

## Work Engagement and Innovativeness in Manufacturing Sector

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**Abstract:** This research try to explore the association between work engagement and innovative work behavior in manufacturing workers. The purpose of this study is to identify the work engagement level among workers, to identify the of innovative work behavior among workers and to determine the relationship between work engagement and innovative work behavior among workers. Quantitative approach had been utilized in this study. An online survey had been conducted among 900 workers from manufacturing sectors companies in Pontian with a response rate of 58.4%. The data collected had been analyzed using both descriptive and correlation analysis by SPSS. This study found that a level of work engagement and innovative work behavior were at moderate level. This study also shows a significant association between work engagement and innovative work behavior

**Keywords:** Work engagement (WE), Innovative work behavior (IWB), manufacturing

### 1. Introduction

Innovation in an organization is a process of change that can lead to something new either in products, processes, or procedures within a company (Ganzer *et al.*, 2017). Innovation is a key factor in economic growth and success, especially in manufacturing. Ultimately, it leads to increased productivity, efficiency and progress. Manufacturing is constantly changing, from the emergence of new technologies to Industry 4.0. This constant change means manufacturers must constantly innovate to stay relevant and on the cutting edge.

Innovation means looking for something better, identifying and fixing weaknesses, or streamlining existing processes. In order to become a country with high innovation status, organizations must leverage the capabilities of their workers to innovate. Faced with this situation, organizations must adapt and adapt to the changing times in order to continue becoming competitive and survive in the manufacturing industry in the era of modernization. Thus, it is important for organizations to recruit

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and hire the right people for creative work and create an environment that encourages work behavior that can be considered innovative. Work engagement is among the key variables that attracts devotion and has important consequences for understanding innovation (Puente-Díaz, 2016). Therefore, the leadership style and communication patterns of supervisors and the engagement of workers in improving and developing organizational productivity are the most important factors for organizational success.

Employee engagement in the workplace is a form of commitment or responsibility to play a role and keep the work focused. Good workers are not only able to be fully physically involved in their work, but are also able to share knowledge and emotional control in completing the task, and such involvement allows them to be more innovative in the workplace. Behavior can also be encouraged. Work engagement refers to the primary sources of organizational engagement, motivation, and job satisfaction that influence employee job performance (Schaufeli & Bakker, 2004). This shows that involved workers can provide motivation to change their individual job performance. There are few empirical studies on employee engagement and innovative work behaviors, especially in manufacturing. The manufacturing sector is often associated with regional technological developments, leading to large capital inflows to the country. The manufacturing sector is considered to be the most important catalyst for the country's economic development. With various technologies and facilities open to the public, the company can attract foreign and local investors to explore new industries, which in turn attracts workers to the industry. Department of Statistical Malaysia (DoSM), stated that manufacturing grew 5% in 2015 compared to the previous year. This reflects Malaysia's overall economic growth of 5%. Given the global recession, this was quite impressive. According to Central Bank estimates, GDP in the fourth quarter of 2015 was RM303.8 billion (US\$75.2 billion) at current rates, with manufacturing at RM69 billion (US\$17.1 billion), or 22.7%, making it the largest segment in the world economy by quantity.

Malaysia is ranked eighth in Asia and 33rd in the World Intellectual Property Organization's Global Innovation Index (GII) 2020 report (WIPO). This demonstrates that Malaysia's degree of innovation is still moderate. Malaysia advanced two places to 33rd place out of 131 nations in the Global Innovation Index (GII) 2020, up from 35th place last year. High performance in 5 of the seven pillars of GII 2020, particularly Market Sophistication, Human Capital and Research, Business Diversity, Knowledge and Technology Output, and Creative Output, has helped Malaysia improve its place in GII 2020. Malaysia performed above average in all seven pillars of the GII when compared to other countries such as countries in Southeast Asia and East Asia. Previous study, Vithayaporn and Ashton (2019) show that work engagement could encourage more innovative work behavior among workers and the correlation between work engagement and innovative work behaviour has been discovered in many research. Work engagement, according to Agarwal (2014), has a beneficial influence on innovative work behaviour. Work engagement might have a favorable influence on innovative behavior but less study has conducted on the association between work engagement and innovative work behavior (Jung and Yoon (2018). Thus, the study aims to examine how innovation behavior could be encouraged and can be relate with engagement of the worker.

