, which is well above the 0.50 minimum; therefore, there is a high level of convergent validity (Hair, Hult, et al., 2021). These findings prove that all the constructs—VIPs, VIPME, PIRC, and PV—are in compliance with the high rigor criteria of reliability and validity of PLS-SEM.

Table 4 Indicator loadings

Construct	Indicator	Loading	Cronbach's Alpha	CR	AVE
VIPS	IR	0.911	0.911	0.944	0.849
	QET	0.927			
	FR	0.926			
VIPME	EOCS	0.954	0.900	0.952	0.809
	IVE	0.953			
PIRC	PA	0.962	0.952	0.969	0.913
	CU	0.961			
	IEI	0.943			
PV	EV	0.964	0.954	0.967	0.879
	EcV	0.922			
	FV	0.936			
	SV	0.927			

Table 5 shows the coefficient of determination (R^2) as to the endogenous constructs in the structural model. PIRC is valued at $R^2 = 0.816$; it shows that the predictors have an 81.6% variance that the model explains, which is a significant value of predictors under the PLS-SEM standards (Hair, Hult, et al., 2021). Similarly, the R^2 of PV is equal to 0.887; that is, 88.7% of its variance is explained by its predictors, which is an excellent percentage of predictive power (Sarstedt et al., 2022). These high R-squared values prove that the model is a good predictor, and the structural relationships can explain the outcome of interest.

Table 5 Coefficient of Determination (R^2)

Endogenous Variable	R^2 Value
PIRC	0.816
PV	0.887

Table 6 shows the most significant structural associations of the PLS-SEM model. $\text{PIRC} \rightarrow \text{PV}$ ($\beta = 0.562$) is the most significant effect, which proves the relevance of curriculum as the key factor of perceived value. Curriculum relevance is also strongly affected by both external institutional strength ($\text{VIPME} \rightarrow \text{PIRC}$, $\beta = 0.478$) as well as internal institutional strength ($\text{VIPS} \rightarrow \text{PIRC}$, $\beta = 0.453$). The positive but lower direct effects on perceived value are also present ($\text{VIPS} \rightarrow \text{PV}$, $\beta = 0.265$; $\text{VIPME} \rightarrow \text{PV}$, $\beta = 0.150$). In general, the findings indicate that the perceived value mainly impacts institutional strengths by the relevance and consistency of the curriculum, which is in line with the PLS-SEM guidelines (Hair, Hult, et al., 2021; Sarstedt et al., 2022).

Table 6 Path coefficients and significance values

Relationship	Path Coefficient
$\text{PIRC} \rightarrow \text{PV}$	0.562
$\text{VIPME} \rightarrow \text{PIRC}$	0.478
$\text{VIPME} \rightarrow \text{PV}$	0.150
$\text{VIPS} \rightarrow \text{PIRC}$	0.453
$\text{VIPS} \rightarrow \text{PV}$	0.265

Figures 4 and 5 summarize the Multi-group Analysis (MGA) comparing employers and the learners. The visual model will give an idea of differences between groups, whereas the most crucial statistical results (path differences, t-values, and p-values) will be listed in the following tables (Hair, Hult, et al., 2021; Sarstedt et al., 2022).

