CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

After confirming the research framework, measures from existing studies were identified and selected to represent the variables. This chapter also discussed the research sample, data collection procedure and the data analysis techniques.

3.2 Sampling Design

Questionnaires were used to obtain data from the respondents. The study sample represents the population of working adults in Malaysia. Due to time and geographical constraints, convenience sampling method and snowballing sampling method (e.g. respondents forwarding questionnaire to another potential respondent) were adopted. Participation in this survey was solely voluntary and the participants were informed in advance that the information provided will be treated as confidential and that the information gathered from them would be aggregated.

Working adults in Malaysia (ages of between 20 to 60 years old) are the target sample for this study, as they will be able to provide the relevant feedback for

each question based on their knowledge and working experience. The sample includes both locals and foreigners who are currently attached to organisations in Malaysia. Due to the geographical boundary and time limitation, samples were taken from within and nearby the Klang Valley.

A total of 150 printed copies of questionnaire were distributed by hand and approximately 150 softcopies were forwarded to respondents via Internet. A total of 117 hardcopies and 102 softcopies of questionnaire were returned, yielding a response rate of 53% and 47% each. After screening each form, 11 incomplete forms could not be used. Thus, in total, data from 208 respondents were used for data analysis.

3.3 Questionnaire Development & Selection of Measures

This study has adopted the existing measures of each construct from previous literatures. The research measures were selected based on the validity of their scales from past studies. The total number of items for all the measures was then calculated in order to estimate the ideal number of respondents. A complete set of the questionnaire was subsequently developed and distributed to respondents via printed copies and the online platform. The questionnaire consists of five parts whereby the first part focuses on measuring respondents' perceptions of their self-leadership, second part measures their perceptions of their innovative behavior, while the third part describes the respondents' perceptions on the

environmental dynamism of their organisations. Subsequently, the fourth part describes the respondents' perception on their organisational innovativeness, while the fifth part describes the demographic profiles of the respondents.

The survey was intended to obtain feedback from the respondents concerning the problem statements in this research. Data was acquired through a field survey to establish empirical relationships between the variables so that they will be useful in business decision. The demographic profiles of the respondents were also obtained.

The respondents were requested to complete a 6-page questionnaire to evaluate their perceptions of self-leadership, innovative behavior, environmental dynamism and organisational innovativeness. There were a total of 51 items describing all the research constructs with Likert-scale measurements as stated in the instruction given for each section of the questionnaire.

Hair, Babin, Anderson and Tatham (2006) suggest that as a general rule of thumb, a coefficient alpha (α) of above 0.70 indicates that the scale is reliable and acceptable. Cronbach's alphas from previous studies confirmed the reliability of each of the original measures ranged from 0.74 to 0.93 (refer to Appendix A for details).

3.3.1 Organisational Innovativeness Measure (OI)

Organisational Innovativeness was assessed by adopting Hurley and Hult's (1998) measures, which was subsequently used by Lin et al. (2008). It contains 5 items based on a 5-point Likert scale to measure the degree of agreement or disagreement with statements that describe the respondents' organisational innovativeness. Two samples of the items are, "Our company frequently tries out new ideas" and "Our company is creative in its methods of operation". In Lin et al.'s (2008) study, this measure is reported to have an internal reliability of 0.89.

3.3.2 Self-Leadership Measure (SL)

Preliminary Self-Leadership Questionnaire (SLQ) was introduced by previous authors to assess the individuals' self-leadership and self-management (Carmeli et al., 2006; Houghton, 2000; Stewart et al., 2011). The 90-item SLQ prototype based on Manz (1992) and Manz and Sims (1991) earlier study was subsequently revised and reduced to 50-item scale by Anderson and Prussia (1997) through the factor analysis that yielded 10 unique factors to support the content validation.

However, it was refined further by Houghton and Neck (2002) and Stewart et al. (2011) and results from an exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) have shown better reliability and validity of the instrument.

Thus, this research had adopted the 35-item RSLQ scale to measure self-leadership as suggested by Houghton and Neck (2002). The dimensions, subscales and coefficient alphas of the authors' original RSLQ are shown in Table 2. The respondents in this survey were asked to indicate the extent to which each of the item in the RSLQ measures were anchored on a 5-point Likert scale, whereby, 1 = not at all accurate, 2 = somewhat accurate, 3 = a little accurate, 4 = mostly accurate, and 5 = completely accurate.

