

**Factors Influencing Innovative Work Behavior among Academicians at Politeknik Tuanku Sultanah Bahiyah, Kulim, Kedah**

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**Abstract:** Compared to any other field, the research on the Innovative Work Behaviour (IWB) among academicians has been a neglected area. Therefore, the purpose of this study is to investigate the determinant factors influencing IWB among academicians at Politeknik Tuanku Sultanah Bahiyah (PTSB). Social Exchange Theory (SET) was underpinned to determine the relationship between training, reward, knowledge sharing and IWB. Additionally, this study also included work engagement as a mediating variable in the relationship between training, reward, knowledge sharing and IWB. IWB can be defined as the intentional generation, promotion, and realization of new ideas within a work role, workgroup, or organization. It is important to analyze how these dimensions tend to influence the IWB. Data for this study was collected from 118 academicians at Politeknik Tuanku Sultanah Bahiyah (PTSB), Kulim, Kedah and the collected data was analyzed by using Smart-PLS. The findings revealed that two dimensions, which are training and knowledge sharing have a significant relationship with IWB whereas reward has an insignificant relationship with IWB. Furthermore, work engagement was found to be significant in mediating training and knowledge sharing, however, work engagement was found to be insignificant in mediating reward and IWB. As a result, it is suggested for institutions and the Ministry of Higher Education (MoHE) to appropriately apply relevant specific tactics to enhance those components as well as IWB. Future research is suggested to replicate this study to other institutions. Next, it is suggested to test other independent variables and mediating variables to deeply understand other determinants that influence IWB.

**Keywords:** *Innovative work behavior, training, reward, knowledge sharing.*

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## 1. Introduction and Background

Innovation has a vital role in creating new opportunities that contribute to the growth of the national economy and overall societal well-being (Aziz, Abdullah & Hanapiyah, 2022). In Malaysia, innovation plays a crucial role in advancing the nation's development agenda, as it enhances efficiency and competitiveness while promoting inclusivity (Aziz, Abdullah & Hanapiyah, 2022) and Choi (2019) stated that innovation is crucial for organizations to exert significant influence on the future trajectory of their sector. In contrast to other sectors such as business firms, the academic arena needs innovation to enhance competitiveness and gain a competitive edge (Zreen et al., 2021).

Malaysia is aligning with The National Transformation 2050 to transition into an advanced knowledge-based economy and achieve developed nation status. This transformation emphasizes innovation and recognizes the education sector as a key driver of economic growth and development in Malaysia. However, Dixit and Upadhyay (2021) found that there have been few efforts to investigate the characteristics that contribute to innovative work behavior (IWB) in higher education institutions as highlighted by Fussy (2018). The study of the IWB of academic staff has been overlooked, leading to a significant question as to what elements can assist universities in becoming more innovative and providing improved services to the nation (Zreen et al., 2020).

Therefore, this study identifies several gaps in the field of IWB among academicians. Firstly, many scholars identified the antecedents of IWB at the level of industrial workers such as in the hotel industry (Zainal & Lata, 2021), finance (Chua & Ayoko, 2021), electrical and electronic SMEs (Yusof, 2016) and telecommunications (Harun et al., 2022), however, very few in the academic sector especially in Malaysia. Secondly, although many researchers have conducted IWB studies, nevertheless, determinants of IWB are undetectable (Carlucci, Mura & Schiuma, 2020), fragmented and inconsistent (Bos-nehles, Renkema & Janssen, 2017). Thirdly, work engagement as a mediating variable towards IWB is paucity and requires

additional exploration as suggested by Ibus et al. (2020).

This study contributes to the existing literature in many folds. Firstly, this study provides academics with useful insights for underpinning the Social Exchange Theory (SET) by explaining determinant factors (training, rewards and knowledge sharing) that influence IWB. Secondly, this study enhances the body of knowledge regarding the mediating role of work engagement between training, reward, knowledge sharing and IWB especially for the population of academicians at Politeknik Tuanku Sultanah Bahiyah, Kedah, Malaysia. From a managerial perspective, this study will provide useful insights to MOHE on how to apply specific tactics to enhance and encourage IWB by considering the factors that are included in this study.