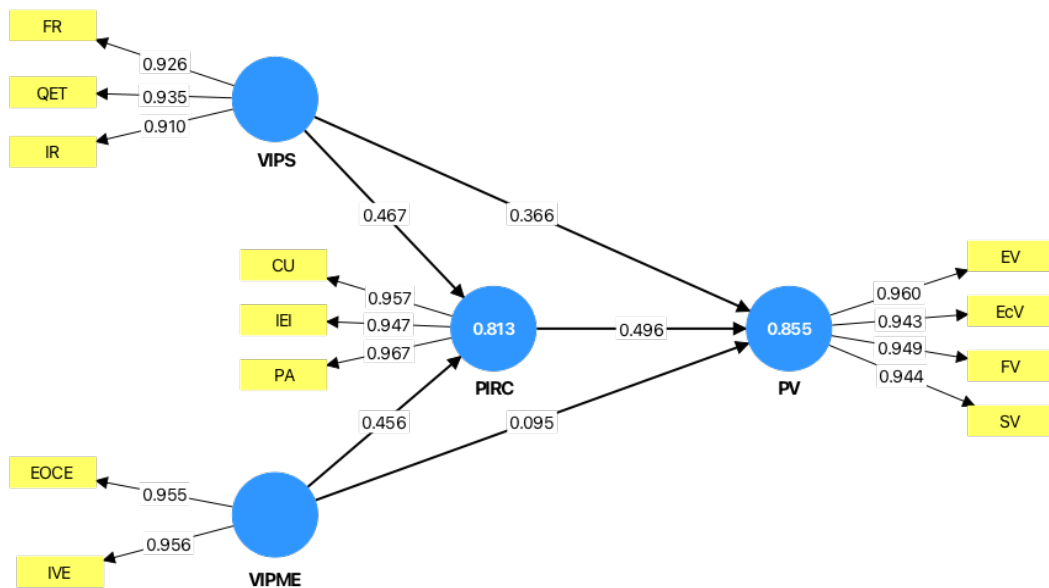


Fig. 4 Structural Model- Employer Group

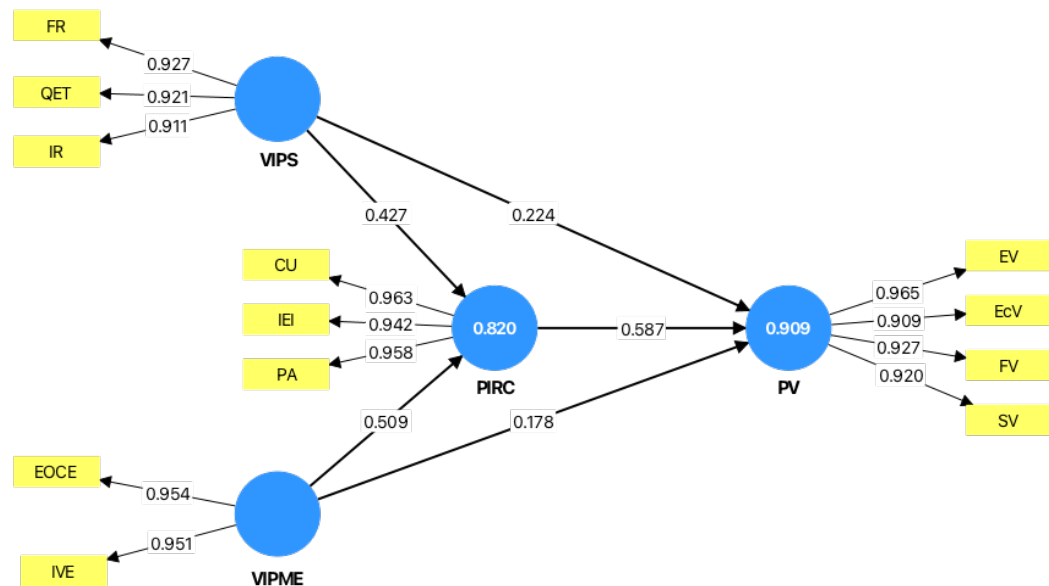


Fig. 5 Structural Model- Learner Group

Table 7 presents the Multi-Group Analysis (MGA) comparing the differences in pathways between the employer and learner groups. All the differences in the pathways demonstrate insignificant t-values and p-values above 0.05, showing no statistically significant group differences across any structural pathways. These findings indicate that the connections between VIPME and VIPS, PIRC, and PV were understood almost identically by employers and learners, which is in accordance with MGA interpretation rules in PLS-SEM (Hair, Hult, et al., 2021). There was no moderating effect of group membership, and both groups of stakeholders rated structural relationships in a similar way.

Table 7 Multi-Group Analysis results

Path	Difference	t-value	p-value
PIRC → PV	-0.091	0.564	0.573
VIPME → PIRC	-0.053	0.336	0.737
VIPME → PV	-0.083	0.648	0.518
VIPS → PIRC	0.040	0.250	0.803
VIPS → PV	0.143	0.936	0.350

The model fit indices of the PLS-SEM structural model are shown in Table 8. The excellent model fit is demonstrated by the SRMR value of 0.036 that is significantly lower than its recommended value of 0.08 (Hair, Hult, et al., 2021). The dULS (0.100) and dG (0.291) are low, implying that their differences between the empirical covariance matrix and the model-implied covariance matrix are small. The Chi-square value is not a central consideration of the PLS-SEM but is reported in its completeness (Hair, Hult, et al., 2021). The NFI value (0.90) is acceptable; it also provides that the model has sufficient performance. On the whole, all these indexes show that the model fits well across the globe, and its structural validity is not very large, which is what is recommended of PLS-SEM.

Table 8 Model fit indices

Index	Value	Threshold	Interpretation
SRMR	0.036	< 0.08	Excellent model fit (well below cut-off)
d_ULS	0.100	Lower = better	Very small discrepancy, acceptable
d_G	0.291	Lower = better	Low discrepancy, acceptable
Chi-square	542.420	-	Reported but not central in PLS-SEM
NFI	0.90	> 0.90 (acceptable) >0.95 (good)	Acceptable fit

Effect size (f^2) and predictive relevance (Q^2). In addition to the calculation of path coefficients, the value of effect size (f^2) was calculated to determine the strength of the effect of each predictor on its endogenous construct. Adhering to Cohen (1988), a f-value of 0.02, 0.15, and 0.35 is a small, medium, and large effect, respectively. Simultaneously, predictive relevance (Q^2) was assessed with the help of the PLSpredict procedure, in SmartPLS; Q^2 values that exceed zero validate the predictive relevance of the model on the endogenous constructs (Hair, Hult, et al., 2021). Table 9 below gives the summary of results.

Table 9 Effect size (f^2) and predictive relevance (Q^2)

Path	f^2	Effect Interpretation	Q^2 (indicator under PV)
PIRC → PV	0.516	Large	EV: 0.766
VIPME → PIRC	0.268	Medium	EcV: 0.683
VIPS → PIRC	0.241	Medium	FV: 0.732
VIPS → PV	0.108	Small to Medium	SV: 0.716
VIPME → PV	0.034	Small	—

As shown in Table 9, all f^2 values indicate meaningful effects consistent with the strong path coefficients reported earlier. All Q^2 values for the PV indicators are greater than zero, confirming the model's predictive relevance for perceived value.

Figure 6 shows the standardized structural model and t-values of the PLS-SEM (Hair & Sarstedt, 2021). The figure gives a general idea of the relationship tested, and the statistical results and analysis of the hypothesis testing are posted in Table 10 (Sarstedt et al., 2022).

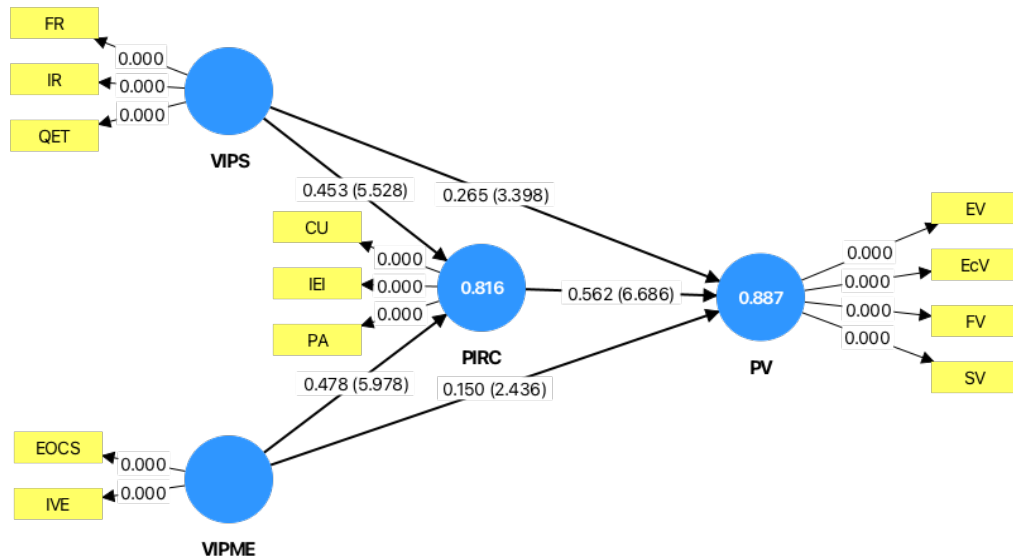


Fig. 6 Structural model with standardized path coefficients and t-values

The findings of the hypothesis testing based on bootstrapping are summarized in table 10. The structural paths are statistically significant by comparison with the p-value of less than 0.05 and t-value that is higher than the recommended value of 1.96 (Hair, Hult, et al., 2021). PIRC→PV, VIPME→PIRC, and VIPS→PIRC had the strongest effect, with $\beta = 0.562$ $t = 6.686$, 0.478 $t = 5.978$, and 0.453 $t = 5.528$ respectively. VIPME→PV ($\beta = 0.150$, $t = 2.436$) and VIPS→PV ($\beta = 0.265$, $t = 3.398$) also had significantly lessened effects. These findings prove that each of the hypotheses put forward was verified, which shows that the structural relationships of the model are strong (Hair, Hult, et al., 2021; Sarstedt et al., 2022).

