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# Using Partial Least Squares to Measure Tourism Students' Satisfaction with Work-Integrated Learning

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## Abstract

Work-integrated learning placement experience can either validate or contradict students' expectations regarding the industry, job roles and interests, expectations of industry employers, and personal fit with the profession. Determining students' satisfaction with the placement experience will provide valuable insight to academic institutions. This chapter will explore the preplacement expectations and postplacement perceptions of tourism students and propose a conceptual model for the tourism student's satisfaction with work-integrated learning. Data were collected using a survey of third-year tourism students. A conceptual model was proposed and analyzed using SmartPLS. The analysis indicated that postplacement perceptions have a significant influence on the satisfaction of WIL. The conceptual model showed an  $R^2$  value of 0.427, indicating a substantial impact on satisfaction with WIL.

**Keywords:** work-integrated learning, satisfaction, expectations, perceptions, partial least squares

## 1. Introduction

Cooperative education was originally established to bridge the gap between theoretical education and practical industry experience [1]. Cooperative education, also referred to as work-integrated learning (WIL), is a feature of many university courses whereby students engage in discipline-related employment as a structured part of their qualification [2]. WIL students are encouraged to apply their theoretical knowledge and learn disciplinary knowledge and skills in a real-world context, by engaging in specifically designed activities [3]. These programs have been used to develop students' competencies, and prior studies indicate substantial personal development for students participating in WIL placement programs [4]. As WIL evolves, the strategic implementation thereof and the importance of stakeholders' satisfaction become critical in determining the success of the placement program.

This study forms part of a research project within the Department of Tourism Management at Tshwane University of Technology (TUT). Previous publications include the expectations and perceptions of tourism students regarding their WIL placements, gaps between the expectations and perceptions of WIL, and industry

supervisor evaluations of tourism WIL students. Given that students are a central stakeholder in higher education and that they are the consumers and evaluators of the WIL placement experience, it is important to understand students' satisfaction with WIL and the factors that influence it. As such, the purpose of this study is to extend previous publications by exploring a conceptual model of satisfaction with WIL from tourism students' perspective.

## **2. Context of study**

WIL and workplace-based learning (WPBL) are umbrella terms used to describe the range of educational programs that integrate formal theoretical learning and workplace experience [2]. This foundation of WIL goes beyond merely providing a physical environment of a workplace as a site for students to experience work or to learn professional practice [3]. As higher education institutions (HEIs) become more involved with WIL, more research is being conducted on the basic and marginal issues, providing the best learning through WIL curricula [3].

Industry employers require graduates who can work confidently and effectively [4], and as such, students and parents are seeking vocationally orientated courses that provide practical experience prior to graduation [5]. WIL has provided the opportunity to offer the best product to students and is regarded as a pay-off for their investment in education [3, 5]. This has resulted in many academic institutions being pressurized to offer more vocationally orientated programs and courses in order to attract students [5]. In South Africa, WIL is a compulsory component of qualifications offered by universities of technology (UoTs) and is firmly entrenched in the Higher Education Qualifications Framework (HEQF) [6]. Graduates who have WIL placement experience have an advantage in terms of higher starting salary and more job responsibility over other graduates [1]. Students are increasingly demanding well-organized work placements to acquire professional skills and experience [3, 4]. However, the WIL placement experience can either validate or contradict students' expectations regarding employment in the industry in terms of job interests, workplace and employer expectations, and personal fit within the profession [7]. Expectations and perceptions have a close relationship with the evaluation of quality and satisfaction levels. Expectations characterize how people perceive before the experience, and perceptions characterize how people think after the experience [3]. The gap between the expectation and perception gives the indication of the satisfaction level with the experience.

Despite the existence of ample WIL research, there is little research related to the satisfaction of students toward their WIL placement program, particularly tourism students. In a study conducted on South Korean students' perceptions of their internships in hospitality, only 10% of respondents agreed that they were satisfied overall with the internship [8]. Student perception scores about their internship were lower than the expectation scores in the study of tourism and hospitality schools and colleges in Hong Kong [9]. These results imply that each of the internship variables measured experienced an internship quality deficit [9]. The study measured 27 variables, of which 19 showed statistically significant differences between expectation and perception scores [9]. An analysis of the attitudes of criminal justice students toward internship experiences found that students did not think their supervisor was helpful and felt misused during the internship experience [10]. Misuse of students during the placement period has been raised mentioned in the results of various studies [10] and may be one of the factors contributing to the satisfaction or dissatisfaction of the placement experience. In a holistic investigation

of hospitality internship practices, [11] there were notable differences between students' perceptions and expectations, with expectations being unmet. The study investigated the causal relationships and key issues that define hospitality internships and the perceived impact of these internships on hospitality students' intentions to pursue a hospitality career after graduating [11]. This study proposed an internship structural equation model, which included internship readiness, role and contribution of the internship supervisor, level of benefits gained during internship, perceived success of internship, and future intention to pursue a hospitality career [11]. The results revealed a significant positive association between students' readiness to take part in an internship and both the role and contribution of the supervisor and the benefits gained from the internship [11]. A study exploring the expectations of placement students within the hospitality, leisure, and tourism industries [12] found that the industry was characterized with high levels of labor turnover and reports of poor image in the eyes of students. These reports may result in greater challenges for the future recruiting and retention of high caliber staff [12]. In a study investigating college students' views of marketing internships, various factors that could cause students' dissatisfaction with internships were identified [13]. Factors such as nonpayment for the internship and not receiving a full-time job offer were identified as causes for dissatisfaction [13]. A conceptual model was developed for understanding the determinants of internship effectiveness [13]. The model examined the relationships between the antecedents in the internship context, the processes of the project, and finally the outcomes from the internship. Research on the expectations, perceptions, and level of satisfaction of students regarding internship in Informatics and Cybernetics in Romania found that student expectations were met and exceeded, thereby resulting in satisfaction with the internship [14]. Satisfaction in the specific context of WIL yields few approaches in research from which to draw upon [15]. The lack of empirical research on internship satisfaction indicates that there is a need to develop a more comprehensive way to evaluate satisfaction of placement programs.