## 2. Literature Review

### 2.1 Innovation

An assessment of the literature on innovation suggests that the term 'innovation' is originated from the Latin word 'innovare', which reflects 'to do something different' (Tidd *et al.*, 2001). Much research has been done on innovation. Entrepreneurship requires innovation to sustain global competitiveness and profitable business development. and contribute to long-term success in the global economy.

Farr and Ford (1990), suggested that innovation can be precised by the larger individual, organization, or society. Ideas are produced through various processes such as invention, creation, and production, but innovation occurs when the concept is truly functional and implemented. The ability of workers to generate ideas for better products, services and work processes helps improve business efficiency. It is a social system in the sense that there is a connection with people who innovate.

## 2.2 Innovative Work Behavior

Innovative work behavior in the organizational world is a process of change that produces something new in the form of products, processes, or procedures within an organization. According to Farr and Ford (1990), all innovative actions are individually directed actions to create, introduce, and apply something "new" that is useful at various levels within an organization. This innovative behavior equates to increased innovation, as it involves all parties, down to the system. Empowerment is essential. Examples of such behaviors include finding new technologies, proposing new strategies to achieve goals, using new work strategies, and obtaining support and resources to implement new ideas.

Innovative Work Behavior is an interactive series that encourages workers to deliberate creatively to improve their work efficiency, processes and habits. These behavioral manifestations usually include, among other things, identifying work-related problems, introducing new and better ideas, and implementing those ideas. Employee innovation, which is based on exploring and creating ideas, differs from creative work behavior in that creativity focuses on the process of initiating the latest and better ideas. Innovative work behavior (IWB) is more focused and purposeful than innovation because it involves discovering, investigating, designing, implementing, and evaluating new concepts and linking them to improving work processes and results. By proposing innovative new concepts, innovation can be seen as a subdimension of his IWB.

## 2.3 Theory of Innovative Work Behavior

The IWB consists of a number of small dimensions that replicate different phases of a company's innovation process. Some scholars have proposed three small-dimensions: concept generation, idea generation, and idea execution (Janssen, 2000; Madrid *et al.*, 2014; Scott and Bruce, 1994). Other researchers have proposed four aspects of him that need to be explored (De Jong & Den Hartog, 2010): concept discovery, generation, representation, and execution. However, the majority of scholars agree that IWB can be divided into two categories: idea generation and execution (Spiegelaere, 2014)). In this study, the first stage was defined as the action of various innovative works. This includes his two interrelated actions of exploring possibilities and generating ideas. According to De Jong and Hartog (2010), there are four aspects to innovative work actions.

### *(a) Idea generation*

Idea generation is an independent activity in which applications, implications, and outcomes are identified and transformed into new ideas or ideas for improvement (Mumford, 2000). Alsughayir (2017) describes the generation of ideas as efforts to expand existing products or processes, or consideration of alternatives, combining and rearranging existing information and concepts to create an organization's products, services, or efforts to solve problems by taking action to improve practices. Idea generation might relate to new products, services or processes, entry into new markets, developments to present workflows, or overall solutions to identify problems (e.g. Kanter, 1988). The crucial to creating ideas is collecting and rearranging information and existing concepts to solve problems or improve performance. A virtuous idea generator is someone who can fill in difficulties and performance breaches from different views.

*(b) Idea promotion*

In turn, the level of support for ideas can lead to developed ideas, possibly leading to more developed organizations and freedom from barriers to change (Akram *et al.*, 2016). These ideas are promoted to senior management within the company and implemented there (De Jong and Den Hartog, 2010). Fostering ideas involves social efforts aimed at gaining the support of key decision makers to help move the ideas created forward. As a result, concept promotion becomes more interpersonal and political than idea generation, requiring networking skills, social influence and legitimacy (Baer, 2012; Perry-Smith & Mannucci, 2017). Once the final concept is in place, it's time to promote it. At this point, workers should be motivated to seek help to develop new ideas for innovation.