Table 10 Summary of hypothesis testing results using bootstrapping

Path	Path Coefficient	t-value	p-value	Supported
PIRC → PV	0.562	6.686	0.000	Yes
VIPME → PIRC	0.478	5.978	0.000	Yes
VIPME → PV	0.150	2.436	0.015	Yes
VIPS → PIRC	0.453	5.528	0.000	Yes
VIPS → PV	0.265	3.398	0.001	Yes

4.2 Qualitative Results

Table 11 shows the in-depth interview profile of 10 SME employers aged between 47 and 57, with many of them acting as managers or directors. The majority of them had either bachelor's or master's degrees and were working in manufacturing, retail, service, and wholesale industries. This varied professional experience provided experience-based information about the working requirements of vocational education.

Table 11 Participant information of employers

Participant	Age (Year)	Gender	Highest Educational Attainment	Current Position	Business Sector
t 1	52	Female	Bachelor's Degree	Director	Manufacturing
t 2	47	Female	Bachelor's Degree	Manager	Retail
t 3	47	Female	Bachelor's Degree	Manager	Service
t 4	48	Male	Bachelor's Degree	Manager	Service
t 5	57	Male	Doctoral Degree	Director	Service
t 6	50	Male	Master's Degree	Business Owner	Wholesale & Retail
t 7	48	Male	Bachelor's Degree	Manager	Service
t 8	55	Female	Bachelor's Degree	Manager	Service
t 9	57	Male	Master's Degree	Director	Service
t 10	47	Male	Master's Degree	Director	Manufacturing

Table 12 summarizes the learners who participated in the in-depth interviews. The students were mainly female, aged between 18 and 30 years, and pursuing Higher Vocational Certificate programs. The majority of the participants mentioned continuous or completed internships, which made them able to provide informed input regarding the relevance of the curriculum and vocational learning alike.

Table 12 Participant information of learners

Participant	Age (Year)	Gender	Enrolled Program	Learner Position	Internship/Work Experience Sector
t 1	30	Female	Higher Certificate	Vocational Graduate	Yes
t 2	29	Female	Higher Certificate	Vocational Graduate	Yes
t 3	28	Female	Higher Certificate	Vocational Graduate	Yes
t 4	30	Female	Higher Certificate	Vocational Graduate	Yes
t 5	29	Female	Higher Certificate	Vocational Student	Yes
t 6	28	Female	Vocational Certificate	Student	Yes
t 7	20	Female	Higher Certificate	Vocational Student	Yes
t 8	21	Female	Higher Certificate	Vocational Student	Yes
t 9	20	Female	Higher Certificate	Vocational Student	Yes
Participant 10	21	Female	Higher Certificate	Vocational Student	Yes

4.3 Codes

The NVivo software was used to code and analyze the emergent themes in the in-depth interview transcripts of the learner and employer to develop the codes and subsequently categorize them by the emergent themes (Elliott-Mainwaring, 2021; Flick, 2022). Employers contained expectations of graduate preparedness, industry demands, curriculum relevancy, and performance issues. Learners generated codes concerning personal identity, confidence, skill development, and employability perceptions. These codes are the initial level of qualitative understanding before classifying them into larger themes. Figure 7 shows the Employer codes, and Figure 8 shows the Learner codes.