### **3. Conceptual model**

According to marketing literature, consumers compare initial expectations against perception of the actual experience. The difference between expectation and perceived experience or performance is known as disconfirmation of expectation, which can either be positive or negative [16]. When perceived performance is higher than expectation, the result is positive disconfirmation. Negative disconfirmation occurs when perceived performance is less than what was expected. Positive disconfirmation leads to satisfaction, and negative disconfirmation means perceived performance could not attract satisfaction [16].

Previous studies by Taylor and Geldenhuys [17, 18] informed this research and include analyses of the expectations of tourism students prior to WIL placement, perceptions of tourism students at the end of WIL placement, and an analysis of the gaps between the expectations and perceptions. Expectations of tourism students suggested high expectations that WIL would improve their future career marketability and that the host organization supervisor would be supportive, responsive, and interested in the students' progress. Perceptions of tourism students indicate that the satisfaction of WIL was higher for students who had a supportive host organization supervisor. Perceptions on whether their expectations were met were higher for students who had the opportunity to develop their managerial skills and who felt that the WIL placement had potentially advanced their careers, where

students took part in interesting and challenging work and where students had supportive coworkers and supervisors. Finally, the gap analysis found significant differences in the expectations and perceptions of tourism students for skills, work environment, personal, host organization, host organization supervisor, and academic coordinator contact. Out of 43 variables, only one yielded a higher perception score when compared to the expectation score, namely, “improve self-confidence.” For all other variables, expectation scores were higher than perception scores, which may affect satisfaction with WIL.

In assessing the effect of expectations and perceptions on satisfaction, a conceptual model is required. This model is explained in the relations between latent variables and their relative manifest variables. In this study, the conceptual model is developed using 24 manifest variables, which are grouped into three categories, known as latent variables. These latent variables are expectations, perceptions, and satisfaction with WIL. The conceptual model is shown in Figure 1.

Table 1 provides a description of the manifest variables in Figure 1.

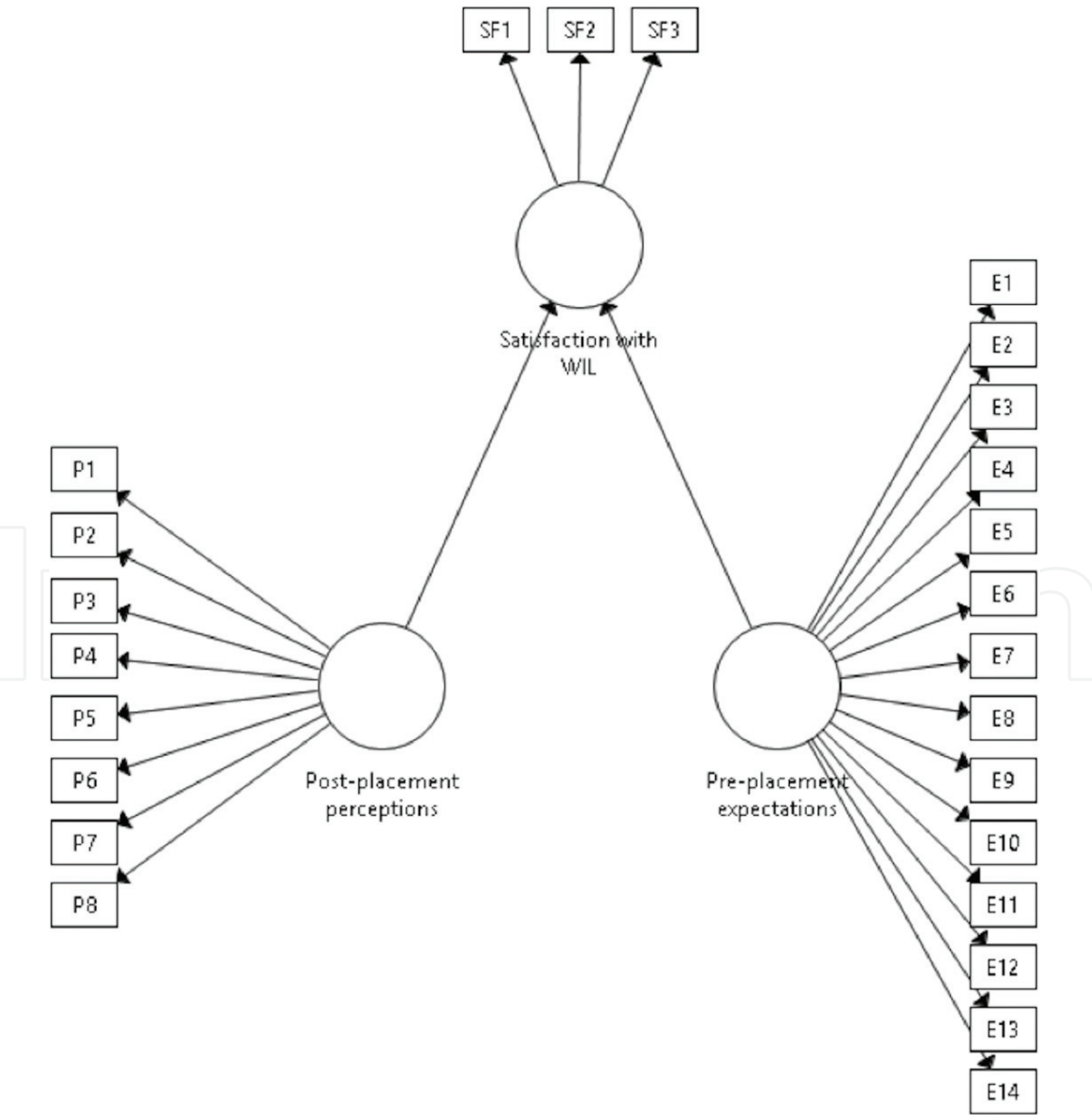


Figure 1.  
Conceptual model for satisfaction with WIL.