*(c) Idea realization*

The realization of ideas leads to the development and improvement aspects of work behavior, which create added value to the organization in an operational or management context. Specific actions addressed in this phase are product development and improvement, or new services or work techniques (Akram *et al.*, 2016). Implementing new ideas in the form of new products or processes within an organization is called idea realization. According to Axtell *et al.* (2000), generating ideas and implementing concepts have a different origin. Concepts created and supported must be implemented. This stage of innovative action thus marks the completeness of an idea by transforming it into a practical application (physical or intellectual) that can later be transferred to others. Idea realization is the last but most difficult behavioral activity of the invention process, as it requires a variety of skills, knowledge, and cooperation with other colleagues and departments.

## 2.4 Work Engagement

“A comfortable, ambitious, work-related state of mind characterized by vigor, dedication, and preoccupation” is how work engagement is well-defined (Schaufeli *et al.*, 2002, p. 74). Well-being at work is related to increased work engagement and effective functioning (Christian, Garza & Slaughter, 2011). In recent years, much of the research on hospitality management has focused on employee engagement in the workplace (e.g. Altinay *et al.*, 2019; Karatepe, 2014). People who are fully committed to their work are energetic, enthusiastic, and completely interested in what they do. Most researchers have used a cross-human method, showing changes in work engagement between persons depending on their work environment, personal characteristics, and behavioral techniques (Bakker *et al.* 2014). Engaged workers are passionate about their work, have a positive attitude, and believe they are doing a good job (Bakker and Leiter, 2010). It is a long-term, multifaceted emotional cognitive state.

The theory of work engagement (Bakker, 2009) assumes that engaged workers possess a highly positive attitude characterized by boundless vitality, energy, motivation and dedication to work. Engagement is the positive, emotional-cognitive state of highest satisfaction. Engagement is a way of life that uses as much energy, dedication, and receptivity as possible to bring out the best in one's talents and passions.

*(a) Vigor*

Vigor is characterized by high energy and resilience towards work, willingness to work hard and perseverance in the face of difficulties. This is the very definition of a positive and positive person. Someone who not only wants to work harder, but has the physical energy to do it, or “discretionary effort,” as the business calls it. Richard Ryan of the University of Rochester defines vitality as "your own energy." When a person possesses it, it creates interest, enthusiasm, and happiness, as well as a magnetism that pushes that person and others beyond boundaries.

*(b) Dedication*

Dedication reflects feelings of importance, passion, inspiration, pride and perseverance. Dedicated workers are passionate and enjoy their work. Engaged workers believe that the work they do is meaningful and contributes to the organization's broader purpose. According to Schaufeli and Baker (2004), cynicism is the opposite of dedication. This is part of our commitment to employee retention. People care about the company, its purpose, and the individual's ability to contribute to the larger team and goals, so they want to give more.

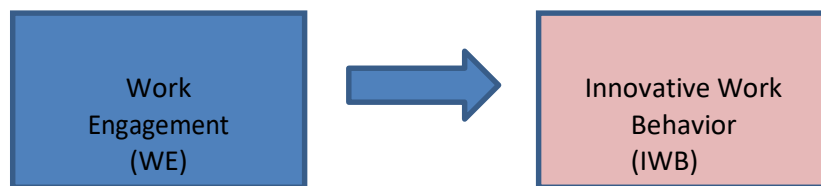
*(c) Absorption*

Absorption is the state of being so focused and happily immersed in a task that time passes so quickly that you feel like you can't get out of it. Employees go crazy when they are addicted to their work. Inseparable from immersion is the notion of 'flow', which refers to a good state in which an individual is fully immersed in their work. People who are busy with their work are immersed in it. Commitment adds a new level of focus to activity, driven by an inner desire and an underlying interest in completing it.