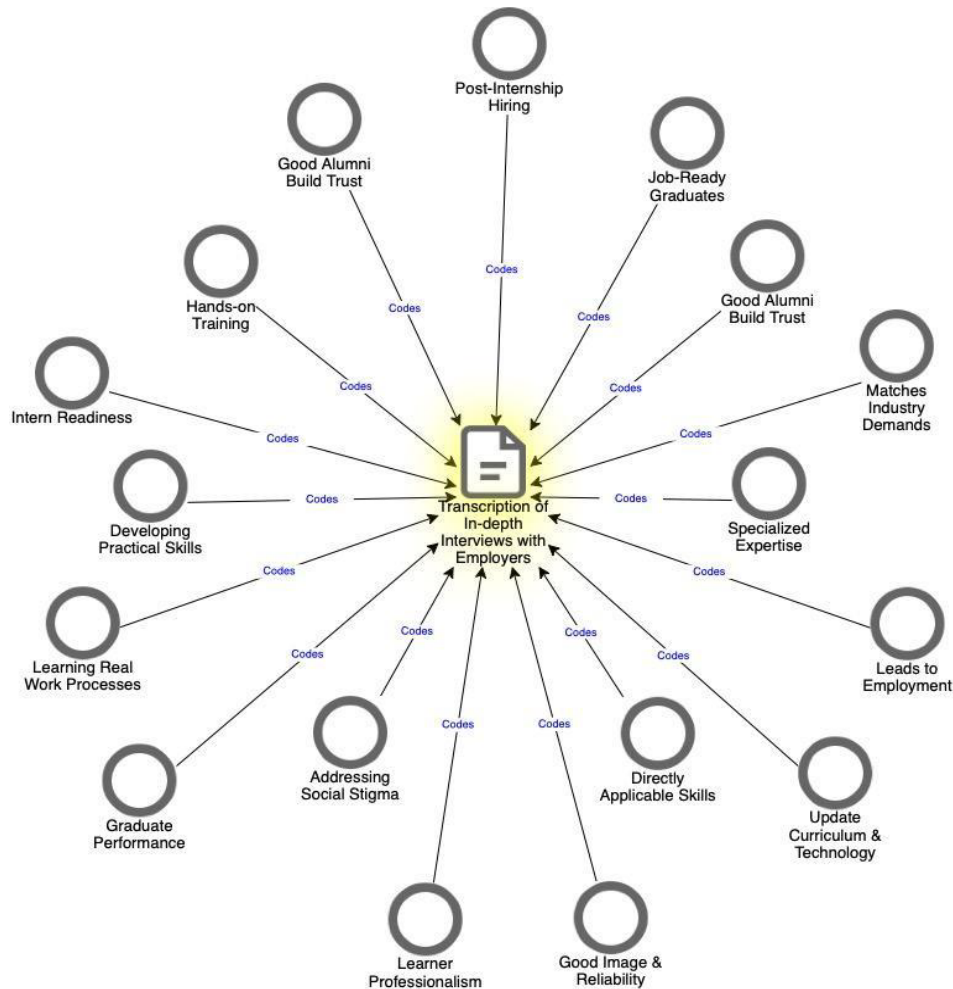


Fig. 7 Employers codes

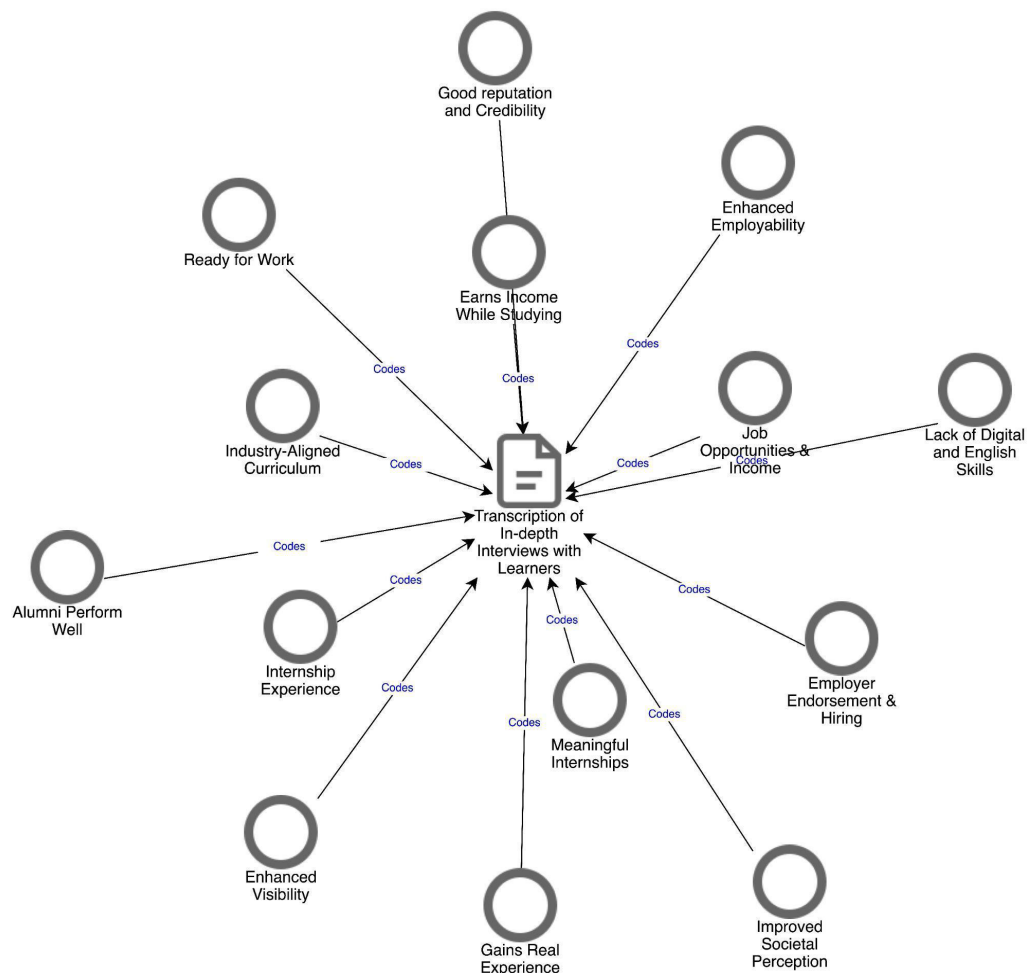


Fig. 8 Learners codes

4.4 Themes

Following the coding step, NVivo software was applied where similar codes were clustered into themes (Creswell, 2021). Employers and learners had similar ideas about the curriculum's relevance, the institution's expectations, and employability, but they viewed them differently. The employers were concerned with industry preparation and the necessity of revising the curriculum, and the learners discussed identity, confidence, and society's perception of vocational education (Flick, 2022). The repeated codes resulted in the development of a set of themes, as shown in Table 13. Both groups generally share similar values regarding practical skills, internships, and employability. The employers also emphasize needs in terms of performance and industry, whereas the learners are more focused on identity, social image, and personal development, which aligns with stakeholder-based interpretations of perceived value (Elliott-Mainwaring, 2021).

Table 13 Themes: Employer and learner perspectives

Themes	Employer Perspective	Learner Perspective
Practical Skills & Real-World Experience	Job-ready graduates, hands-on expertise	Confidence, transferable skills, income opportunities
Reputation & Credibility	Alumni build trust, reliability	Social image, visibility, career confidence
Importance of Internships & Real-World Exposure	Talent scouting, discipline, recruitment channel	Gains real experience, earns income, growth
Market Alignment & Employability	Alignment with industry needs	Enhanced employability, meaningful internships
Areas for Improvement	Curriculum & technology updates	Digital & English skill gaps, reduce social stigma
Employer & Alumni Feedback	Alumni performance builds hiring trust	Alumni success inspires confidence & motivation

The Following are themes and selected quotes from employers and learners:

Theme 1: Practical Skills & Real-World Experience

Employers focused on work readiness.

"What I like about vocational institutions is that they really train learners by doing, not just theory. So when they come into our company, they already know how things work and can apply what they've learned immediately."

"Vocational learners are stronger when it comes to hands-on work. They're ready to start working right away, and they tend to pick up things faster than those coming from regular academic backgrounds."

Learners defined the same skills with the levels of individual confidence and earnings potential:

"The best part about vocational institutions is that they teach you real skills and prepare you for work as soon as you graduate."