Manifest variable	Description
E1	Expect to receive additional training during WIL
E2	Expect supervisor to assist with relationships
E3	Expect to be corrected when I have done something wrong
E4	Expect to have enough work to keep me busy
E5	Expect to observe first and then do a task
E6	Expect to be offered a full-time position
E7	Expect to be paid during WIL placement
E8	Expect support from coworkers
E9	Expect to be treated as part of the staff
E10	Expect to work in various departments during WIL placement
E11	Expect to work independently
E12	Expect my supervisor to be responsive
E13	Expect my supervisor to show an interest in me
E14	Expect my supervisor to support me
P1	I worked in a knowledge-centered environment
P2	I took part in interesting and challenging work
P3	I worked in an enjoyable environment
P4	I made decisions
P5	My supervisor assisted with relationships
P6	My supervisor took an interest in me
P7	My supervisor was responsive
P8	I was treated as part of the staff
SF1	Satisfaction with WIL
SF2	Overall impression of WIL
SF3	Expectations were met

**Table 1.**  
*Description of the manifest variables.*

## 4. Method

### 4.1 Participants and procedure

The sample for this study consisted of all third-year students registered for the National Diploma Tourism Management, National Diploma Adventure Tourism Management, National Diploma Ecotourism Management, and National Diploma Event Management in 2016 and 2017 at TUT. Self-administered surveys were used to examine the expectations and perceptions of WIL for tourism students. The preplacement expectation survey was distributed to students in June 2016, prior to the compulsory 6-month WIL placement period. The postplacement perception survey was given to all tourism students when submitting their WIL logbooks to the Department of Tourism Management at TUT, between December 2016 and June 2017. A total of 151 surveys were administered to tourism students, with 128 completed surveys included in the analysis.

No inducements were given for the completion of the survey, and all students took part in the study with their knowledge and consent and were free to withdraw at any time. The purpose of the study was explained to the students prior to their participation. Students were all above the age of 18 years, and participation in the study was entirely voluntary. They were assured of confidentiality and the fact that the results would be used for academic purposes only. No personal details of the participants were collected or used as part of the study. The Departmental Committee on Postgraduate Studies (DCPS), Faculty of Management Sciences at Tshwane University of Technology, approved the ethical aspects of the questionnaire and the study proposal in November 2015.

The instrument used to measure expectations and perceptions were structured questionnaires consisting of a demographics section and expectation/perception sections related to the host organization, academic coordination, and the WIL program. Questionnaire variables were developed from WIL logbooks used for tourism students at TUT as well as previous WIL research. Previous studies used to identify questionnaire variables related to the technical skills and problem-solving skills identified by hospitality students in Hong Kong [9], the role of the organization supervisor, and the benefits of internship for students [11] as well as the effects of nonpayment and no full-time offer from internship organizations [13]. The expectation and perception sections were the same for both questionnaires, which allowed for direct comparative analysis of expectation and perceptions from the same sample of students. The variables were measured with multi-item scales, and students were asked to rate their level of agreement with each statement using a Likert scale from 1 (strongly disagree) to 5 (strongly agree). Characteristics of respondents are provided in **Table 2**.

The results of the respondent characteristics are commensurate with the general phenomenon that a majority of tourism and hospitality schools and colleges have more female students than male [11]. The age group of students is confirmed by previous studies on internship placements, where most students are between the ages of 21 and 23 years [9-11]. Interestingly, the results indicate that 47.4% of respondents found placement in the hospitality industry, which may affect tourism students' satisfaction with WIL as required skills and technical competency may not be aligned. The fact that most of the respondents (55.5%) were registered for the National Diploma in Tourism Management means that the specific technical skills possessed by these students were better suited to the retail and wholesale sector, of which only 13.3% of students were placed.

## **4.2 Measures**

Expectation/perception sections were divided into three sections, namely, the WIL program, the host organization, and academic coordination. The WIL program was measured using 20 items, associated with the positive and negative aspects of WIL identified in literature. Statements such as "I expect to gain experience" and "I will develop my communication skills" measured students' expectations. The same statements were used to measure students' perceptions, namely, "I gained experience from the WIL placement" and "I developed my communication skills."

The host organization was measured using 16 items associated with student evaluation reports contained in previous WIL logbooks and relevant literature. The items measured aspects related to host organization supervisors, coworkers, duties performed, and administrative issues such as payment, additional training, and work hours.

Academic coordination was measured using seven items associated with queries and statements made by previous tourism students' in the WIL logbook reports, as

Characteristics	Frequency	Percentage	Cumulative percentage
<b>Gender</b>			
Female	106	82.8%	82.8%
Male	22	17.2%	100%
<b>Age</b>			
>20 years	4	3.1%	3.1%
21–23 years	73	57%	60.2%
24<	51	39.8%	100%
<b>Industry</b>			
Retail/wholesale	17	13.3%	13.3%
Government	12	9.4%	22.7%
Transport	5	3.9%	26.6%
Hospitality	61	47.4%	74.2%
Event	23	18%	92.2%
Adventure	10	7.8%	100%
<b>Qualification</b>			
Tourism management	71	55.5%	55.5%
Adventure tourism management	22	17.2%	72.7%
Ecotourism management	9	7.0%	79.7%
Event management	26	20.3%	100%

**Table 2.**  
*Characteristics of respondents.*

well as relevant literature. The items measured aspects related to support provided by the academic institution during the WIL placement period as well as visitation and contact.

