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Factors Influencing the Selection of Industrial Training Placements Among Polytechnic Students: A Theory of Planned Behaviour Approach

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ABSTRACT – Industrial training forms the foundation of Technical and Vocational Education and Training (TVET), bridging the theory learned in class and work-place practice. Although there is much research on internships and work-based learning, not much research applies the Theory of Planned Behaviour (TPB) to explain placement decisions by Malaysian polytechnic students, particularly from East Malaysia. This paper addresses the gap by examining the determinants of placement decisions at Politeknik Kuching, integrating TPB factors with secondary contextual variables. Quantitative survey design was employed with 176 diploma final-year students from business, IT, accounting, and engineering streams. Data collection and descriptive analysis were done using a structured questionnaire. Outcomes suggest that attitudes influenced most, followed by perceptions of skill acquisition and career prospects. Family support and industry reputation were moderately strong subjective norms and peer pressure was less strong. Perceived behavioural control indicated student confidence but anxiety over competition and field-matching limitations. Future employment prospects and on the job training were secondary considerations that also shaped decisions, which revealed contextual aspects not fully accounted for by TPB. Theoretically, the current study advances TPB by adding contextual and secondary considerations in explaining placement decisions for less-studied regions. In reality, the results are more industry links, improved career guidance, and policy reorientation to serve polytechnic students, particularly under the 1:3 Internship Policy. This study adds to theory by refining TPB in a TVET setting and to practice by offering directions for institutions, policymakers, and industry players to reorient opportunities and student aspirations with labor needs.

KEYWORDS: Theory of Planned Behavior (TPB), Industrial Training Placement, Polytechnic Students, Secondary Factors, Technical and Vocational Education and Training (TVET)

1.0 INTRODUCTION

Industrial training tends to be popular as an integral part of Technical and Vocational Education and Training (TVET), where learners are taught how to apply classroom learning in real workplace settings and improve their occupational competencies. Work-based learning (WBL) has been promoted globally as an approach to enhance employability, reduce skills mismatches, and prepare graduates to respond effectively to evolving labor market requirements. Industrial training in Malaysian polytechnic diploma programs is compulsory, reflecting national goals to graduate capable graduates who can meet industry requirements.

Apart from being a priority, obtaining suitable training placements is a complex issue. Individuals are faced with balancing individual aspirations and institutional limitation and social pressures. Financial aspects, company reputation, location, and whether or not the placement is relevant to the subject of study usually play a factor. Furthermore, guidance from lecturers and family tends to have an impact on decisions, and competition for placements adds further barriers. These challenges are particularly evident in East Malaysia, which has fewer prospects for industry established than in Peninsular Malaysia and hence fewer options for more restricted or limited placement.

Though extensive overseas literature on internships and WBL exists, Malaysian studies have largely been concentrated in Peninsular Malaysian universities and institutions. East Malaysia, thus, lags behind in the literature. Moreover, studies have more or less concentrated on employer expectations or student satisfaction and not on the covert decision-making process. Theory of Planned Behavior (TPB) offers a systematic approach to explaining such decisions in terms of attitudes, subjective norms, and perceived control of behavior, but TPB has not been applied in a number of studies in polytechnic or East Malaysian settings. New policies, for example, the 1:3 Internship Policy [1], also reshaped industrial training expectations, but their impact on student placement choice remains relatively little understood.

This study addresses the gaps that currently exist by employing TPB in analyzing the determinants of industrial training placement choices among students of Polytechnic Kuching, Sarawak. The research employs not only the central constructs of TPB but also secondary factors such as the prospects of future employment, practical exposure, and company-sponsored facilities to represent hard realities of life often lost in existing models.

The contributions of this current study are three. Theoretically, it is an extension of TPB in highlighting the roles of contextual and secondary factors in explaining placement choices within a less-studied area. Empirically, it provides novel information on East Malaysian contexts. In the real world, the findings offer practical suggestions for policymakers, industry partners, and teachers to develop more flexible placement policies and systems that are responsive to students' needs and local workforce development.

2.0 LITERATURE REVIEW

This Industrial training is a TVET foundation that has existed for ages, enabling students to facilitate employability by combining work practice and academic learning [2]. Industrial training in Malaysian polytechnics is compulsory due to the nation's demand for skilled workers [3]. Industrial placement decisions are, however, complex, with students taking into consideration skills development, company reputation, salary, and logistical factors [4]. These results confirm Research Objective 1, which seeks to study demographic trends and placement choice preferences.

