

Differences in Innovative Work Behaviour and Everyday Work Role Performance of Employees: An Empirical Investigation

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Abstract This paper aims to examine the differences in innovative work behaviour and everyday work role performance from an automotive industry perspective. Exploratory factor was unable to replicate the findings of the previous multi-dimensional innovative work behaviour and three-factor work role performance. Instead, evidence shows support for a single-factor model and two-factor model respectively. Pearson correlation coefficient and multiple regression analysis were used to test hypothesis relationship between the variables. Innovative work behaviour and work role performance could benefit from the influence of culture and races, use of different research instruments and longitude studies examining the effects arising from various stages of change or organisational restructuring. Comparative benchmarking between various industrial sectors could highlight further differences in both these two constructs. The findings support the relationship and influence of innovative work behaviour towards work role performance. Developing innovative work behaviour as part of the everyday job function is the main predictor of work role performance.

Keywords Individual, Work, Behaviour, Performance, Role

1. Introduction

Studies have shown that individual innovation is a crucial element for effective organisational functioning and survival and organisational success[20],[39-40]. Extensive research has been carried out to examine the characteristics and behaviours associated with innovative people in organizations in terms of magnitude and diversity[18]. In terms of the organization workplace, most empirical research on the subject of individuals' innovative behaviour has focused on individual creativity and innovative behaviour[1],[36]. Of late, research on innovative work behaviour ("IWB") has gain momentum. Some studies suggest that individual's propensity to demonstrate innovative work behaviour could be influenced by positive and negative individual traits[43], participative, decentralization and traditional financial mechanisms[44]. However, there is little research that examines IWB across the different levels in the organization particularly in areas where innovation and every day workplace performance differ. Studies suggest that IWB should be embraced and inculcated across a range of functional groups and hierarchical levels since the organizational process of

innovation is understood as being a multi-personnel, multi operational decision-making process[42]. It is posit that innovative work behaviour and everyday work performance of all employees may not be the same with those in innovation-oriented jobs[28]. This proposition supports the empirical evidence showing that many workers possess innovative behaviour within themselves[39]. A greater flow of knowledge could be cultivated by individuals' continuous engagement with learning inside and outside the organisation to stimulate personal insights and synergetic discovery leading to new value[37]. Although common sense suggests that IWB is beneficial, research on the benefits of IWB is limited.

2. Literature Review and Hypotheses

This study aims to address the research gap by identifying how IWB could influence work role performance ("WRP"). Analysis would be carried out to examine the influence of demographics with IWB and WRP. In what follows, the study would first define IWB and WRP and then develop hypotheses in order to validate the relationship. We then report on the correlation between the variables and proceed to test the strength of the relationship. Finally, we would discuss our findings and make suggestions for future research.

2.1. Innovative Work Behaviour

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IWB refers to the behaviour within the individual that promotes the achievement of initiation and intentional introduction (within a work role, group or organization) of new and useful ideas, processes, products or procedures[12]. In line with existing studies[36], IWB has been operationalized as a multi-stage process comprising of idea generation, coalition building and implementation. Most of the studies have supported the use of one-dimension[20] with the exception of a two-dimension model[11, 23] and a three-dimensional model[35]. Recent studies suggest that IWB consisting of four interrelated sets of behavioural activities namely (1) problem recognition, (2) idea generation, (3) idea promotion, (4) idea realization, could enhance the employees' ability to innovate[9]. In particular, employees need to be willing and able to innovate in order to realise a continuous flow of innovations. In this cooperative sense, they could help to generate ideas and support or display the types of behaviour needed to implement improvements that will enhance personal and/or business performance. The creativity orientated work behaviour phase consists of the problem recognition and idea generation phase. Under this phase, individuals try to recognise and understand work related problems, which is then followed with the production of novel and useful ideas to solve the problem. The last 2 activities are referred to as implementation-oriented work behaviour wherein individuals try to promote a novel idea to potential colleagues and managers and to realise actual ideas that are ultimately applied within the work role, group or total organisation. Because individual innovation involves the idea creation and development to a value stage, IWB could be considered as a proactive work behaviour that leads to performance[33].