**2.5 Analysis Previous Studies on the Relationship between Work Engagement and Innovative Work Behavior**

Based on literature reviews conducted on the relationship between work engagement and innovative work behavior, it has been shown that many studies have been conducted to examine the relationship between the two variables. Most of the studies conducted show a close correlation. According to Vithayaporn and Ashton (2019), it is widely accepted that innovation is essential for the long-term success of any business. Slatten and Mehmetoglu (2011) demonstrate that work engagement has a positive impact on innovative work behavior. The role and capacity of organizations to provide equipment and support to the workers they employ, thereby encouraging innovative work behavior, should be considered and discussed. The simplest employee engagement strategy is the innovation exercise. Therefore, in order to attract workers, companies need to invest in engagement strategies.

**2.6 Theoretical Framework**



**Figure 1: Theoretical framework**

Figure 1 shows the theoretical framework for this study. It is expected that there is relationship between work engagement and innovative work behavior of the workers

**3. Research Methodology**

Quantitative research methodologies adhere to the assumptions of the empiricist paradigm (Creswell & Creswell, 2017). The goal is to generate generalizations and establish, confirm, or verify the relationships that contribute to the theory (Leedy & Ormrod, 2005). Quantitative research should begin with a research question and include hypotheses, literature review, and quantitative data analysis (Creswell & Creswell, 2017). Quantitative approaches focus on establishing causality (Neuman, 1998).

Consequently, the quantitative study design of this study is adequate in terms of data collection and data analysis with statistical results.

### 3.1 Research Design

The study design of this study is a quantitative study design as it aims to find out how many people think, act and feel in a particular way. This research sample consisted of a non-probability sample in which researchers used simple sample types. The researchers used manufacturing workers around Pontian as a sample for this study. The scope of the study was limited to a quantitative study design involving factory workers in Pontian, Johor. Selected respondents are factory workers. The sample for this study was randomly selected from a sample listing each person in the population (Cooper & Schindler, 2014). This includes the 900 workers, selected as the population size. Sample size is taken from a small subset of the population for observational purposes and generalized to the population represented by the sample. Based on Krejcie and Morgan's (1970) sizing chart sample, the appropriate sample size for this survey was 269 respondents.

### 3.2 Data Collection

This study uses both primary and secondary data. Primary data were collected by data collection and questionnaires are considered the research tools used in this study. This study uses both primary and secondary data. Primary data are collected through original or direct research. For example, surveys or focus group discussions. Secondary data, on the other hand, is information previously collected by a third party. For example, do an online search, read a newspaper article, or review a company report. This strategy is used to collect data in a practical way. Specifically, data demonstrating links between professional engagement roles and creative work behavior. Secondary data is information obtained from sources other than the original user. Secondary sources of social science data include census data, information collected by government agencies, organizational records, and data obtained for other research purposes. Examples of secondary data sources include journals, books, journals, historical records, reports, documents, web, articles, and newspapers. Researchers can access educational publications online through Emerald Sight, ScienceDirect, or the UTHM e-Thesis website.

### 3.3 Research Instrument

A survey tool consisting of a series of questions or other types of prompts intended to collect information from a respondent. Survey questionnaires are typically a mix of closed-ended and open-ended questions. The questionnaire is divided into her three parts: Part A, Part B and Part C. Part A is designed to identify the demographic information of respondents, using ordinal and nominal scales to measure their responses. Section B is designed to measure work engagement in your organization. Each variable was measured to examine the importance of work engagement: vigor, dedication and absorption in the Malaysian manufacturing sector. Part C helps measure innovative behavior of workers. Table 1 shows the research instrument for this study.