The attitude component of TPB is the appreciation that students have towards training outcomes. The literature indicates that students are more likely to select placements with the guarantee of learning skills, career development, and increased employability [5], [6]. On the other hand, administrative-intensive or low technical development placements are less desirable (5]. These findings show that positive expectations strongly determine behavioral intentions. In line with this, H1 predicts industrial training placement attitudes to have a significant impact.

The second element of TPB, subjective norms, highlights the influence of social pressure. Family and lecturer influence are consistently reported as firm determinants of internship choice [7], [4]. Peer influence, on the other hand, appears to be context dependent. Some studies demonstrate strong peer effects, while others report that they have minimal impact. This variation highlights the need for context-specific research, particularly in the context of East Malaysia where social norms dictate a strong consultative role for family. H2 therefore argues that subjective norms play a big role in industrial training placement decisions.

Perceived behavioral control (PBC) is the conviction of the students in controlling the placement process. Past findings show that competition due to the limited number of places and mismatches between study courses and companies' activities are major obstacles [6]. Conversely, students with good technical skills and application knowledge

are more confident of securing placements [8]. These observations reflect how PBC reflects both internal capabilities and external constraints. Thus, H3 predicts that PBC significantly affects placement decisions.

Though TPB provides an exhaustive framework, students' decisions are also guided by secondary factors such as location, facilities, work environment, and career opportunities in the future. Literature shows that students would opt for placements with clear career paths and hands-on skills development even if it means longer travel distances or higher competition [9],[10]. On the other hand, convenience and proximity are less attractive when weighed against employability in the long term. To explain these contextual realities, H4 predicts that secondary factors have a significant influence on students' industrial training placement decisions.

Although there is international literature on internship and WBL that is extensive, limited research applies TPB among polytechnic students in Malaysia, and in East Malaysia particularly. Most existing research focuses on universities or institutions in Peninsular Malaysia, with regional settings being foundation [11]. Additionally, recent policy developments, including the 1:3 Internship Policy [1], have reshaped expectations, but their impact on placement decision-making is weakly explored. By integrating TPB with secondary factors, this study not only puts tested theory to the test but also stretches it to accommodate contextual dynamics of the East Malaysian polytechnic setting. To address these gaps, this study constructs a conceptual framework that applies the Theory of Planned Behavior and is inclusive of secondary contextual factors for the East Malaysian polytechnic student. Figure 1 illustrates the framework.

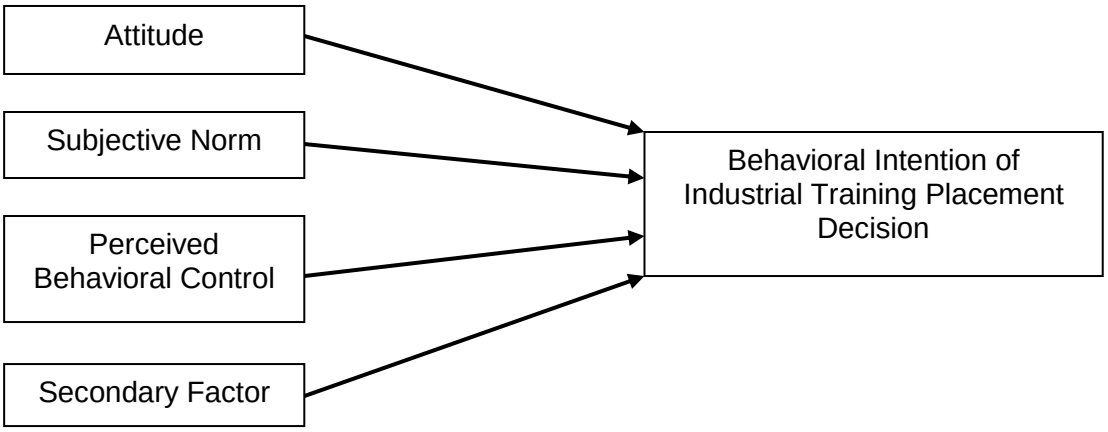

Figure 1: Conceptual framework based on the Theory of Planned Behavior (TPB) and additional factors influencing industrial training placement decisions.

This model illustrates how students' attitudes, subjective norms, and perceived behavioral control, introduced by TPB, interact with secondary factors such as location, working conditions, and possible future employment prospects to shape placement. Attitudinal issues concern skill development, career, and reward. Subjective norms determine parent, lecturer, and company prestige influences, and perceived behavioral control measures students' self-efficacy, technical ability, and familiarity with procedures of application. The incorporation of secondary factors extends TPB by highlighting contextual and pragmatic issues, thereby enriching a fuller understanding of polytechnic students' placement choices.