2.2. Work Role Performance

Traditionally, individuals at the workplace are required to perform a certain role as part of their contribution to the performance or benefit of the organization stipulated in their job description. However, the conditions that the organization operates are often far from stable due to numerous challenges or uncertainties faced in their businesses. In line with studies in dynamic organizational context, work roles often change in a dynamic fashion in response to these changing conditions and demands[38]. Instead of looking at the output generated from individual or team based on their job description, Griffin *et al.*[17] suggested that the WRP should be viewed from the cross-classification of contribution of the three type of individuals' behaviour (proficiency, adaptivity, and proactivity) towards effectiveness of individual, team, and organization. It was posit that these different forms of role behaviour are pre-requisites to performance in different situations particularly in environments having elements of complexity or change[30]. An individual exercising proficiency represents the mastery of competency of the requirements of the job. An individual exercising adaptivity

refers to the extents he or she makes to changes in work systems or roles. An individual demonstrating proactivity refers to the extent of individual initiating self-directed action to initiate change faced in the job (including the ability to foresee those changes before it happens). Although most job roles attempt to specify the possible expanded job role, it is often difficult to foresee these changes especially in times of uncertainty presented by the business environment or stakeholders. In most circumstances, most occupations require a mixture of proficiency, adaptivity, and proactivity to strike a balance approach in the individual's job roles. In addition, the extent of changing environment or expectations also dictates the necessity of individual to perform within and outside of their job roles. Individual task proficiency involves meeting the requirements of individual meeting their job roles as an employee. On top of the individual job role, individuals contribute towards team and organizational proficiency by meeting the requirements of one's role as a member of a team or organization. Team requirements means assisting team members or coordinating their activities to meet the prerequisites expected. Organizational requirements refer to representation of organization citizenship by the employee to the various stakeholders. Individual task adaptivity refers to the individuals' ability to make changes to their role, whereas team and organizational adaptivity involve adapting to changes that affect one's role as a member of a team or organization. Individual task proactivity involves initiating changes within one's role. On the other hand, individuals making adjustments to support the team and organization, over and above of completing the core task, could be classified as team and organizational proactivity respectively.

2.3. Predicting Individual's Work Role Performance from Innovative Work Behaviours

Both role theory and social cognitive theory was integrated to develop and test the hypotheses between the relationships between the variables. According to role theory, each individual acts out socially defined categories of work in a predictable manner based on expectations and social norms[26]. Dahrendorf[7] suggests that individuals tend to accept their own roles in society instead of having society impose the role onto them. In performance of these roles, individuals will receive rewards and incur cost to conform to these norms and to punish others who violate their role norms. However, if the social norms do not exist or the role is outdated due to changes, the individuals could be guided to develop new roles in place of old roles. Similarly, individuals are required to perform certain roles in the workplace particularly, to contribute to the performance or benefit of the organization. Although individuals are expected to demonstrate an expected and predictable behaviour according to the job description and employment terms, individuals at the workplace are expected to perform certain responsibilities such as learning from others and

working together, on top of the outcome from the individual alone. Thus, the following is hypothesized:

Hypothesis 1: There are differences in levels of IWB and WRP based on demographics.

The social cognitive theory is a learning theory based on the ideas the individuals learnt by watching what others do and don't do[2]. Hence, the two expectations that individuals hold covers their ability to perform a particular behaviour and the expected outcome to be derived from that behaviour. Social cognitive theory suggests portions of the individual knowledge acquisition are dependent on the individuals' observation of others within social interactions, experiences or media influences. The role of the individual through their thoughts, senses, feelings and social interaction inherently shape the learning process. In the workplace, social cognitive theory can be viewed as learning on the job by the act of imitation of the behaviour from the action to the results of those actions. Through this application, individuals learn on their own even though the external environment does not specify the performance[31]. This ability could be demonstrated through self-efficacy or the belief's regarding one's capabilities of successfully completing tasks or goals[24]. As an agent of change, development and adaption believing in their own abilities, individuals could strive in a continuous manner towards achieving self organizing, proactive, self-regulating, and self reflecting[3]. Hence, it is possible that innovative work behaviour could contribute towards the individuals' circumstances in particular their WRP. Thus, the following is hypothesized:

Hypothesis 2: There is a positive correlation between IWB and WRP.

