CHAPTER 3: RESEARCH METHODOLOGY

This chapter will cover five parts - the description and the discussion of the research framework, development of the thesis' hypothesis, design of the sampling, procedure of the data collection, questionnaire design and lastly will be the techniques used for data analysis.

3.1 RESEACH FRAMEWORK

In this research, Jong and Hartog (2008) framework was referred, which focuses on employee's innovative work Behaviour: Measurement and Validation. The study indicated that the employee innovative work behaviour has four dimensions - Opportunity Exploration, Idea Generation, Championing, and Application. Besides, Jong and Hartog (2008) also tested the role of the participative leadership effect on the IWB in the same studies.

As mentioned in chapter 1, Jong and Hartog's studies was conducted in Netherlands, so the framework is being adopted and tested in Malaysia workplace to examine if the same result is derived, although with different work culture and behaviour of the employee. Therefore, besides modifying their framework as a base in this research, a new variable - high performance work culture was added as an additional independent variable into framework, to investigate the impacts to employee innovative work behaviour. Most of the studies discuss the effect of a company's culture on employee innovation (Hage, 1999) but fewer studies examining the effect of high performance

work culture towards innovative work behaviour and innovative output. Thus, it will be value added to include the high performance work culture as one of the variables.

In this paper, we tested the high performance work culture and the role of participative leadership as independent variables, innovative work behaviour as mediator, and innovative output as dependent variable.
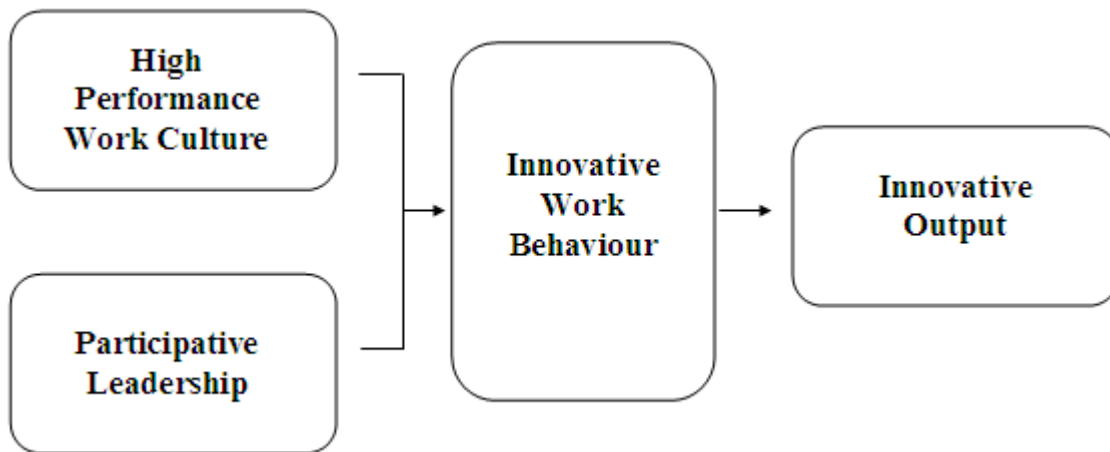

Figure 3.1: The Proposed Conceptual Framework

3. 2 DEVELOPMENT OF HYPOTHESIS

From the previous research and studies established from the literature review, which is found in chapter 2, we derived and developed the hypothesis to conduct empirical testing for this research paper.

3.2.1 Participative Leadership

Leaders can use substantial amount of consultation and delegation to motivate employees to build up sense of ownership for the activities and decisions involved (Kanter, 1983). This provides opportunity of ideas generation and implementation trials. More and more studies investigated whether leader or supervisor should exert influence on the innovation process, by providing their subordinates more freedom, space for innovation and autonomy (Krause, 2004).

The participative leadership style can be practiced through open discussions and other similar participative opportunities where employees are encouraged to freely suggest new ideas, provide suggestions on particular issues, and be part of the decision-making process within the organization. The leader can involve their subordinates in the weekly or regular meeting, and invite more idea or suggestion to achieve a certain goal or objective. This can create a room for employee innovative behaviour from exploring opportunity and generating new idea.

Participative leadership been identified as one of the antecedent of employee innovative (Judge et al., 1997). Axtell et al. (2000) also argued that a positive relationship

between participation and employees' innovative behaviour by using self-ratings of employees' suggestions and implementation efforts measurement. Besides, Frischer (1993) found that when product-development managers gave a certain level of authority to their subordinates and provided them with a sense of responsibility, subordinates were aware of a positive innovation climate. In addition, Jong and Hartog (2008) also indicated that participative leadership has positive impact to employee innovative work behaviour.