Hence, this study attempts to investigate the relationship of selected factors namely training, rewards, knowledge sharing and work engagement as mediating variables towards IWB among academicians at Politeknik Tuanku Sultanah Bahiyah to fill the gap with the current situation demands.

## 2. Literature Review

**Innovative Work Behaviour (IWB):** Researchers have provided various definitions for Innovative Work Behaviour (IWB). IWB is defined as the behaviors that relate to the generation and implementation of novel and creative ideas (Sheeba & Christopher, 2020). The process of IWB involves multiple stages (Bos-Nehles, Renkema & Janssen, 2017). The three stages of IWB are acknowledged by Janssen (2000) namely idea generation, promotion, and realization. Firstly, idea generation means that employees create new ways to solve problems such as new ideas or solutions must be created to enable innovation. Secondly, idea promotion refers to building coalitions and finding support for innovation by presenting the success and benefits to potential allies as well as seeking sponsors (De Jong & Den Hartog, 2010; Janssen, 2000; Scott & Bruce, 1994). Finally, idea realization requires the development of a sample or model of a new product, system or process (Janssen, 2000) that can be applied as part of regular processes (De Jong & Den Hartog, 2010).

**Training and IWB:** Training refers to a methodical and organized set of activities that aim to improve skills, knowledge, and competency (Nassazi, 2013). Every work performed by individuals requires a set of skills and current knowledge to be executed effectively and efficiently (Sheeba & Christopher, 2020). As tasks and vocations get increasingly intricate and convoluted, there arises a necessity for training and development (Sheeba & Christopher, 2020). Training and development facilitate the utilization of IWB by both personnel and organizations. Regrettably, firms fail to adequately prioritize training and development, focusing solely on tools and processes, which proves inadequate for fostering innovation. Past studies have argued that not all training and development programs have a significant relationship with IWB (Stankevičiūtė, Staniškienė & Ciganė, 2020; Veenendaal & Bondarouk, 2015; Jiang, Wang, & Zhao, 2014). In contrast, Aziz, Abdullah, and Hanapiyah (2022); Odoardi, Cangialosi & Battistelli (2022); and Al Wali et al. (2021) analyzed the significant relationship between training and IWB. Thus, the researcher derived the first hypothesis as below.

**H1:** There is a significant relationship between training and IWB.

**Reward and IWB:** According to Chen and Hsieh (2006), rewards include everything that employees recognize as a fair return in exchange for the efforts and time spent at work. According to Bos-Nehles, Renkema and Janssen (2017) and Veenendaal and Bondarouk (2015), rewards can take the form of monetary compensation, such as salary, bonuses, or a share of the company's profits; alternatively, rewards can take the form of non-monetary benefits, such as time off or recognition of accomplishments. However, despite the attention that human resource practices have gained concerning IWB, the role of reward in promoting creativity and innovation also remains less investigated (Mascareño, Rietzschel, & Wisse, 2020). On top of that, the findings of reward influencing IWB are inconsistent (Diehl & Seeck, 2017) Bysted and Jespersen (2014). The findings from Dixit and Upadhyay (2021) and Volery and Tarabashkina (2021) found an insignificant relationship between rewards and IWB whereas others have found a positive impact (Aziz, Abdullah & Hanapiyah, 2022; Saaondo & Ashwe, 2018). Thus, the researcher derived the second hypothesis as below.