Theme 2: Reputation & Credibility

To employers, reputation was based on the performance of alumni:

"If a vocational institution has a good name. For example, if we've hired people from there before and they did well, then yes, we're more likely to accept new applicants from that school."

Learners associated reputation with social image and career confidence:

"I chose this vocational school because it's easy to get to, and the institution has a good reputation. It's also well-regarded in the job market, which gives me more confidence in my future career."

Theme 3: Importance of Internships & Real-World Exposure

Employers considered internships to be a trial period for recruitment:

"What impressed me was that the interns varied in skill and were job-ready."

"Internships help learners understand how real work is done and give them a good starting point for when they start working full-time."

Learners, in their turn, were more inclined to look at internships as the source of experience and revenue:

"During school breaks, they also work with various companies that offer part-time jobs, and we get paid for them, too. It's a really good system."

"It gives us actual work experience and helps us earn extra income."

Theme 4: Market Alignment & Employability

Among the employers, it was agreed that vocational training is well connected to what industries actually want:

"One of the strengths of Thai vocational education is its alignment with labor market needs."

"The programs are practice-based and develop specialized skills that match industry demands, such as automotive repair, electronics, food and hospitality, and digital fields."

On the learner side, the focus was different — what mattered most was getting a job:

"I trust vocational institutions more because I know that I'll have real job chances once I graduate."

"I chose vocational education because I was thinking about the outcome, like having a job and earning a decent salary after graduation."

Theme 5: Areas for Improvement

Learners reported limitations, including the digital skill gap and social stigma.

"For example, in accounting, we only practiced on paper, using notebooks. But in real jobs, everything is done through ERP software. It would be better if schools taught us to use the key programs widely used in the market."

"One thing that still needs to change is how society sees vocational education; it should be equally respected and recognized as academic degrees."

Theme 6: Employer & Alumni Feedback

Employers used alumni performance as a basis for continued recruitment:

"The success stories of alumni also play a role in building trust, as do instructors with real work experience and expertise in their field."

"What builds more confidence in the quality of education is seeing how well the graduates perform in real workplaces, when they can do their jobs properly and match the responsibilities of their roles."

Learners, in turn, drew confidence from employer recognition and hiring of alumni:

"What gives me confidence in a vocational institution is when companies recognize their graduates and are willing to hire them early."

"I've also seen older learners get job offers from these companies; sometimes the employers even come directly to the school to recruit. That gives me confidence that my learning will lead to real career opportunities."

4.5 Integration of Quantitative and Qualitative

The mixed-methods design facilitated the integration of the benefits of both quantitative and qualitative data (Nguyen et al., 2022; Scott & Guan, 2023). The quantitative results of the PLS-SEM analysis (Hair, Hult, et al., 2021) indicate that the perceived value of vocational education was significantly influenced by robust institutional factors, such as reputation and the quality of teaching and facilities, in addition to employability outcomes. The industry-relevant curriculum somewhat mediates the relationship between institutional strengths and perceived value. The Multi-Group Analysis revealed that the employers and learners did not differ significantly in anything, i.e., both parties rated the key factors the same. Qualitative findings also provided detailed explanations for these patterns. As it was found in the NVivo thematic analysis (Elliott-Mainwaring, 2021), the six themes that were

duplicated between two groups include practical skills, reputation, employability, internships, areas to improve, and alumni feedback. The similarity in the themes meant the groups saw them differently. The employers were concerned about job readiness skills, education reforms, and graduate dependability. The learners discussed self-esteem, identity, social behaviors, and self-development. Both groups agreed on the importance of the practical skills and internship programs and the success of alumni, although for different reasons. Employers agreed on productivity and industry demands, and learners agreed on motivation and other perspectives of future and societal perceptions compared to vocational education.

5. Discussion

All seven hypothesized paths were supported. But the more intriguing finding is not that they were supported—it is the pattern. The strongest single path was $\text{PIRC} \rightarrow \text{PV}$ ($\beta=0.562$), which was noticeably larger than the direct paths from $\text{VIPS} \rightarrow \text{PV}$ ($\beta=0.265$) and $\text{VIPME} \rightarrow \text{PV}$ ($\beta=0.150$). This gap matters. It suggests that institutional resources on their own do not automatically create value in the minds of stakeholders. What matters more is whether those resources show up in the curriculum. A school might have great facilities and good employer links. If the curriculum is perceived not to fit the real jobs, the perceived value diminishes. This argument is agreeable to RBV, but it also stretches the theory. The original RBV framework (Barney, 1991) states that resources directly generate value. The relation in the TVET setting seems to be indirect—before resources can move, they must go through a curriculum filter. Brand Equity Theory helps explain this situation: stakeholders do not evaluate raw resources; they evaluate the signals those resources produce, and curriculum is the most visible signal. The partial mediation results (H6: $\beta=0.268$; H7: $\beta=0.255$) confirm that PIRC is not the only pathway, but it is clearly the dominant one. As [Koseda et al. \(2025\)](#) put it, employability has to be planned into a curriculum. It will not show up by itself.

Table 14 Hypothesis testing results (H1–H7)

Hypothesis	Path Coefficient	t-value	p-value	Supported
H1: Vocational institutional perceived quality strength (internal) positively influences perceived value.	0.265	3.398	0.001	Yes
H2: Vocational institutional perceived quality strength (internal) positively influences perceived industry-relevant curriculum.	0.453	5.528	0.0	Yes
H3: Vocational institutional perceived market and employability strength (external) positively influence perceived value.	0.150	2.436	0.015	Yes
H4: Vocational institutional perceived market and employability strength (external) positively influence perceived industry-relevant curriculum.	0.478	5.978	0.0	Yes
H5: Perceived industry-relevant curriculum positively influences perceived value.	0.562	6.686	0.0	Yes
H6: Perceived industry-relevant curriculum mediates the relationship between vocational institutional perceived quality strength (internal) and perceived value.	0.268	5.23	0.0	Yes
H7: Perceived industry-relevant curriculum mediates the relationship between vocational institutional perceived market and employability strength (external) and perceived value.	0.255	3.707	0.0	Yes