3.0 METHODOLOGY

3.1 Research Design

The study employed a quantitative survey design to examine factors influences on students' industrial training placement decisions. The design was utilized because it can allow systematic exploration of association between variables as well as capture students' perceptions in a systematic and quantifiable way. Although most of the descriptive statistics were used, the design also provides ground for future inferential modeling such as regression or Structural Equation Modelling that could investigate causal connections in more depth.

3.2 Theoretical Framework

Theory of Planned Behavior (TPB) was the guiding theory in the study, which premises that attitudes, subjective norms, and perceived control for behavior all affect intentions for behavior [12]. TPB's explanatory power was enriched by expanding the theoretical framework to encompass secondary determinants such as location, company offices, and employability prospects. The amendment covers current realities within East Malaysia where opportunities for job placement are often limited and unequally distributed.

3.3 Population and Sampling

The study population included final-year diploma students of Polytechnic Kuching Sarawak, pursuing business, IT, accounting, and engineering streams. Purposive sampling was applied to provide participants with firsthand knowledge in decision-making related to industrial training placement. There were 176 participants. Based on guidelines from Krejcie and Morgan (1970) [13], the sample size is sufficient to provide reliable estimates for medium effect sizes in survey-based research.

3.4 Instrumentation

Information was collected using a standardized questionnaire with two general parts. Section A addressed demographic details.
Section B measured TPB indicators (behavioral attitude, subjective norm, perceived behavior control) and secondary variables.

All the items employed a five-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The instrument was piloted, and 30 students were involved in a pilot test to improve the wording and clarify the questionnaire. Reliability analysis produced Cronbach's alpha values above the threshold of 0.70, which indicated acceptable internal consistency for all the constructs.

3.5 Data Collection Procedures

The questionnaire was conducted online via the institutional platform over a fortnight in July 2025. Data and consent forms were provided to participants prior to participation. Ethical clearance was obtained from the polytechnic's research ethics committee, and anonymity and confidentiality of response were maintained strictly.

3.6 Data Analysis

Data were processed using SPSS version 26. Descriptive statistics (frequency, percentage, mean, and standard deviation) were used to examine demographic trends and evaluate TPB constructs and secondary factors. H1–H4 hypotheses were descriptively tested against trends observed. Though inferential testing was not of core interest, the structure of the dataset allows for future application of techniques such as multiple regression or SEM to examine the predictive validity of the TPB framework.

4.0 RESULTS AND DISCUSSION

The findings of this research on determining the determinants of students' industrial training placement choice are presented in this section. Descriptive statistics including frequency, percentage, mean, and standard deviation were used to analyze demographic profiles and responses of TPB constructs: Attitude, Subjective Norms, and Perceived Behavioral Control. Secondary measurements including location, facilities, and prospects of future employment were also measured. The results are discussed in the light of the research questions and compared with the literature.

Section A: Demographic Profile of Respondents

Table 1 provides an overview of the demographic breakdown of the respondents. Out of 176 respondents, the majority were female (57%) and 21 years old (67%). Students came from various programs, and business (20%) and IT (18%) were the largest groups, followed by engineering-related courses which comprised smaller numbers. In ethnic composition, the sample reflected Sarawak's multicultural nature, with Malay (34%), Iban (26%), and Bidayuh (16%) students being most represented.

Placement preferences showed that over half (52%) opted for local private sector companies, with government departments (34%) and international private placements (13%) following. This reflects that students perceived higher career prospects in private sectors compared to government placements, as found by [14]. The lesser interest in international placements can nonetheless be attributed to cost constraints as well as poor cross-border industry networks in East Malaysia.

Section B: Factors Influencing Selection Based on TPB Constructs and Secondary Factors

4.1 Descriptive Statistics for TPB Constructs and Secondary Factors

4.1.1 Attitude

As shown in Table 2, attitudes were the most influential, where students strongly agreed that industrial training enhances practical skills (M = 4.63) and career prospects (M = 4.59). Allowance and company image were also valued. This is consistent with [5], who reasoned that career advancement and skill enhancement were the biggest motivators for Malaysian interns.

Conversely, [15] pointed out that placements with inadequate technical exposure discouraged students. This study endorses that fact, though more emphasis on practical experience (M = 4.37), which is an indication of increased East Malaysian students' sensitiveness that industrial exposure is a direct factor in employability. This is evidence that H1 is supported.