**H2:** There is a significant relationship between reward and IWB.

**Knowledge Sharing and IWB:** According to Chaudhary et al. (2023), knowledge sharing is the practice of

employees exchanging information, skills, and expertise with one another. Knowledge sharing is further divided into two subcategories namely knowledge donating and knowledge collecting. Knowledge donating is referred to as “the communication between individuals that is based upon an individual’s wishful transfer of intellectual capital”, whereas knowledge collecting is defined as “an attempt to convince other organizational members to share what they know” (Van Den Hooff & De Ridder, 2004). Knowledge sharing fosters innovation at both the organizational and individual levels when “people who possess knowledge are willing to transfer their work experience, techniques, and opinions to others in a concrete manner and expect that others will practically apply such knowledge at work” (Yu, Yu & Yu, 2013) and this creates organizational-level and individual-level innovation (Pittino et al., 2018). To be more precise, people who participate in the knowledge-sharing process help their colleagues develop the competencies that are necessary for creative activity (Anser et al., 2022). Most of the previous studies revealed that knowledge sharing has a significant relationship with IWB (Nguyen, Nguyen & Do, 2019; Kmiecik, 2021). Nonetheless, according to Vandavasi et al. (2020) and Rahman et al. (2021), there is a need to identify mechanisms and conditions between knowledge sharing and IWB. Thus, the researcher derived the third hypothesis as below.

**H3:** There is a significant relationship between knowledge sharing and IWB.

**Work Engagement:** According to Anggritanyo and Lo (2022), work engagement refers to actively participating and being fully involved in one's workplace. As to Saks and Gruman (2017), work engagement refers to a favorable mental state when individuals experience satisfaction and connection to their work and are characterized by qualities such as vigor, dedication, and absorption. Vigour, as defined by Schaufeli et al. (2002), encompasses having abundant energy and mental strength while working, being eager to put effort into one's work, and demonstrating persistence in the face of challenges. Dedication is closely associated with emotions of significance, passion, motivation, and satisfaction towards one's work, as well as a deep engagement with one's work. Absorption occurs when an individual is completely engrossed in their work, dedicating their time and effort to their professional activities (Schaufeli, 2017; Schaufeli et al., 2002). Several research has shown a strong correlation between work engagement and innovation (Agarwal et al., 2012). Furthermore, scholars have placed greater emphasis on studying the factors that influence IWB. Thus, the researcher derived the fourth, fifth and sixth hypotheses as below.

**H4:** Work engagement mediates the relationship between training and IWB

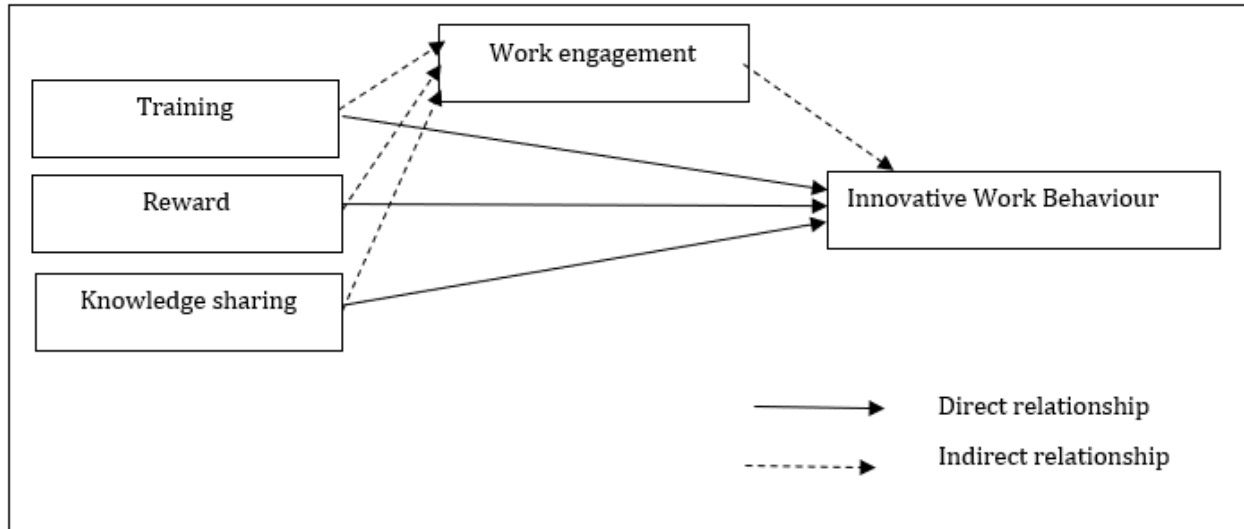
**H5:** Work engagement mediates the relationship between reward and IWB