According to the social exchange theory, the relationships formed by individuals are developed by the use of a subjective cost-benefit analysis and the comparison with alternatives[6]. Thus, the following is hypothesized:

Hypothesis 3: WRP could be determined by IWB and the demographics.

2.4. Measures and Statistical Analysis

The sample consists of 300 employees in an integrated automotive organisation based in Malaysia involved from designing and research and development, to manufacturing and sale of its cars (including after sales services). The scales were originally developed and published in English. These were subsequently translated to Bahasa Malaysia and were circulated in a bi-lingual survey form. IWB was assessed using the 17-item IWB scale drawn from Janssen[20], Kleysen and Street[22] and Scott and Bruce[36]. Items are assessed by direct supervisors on a scale of 1 ("never") to 5 ("always"). On the other hand, direct supervisors use the 30-item WRP measure by Griffin *et al.*[17], to rate their staff's performance over the past 6 months prior to the survey, on a scale ranging from 1 ("very little") to 5 ("a great deal"). Since previous studies for the scales were derived from a

western setting, factor analysis was used to understand the underlying factors in a non-western setting.

Applying SPSS, principal component analysis (PCA) was carried out to explore the underlying factors in 17 items of the IWB Scale and 30 items of the Multi-level Performance Inventory Scale. Since the Kaiser-Meyer-Olkin measure of sampling adequacy values for both scales were above 0.6 and the Barlett's Test of Sphericity value was 0.5 or smaller, the suitability of the data for factor analysis was met. For IWB scale, PCA revealed the presence of two factors with eigenvalues exceeding 1, explaining 59.6% and 6.2% of the variance respectively. An inspection of the scree plot revealed a clear break after the first factor. Using Cartell's scree test[5], two factors were retained for further investigation. However, the result of the Parallel Analysis supports the decision from the scree plot to retain only one factor for further investigation. The one factor solution explained a total of 59.6% of the variance. To aid in the interpretation of the one factor, oblimin rotation was performed. The Component Matrix revealed the presence of simple structure with all items in the one factor showing strong loadings. Also, the Communalities score for item no. 1 ("pay attention to issues that are not part of daily work?") of 2.77 was slightly below 0.3 and it was suggested that the item be deleted. In the final case, all communalities were larger than 0.3. Since one factor accounted for 61.7% of the total variance of the original data in this final case and the loadings per dimension was medium to high (between 0.692 to 0.859), the findings support the use of one dimension for IWB. For WRP scale, PCA revealed the presence of three factors with eigenvalues exceeding 1, explaining 56.3%, 7.4% and 4.0% of the variance respectively. An inspection of the scree plot revealed a clear break after the second factor. Using Catell's scree test[5], it was decided to retain three factors for further investigation. The result of the Parallel Analysis as shown support the decision from the scree plot to retain only two factors for further investigation. The two factor solution explained a total of 63.7% of the variance. To aid in the interpretation of the two factors, oblimin rotation was performed. The Pattern Matrix revealed the presence of simple structure with all two factors showing strong loadings with the exception of item 1 ("present a positive image of the organization to other people"), item 2 ("defended the organization if others criticised it") and item 3 ("communicate effectively with co-workers") loaded below 0.5 and it was suggested that these items be deleted. There were no issues with the Communalities score since all items recorded above 0.3. The two factor solution explained a total of 65.0% of the variance with Factor 1 contributing 57.1%, and Factor 2 contributing 7.9%. The rotated solution revealed the presence of simple structure with all two factors (i.e. Individual Role Performance (IRP) and Organization Role Performance (ORP)) showing strong loadings (between 0.525 to 0.939). The values of Cronbach alpha for the variables range between 0.896 to 0.958. The test reports a skewness value between -0.453 to 0.003 and kurtosis value

between -0.413 to 0.476 supporting the normal distribution of all variables[15].