The results of MGA indicated that there were no significant differences between the employer and the learner groups in all the structural paths. This is worth considering due to the fact that this opposes some previous findings of other studies. Hirudayaraj et al. (2021) and Rizwan et al. (2021) stated that employers and learners have different views regarding the quality of education. So why did this study find convergence instead? One possible reason is context. The Thai vocational system operates within a centralized system which is operated by

the Office of the Vocational Education Commission. That kind of structure may shape what both groups expect in similar ways, even if their backgrounds are very different. Another explanation comes from the qualitative data. Both groups gave similar scores on the survey, but the interviews showed that their reasons were not the same at all. Employers valued practical skills because it saved them training time and money. Learners valued the same skills because it gave them confidence and a quicker route to earning income. MGA cannot pick up on that kind of difference because it only compares path coefficients, not the thinking behind them. This is exactly why the mixed-methods design turned out to be important — without the interviews, the convergence in numbers would have looked like full agreement, when in fact it was agreement on what matters but not on why it matters. Cai and Kosaka (2024) came to a similar conclusion, which states that students and enterprises co-create the value of TVET and do not deliver value to it

Table 15 Multi-group analysis results (H8–H11)

Hypothesis	Employer Path Coefficient	Learner Path Coefficient	t-value	p-value	Supported
H8: There is a significant difference in vocational institutional perceived value between employers and learners.	0.496	0.587	0.257	0.797	No
H9: There is a significant difference in vocational institutional perceived quality strength (internal) between employers and learners.	0.467	0.427	-0.304	0.761	No
H10: There is a significant difference in vocational institutional perceived market and employability strength (external) between employers and learners.	0.095	0.178	-0.54	0.59	No
H11: There is a significant difference in perceived industry-relevant curriculum between employers and learners.	0.366	0.224	0.409	0.683	No

5.1 Integration of Quantitative & Qualitative Findings

The quantitative and qualitative results assisted in understanding what employers and learners valued and why they had to do so. Quantitative findings revealed high impacts of institutional strength and curriculum relevance on the perceived value and consistent patterns of results between groups. The findings of the qualitative analysis built upon these findings and how the employers and learners understood these constructs differently. The thematic analysis on NVivo (Elliott-Mainwaring, 2021) revealed that there were six common themes, such as practical skills, reputation, internships, employability, areas of improvement, and alumni feedback. Both groups believed that useful skills and internships were necessary. Employers perceived the indicator as productivity and less risk of hiring, whereas the learners perceived it as confidence, development, and career focus. The meaning of reputation was also different, as the employer viewed it based on the performance of the graduates, while the learners viewed it based on their social acceptance and identity. The subtle observations helped explain why MGA could not detect any significant difference in the statistics: both groups valued the same constructs for different reasons. The quantitative framework, which was also supported by the mixed-methods design, ensured the thorough structure of the study, and the quantitative framework demonstrated the depth of the motivation that was evident in the minds of the stakeholders (Nguyen et al., 2022; Scott & Guan, 2023). The aggregate evidence indicated that curriculum relevance was the pivotal interface between institutional strength and stakeholder value, which determined the experiences and perceptions of both groups regarding vocational education.

5.2 Theoretical Contributions

The study applied four key theoretical frameworks that are suggested in vocational education: the Resource-Based View (RBV), Brand Equity Theory, Theory of Planned Behavior (TPB), and Stakeholder Theory, without

contradiction, and proposed a single model to understand the process of value creation in vocational education. Theoretically, the results represent the expansion of RBV in the sense that both internal (in terms of teaching expertise, facilities, and support systems) and external (market reputation, employer trust, and graduate success) resources have an impact (in combination) on the perceived value (Fernández-Gubieda & Gutiérrez-García, 2025). Curriculum relevance as a mediator relates to the fact that the institutional role of converting capabilities into stakeholder benefits was found in the literature concerning the satisfaction of industry-relevant curriculum design by internal quality (Hanaysha et al., 2023; Nguyen et al., 2022; Yusop et al., 2023). Brand Equity Theory expands curriculum relevance as a fundamental brand resource, rather than a mere academic operation. Curriculum alignment with the requirements of the labor market leads to institutional credibility that is evaluated by stakeholders, which is, in turn, a reiteration of previous studies that have shown that perceived quality and institutional reputation are two aspects of value that are co-produced (Albornoz-Toyohama et al., 2025; Pinar et al., 2020). Evidence that employers and learners produce similar attitudinal courses of action when analyzing value postulates similar intentions on the behavioral course of action regarding enrolling, being recommended, and being hired. The theory of Stakeholders is developed with the discovery that the estimation of institutional strengths and relevance of the curriculum exhibits coherence, not discord, between employers and learners, which aligns with the literature of value co-creation (Badawi & Drăgoicea, 2023; Igberaharha, 2021). This argument disputes previous premises of stakeholder combat and advocates cohesive interaction tactics. In practice, the research presents a strategic model of connecting the quality of the institution internally, the reputation of employability, and the alignment of the curriculum to enhance competitiveness in institutions. The integration of PLS-SEM, Multi-Group Analysis, and NVivo methodologies deepens and strengthens validity so that the model generated by the approach can be used in different contexts to investigate educational issues in multi-stakeholder studies.

Combined, the research contributes to the theoretical literature in three ways. To start with, it is one of the first to incorporate into a single empirical model the Resource-Based View, the Brand Equity Theory, the Theory of Planned Behavior, and the Stakeholder Theory into the Thai TVET environment, whereas in previous studies this has generally been done through lenses of one or two. Second, it offers quantitative support to the mediating status of perceived industry-relevant curriculum (PIRC) in the correlation between institutional strength and perceived value that goes beyond the general higher learning environment offered by Nguyen et al. (2022) to the vocational-education context. Third, Multi-Group Analysis findings indicate that convergence, not divergence, exists between employers and learners, which is an empirical finding challenging assumptions in the conflict-oriented paradigms of stakeholder research and supporting a co-creation perspective of institutional value.

5.3 Practical Implications

These findings point to several things different groups can do to support vocational education in Thailand.

What institutions can do. Setting up an advisory board of employers helps. The board should have people from the main industries the school works with — manufacturing, service, retail are good starting points — and meet about twice a year to go over the curriculum. Another useful step is bringing industry into the learning itself. Capstone projects with SME partners work well here, since students end up with real work they can show employers. Faculty training matters too, particularly in digital skills and English, and roughly 40 hours a year per teacher is a number that gets cited in the literature as reasonable.