**Table 1: Research Instrument**

| Part | Items                    | Source  |
|------|--------------------------|---|
| A    | Demographic              |   |
| B    | Work Engagement          | The UWES (Utrecht Work Engagement Scale)<br>Schaufeli & Bakker (2004) |
| C    | Innovative Work Behavior | Pukienė (2016)  |

### 3.4 Data Analysis

At this stage, data analysis of the obtained data was performed based on the main objectives of the study. As a result of the analysis, processing and findings, activities are carried out to produce a complete report. Quantitative data processing supported and supplemented using Social Software Science (SPSS) statistical packages. Raw data collected from the respondent were first entered into the SPSS system, coded and prepared for further analysis.

The most basic type of analysis is descriptive analysis, which is used to characterize general data states. This descriptive study involves a number of steps including frequency distribution determination, central tendency determination, and variability determination. In addition, descriptive analysis used a mean analysis approach to classify respondents into three levels of satisfaction: low, medium, and high. The minimum value is calculated by multiplying all scores by the number of respondents and items.

Correlation analysis is a statistical technique used to find out if there is a relationship between two variables/data sets and how strong that relationship is. There are two types of normal tests for knowing the independent and dependent variables, Pearson and Spearman his. Correlations can be seen through the distribution of data. That is, the narrower the data distribution, the stronger the relationship, and vice versa.

## 4. Results and Discussion

### 4.1 Results

This section describes the results and analysis of data collected from surveys. This analysis was performed using Statistical Package Social Science (SPSS) software. This chapter describes the analysis, presentation and interpretation of research results. Data are analyzed and interpreted, and quantitative studies of the data are conducted based on the results of the questionnaire.

#### *(a) Return rate and reliability*

A total of 269 questionnaires were distributed and a total of 157 questionnaires were returned, corresponding to a response rate of 58.4%. Cronbach has an alpha score of 0.955 for work engagement and 0.963 for innovative work behavior. The values obtained indicate that the survey questionnaire for this study is of an adequate level. An actual survey of 157 respondents showed Cronbach's alpha score to be greater than 0.9. Cronbach's alpha score for work engagement was 0.922 and innovative work behavior was 0.925, and the overall reliability test for this study returned his Cronbach alpha score of 0.921, reflecting acceptable reliability.

#### *(b) Demographic background*

Gender, race, education, tenure, and monthly salary are some of the demographics of the respondents examined in this survey. In this part, the demographics of the respondents were assessed, analyzed and explained in more detail using descriptive frequency and proportion tests. The majority of respondents are female (54.8%), 69.4% are between the ages of 21 and 30, have an STPM/foundation/admission or diploma (47.1%), have worked in manufacturing for 1-3 years (71.3%) and have industry experience for 1-3 years, and earn between RM1000 and RM3000 (98.1%).

#### *(c) Descriptive analysis of work engagement and IWB*

Overall, the mean and standard deviation values for work engagement -related data analysis are 3.5309 and 0.4585. Thus, work engagement has a central medium level. While, overall, the mean value and standard deviation for innovative work behavior are 3.5309 and 0.4585 reflecting the median mean of innovative work behavior.

(d) Normality test

**Table 2: Normality Test**

|   | Kolmogorov-Smirnov <sup>a</sup> |     |      | Shapiro-Wilk |     |      |
|---|---------------------------------|-----|------|--------------|-----|------|
|   | Statistic                       | df  | Sig. | Statistic    | df  | Sig. |
| Work Engagement Innovative Work Behaviour | .132                            | 157 | .000 | .956         | 157 | .000 |
|   | .219                            | 157 | .000 | .877         | 157 | .000 |

Based on table 2 above, the normality test analysis was performed on work engagement and innovative work behaviors. Results from normality test analysis showing that all of the above variables are not normal data in which Kolmogorov-Smirnov i.e. sig level is 0.000 (P> 0.000). Thus this study use the Spearman correlation test to analyze the relationship between dependent variables and independent variables.