**H6:** Work engagement mediates the relationship between knowledge sharing and IWB

**Social Exchange Theory:** Social Exchange Theory (SET) is a highly influential framework for understanding workplace behavior, particularly about IWB and it is widely used in the field of organizational or workplace behavior. SET pertains to the deliberate activities of persons who are motivated by the anticipated benefits they may receive as a consequence of their behaviors toward others (Blau, 1964). The notion posits that the relationship between two parties is founded upon reciprocity and trust. Employees are more inclined to establish a trusting rapport with their leader when they have a favorable perception of their leader (Ahmad et al., 2019). Consequently, they will feel compelled to reciprocate the servant leader's activities with productive work outcomes (Aboramadan et al., 2022). Employees who exhibit reciprocation tendencies are more likely to exert greater effort in their work (Saks, 2006), which in turn motivates them to engage in additional job-related activities (Ahmad et al., 2019), such as IWB and creativity (Aboramadan et al., 2022)

## Research Framework

Figure 1: Research Framework



## 3. Research Methodology

This study applied quantitative research and the data was collected via an online survey from 118 academicians from Politeknik Tuanku Sultanah Bahiyah. A stratified random sampling technique was used to segregate the population based on the department followed by simple random sampling. Participants were asked to rate the degree to which they agreed with each of the statements using a 6-point Likert scale. In total, 41 items were used to measure five variables. Data were analyzed using structured partial least squares modeling (PLS-SEM), and Smart PLS version 4 statistical software was used for the data analysis. This study adopted measurement questions from previous research and adapted them based on the suitability of this study. Six-point Likert scales ranging from strongly disagree to strongly agree were used to measure the variables in this study. Chomeya (2010) stated that to emphasize discrimination and reliability, the researcher should use the 6-point Likert scale to help the respondents choose the answer, as there is no neutral point. The training was measured by using the scale by Pingel and Kroon (2020) and Sun, Aryee and Law (2007) whereas rewards and knowledge sharing were measured by Abdullah (2019).

## 4. Findings and Discussion

**Profile of Respondents:** There were 118 total respondents involved in this study. Table 1 shows that 56.78% of the respondents are male, and the other 43.22% are female. In detail, most of the respondents are between 41 to 50 years old (56.78%), another 27.12% are between 31 to 40 years old, and the remaining 16.10% are between 51 to 60 years old. Furthermore, the majority of the respondents have served between 11 to 20 years (45.76%), another 38.98% have served between 21 to 30 years and the remaining 15.25% have served less than 10 years. The academicians from the Jabatan Kejuruteraan Mekanikal had the highest number of respondents in this study, which was 19.49%, followed by the Jabatan Pengajian Am (18.64%), the Jabatan Kejuruteraan Awam (16.95%), the Jabatan Kejuruteraan Elektrik (15.25%), the Jabatan Matematik dan Sains Komputer (15.25%), the Jabatan Perdagangan (13.56%), and others (0.85%).

**Table 1: Respondent's background and profile**

VARIABLES	DESCRIPTIONS	FREQUENCY	PERCENTAGE
Gender	Male	67	56.78 %
	Female	51	43.22 %
	<b>Total</b>	<b>118</b>	<b>100 %</b>
Age	31 - 40 years old	32	27.12 %
	41 - 50 years old	67	56.78 %
	51 - 60 years old	19	16.10 %
	<b>Total</b>	<b>118</b>	<b>100 %</b>
Service period	0 - 10 years	18	15.25 %
	11 - 20 years	54	45.76 %
	21 - 30 years	46	38.98 %
	<b>Total</b>	<b>118</b>	<b>100 %</b>
Department	Jabatan Perdagangan	16	13.56 %
	Jabatan Kejuruteraan Mekanikal	23	19.49 %
	Jabatan Kejuruteraan Elektrik	18	15.25 %
	Jabatan Kejuruteraan Awam	20	16.95 %
	Jabatan Pengajian Am	22	18.64 %
	Jabatan Matematik dan Sains Komputer	18	15.25 %
	Others	1	0.85 %
	<b>Total</b>	<b>118</b>	<b>100 %</b>