What policymakers can do. Government money for vocational schools probably should not be flat. Linking part of the funding to how many graduates actually get jobs within six months would push institutions to care about outcomes. A credit-banking system that lets TVET credits transfer to universities is another priority. It would help with the stigma problem learners talked about, and it gives people a path forward if they want to keep studying. One more thing is data. A yearly survey asking employers what they think of TVET graduates would tell policymakers a lot about whether things are improving.

What employers can do. Internships are a common complaint from learners — they described vague, unstructured placements. Employers who join proper programs with written learning goals and real mentors get more out of interns, and the learners get more out of the experience. Feedback after hiring is the other piece. Telling the school how a graduate is doing at six months and again at twelve months closes the loop, so the next batch gets trained better.

5.4 Limitations of the Study

This study has some limitations that determine the extent and the applicability of its results. First, the budget constraints limited the sample size and reduced the variety of employer and learner participants, which may affect the representation of the entire vocational education ecosystem. Second, the study is based on Thai vocational

institutions; the results apply to the particular Thai policy setting, cultural values, and dynamics of the labor market; they might change in other countries. Third, the research provides a timely connotation, representing the perceptions of the stakeholders over the specific period, which can change as the relationships in the economy, policies, or institutional plans transform. Lastly, the theoretical frameworks used in the conceptual model have been carefully restricted to four: resource-based view (RBV), brand equity theory, theory of planned behavior (TPB), and stakeholder theory. The other factors that could have impacted it, like the leadership style, the ability to innovate, and the trends in national economies, were not considered, and this leaves room for research on those factors.

Alternative model setups were not tested in this study. The values of HTMT between VIPS and VIPME were 0.977. This may lead to the likelihood that a second-order measure in terms of internal and external institutional strength may be favored. This hypothesis might be tested in future studies that utilize a higher order of specification to consider the possibility of keeping the two dimensions apart or combining them.

5.5 Recommendations for Future Research

As per the results, the current study provides various suggestions for further research, as it can enhance, confirm, and broaden the knowledge of value creation in the vocationalization of education. To start with, it is necessary to replicate in various contexts of TVET. As vocational systems vary greatly across nations, especially in the form of government organization, the role of employers, and cultural inclination, comparisons across countries would show what elements of the model are universal and what needs to be adapted to the local context. Second, longitudinal studies on how the perception of the stakeholders changes with time are required. Such factors as the technological disruption, the economic cycles, the migration policies, and the emergence of digital skills may profoundly impact the importance that the stakeholders attach to the curriculum relevance, the employability, and the quality of the institution. The same employers and learners would be tracked over a period of years to provide information on the way institutional plans are influencing the long-term results. Third, the conceptual model needs to be developed further with more mediating and moderating variables being tested in future research. The possible mediating variables are institutional innovation capability, engagement of learners, or work-based learning intensity. Relationships in the model can be changed by moderators that include leadership style, economic stability, or industry volatility. Fourth, the incorporation of the multi-source data, such as accreditation outcomes, graduate employment statistics, employer productivity scores, or institutional performance dashboards, would enhance the validity and go beyond the self-reported perceptions. Fifth, industry-related research is necessary since various industries (e.g., healthcare, IT, hospitality) have specific competency requirements, and they can be used to differentiate between institutional values. Sixth, future research must not be limited to the employers and learners, as it must consider the faculty, alumni, regulators, and community partners to get a more complete picture of the convergence or the divergence of all stakeholders. Lastly, the issue of how institutions can convey their curriculum relevance as a component of their branding message should also be examined in terms of experimental or comparative studies. The strategy of determining the most convincing message approaches can play a crucial role in improving recruitment, trust in the employer, and institutional positioning.

Acknowledgements

The researchers appreciate all support from the Advanced Executive Management School (ADVEX), GlobalNxt University (GNU), and the University of Geomatika Malaysia (UGM). We would like to thank all employers and learners who participated in this study.

Conflict of interest

No conflict of interest is declared by the authors.

Author contribution

*The authors confirm contribution to the paper as follows: **study conception and design:** P.S., and B.P.; **data collection:** P.S.; **analysis and interpretation of results:** P.S., and B.P.; **draft manuscript preparation:** P.S., and B.P.. All authors reviewed the results and approved the final version of the manuscript.*

References

- Albornoz-Toyohama, R. H., Mendigure-Hachircana, R., Haro-Casildo, S., & Abanto-Ramírez, C. D. (2025). Factors influencing student retention university students: an analysis of institutional reputation, social responsibility and loyalty. *Frontiers in Education*, 10(1499518).
<https://doi.org/10.3389/feduc.2025.1499518>