An independent sample t-test was calculated to assess whether the scores obtained by the scales varied according to males and females. For all three variables, there was no significant difference in scores for males and females for IWB ($t(298)=1.767$, $p=0.08$, two-tailed), IRP ($t(298)=1.624$, $p=0.1$, two-tailed) and ORP ($t(298)=0.526$, $p=0.6$, two-tailed). Hence, there were no differences in levels of IWB, IRP and ORP based on gender. *Hypothesis 1 was not supported.* One-way ANOVA was conducted to explore the impact of age, education, years of experience, marital status and division on IWB, IRP and ORP. For age variable, respondents were divided into six groups according to their age (Group 1: Under 25 yrs; Group 2: 26 to 30 yrs; Group 3: 31 to 35 yrs; Group 4: 36 to 40 yrs; Group 5: 41 to 45 yrs; Group 6: Over 46 yrs). The assumption of homogeneity of variances was not violated and there was statistical significant difference at the $p<0.05$ level for IWB ($F(5,294)=2.659$, $p=0.023$) and IRP ($F(5,294)=3.282$, $p=0.007$). After using Tukey procedure, it was revealed that the greatest significant difference of IWB came from respondents under 25 years ($M=3.4303$, $SD=0.66756$) compared to respondents from 31 to 35 years ($M=3.8322$, $SD=0.68359$) and the greatest significant difference of IRP came from respondents from 26 to 30 years ($M=3.8590$, $SD=0.67948$) and 36-40 years ($M=4.2112$, $SD=0.56863$). For respondents aged over 46, $M=3.7083$ and $SD=0.64358$. The Eta squared for IWB and IRP analysis were 0.04 (small effect size) and 0.05 (small effect size) respectively. *Thus, Hypothesis 1 was supported.* For education variable, respondents were divided into four groups (Group 1: Less than STPM/A-levels/diploma/certificate; Group 2: STPM/A-levels/diploma/certificate; Group 3: bachelor degree/professional qualification; Group 4: post graduate degree). The assumption of homogeneity of variances was not violated and there was no statistical significant difference at the $p<0.05$ level. *Thus, Hypothesis 1 was not supported.* For division variable, respondents were divided into nine groups (Group 1: Manufacturing; Group 2: Engineering; Group 3: Quality; Group 4: Product Planning and Development; Group 5: Finance; Group 6: Group Technical Procurement; Group 7: Human Resource; Group 8: Export; Group 9: Automotive Parts). The assumption of homogeneity of variances was not violated and there was statistical significance difference at the $p<0.05$ level for IWB ($F(8,291)=2.702$, $p=0.007$). After using Tukey procedure, it was revealed that the greatest significant difference of IWB came from respondents from Product Planning and Development division ($M=4.3375$, $SD=0.38679$) compared to respondents from Human Resource division ($M=3.2052$, $SD=0.56610$). The Eta squared for IWB was 0.07 (medium effect size). *Thus, Hypothesis 1 was supported.* For years of experience variable, respondents were divided into six groups (Group 1: Less than 3 years; Group 2: 4 to 5 years; Group 3: 6 to 10 years; Group 4: 11 to 15 years; Group 5: 16 to 20 years; Group 6: More than 21 years). The assumption of

homogeneity of variances was not violated and there was statistical significance difference at the $p<0.05$ level for IWB ($F(5,294)=3.635$, $p=0.003$). After using Tukey procedure, it was revealed that the greatest significant differences of IWB came from respondents with less than 3 years of experience ($M=3.4756$, $SD=0.68168$) and from 4 to 5 years of experience ($M=3.4415$, $SD=0.70032$) compared to respondents from 11 to 15 years of experience ($M=3.9693$, $SD=0.72845$). The Eta squared for this analysis was 0.06 (medium effect size). *Thus, Hypothesis 1 was supported.* For marital status variable, respondents were divided into four groups (Group 1: single; Group 2: married; Group 3: divorced; Group 4: widowed). Out of the total respondents ($n=300$), there is only one respondent each that falls into Group 3 and 4. The two respondents were deleted and the means were re-calculated based on the revised sample size ($n=298$). An independent sample t test was used to assess whether the scores obtained by the scale varied according to marital status. For IWB, IRP and ORP, there was significant difference in scores for single and married for IWB ($t(296)=-4.134$, $p=0.000$, two-tailed), IRP ($t(296)=-3.212$, $p=0.001$, two-tailed) and ORP ($t(296)=-2.279$, $p=0.023$, two-tailed). *Thus, Hypothesis 1 was supported.*