The supervisor of the highly creative team strongly involves the subordinates in decision making during weekly meetings and worked together with the team to set priorities and goals. In contrast, the supervisor of the less successful team will not ask the team members' input in the decision making process. This lack of consultation undermined subordinates' motivation and led to a lack of alternative views to base decisions on.

Therefore, in this study, participative leadership is expected to affect employee's innovative work behaviour in Opportunity exploration, Idea generation, Championing and application behaviour in an organization.

H1 ➔ Participative leadership is positively related to innovative work behaviour.

3.2.2 High Performance Work Culture

Organizational culture conveys a sense of identity to employees, and provides unwritten and informal guidelines on how to get along in an organization. It is rules of the game for getting along in the organization. Determining how to pursue the goals, including selecting an organizational structure and reward system and establishing criteria to measure how well individuals, teams, and departments are accomplishing their goals, are some of the elements under the organizational culture.

Culture is defined as an unconscious set of forces that determines both individual and organizational behaviour. Organizational cultures are reflected by how it is valued, the dominant leadership styles, performance evaluation systems, individual behaviour, symbols, procedures, routines, and the definition of success that makes an organization unique (Cameron & Quinn, 1999). Organization has developed structure, internal systems and culture to encourage desirable behaviours and discourage undesirable behaviours of their employee. Hence, the culture will be viewed as one of the factors in influencing individual behaviour in an organization.

Besides, organizational culture has a powerful effect on the performance and long-term effectiveness of an organization (Schein, 1999). The values and thought patterns of the employees determined by cultural backgrounds, and shared experiences. For the organizations to gain strength and success, it is important to build a culture that facilitates and supports creativity and innovative work behaviours.

From the past research, studies on corporate culture focused on the relationship with employee behaviour and their work performance. One of the employee behaviours is innovative behaviour. It is the center of change and the possession of positive cultural characteristics provided the organization with necessary ingredients to innovate. Culture could enhance or inhibit the tendency to innovate (Pool, 2000).

Sustainable high performance requires people to see the world accurately, broadly, and with unblinking honesty while maintaining a positive mindset of possibilities. From that perspective, they view all that they see through an opportunity exploration and ideas generation. When people trust their imagination and intuition, creating new things in every situation, they can engage change with flexibility and creativity. When dealing with realities givens, there is a fundamental shift from a problem-solving orientation to an opportunistic focus on discovery, innovation, and growth (Juechter, 1998).

Hence, with high performance work culture, the level of innovative work behaviour perceived higher meaning the employee's performance is better.

H2 ➔ High performance work culture is positively related to innovative work behaviour.

3.2.3 Innovative Work Behaviour

Moreover, this study also explored how IWB mediates the relationship between High performance work culture, Participative Leadership, and Innovative Output of employees. Scott and Bruce (1994) reported significant correlations between IWB and independently rated counts of invention disclosures.

Innovative work behaviour is expected to impact different forms of innovative output, such as, more suggestions for innovations and more ideas for change being put forward as well as more realized innovations, especially when new products and processes being created and developed in their workplace (Axtell et al., 2000). Therefore, employee's self-rated innovative output, in terms of how often they offered suggestions, contributed to innovations or new product development, or acquired new customers or new knowledge, are used in this study. Employees that rated well by their manager on IWB are expected to show more innovative output in these terms. With that, innovative work behaviours will mediate the relationship between participative leadership and high performance work culture and innovative output. As mentioned by Janssen et al. (2004), employees who behave innovatively may have better performance.

H3 ➜ Innovative work behaviour mediates the relationship between participative leadership and innovative output.

H4 ➜ Innovative work behaviour mediates the relationship between high performance work culture and innovative output.

3.2.4 Comparison of IWB among two companies

There are fierce competition between IBM and HP. HP announced their first fiscal quarter financial results with a net revenue of $30.0 billion, it was down 7% compared to last year. GAAP diluted earnings per share (EPS) was $0.73, down 38% and Non-GAAP diluted EPS was $0.92, down 32%. In the first quarter, HP was losing money as they are still focusing on their fundamentals to drive long-term sustainable returns according to their president and chief executive officer. HP is in the progress of taking the necessary steps to improve effectiveness and efficiency and capitalize on emerging opportunities to reassert HP's technology leadership (Meg Whitman, 2012).

Based on IBM 2012 first-quarter results, the diluted earnings was $2.61 per share, which increased 13 %. Operating (non-GAAP) diluted earnings was $2.78 per share, increment of 15 %. Net income was $3.1 billion compared with $2.9 billion in the first quarter of 2011, 7 % rose. According to Ginni Rometty (2012), IBM is confident that they drove strong profit and earnings per share growth because they delivered excellent software performance, expanded services margins, and continued the momentum in their growth initiatives according to IBM president and chief executive officer. Based on performance result on revenue figure, it shows that IBM performed better than HP.