- Amado, M., Guzmán, A., & Juárez, F. (2023). Relationship between perceived value, student experience, and university reputation: structural equation modeling. *Humanities & Social Sciences Communications*, 10(1), 1–13.
- Babbie, E., & Edgerton, J. D. (2023). *Fundamentals of Social Research, 6th Edition*. Cengage Canada.
- Badawi, S., & Drăgoicea, M. (2023). Towards a value co-creation process in collaborative environments for TVET education. *Sustainability*. <https://doi.org/10.3390/su15031792>
- Bell, E., Bryman, A., & Harley, B. (2022). *Business research methods* (6th ed.). Oxford University Press.
- Cai, J., & Kosaka, M. (2024). Conceptualizing technical and vocational education and training as a service through service-dominant logic. *SAGE Open*, 14(2). <https://doi.org/10.1177/21582440241240847>
- Castro-Gómez, J., Sánchez-Torres, J. A., & Ortíz-Rendón, P. A. (2024). Influence of sustainability in the positioning of the university brand: Study in universities in Medellín-Colombia. *Heliyon*, 10(9), e30569.
- Chatterjee, S., Bhattacharjee, K. K., Tsai, C.-W., & Agrawal, A. K. (2021). Impact of peer influence and government support for successful adoption of technology for vocational education: A quantitative study using PLS-SEM technique. *Quality & Quantity*, 55(6), 2041–2064.
- Cheng, M., Adekola, O., Albia, J., & Cai, S. (2022). Employability in higher education: a review of key stakeholders' perspectives. *Higher Education Evaluation and Development*, 16(1), 16–31.
- Creswell, J. W. (2021). *A concise introduction to mixed methods research* (2nd ed.). SAGE Publications.
- Domagała-Zyśk, E., Mamcarz, P., Martynowska, K., Fudali-Czyż, A., & Rothwell, A. (2022). Self-perceived employability scale–Polish adaptation. *The New Educational Review*, 70, 9–22.
- Elliott-Mainwaring, H. (2021). Exploring using NVivo software to facilitate inductive coding for thematic narrative synthesis. *British Journal of Midwifery*, 29(11), 628–632.
- Fernández-Gubieda, S., & Gutiérrez-García, E. (2025). University reputation overlooked: A systematic literature review of an under-researched concept. *Corporate Reputation Review*. <https://doi.org/10.1057/s41299-025-00234-5>
- Flick, U. (2022). *The SAGE handbook of qualitative research design*. <https://www.torrossa.com/it/resources/an/5282289>
- Goyal, M., & Deshwal, P. (2023). Online post-purchase customer experience: a qualitative study using NVivo software. *Quality & Quantity*, 57(4), 3763–3781.
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2021). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). SAGE Publications.
- Hair, J. F., Page, M., & Brunsveld, N. (2021). *Essentials of business research methods* (5th ed.). Routledge.
- Hair, J. F., & Sarstedt, M. (2021). Explanation plus prediction—the logical focus of project management research. *Project Management Journal*, 52(4), 319–322.
- Hanaysha, J. R., Shriedeh, F. B., & In'airat, M. (2023). Impact of classroom environment, teacher competency, information and communication technology resources, and university facilities on student engagement and academic performance. *International Journal of Information Management Data Insights*, 3(2), 100188.
- Hirudayaraj, M., Baker, R., Baker, F., & Eastman, M. (2021). Soft skills for entry-level engineers: What employers want. *Neveléstudomány*. <https://doi.org/10.3390/educsci11100641>
- Ho, T. T. H., Le, V. H., Nguyen, D. T., Nguyen, C. T. P., & Nguyen, H. T. T. (2022). Effects of career development learning on students' perceived employability: a longitudinal study. *Higher Education*, 1–19.
- Igberaharha, C. O. (2021). Improving the quality of Technical Vocational Education and Training (TVET) for sustainable growth and development of Nigeria. *Journal of Education and E-Learning Research*. <https://doi.org/10.20448/JOURNAL.509.2021.81.109.115>
- Karaca-Atik, A., Meeuwisse, M., Gorgievski, M., & Smeets, G. (2023). Uncovering important 21st-century skills for sustainable career development of social sciences graduates: A systematic review. *Educational Research Review*, 39(100528), 100528.
- Kebede, A., Asgedom, A., & Asfaw, A. (2024). Is linking technical and vocational training with industry a bridge to employability? Lessons from a literature review for Ethiopia. *Cogent Education*, 11(1). <https://doi.org/10.1080/2331186x.2024.2406721>
- Koseda, E., Cohen, I. K., Cooper, J., & McIntosh, B. (2025). Embedding employability into curriculum design: The impact of education 4.0. *Policy Futures in Education*, 23(3), 676–688.

- Likert, R. (1932). A technique for the measurement of attitudes. *Archives of Psychology*.
- Li, L. (2022). Reskilling and upskilling the future-ready workforce for industry 4.0 and beyond. *Information Systems Frontiers: A Journal of Research and Innovation*, 1–16.
- Nguyen, L., Le, T. H. D., & Phan, L. N. C. (2022). Study on factors affecting training quality in higher education: Evidence from students and enterprises. *Oxford Journal of Technology, Arts, Sciences and Knowledge*, 1(1). <https://www.ojtask.com/index.php/ojtask/article/view/24>
- OECD. (2022). *The Future of Skills and Lifelong Learning*. OECD Publishing.
- OECD. (2023). *OECD Skills Outlook 2023: Building Skills for Economic Resilience*. OECD Publishing.
- Parua, R., & Yang, W. (2024). The driving logic of digital transformation in TVET. *Vocation, Technology & Education*, 1(2). <https://doi.org/10.54844/vte.2024.0590>
- Pinar, M., Girard, T., & Basfirinci, C. (2020). Examining the relationship between brand equity dimensions and university brand equity: An empirical study in Turkey. *International Journal of Educational Management*, 34(7), 1119–1141.
- Rizwan, A., Serbaya, S. H., Saleem, M., Alsulami, H., Karras, D. A., & Alamgir, Z. (2021). A preliminary analysis of the perception gap between employers and vocational students for career sustainability. *Sustainability*. <https://doi.org/10.3390/su132011327>
- Saniuk, S., Caganova, D., & Saniuk, A. (2021). Knowledge and skills of industrial employees and managerial staff for the Industry 4.0 implementation. *Mobile Networks and Applications*. <https://doi.org/10.1007/s11036-021-01788-4>
- Sarstedt, M., Richter, N. F., Hauff, S., & Ringle, C. M. (2024). Combined importance–performance map analysis (cIPMA) in partial least squares structural equation modeling (PLS–SEM): a SmartPLS 4 tutorial. *Journal of Marketing Analytics*. <https://doi.org/10.1057/s41270-024-00325-y>
- Sarstedt, M., Ringle, C. M., & Hair, J. F. (2022). Partial least squares structural equation modeling. In *Handbook of Market Research* (pp. 587–632). Springer International Publishing.
- Scott, T., & Guan, W. (2023). Challenges facing Thai higher education institutions financial stability and perceived institutional education quality. *Power and Education*, 15(3), 326–340.
- Taylor, S. (2022). The psychology of pandemics. *Annual Review of Clinical Psychology*, 18(1), 581–609.
- Thornberg, R., Forsberg, C., Hammar Chiriac, E., & Bjereld, Y. (2022). Teacher–student relationship quality and student engagement: A sequential explanatory mixed-methods study. *Research Papers in Education*, 37(6), 840–859.
- UNESCO-UNEVOC. (2021). *UNESCO-UNEVOC medium-term strategy III: Strengthening TVET capacities and cooperation in the member states, Bonn, Germany: UNESCO-UNEVOC International Centre for Technical and Vocational Education and Training. 2021-2023*.
- Yusop, S. R. M., Rasul, M., Yasin, R. M., & Hashim, H. (2023). Identifying and validating vocational skills domains and indicators in classroom assessment practices in TVET. *Sustainability*. <https://doi.org/10.3390/su15065195>