Table 1: Frequency and Percentage of Demographic Data and Categorical Responses.

Variable	Category	Frequency	Percentage (%)
Gender	Male	76	43
	Female	100	57
Age	20	14	8
	21	118	67
	22	30	17
	23	13	7
	24 years and above	1	1
Program of Study	**DPM** –Diploma in Business Studies	36	20
	DDT – Diploma in Information Technology (Digital Technology)	32	18
	DKA – Diploma in Civil Engineering	21	12
	DAT – Diploma in Accounting	21	12
	DEE – Diploma in Electrical & Electronic Engineering	13	7
	DKM – Diploma in Mechanical Engineering	12	7
	DAD – Diploma in Mechanical Engineering (Automotive)	9	5
	DPE – Diploma in Process Engineering (Petrochemical)	8	5
	DPB – Diploma in Building Services Engineering	6	3
	DPU – Diploma in Mechanical Engineering (Air Conditioning & Refrigeration)	6	3
	DGU – Diploma in Geomatics	4	2
	DTP – Diploma in Mechanical Engineering (Manufacturing)	4	2
	DEP – Diploma in Electronic Engineering (Communication)	4	2
Race	Malay	60	34
	Iban (Sea Dayak)	45	26
	Bidayuh (Land Dayak)	29	16
	Chinese	19	11
	Melanau	6	3
	Others	17	10
Preferred type of industrial training placement	Government Agency	59	34
	Private sector (Local)	91	52
	Private sector (International)	23	13
	Others	3	2

4.1.2 Subjective Norms

Referring Table 2, Subjective norms were moderate, with family encouragement (M = 3.94) and industry reputation (M = 4.27) being strongest, and peer influence the weakest (M = 3.38). This concurs with [7], who noted that lecturers and family were likely to be more important than peer guidance in Asian environments.

However, in comparison to studies conducted in Peninsular Malaysia [14], where peer influences were greater, this study suggests that East Malaysian students rely more on family perception. This cultural difference necessitates taking regional and social contexts into account while applying TPB. Therefore, H2 is partially supported as well.

4.1.3 Perceived Behavioral Control

From Table 2, students expressed confidence of securing placements (M = 4.18) and sufficient knowledge about application processes (M = 4.14). However, they also expressed competition (M = 4.34) and difficulty in securing companies with their field of study (M = 3.47) as the greatest concerns.

These results align with [6], who found structural barriers to be widespread in Malaysian placements, but they add a unique problem for East Malaysia: a limited industry partner base to contrast with the numbers of students. In doing this, while PBC is making a positive contribution, structural constraints decrease students' perceived control. Thus, H3 is conditionally supported.

Table 2: Mean and Standard Deviation Score for Factors Influencing Selection of Industrial Training Placements Based on TPB Constructs

Attitude				
Item	**Mean**	**Interpretation**	**Std. Deviation**	**Interpretation**
A1: I believe industrial training improves my practical skills.	4.625	Strongly agree	0.56	Fair consistency
A2: I think selecting the right placement will enhance my career prospects.	4.585	Strongly agree	0.57	Fair consistency
A3: I consider salary or allowance an important factor in choosing a placement.	4.313	Strongly agree	0.85	Fair consistency
A4: I believe training at a well-known company increases my job opportunities.	4.273	Strongly agree	0.84	Fair consistency
A5: I am concerned about the difficulty of securing a good placement.	4.261	Strongly agree	0.80	Fair consistency
Subjective Norms				
Item	**Mean**	**Interpretation**	**Std. Deviation**	**Interpretation**
B1: My lecturers' recommendations influence my choice of industrial training placement.	3.795	Agree	0.99	Fair consistency
B2: My family members	3.938	Agree	0.93	Fair consistency

encourage me to choose a specific type of placement.				
B3: My peers' choices affect my decision in selecting a placement.	3.375	Moderate	1.15	High variation
B4: I consider the industry's reputation when selecting a placement.	4.267	Strongly agree	0.72	Fair consistency
B5: I follow advice from seniors who have completed industrial training.	3.994	Agree	0.92	Fair consistency
Perceived Behavioral Control				
Item	**Mean**	**Interpretation**	**Std. Deviation**	**Interpretation**
C1: I feel confident in securing a placement of my choice.	4.182	Agree	0.75	Fair consistency
C2: I have sufficient knowledge about how to apply for industrial training placements.	4.142	Agree	0.66	Fair consistency
C3: I believe competition for placements affects my ability to secure my preferred option.	4.335	Strongly agree	0.62	Fair consistency
C4: I have difficulty finding companies that match my field of study.	3.472	Agree	1.15	High variation
C5: I believe having strong technical skills helps in getting selected for a placement.	4.341	Strongly agree	0.67	Fair consistency

4.1.4 Secondary Factors (H4)

Table 2 show secondary considerations were significantly influential, with opportunities for future careers (M = 4.47), experience in practice (M = 4.37), and skill development (M = 4.34) being the most important. Facilities (M = 4.27) and location (M = 4.11) were significant but lowered the ranking.