Both expectation and perception questionnaires asked students to indicate their expected and perceived satisfaction with WIL placement. The perception questionnaire asked students to rate their overall impression of WIL and to indicate if their expectations of WIL were met.

#### 4.3 PLS-SEM evaluation/analysis

PLS-SEM models are path and are an alternative to covariance-based structural equation modeling (SEM). This study uses SmartPLS 3 software to assess the effect of manifest variables on satisfaction with WIL. PLS path models are defined by two sets of linear equations: the measurement model or inner model and the structural model or outer model. The measurement model details the relationships between unobserved or latent variables (LVs), while the structural model details the relationships between a LV and its observed indicators or manifest variables (MVs). Structural model variables are either exogenous or endogenous [19]. Exogenous latent variables are those that are not affected by any other latent variable in the model. Endogenous latent variables are those that are affected by at least one other latent variable [19]. In **Figure 1**, expectations and perceptions are exogenous latent variables and satisfaction is an endogenous latent variable.

A two-step approach [20] is used to estimate the model, involving a construction method using LV scores. In the first step, the measurement model is estimated by



providing factor loadings and reliability measures from items to LVs. The second step estimates the structural model to provide path coefficients, illustrating the relationships of each construct. In reflective models, indicators are a representative set of items, which all reflect the latent variable they are measuring. Reflective models assume the factor is the reality, and measured variables are a sample of all possible indicators of that reality. Therefore, dropping one indicator may not alter the meaning of the latent variable as the other indicators are representative [19].

## 5. Results

### 5.1 Measurement model

The evaluation of the measurement model aims at calculating the consistency and validity of the manifest variables. The evaluation includes (1) composite reliability to evaluate internal consistency, (2) outer loadings of indicators for the individual indicator's reliability, (3) average variance extracted (AVE) to evaluate convergent validity, and (4) Fornell-Larcker criterion and cross-loadings to assess discriminant validity.

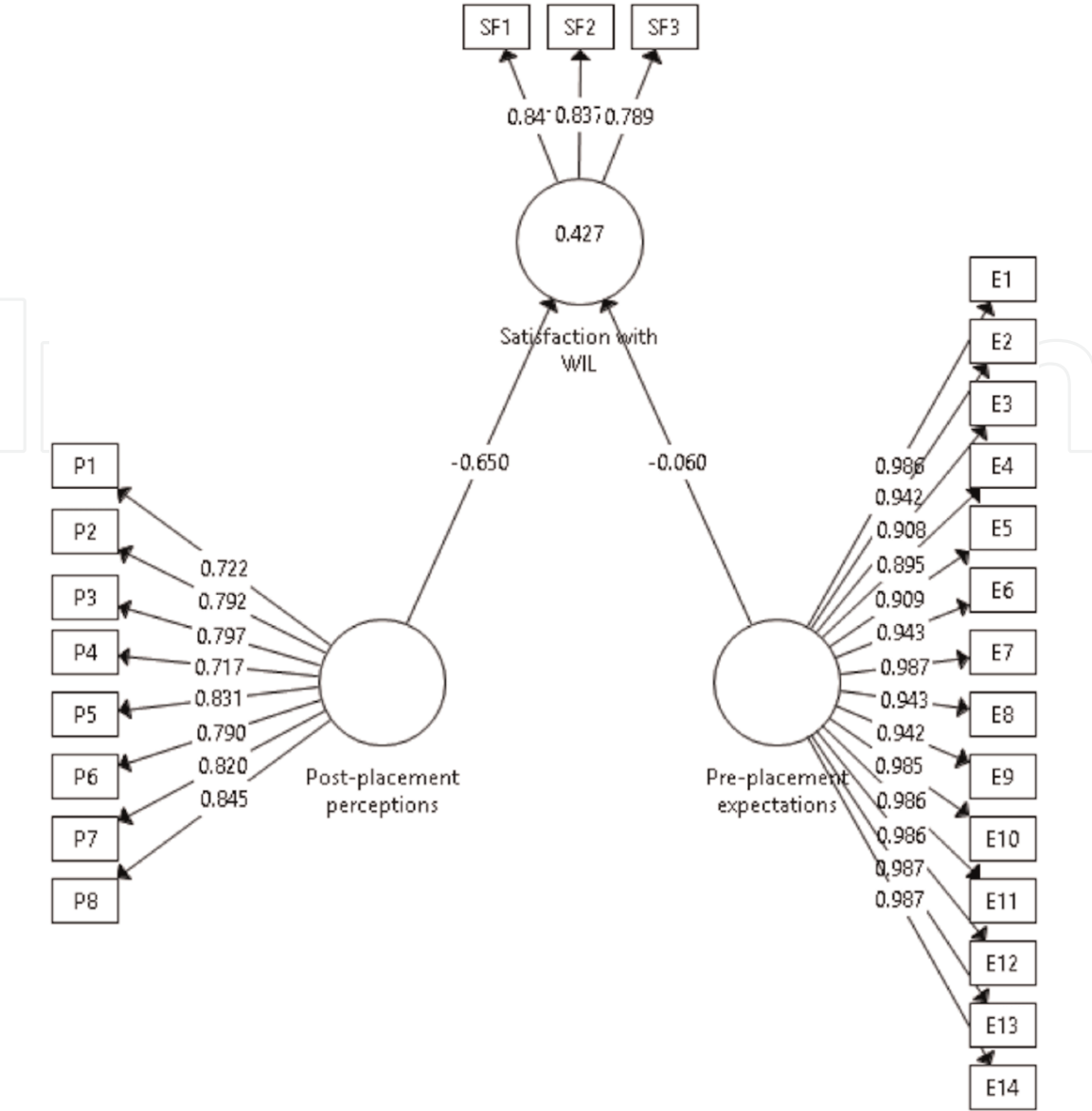
The goal of a reflective model is to ensure the reliability and validity of the construct measures and to provide support for the suitability of their inclusion in the path model [21]. Furthermore, composite reliability [19] is a preferred alternative to Cronbach's alpha as a test of convergent validity in a reflective model. Composite reliability varies from 0 to 1, with 1 being perfect estimated reliability [19]. In an exploratory model, composite reliabilities should be equal to or greater than 0.6 [22, 23]. When modeling for confirmatory purposes, composite reliabilities should be equal or greater than 0.7, while 0.8 is considered good for confirmatory research [19]. Composite reliability for the reflective constructs is provided in **Table 3**.