Table 3.1: Comparison Performance between IBM and HP

Company	Net Revenue	EPS (GAAP)	EPS (Non-GAAP)
IBM	+7%	+13%	+15%
HP	- 7%	- 38%	- 32%

Note. IBM and HP performance for 1Q 2011

According to Salim & Sulaiman (2011), there is positive relationship between innovation (measured as innovation in process, products, administration system) and company performance.

With that, we can hypothesize that:-

H5 ➔ There is a difference in innovative work behaviour between IBM's employees and HP's employees.

3.3 QUESTIONNAIRE DESIGN

We divided the questionnaire into two sections (see Appendix B) for the purpose of this study. We conducted the demographic profile in Part B of the questionnaire, and the hypothesis testing questions are located in Part A. In Part A of the questionnaire, the questions extracted from Jong and Hartog (2008) and Roodt (2007)'s studies to measure all variables.

The questionnaire was divided into two sets, answered by different target of respondents. Set A covered participative Leadership variable with five items, high performance work culture variable with twelve items, and innovative output variable with five items, all answered by subordinates. However, employees' supervisor or manager rated the innovative work behaviours, which contains twelve items in set B. We designed two separate sets of questionnaires and printed out for different groups of people – employees (see Appendix B) and their supervisor (see Appendix C). Therefore, both subordinates and supervisors required to fill in the employee's name in the questionnaire for identification purposes. After the full questionnaires (employee-rated and supervisor-rated separately) have been completed, it need to be combined by matching the employee's name to get the complete results.

The questionnaire started with high performance work culture questions. In Rood's studies, he measured high performance work culture with twelve dimensions. However, in order to match this study, only three dimensions questions selected and included in the questionnaires, which are Vision and Strategy, Core Competency:

Individual and Performance Management as these were the common dimensions used in culture's studies such as Owen et al. (2001) study. The employees rated these questions. The employees also rated the questions on participative leadership, measured with five items tapping employees' perception of whether their leader motivated and facilitated their autonomy as well as joint decision-making, based on questions from Jong and Hartog (2008).

The employee-rated innovative output scale consists of five items on the frequency of employees' suggestions and implementation efforts related to new products and services, work practices, knowledge, and markets (groups of customers). For example, "I often make suggestions to improve current products or services in my job."

For supervisor-rated set, the Multi-item scales used to measure all constructs. For IWB, the items pool consists of 12 items including of opportunity exploration, Idea generation, Championing, and Application. For example, "The employee often pays attention to issues that are no part of his daily work." (Opportunity exploration), "The employee often searches out new working methods, techniques or instruments." (Idea generation), "The employee often acquires approval for innovative ideas" (Championing), and "The employee often systematically introduces innovative ideas into work practices" (Application).

3.4 SAMPLING DESIGN

The rationale of this research was to investigate the effect of participative Leadership on employee innovative work behaviour in high performances work culture organization. Therefore, the instrument was a structured self-administered questionnaire and distributed to the respondents who work in high performances work culture organization - IBM Malaysia and HP Malaysia in the form of survey. The collected data was to test the hypotheses of this research question.

In order to have more consistency and comparable results, this questionnaire was targeted on employee who work in operational support department such as Fulfillment team, Order loading, BP Disbursement, Scheduling, Inventory, Customer Master Record, Account Receivable team in both companies. Respondents have been selected from these two companies to complete more than 200 copies of survey based on the rule of thumb for number of sample needed (40 items * 5 = 200).

The employees were given the first set of questions, which related to participative leadership, high performances work culture and Innovative Output measurement. On the other hand, the second set of questions about innovation work behaviour measurements were distributed to their direct supervisor or manager to fill in.
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3.5 DATA COLLECTION PROCEDURE

Two hundred and sixty copies of questionnaires were distributed equally to IBM and HP, 130 copies to each company. There were 220 copies (85%) returned by employees and their supervisor. 130 copies from IBM and 90 copies from HP. However, only 205 copies were accepted as full data, 120 copies from IBM (58%) and 85 copies from HP (42%).

For IBM, 130 copies of Set A questionnaire were returned by employees, and 125 copies of Set B questionnaire returned by supervisor. After combining 2 set of answers, only 120 copies of questionnaire were considered as complete with both employee and supervisor data.

For HP, 90 copies of Set A questionnaire were returned by employees, and 87 Set B copies of questionnaire returned by supervisor. After combining 2 sets of answers, only 85 copies of questionnaire used as complete data.