Table 2: Dimensions, Subscales and Cronbach's Alpha of Self-Leadership based on Revised Self-Leadership Questionnaire (RSLQ) by Houghton and Neck (2002)

Dimensions	Subscales	No. of items	Cronbach's Alpha (α)
Behavior-focused strategies	Self-goal setting	5	0.84
	Self-reward	3	0.93
	Self-punishment	4	0.86
	Self-observation	4	0.82
	Self-cueing	2	0.91
Natural reward strategies	Focusing thoughts on natural rewards	5	0.74
Constructive thought pattern strategies	Visualizing successful performance	5	0.85
	Self-talk	3	0.92
	Evaluating beliefs and assumptions	4	0.78

Source: Houghton, J. D., & Neck, C. P. (2002). The Revised Self-Leadership Questionnaire. Testing a Hierarchical Factor Structure for Self-Leadership. *Journal of Managerial Psychology*, 17(8), 672-691.

3.3.3 Innovative Behavior Measure (IB)

The innovative behavior measure was adopted from Scott and Bruce (1994) who relied on Kanter's (1988) work. The respondents were asked to rate the extent to which they displayed innovative behavior. This 6-item scale was a single dimensional measure, with anchors as 1 = not at all and 5 = to an exceptional degree. Scott and Bruce (1994) reported that the Cronbach's alpha for the original scale was 0.89, indicating that it is a fairly reliable instrument for innovative behavior (Scott & Bruce, 1994). Two samples of this measure are, "Search out new technologies, processes, techniques, and/or product ideas" and "Develop adequate plans and schedules for the implementation of new ideas".

3.3.4 Environmental Dynamism Measure (ED)

The 5-item environmental dynamism scale was adopted from Jansen et al. (2009). The scale was initially developed by Dill (1958). The respondents were asked to indicate their degree of agreement or disagreement with the statements that describe changes in the local market, as well as the supply and demand of products and services. Two samples of this measure are, "Environmental changes in our local market are intense" and "In our market, the volumes of products and services to be delivered change fast and often". Jansen et al. (2009) reported that Cronbach's alpha for this original scale was 0.91, indicating that it is a fairly reliable instrument to measure environmental dynamism.

3.4 Data Collection Procedure

According to Bartlett, Kotrlik, and Higgins (2001), at least 100 observations are needed to conduct factor analysis. On the other hand, a reasonable sample size for correlations and regression analyses would be more than 50 respondents (Wilson, Voorhis, & Morgan, 2007). Based on these arguments, a minimum of 200 respondents was targeted initially. This is a reasonable target of sample size considering the limitation of time and budget constraints.

In order to collect more responses in a limited period, the survey form was uploaded and forwarded to respondents either via email or the through social networking site. At the same time, hardcopies of the questionnaire were also distributed to other respondents that were within reach. Both methods seem to be working in acquiring the minimum target of sample size. Whenever possible, follow-up phone calls or emails were done to ensure that the respondents returned their completed survey forms on time.

Overall, data collection for the preliminary and the field survey was completed in about 4 weeks. To maximize the number of respondents, feedback forms were distributed and collected on a daily basis throughout the survey period.

3.5 Data Analysis Techniques

Upon completion of the data collection process, survey forms were carefully vetted through to ensure that the respondents have completed the questionnaire. Incomplete forms were excluded for further analysis. Once it was done, data from the hardcopies were keyed into Statistical Package for Social Sciences (SPSS) data sheet. However, data from online survey were extracted and transferred to the same data sheet in SPSS. In this study, the SPSS package version 18.0 was used to analyse the data.

Data from the sample were used to explain the population phenomena and characteristics such as the trend, pattern and causal relationship between the variables. Results from the analyses were useful in forecasting the applicability of the research theories in the real-world. The process started by extracting descriptive data from the demographic profile of the respondents. This described the personal characteristics of the sample. To find the relationships between the variables, a simple regression coefficient technique was adopted.

Overall, the following inferential statistical analyses were conducted:

a) Exploratory Factor Analysis – to examine the extent to which the items represent the construct and to obtain the factor loading, communality and eigenvalue before testing the research hypotheses.

b) Internal reliability test – to test the consistency of scores (results) produced by the selected measures on repeated assessments across the respondents.

c) Correlation analysis – to examine the correlations between the variables in order to determine the strength as well as the direction of the relationship by using Bivariate Pearson Product-Moment Correlation Coefficient for continuous variables.

d) Regression analysis – to test the relationships between the variables in order to support the hypotheses by using the Hierarchical Regression Technique as proposed by Baron and Kenny (1986) and to test the moderator and mediator effects.