The composite reliability results in **Table 3** are all above 0.7, indicating a high level of internal consistency among reflective constructs. Preplacement expectations and postplacement perceptions have composite reliability results above 0.9, indicating almost perfect estimated reliability, while satisfaction with WIL (0.862) is considered good for confirmatory research [19].

Indicator reliability denotes the proportion of indicator variance that is explained by the latent variable [21]. Manifest variables with outer loadings of 0.7 or higher are considered highly satisfactory [24], while 0.5 is considered acceptable. Outer loadings of 0.4 should be acceptable [25], while Henseler et al. [26] state that manifest variables with loadings between 0.4 and 0.7 should be considered for elimination. If the elimination of these indicators increases the composite reliability, then they should be discarded. **Figure 2** displays the outer loadings for manifest variables of the conceptual model with each depicting loadings above 0.7. These loadings are considered highly satisfactory [24] and signify that individual item reliability criterion has successfully been met.

Reflective constructs	Composite reliability
Preplacement expectations	0.993
Postplacement perceptions	0.903
Satisfaction with WIL	0.862

**Table 3.**  
*Composite reliability for all reflective constructs.*



**Figure 2.**  
Conceptual model with PLS algorithm calculation.

Reflective constructs	Average variance explained (AVE)
Preplacement expectations	0.915
Postplacement perceptions	0.625
Satisfaction with WIL	0.676

**Table 4.**  
Average variance explained for reflective constructs.

AVE reflects the average communality for each latent variable in a reflective model [19]. AVE may be used as a test of both convergent and divergent validity. According to literature, in an adequate model, AVE should be greater than 0.5 [22, 24] to indicate the convergent validity of a particular construct. AVE reflects the average communality for each latent factor in a reflective model. AVE should also be greater than the cross-loadings, which means factors should explain at least half the variance of their respective indicators. AVE below 0.50 means error variance exceeds explained variance. **Table 4** provides the AVE values for all reflective constructs.

For all reflective constructs, AVE is higher than 0.5, establishing that more than 50% of the construct’s variance is due to its indicators [27]. Preplacement expectations (0.915), postplacement perceptions (0.625), and satisfaction with WIL (0.676) have all achieved an AVE higher than 0.5, and it is therefore concluded that the study demonstrates adequate convergent validity [22].

Discriminant validity is the extent to which a construct is truly distinct from other constructs by empirical standards [21]. The Fornell-Larcker criterion and the cross-loadings are checked for discriminant validity. According to the Fornell-Larcker criterion, the square root of the AVE of each construct should be higher than the construct’s highest correlation with any other construct in the model. Cross-loadings are an alternative to AVE as a method of assessing discriminant validity for reflective models. When analyzing cross-loadings, each indicator’s outer loading on a construct should be higher than all its cross-loadings with other constructs [21].

The results of the Fornell-Larcker criterion indicate that the square root of AVE for each reflective construct is higher than other correlations, thereby indicating discriminant validity. **Table 4** suggests that the AVE for all the latent constructs was above minimum cutoff of 0.5, and **Table 5** indicates that the square root of AVE is higher than the correlations among latent variables. Therefore, it can be concluded that all the measures used in the present study have adequate discriminant validity.

Additionally, the matrix of cross-factor loadings [22] was obtained and presented in **Table 6**.

The results presented in **Table 6** indicate the cross-loadings of all manifest variables. The results show that indicators have higher values on their relevant latent variable as compared with other constructs. This verifies that the manifest variables in each construct represent the assigned latent variable and confirm discriminant validity of the model.

**Figure 2** presents the results of the PLS algorithm calculation.

5.2 Structural model

After analyzing the validity and reliability of the measurement model, the proposed structural model is analyzed (**Figure 3**). The PLS-SEM model uses the sample data to obtain parameters that best predict the endogenous constructs [27]. PLS does not have a standard goodness-of-fit statistic; instead, the assessment of the model’s quality is based on its ability to predict the endogenous constructs. The following criteria enable this assessment: coefficient of determination ( $R^2$ ), cross-validated redundancy ( $Q^2$ ), path coefficients, and the effect size ( $f^2$ ) [24]. The model’s explanatory capacity is verified using bootstrapping, which uses resampling methods to compute the significance of PLS coefficients [19]. The present study used standard bootstrapping procedure with 500 bootstrap samples and 128 cases to determine the significance of the path coefficients [22].