Based on Pearson correlation coefficient, IWB was largely positively correlated with IRP ($r_s(300)=0.759$, $p<0.01$) and ORP ($r_s(300)=0.678$, $p<0.01$). *Hence, Hypothesis 2 was supported.* Lastly, multiple regression analysis was employed to test hypothesis 3 and to examine the strength of relationships between IWB with WRP after controlling gender, age, education, marital status, years of experience and division. These demographics were entered as Step 1 and explained 3.8% of the variance in WRP. After the entry of IWB at Step 2, the total variance explained by the model as a whole was 58.4%, $F(6, 293)=80.095$, $p=0.000$. IWB explained an additional 54.6% after controlling for gender, age, years of experience, division and education, R squared change = 0.584, F change (1, 293)=451.469, $p=0.000$. *Hence, Hypothesis 3 was supported.* Finally, WRP was computed using the following formula :

$$[1.123]-[0.039(\text{gender})]-[0.033(\text{age})] \\ +[0.012(\text{years of experience})]+[0.003(\text{division})] \\ +[0.045(\text{education})]+[0.740(\text{IWB})] \quad (1)$$

3. Conclusions

This study aims to increase our understanding of IWB and its implications toward WRP. Although the study initially utilised four-dimension IWB[9], factor analysis show strong loadings for a single dimension construct of IWB mirroring the findings from Janssen's earlier findings[20]. The higher significant of IWB from respondents aged 31 to 35 years compared to under 25 years is in line with the existing findings by de Lange *et al.*[10]. Although findings by Carmeli and Spreitzer[4] and Janssen[21] support the progressive decrease of IWB with age, the IWB level for respondents over 46 was still higher than those below 31 years of age. In addition, the findings show a lack of

differences in levels of IWB, IRP and ORP based on gender. This result is in line with studies by Dezsó and Ross[12] that suggests the individuals' representation in top management could only improve organisational performance to the extent that the organizational strategy is focused on innovation. Hence, organisations need to have a definite and clear strategy of innovation for their entire value chain. To encourage high adoption to innovation, this initiative together with clear communication has to cascade downwards the organization hierarchy to everyone regardless of their demography, using processes if individuals' contribution to companywide innovation is to be realised. The findings also indicate no significant different levels in IWB, IRP and ORP based on education. Nonetheless, the role of education in predicting WPR suggest that the employee having less than a degree, could be trained through on-the-job-training to achieve performance [27]. It is possible that job design and on-the-job- training that integrates components of IWB could make the difference towards achieving performance and career progression.

The contribution of longer length of service towards higher IWB was consistent with the study by Pfeffer[34] that supported the role of length of service in the workforce in explaining the effects on innovation. The findings support the practice of IWB across the various divisions particularly in Product Planning and Development compared to strictly research and development division. Often, product development in practice, involves cross-functional teams, parallel or concurrent processing, reducing product complexity, risk management and encouraging more participative leadership style. The results is consistent with studies by Østergaard, Timmermans and Kristinsson[32] that supports the relationship between employee diversity based on characteristics of all employees and firms' likelihood to innovate. Also, success of new products provides a stern test of customer acceptability which will eventually affect profits from this category. Although there are differences in the levels of IWB, IRP and ORP based on marital status, marital status did not predict WPR. Studies in this area are mixed. Weer, Greenhaus and Linnehan[41] suggested that psychological commitment of non-work roles was more likely to interfere with job performance than enhance job performance was contradictory to findings by Graves, Ohlott and Ruderman[16]. However, Fuegen *et al.*[14] suggested that a male parent was held to significantly lower performance compared he was a non parent. However, the opposite effect occurred for the female gender. Future studies could provide further insight.

The strong correlation between IWB, IRP and ORP is in line with studies on job design that suggest enabling the tacit knowledge and development of workplace innovation optimises the use of human capital of an organisation[8]. The optimization of the four IWB roles to the job design of employees within the organization could hasten the development of IWB within the individual. The findings from the multiple regression analysis adds further support to

the proposition that higher demonstration of IWB is likely to benefit and enhance the individuals' performance, especially in a changing and challenging environment.

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