**Measurement Model:**

**Reliability and Validity:** In this study, all constructs were above 0.70, which met the rule of thumb for composite reliability, and all constructs in Cronbach's alpha also met the rule of thumb of being larger than 0.60. In addition, the value of AVE is larger than 0.50, indicating that they have met the acceptable standard of convergent validity.

**Table 2: Measurement Model Analysis**

VARIABLES	ITEMS	LOADINGS	AVE	CRONBACH'S ALPHA	COMPOSITE RELIABILITY
Innovative Work Behaviour	IWB1	0.781	0.690	0.944	0.952
	IWB2	0.828			
	IWB3	0.767			
	IWB4	0.819			
	IWB5	0.869			
	IWB6	0.840			
	IWB7	0.872			
	IWB8	0.872			
	IWB9	0.822			
Training	TR1	0.810	0.722	0.922	0.940
	TR2	0.825			
	TR3	0.856			
	TR4	0.816			
	TR5	0.907			
	TR6	0.879			

VARIABLES	ITEMS	LOADINGS	AVE	CRONBACH'S ALPHA	COMPOSITE RELIABILITY
Reward	RW1	0.839	0.730	0.926	0.942
	RW2	0.851			
	RW3	0.865			
	RW4	0.887			
	RW5	0.783			
	RW6	0.899			
Knowledge Sharing	KS1	0.834	0.681	0.906	0.927
	KS2	0.814			
	KS3	0.864			
	KS4	0.848			
	KS5	0.810			
	KS6	0.778			
Work Engagement	WE1	0.679	0.716	0.949	0.958
	WE2	0.822			
	WE3	0.820			
	WE4	0.884			
	WE5	0.910			
	WE6	0.841			
	WE7	0.906			
	WE8	0.872			
	WE9	0.857			

**Discriminant Validity:** Discriminant validity for this study was tested by applying the Heterotrait-Monotrait Ratio Correlations (HTMT) criterion suggested by Hair et al. (2022). The result shown in Table 3 indicates that all values were below 0.90, which confirms that the discriminant validity in this study has been established. Having such results confidently confirms that the model for this study has adequate reliability and validity.

**Table 3: HTMT Criterion Analysis**

	IWB	KS	RW	TR	WE
<b>IWB</b>					
<b>KS</b>	0.881				
<b>RW</b>	0.395	0.507			
<b>TR</b>	0.847	0.835	0.433		
<b>WE</b>	0.899	0.890	0.468	0.832	

**Structural Model:**

**Table 4: Structural Model Analysis**

	VIF	Path coefficients	p-value	f <sup>2</sup> value	Decision	Hypothesis
<b>KS -&gt; IWB</b>	3.784	0.267	0.003	0.091	Supported	H3
<b>KS -&gt; WE</b>	2.605	0.552	0.000	0.453		
<b>RW -&gt; IWB</b>	1.300	-0.063	0.290	0.015	Rejected	H2
<b>RW -&gt; WE</b>	1.290	0.050	0.409	0.007		
<b>TR -&gt; IWB</b>	2.869	0.251	0.023	0.106	Supported	H1

<b>TR -&gt; WE</b>	2.434	0.335	0.000	0.179		
<b>WE -&gt; IWB</b>	3.871	0.467	0.000	0.274		
<b>RW -&gt; WE -&gt; IWB</b>		0.023	0.436		Rejected	H5
<b>TR -&gt; WE -&gt; IWB</b>		0.157	0.014		Supported	H4
<b>KS -&gt; WE -&gt; IWB</b>		0.258	0.001		Supported	H6

The results in Table 4 present the hypothesis testing in the structural model for this study. Firstly, all the Variance Inflation Factor (VIF) values for the inner model are below 5, which means that collinearity has no substantial effect on the structural model for this study (Hair et al., 2022).