	Postplacement perceptions	Preplacement expectations	Satisfaction with WIL
Postplacement perceptions	0.790		
Preplacement expectations	0.022	0.957	
Satisfaction with WIL	−0.651	−0.074	0.822

**Table 5.**  
*Fornell-Larcker criterion for reflective constructs.*

	Preplacement expectations	Postplacement perceptions	Satisfaction with WIL
E1	<b>0.986</b>	0.031	−0.067
E2	<b>0.942</b>	0.011	−0.071
E3	<b>.0908</b>	−0.002	−0.071
E4	<b>0.895</b>	0.032	−0.079
E5	<b>0.909</b>	0.001	−0.074
E6	<b>0.943</b>	0.018	−0.078
E7	<b>0.987</b>	0.036	−0.075
E8	<b>0.943</b>	0.011	−0.072
E9	<b>0.942</b>	0.012	−0.069
E10	<b>0.985</b>	0.028	−0.063
E11	<b>0.986</b>	0.030	−0.067
E12	<b>0.986</b>	0.027	−0.063
E13	<b>0.987</b>	0.028	−0.064
E14	<b>0.987</b>	0.030	−0.065
P1	0.104	<b>0.722</b>	−0.470
P2	−0.051	<b>0.792</b>	−0.646
P3	0.046	<b>0.797</b>	−0.600
P4	−0.108	<b>0.717</b>	−0.304
P5	0.008	<b>0.831</b>	−0.498
P6	0.031	<b>0.790</b>	−0.431
P7	0.040	<b>0.820</b>	−0.487
P8	0.039	<b>0.845</b>	−0.543
SF1	−0.057	−0.440	<b>0.841</b>
SF2	−0.049	−0.622	<b>0.837</b>
SF3	−0.078	−0.512	<b>0.789</b>

**Table 6.**  
*Cross-loadings for discriminant validity.*

For a good model, the value of  $R^2$  of endogenous latent variables should be more than 0.26 [28]. The coefficient of determination ( $R^2$  value) depicts the structural model's predictive accuracy and is calculated as the squared correlation between a specific endogenous construct's actual and predicted values [27]. The  $R^2$  represents the amount of variance in the endogenous constructs explained by all the exogenous constructs linked to it [27]. The  $R^2$  value ranges from 0 to 1, and a value nearer to 1 indicates high predictive accuracy.

To analyze the significance of the structural relationships, the path coefficients and their corresponding significance levels are calculated. To do this, it is necessary to verify significance through the t-values and the strength of the relationships. Preplacement expectations and postplacement perceptions are negative predictors of satisfaction with WIL as shown in **Table 7**. The results indicate that postplacement perceptions have a significant negative association with satisfaction with WIL ( $\beta = -0.650/t = 8.901/p < 0.001$ ). Preplacement expectations do not have a significant association with satisfaction with WIL ( $\beta = -0.060/t = 1.279/p = 0.202$ ) (**Table 8**).

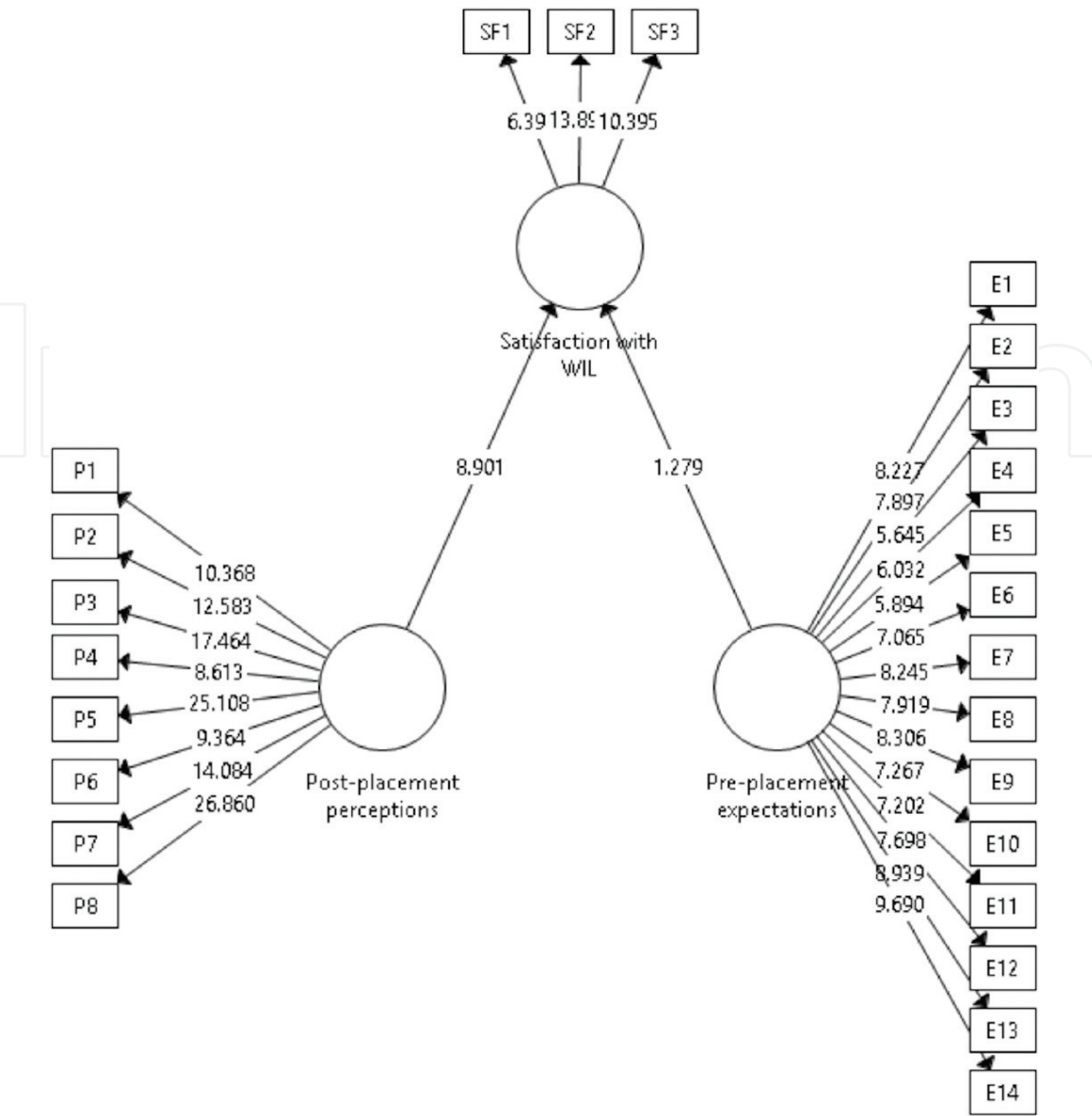


Figure 3. Structural model.