In total, there are 15 copies were incomplete, there were no employee name stated, employee or supervisor did not returned the questionnaire. Most of the respondents (employees) were not comfortable to write their names in the questionnaire since they are rating their own manager's leadership effectiveness. Therefore, we collected the questionnaires individually to ensure data confidentiality. If there was any incomplete data, the respondent is pleased to complete it immediately while their questionnaire is collected. It took around 1.5 months to collect all the questionnaires from

respondents. However, some of the employee rejected to answer the questionnaire since it is voluntary nature of participation. This caused the incompleteness of the data although their manager returned their measurement on innovative work behaviour.

Table 3.2: Respond Rate

	IBM (copies)	HP (copies)
Questionnaires distributed	130	130
Collected Questionnaires	130	90
Complete Questionnaires	120	85
Incomplete Questionnaires	10	5

Note: Incomplete questionnaires do not included in data analysis.

3.6 DATA ANALYSIS TECHNIQUES

We used SPSS 19.0 tool to analyze the data that we collected and completed for the purpose of this study. We filtered, and arranged the gathered data in order to identify any significant outliner or missing value. It is also to reduce potential errors during data entry. Besides, we created the codebook to code the items of the questionnaire for easy reference to input the data into SPSS. The data were then been tested on the criteria below:-

3.6.1 Normality Testing

In order to perform the parametric analyses on the samples, all collected scale type data from the survey was subject to exploration for the normality test before subsequent analyses. The objective of the sample normality test was to ensure that the

sample would distribute normally. It is important that the normality of the sample are confirmed before subjecting it for further analysis, as it proves the capabilities and appropriateness of the sample in representing the actual population. Thus, the findings from consequent analysis in this study will generalized to the populations with confidence. We assessed the Normality test by inspecting the Skewness and Kurtosis of the population (Saunders, Lewis and Thornhill, 2007; Pallant, 2007).

3.6.2 Validity Testing (Factor Analysis)

The validity test of instrument in this study was performed by factor analysis. Generally, factor analysis is carried out to condense a large set of scale items down to a smaller, more manageable number of factors. It can be done by summarizing the underlying patterns of correlations and looking for groups of closely related items. Since innovative work behaviour has the highest number of item. So validity test will help to delete or remove some of the unrelated items.

3.6.3 Reliability Testing

Reliability test was assessed by inspecting and observing the value of the Cronbach's Alpha (α) Coefficient. The objective of the reliability test is to ensure that the measurable items of each variable are measuring the same underlying construction. If the result reveals a high alpha value, then the internal consistency of the set of items will be determined. Consequently, these items were eligible for marking up the scale (computed) for the following analyses. Recommended critical values are 0.70 for α, 0.40 for the mean inter-item correlation, and 0.30 for item-rest correlations (Cortina, 1993).

3.6.4 Correlation Testing

Correlation testing looked at the relationship between two variables. It was use to examine the relationship between proposed independent variables (IV) and dependent variables (DV) in this study. Person's correlation and multiple linear regressions was use. First, the correlation analysis was carried out to identify the significant strength and direction of the linear relationship between the proposed IV and DV. Computed items under each variables score for IV and DV were subjected to the analysis using Pearson's correlation. This method was use to test the hypothesis of H1 and H2, which is the relationship between high performance work culture and Innovative work behaviour and participative Leadership and Innovative work behaviour.

3.6.5 Hierarchical Regression Analysis

Hierarchical Regression Analysis was used (Reid Bates & Samer Khasawneh, 2005) to determine whether the mediated model provide a reasonable description of the relations among variables. James and Brett (1984) describes that there were two types of mediators, complete and partial. Complete mediation occurs when the mediating variable transmits all of the influence of the antecedent x to a consequence y, which implies that x and y were indirectly related and that the relationship between x and y disappears when the mediator z was controlled. Thus, the independent variable significantly affects the mediator; the mediator significantly affects the dependent variable and controlling the mediator produced a non-significant relationship between the independent and dependent variables. Partial mediation occurred when the independent variable has a direct effect on the dependent variable as well as an indirect effect through the mediator (James & Brett,

1984). Partial mediation suggested when controlling the mediator does not attenuate the significant relationship between the independent and dependent variables.

3.6.6 T-Test Analysis

The t-test was use to compare the mean score of the continuous items. In the analysis, their company defined the different group of respondents. ANOVA was performed to compare the mean score of two groups of respondents. In this section, the respondents were divided into two different groups according to their company - IBM and HP. The ultimate objective of the differential analyses is to perform a comparison between these two groups of respondents.