The training was found to have a significant relationship with innovative work behavior ( $\beta = 0.251, p < 0.05$ ). Furthermore, in terms of the effect size, the  $f^2$  values show that this variable has a small effect on this model (Cohen, 1988). Therefore, H1 is accepted. This finding implies that the training will encourage innovative work behavior among academicians in PTSB. This result is in line with the studies conducted by Aziz, Abdullah and Hanapiyah (2022) and Odoardi, Cangialosi and Battistelli (2022). Generally, effective training can help cultivate a culture of innovation where employees learn to embrace challenges, persist in the face of setbacks, and see failures as learning opportunities, which are essential attitudes for fostering innovation. This is in line with the study conducted by Younas et al. (2018).

Reward was found to have an insignificant relationship with innovative work behavior ( $\beta = -0.063, p > 0.05$ ). Furthermore, in terms of the effect size, the  $f^2$  values show that this variable has a small effect on this model (Cohen, 1988). Therefore, H2 is rejected. This finding implies that the reward will not encourage innovative work behavior among academicians in PTSB. This result is in contrast with the study conducted by Aziz, Abdullah and Hanapiyah (2022) and Saaondo and Ashwe (2018). However, the result of this study is in line with the studies conducted by Dixit and Upadhyay (2021) and Volery and Tarabashkina (2021). The reward does not encourage IWB among academicians in PTSB due to the nature of the work itself. As an academician, it is normal behavior to be innovative and this is supported by the study of Teichmann & Falker (2021) which indicated that normal behavior should not be rewarded because normal behavior does not deserve a bonus.

Knowledge sharing was found to have a significant relationship with innovative work behavior ( $\beta = 0.267, p < 0.05$ ). Furthermore, in terms of the effect size, the  $f^2$  values show that this variable has a small effect on this model (Cohen, 1988). Therefore, H3 is accepted. This finding implies that knowledge sharing will encourage innovative work behavior among academicians in PTSB. This result is in line with the studies conducted by Phung et al. (2017) and Aziz, Abdullah and Hanapiyah (2022). Knowledge sharing facilitates collaboration among academicians from different disciplines and institutions for instance, collaborative research projects often lead to the integration of diverse knowledge bases, methodologies and approaches, resulting in innovative breakthroughs and advancements in various fields. This is supported by the study conducted by Kmiecik (2021) which stated that by sharing knowledge with colleagues, the knowledge base of other employees is increased and the chance for the emergence of innovative ideas increases.

Work engagement was found to have a significant in mediating the relationship between training ( $\beta = 0.157, p < 0.05$ ) and knowledge sharing ( $\beta = 0.258, p < 0.05$ ) with innovative work behavior. Therefore, H4 and H6 are accepted. This finding implies that the training and knowledge sharing will encourage work engagement among academicians in PTSB, and in turn, will encourage their innovative work behavior. This result is in line with the studies conducted by Contreras, Soria-Barreto and Zuniga-Jara (2022) and Mubarak et al. (2021) which found that work engagement is a mediating factor in innovative work behavior studies.

Nevertheless, work engagement was found to have an insignificant in mediating the relationship between reward with innovative work behavior ( $\beta = 0.023, p > 0.05$ ). Therefore, H5 is rejected. This finding implies that work engagement does not mediate the relationship between reward and innovative work behavior among academicians in PTSB. In detail, the result of this study also revealed that rewards have an insignificant relationship with work engagement and innovative work behavior. This implies that the implementation of rewards to enhance employee motivation and performance appears to be ineffective in fostering engagement. In other words, employees are capable of doing the tasks however, they lack

enthusiasm and commitment to their work (Kulikowski & Sedlak, 2020). Kulikowski and Sedlak (2020) found that while financial rewards are crucial for meeting basic human needs, their ability to enhance work engagement may be relatively restricted. Monetary compensation and other financial incentives are not the primary factors that contribute to employee engagement. This is due to academicians often value non-monetary rewards such as recognition, meaningful work, opportunities for personal and professional growth, and a positive work environment as supported by Contreras, Soria-Barreto and Zuniga-Jara (2022).