These findings confirm earlier research by [16], which established that career prospects over convenience drive internship selection. [17], on the other hand, found home closeness to be a more key variable in Peninsular Malaysia. The present research therefore presents a contextual detail: East Malaysian students with fewer industrial hubs prioritize long-term employment prospects over geographic closeness. This supports H4 and illustrates the worth of supplementing TPB with contextual variables.

4.2 Theoretical and Practical Implications

The findings emphasize the explanatory ability of TPB to explain the decision of student placement but also confirm that the model is insufficient. The inclusion of second-order factors confirms practical considerations that strongly affect decisions, and hence TPB has to be adjusted when it is used in less-covered environments such as East Malaysia. This is a theoretical extension of TPB via contextual drivers of decision-making.

Table 3: Mean and Standard Deviation Score for Factors Influencing Selection of Industrial Training Placements Based on Secondary Factor (Other Considerations in Choosing Placement)

Secondary Factors				
Item	**Mean**	**Interpretation**	**Std. Deviation**	**Interpretation**
D1: The location of the company is an important factor in my decision.	4.113	Agree	0.78	Fair consistency
D2: I prefer placements that offer future job opportunities.	4.472	Strongly agree	0.66	Fair consistency
D3: I choose a placement based on the potential for skill development.	4.341	Strongly agree	0.68	Fair consistency
D4: I consider company facilities and work environment before selecting a placement.	4.267	Strongly agree	0.79	Fair consistency
D5: I priorities placements that offer hands-on experience rather than administrative tasks.	4.369	Strongly agree	0.77	Fair consistency

In practice, the results have various implications. First, polytechnics must increase career counselling and industry linkage in response to structural barriers and to increase student specialization and placement fit. Second, industries must offer systematic allowances and substantive assignments in order to match student expectations. Third, policymakers, particularly in the 1:3 Internship Policy, must recognize regional variances and encourage East Malaysian industries to expand placement opportunities.

5.0 CONCLUSION

This study investigated the factors of industrial training placement selection among East Malaysian polytechnic students, using the Theory of Planned Behavior (TPB) as the guiding theory. The findings indicate that attitudes were the most important influence, particularly through students' concentration on acquiring skills and career development. Subjective norms, specifically family support and industry image, were moderately determined, and perceived behavioral control exhibited both student confidence and structural obstacles such as competition and field-specific opportunity constraints. Beyond TPB, secondary considerations such as employability opportunities, practical training, and company facilities were revealed as determining factors.

Theoretically, this study extends TPB by demonstrating that secondary and contextual variables are inherent in the explanation of placement decisions in less-covered regions.

Despite TPB being robust, the evidence suggests that the model must be adapted to include practical realities such as the availability of industries, policy changes, and career advancement in the long term. This is a worthy contribution to the literature on internships and work-based learning, particularly polytechnic and East Malaysian contexts that are understudied.

Practically, the findings call for more industry contacts, stronger career guidance services, and facilitative institutional mechanisms for students to secure quality placements. For policymakers, the findings emphasize that the 1:3 Internship Policy must consider regional imbalances and incorporate incentives for industries in East Malaysia to raise training placements. Industry partners are called upon to offer structured allowances, hands-on tasks, and career advancement pathways to be better aligned with students' expectations and future employability needs.

This study is limited by its focus on a single institution, reliance on self-reported data, and descriptive statistics. Future studies should involve multiple polytechnics across different regions, employ inferential techniques such as regression or SEM to test causal links, and longitudinal or qualitative designs to trace post-placement outcomes and more detailed student motivations.

Finally, the study shows that careerist orientations, supported by industry reputation and family influence, are the strongest determinants of placement decision. However, the existence of secondary determinants highlights the reality that students' choices are also equally determined by practical concerns of employability and quality of training. The implications call for more sensitivity of institutional, industrial, and policy interventions towards improving the effectiveness and equity of industrial training in Malaysia.

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