	Loadings	Std dev	T statistic	P value	2.5%	97.5%
Postplacement perceptions → satisfaction	−0.650	0.073	8.901	0.000	−0.784	−0.498
Preplacement expectations → satisfaction	−0.060	0.047	1.279	0.202	−0.126	0.026

Table 7. Structural model assessment results.

According to various scholars, the  $R^2$  value represents the proportion of variation in the dependent variable(s) that could be explained by one or more predictor variable [22]. **Table 9** provides the  $R^2$  value obtained for the study indicating that preplacement expectations and postplacement perceptions explain 42.7% of the variance in satisfaction with WIL. Postplacement perception  $R^2$  value is 65%. Acceptable  $R^2$  values depend on the model complexity and the research discipline [27]. Chin and Hock et al. [22, 23] describe results above the cutoffs 0.67, 0.33, and 0.19 to be “substantial,” “moderate,” and “weak,” respectively. The  $R^2$  value for this study would be of moderate strength or effect.



	Loadings	Std dev	T statistic	P values	2.5%	97.5%
E1 ← preplacement expectations	0.986	0.120	8.227	0.000	0.900	0.999
E2 ← preplacement expectations	0.942	0.119	7.897	0.000	0.814	0.999
E3 ← preplacement expectations	0.908	0.161	5.645	0.000	0.659	0.999
E4 ← preplacement expectations	0.895	0.148	6.032	0.000	0.549	0.999
E5 ← preplacement expectations	0.090	0.154	5.894	0.000	0.659	1.000
E6 ← preplacement expectations	0.943	0.133	7.065	0.000	0.816	0.999
E7 ← preplacement expectations	0.987	0.120	8.245	0.000	0.814	0.999
E8 ← preplacement expectations	0.943	0.1196	7.919	0.000	0.540	0.999
E9 ← preplacement expectations	0.942	0.113	8.306	0.000	0.627	0.999
E10 ← preplacement expectations	0.985	0.136	7.267	0.000	0.897	0.999
E11 ← preplacement expectations	0.986	0.137	7.202	0.000	0.907	0.999
E12 ← preplacement expectations	0.986	0.128	7.698	0.000	0.901	0.999
E13 ← preplacement expectations	0.987	0.110	8.939	0.000	0.909	1.000
E14 ← preplacement expectations	0.987	0.102	9.690	0.000	0.904	1.000
P1 ← postplacement perceptions	0.722	0.070	10.368	0.000	0.540	0.820
P2 ← postplacement perceptions	0.792	0.063	12.583	0.000	0.627	0.870
P3 ← postplacement perceptions	0.797	0.046	17.464	0.000	0.701	0.871
P4 ← postplacement perceptions	0.717	0.083	8.613	0.000	0.509	0.826
P5 ← postplacement perceptions	0.831	0.033	25.108	0.000	0.756	0.887
P6 ← postplacement perceptions	0.790	0.084	9.364	0.000	0.560	0.889
P7 ← postplacement perceptions	0.820	0.058	14.084	0.000	0.671	0.896
P8 ← postplacement perceptions	0.845	0.031	26.860	0.000	0.773	0.898
SF1 ← satisfaction with WIL	0.841	0.131	6.399	0.000	0.490	0.938
SF1 ← satisfaction with WIL	0.837	0.060	13.892	0.000	0.679	0.925
SF1 ← satisfaction with WIL	0.789	0.076	10.395	0.000	0.605	0.890

**Table 8.**  
*Bootstrapping results of outer loadings.*

	Original sample	Std dev	T statistic	P values	2.5%	97.5%
<b>R square</b>						
Satisfaction with WIL	0.427	0.094	4.566	0.000	0.252	0.618
<b>R square adjusted</b>						
Satisfaction with WIL	0.418	0.095	4.398	0.000	0.240	0.612

**Table 9.**  
*Bootstrapping results for R<sup>2</sup> and R<sup>2</sup> adjusted.*

The change in the value of R<sup>2</sup>, when an exogenous construct is omitted from the model, can be used to evaluate whether the omitted construct has a substantive impact on the endogenous constructs [27]. For assessing *f*<sup>2</sup> values: 0.02, 0.15, and 0.35, respectively, represent small, medium, and large effects [28] of the exogenous latent variable (Table 10).

	Loadings	Std dev	T statistic	P values	2.5%	97.5%
Postplacement perceptions → satisfaction with WIL	0.736	0.319	2.306	0.022	0.330	1.611
Preplacement expectations → satisfaction with WIL	0.006	0.010	0.403	0.687	0.000	0.030

**Table 10.**  
*Bootstrapping results for f<sup>2</sup>.*

The results indicate that the effect of postplacement perceptions on satisfaction with WIL has a large effect size of 0.73 (>0.35).

Blindfolding utilizes a cross-validation strategy and reports cross-validated communality and cross-validated redundancy for constructs as well as indicators. SmartPLS documentation calls these “predictive accuracy” criteria. Unlike bootstrapping, no standard errors or significance coefficients are calculated. Rather, the purpose is to calculate cross-validated measures of model predictive accuracy (reliability), of which there are four: construct cross-validated redundancy, construct cross-validated communality, indicator cross-validated redundancy, and indicator cross-validated communality [19].