(e) Correlation analysis

**Table 3: Correlation Analysis**

|                |                           | Innovative Work Behaviour | Work Engagement |
|----------------|---------------------------|---------------------------|-----------------|
| Spearman's rho | Correlation               | 1.000                     | ** .424         |
|                | Innovative Work Behaviour | Coefficient               |                 |
|                |                           | Sig. (2-tailed)           | .000            |
|                |                           | N                         | 157             |
| Spearman's rho | Correlation               | ** .424                   | 1.000           |
|                | Work Engagement           | Coefficient               |                 |
|                |                           | Sig. (2-tailed)           | .000            |
|                |                           | N                         | 157             |

a. Lilliefors Significance Correction

Based on Table 3 above, the value of the correlation coefficient, r for work engagement and level innovative work behavior was 0.424 and this value was significant at p <0.01 with p value = 0.000. This indicates that there is a significant relationship between work engagements and innovative work behavior. Thus, the hypothesis of the study was accepted with work engagement positively related to innovative work behavior.

4.2 Discussion based on the Research Objective

(a) Research objective I: To identify the level of innovative work behavior among workers in manufacturing sectors.

The first objectives of this study are to identify the level of innovative work behavior among workers in manufacturing sectors. From the previous section, it shows that average mean for innovative work behavior is 3.5464. Therefore, the level of innovative work behavior among workers is moderate. Then based on element of participative management in innovative work behavior proposed by Amabile et al.'s (2004) suggested that this could improves people's feeling of self-determination, control, and



responsibility for the work at hand, as well as their intrinsic drive to complete the task. As a result, larger IWB in the company are expected to evolve in-house.

*(b) Research objectives II: To identify the level of work engagement among workers in manufacturing sectors*

The second objectives of this study is to identify the level of work engagement among workers in manufacturing sectors. From the previous section, it shows that average value mean for innovative work behavior is 3.5309. Therefore, the level of work engagement among workers is moderate Previous study conducted by Bakker and Albrecht (2018) concluded that it's important to know the trend of work engagement which means that engagement is looked at as a thing that can change in people over time and in different situations. It is important for business to know that workers have different levels of engagement when they are working. However, it's also important to know what your overall engagement levels are and whether you can change these to improve engagement. Management can influence and increase employee engagement from the top down.

*(c) Research objectives III: Relationship between work engagement and innovative work behavior*

The third objective of this study is to examine the relationship between work engagement and innovative work behaviors (IWB) among workers. In the study that was done, the hypothesis was clearly answered and it was agreed that there is a positive relationship and low correlation between the two variables with the value  $r=0.424$  and it's based on data collected from the Spearman correlation coefficient table.

This study was consistent with previous study conducted by Jung and Yoon (2018) in which it show a relationship between Work Engagement and Innovative Work Behavior. Work Engagement and Innovative Work Behavior are very closely linked to each other. Innovative Work Behavior is about generating new ideas (idea generation), which requires employers to pay attention and enjoy their work. Thus, it can be said that it is linked to the absorption variable in Work Engagement. This is why, it also important to have mental strength when an employee needs to talk to other workers about new ideas and changes that are going to happen (idea promotion). The employee needs to be able to stay consistent with his efforts. In this case, it has to do with the vigour variable. Cognitive and emotional roles are also part of innovative work behaviour. To keep putting your mental and emotional energy into implementing ideas, employee need to feel important, proud, and challenged by what they do, as well as have a passion for their work, which related to the dedication variable.

This study is also consistent with previous study by Vithayaporn and Ashton (2019). Workers come up with new ways to solve problems, make their service better, or work in a different way from the norm. However, when an employee is engaged, he or she is more innovative than an employee who is not engaged. In addition to being a good employee, someone who is innovative acts more energetic and dynamic to show how excited they are about their job. This is in line with Sundaray (2011) who stated that workers who are engaged are more excited to do their job in a new and creative way. It also found that when workers have good work engagement, they are more likely to come up with creative and innovative ways to improve their job performance.

## **5. Conclusion**

Workers' innovative work behavior is influenced by work engagement. Thus, the study's findings met the research goals of determining the level of work engagement among workers, determining the level of innovative work behaviour among workers, and examining the relationship between work engagement and innovative work behavior among workers

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