**Table 5: R<sup>2</sup> and Q<sup>2</sup>**

	R <sup>2</sup>	Q <sup>2</sup>
IWB	0.794	0.725
WE	0.742	0.742

According to Hair et al. (2022), the most commonly used measure to evaluate the structural model's explanatory power is the coefficient of determination (R<sup>2</sup>) value, which represents a measure of in-sample predictive power. The R<sup>2</sup> values for this study were 0.794 (innovative work behavior) and 0.742 (work engagement), which indicates that the model's explanatory power for innovative work behavior is large, while for work engagement is substantial (Cohen, 1988).

This study employed the technique of predictive relevance of Q<sup>2</sup> analysis and PLS prediction which was suggested by Hair et al. (2022), to test the structural model. The Q<sup>2</sup> value for this study was 0.725 (innovative work behavior) and 0.742 (work engagement), which is greater than zero. Henceforth, the predictive relevance of this model was established. The results of the PLS prediction procedure in Table 6 show that all indicators in the PLS-SEM analysis have lower RMSE (or MAE) values compared to the naive LM benchmark, except WE5 which indicates that PLS-SEM has higher MAE values compared to the naive LM benchmark. Therefore, it can be concluded that this model has high medium power.

**Table 6: PLS Predict Analysis**

	PLS-SEM_RMSE	PLS-SEM_MAE	LM_RMSE	LM_MAE
IWB1	0.583	0.495	0.616	0.499
IWB2	0.519	0.443	0.567	0.458
IWB3	0.593	0.504	0.656	0.542
IWB4	0.557	0.498	0.606	0.520
IWB5	0.562	0.479	0.610	0.483
IWB6	0.578	0.492	0.645	0.528
IWB7	0.555	0.460	0.616	0.500
IWB8	0.533	0.435	0.594	0.464
IWB9	0.543	0.480	0.606	0.500
WE1	0.586	0.476	0.618	0.498
WE2	0.591	0.509	0.645	0.528
WE3	0.557	0.466	0.605	0.487
WE4	0.545	0.449	0.602	0.489
WE5	0.540	0.439	0.547	0.438
WE6	0.589	0.502	0.644	0.524
WE7	0.561	0.436	0.620	0.491
WE8	0.588	0.481	0.614	0.489
WE9	0.577	0.499	0.622	0.524



## 5. Conclusion and Recommendations

In conclusion, this study found that training and knowledge sharing are significant predictors of IWB whereas reward does not influence IWB. Furthermore, this study found that work engagement has mediated the relationship between two independent variables (training and knowledge sharing) with IWB. Therefore, it is suggested that institutions and the Ministry of Higher Education (MoHE) conduct efficient innovative training to enhance the IWB among academicians. The result of this study also suggested that the management develop a program to encourage knowledge sharing focusing on innovation among the academicians such as mentoring, conferences and seminars. Furthermore, it is suggested that the management enhance the level of work engagement by conducting an innovation competition among academicians. On the other hand, this study will contribute to the body of knowledge regarding the role of training, rewards and knowledge sharing in influencing IWB as well as mediating the role of work engagement. The first limitation of this study is that it only focuses on PTSB, Kulim, and Kedah. Thus, there might be limited information gained for the overall results. Therefore, it is suggested to replicate this study to other institutions. The second limitation of this study is that it only uses three independent variables (training, reward and knowledge sharing). Hence, it is suggested for future research to apply other independent variables to examine the relationship with IWB. The third limitation of this study is work engagement as a mediating variable was exploited. Therefore, future research may consider using other mediating variables such as trust and empowerment.

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