Applicable only to reflectively modeled endogenous factors, Q<sup>2</sup> greater than 0 means that the PLS-SEM model is predictive of the given endogenous variable. However, a Q<sup>2</sup> with a 0 or negative value indicates the model is irrelevant to prediction of the given endogenous factor. Construct cross-validated redundancy will usually be the blindfolding output of greatest interest since it speaks to model fit of the PLS latent variable model [19]. Following [28], 0.02 represents a “small” effect size, 0.15 represents a “medium” effect size, and 0.35 represents a “high” effect size. The predictive relevance is a supplementary assessment, which is recommended since the goodness-of fit (GoF) index is not suitable for model validation as it could not separate the valid and invalid models. Accordingly, Chua Lee Chuan [28] stated that in a researcher model where the Q<sup>2</sup> value(s) is found greater than 0, it is considered that the model has a predictive relevance. The results are presented in **Table 11**.

The cross-validated redundancy value (Q<sup>2</sup>) as suggested by Chin [22] is greater than 0 and suggests that the model has predictive relevance. The results indicate that the model has a medium predictive ability with Q<sup>2</sup> = 0.251 (**Tables 12 and 13**).

The standardized root mean square residual (SRMR) is the difference between the observed correlation and the predicted correlation. It allows assessing the average magnitude of the discrepancies between the observed and expected correlations as an absolute measure of (model) fit criterion. A value less than 0.10 and of 0.08 are considered a good fit [27]. The saturated model is the model that assesses correlation between all constructs. And the estimated model is a model that is based on a total effect scheme and takes the model structure into account. The results indicate that the model is a good fit as SRMR is less than 0.08.

	SSO	SSE	Q <sup>2</sup> (=1-SSE/SSO)
Postplacement perceptions	1024.000	1024.400	−0.000
Preplacement expectations	1792.000	1792.000	
Satisfaction with WIL	384.000	287.672	0.251

**Table 11.**  
*Construct cross-validated redundancy (Q<sup>2</sup>).*

	SSO	SSE	Q <sup>2</sup> (=1-SSE/SSO)
E1	128.000	128.000	
E2	128.000	128.000	
E3	128.000	128.000	
E4	128.000	128.000	
E5	128.000	128.000	
E6	128.000	128.000	
E7	128.000	128.000	
E8	128.000	128.000	
E9	128.000	128.000	
E10	128.000	128.000	
E11	128.000	128.000	
E12	128.000	128.000	
E13	128.000	128.000	
E14	128.000	128.000	
P1	128.000	127.813	0.001
P2	128.000	128.249	−0.002
P3	128.000	127.922	0.001
P4	128.000	128.426	−0.003
P5	128.000	128.054	−0.000
P6	128.000	127.957	0.000
P7	128.000	128.040	−0.000
P8	128.000	127.939	0.000
SF1	128.000	104.728	0.182
SF2	128.000	86.571	0.324
SF3	128.000	96.373	0.247

**Table 12.**  
*Blindfolding results for indicator cross-validated redundancy (Q<sup>2</sup>).*

	Saturated model	Estimated model
SRMR	0.064	0.064

**Table 13.**  
*Model fit.*

6. Conclusions

The objective of this study was to examine the relationship between preplacement expectations and postplacement perceptions with satisfaction with WIL for tourism students. The findings of this study indicate that 42.7% of the variance in satisfaction with WIL is explained by preplacement expectations and postplacement perceptions of tourism students toward WIL. The relationship between preplacement expectations and satisfaction with WIL was, however, not significant, whereas postplacement perceptions is a significant predictor of satisfaction with WIL.

The PLS model used in this study was relatively well specified in terms of its reliability. Composite reliability was greater than 0.8, and AVE reflected the average communality for each latent variable in the reflective model with coefficients greater than 0.5. The Fornell-Larcker criterion and the cross-loadings were checked for discriminant validity. According to the Fornell-Larcker criterion, the square root of the AVE for each construct was higher than the construct's highest correlation with any other construct in the model. Cross-loadings for all manifest variables had higher values on their relative latent variable as compared with other constructs. This verified that the manifest variables in each construct represented the assigned latent variable and confirmed discriminant validity of the model. The measurement model was therefore accepted and analysis on the structural model was performed. The  $R^2$  values indicated a medium proportion of variance was explained in the model and therefore exhibited potential for practical and theoretical significance. The predictive ability of the model and model fit were both acceptable.

This study provides new insight into tourism students' satisfaction with WIL. Variables identified in previous studies on the expectations and/or perceptions of WIL [9, 11, 13] were included in both the pre- and postplacement questionnaires. When designing the conceptual model, indicators that were confirmed by the preplacement expectations of WIL were payment during WIL [13], offer of a full-time position [13], the role of the supervisor, and the benefits of WIL [11]. Technical skills and problem-solving skills as identified in previous research [9] as well as coordination between the academic institution and host organization were omitted from the conceptual model due to weak loadings. The overall effect of preplacement expectations was, however, not significant in terms of satisfaction with WIL. Postplacement perceptions confirmed the importance of indicators relating to the organization supervisor and benefits of WIL [11]; however, payment during WIL and the offer of a full-time position were omitted. The overall effect of postplacement perceptions was significant in terms of satisfaction with WIL.

The results from this study may not be generalizable beyond the scope of this study. The geographic location, internship program, and nature of the internship for the students who were surveyed were limited to tourism students at a university of technology in South Africa. Possible future studies could consider the effect of registered tourism qualification on the expectations and perceptions of students and the subsequent relationship with satisfaction.

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