

CHAPTER 4

METHODOLOGY

4.1 Introduction

This chapter reports the research design, sample, and data collection procedures. It also describes the development of questionnaires, the selection of the research measures and the targeted respondents and location. It briefly explains the data analysis techniques and provides an overview of exploratory factor analysis (EFA) and structural equation modelling (SEM).

4.2 Research Design

The selection of appropriate research design is crucial to prevent misleading findings and conclusions (Sekaran & Bougie, 2010). The focal intention of this research was to build up and examine the efficacy of the anticipated integrative framework in envisaging work status congruence, work related attitudes and satisfaction with work-life balance based on an underpinning theory of discrepancy model. This study also examined the extent to which satisfaction with work-life balance mediates the relationship between work status congruence and work-related attitudes, i.e. job satisfaction and affective commitment. At the same time, this study investigated the extent to which job satisfaction mediates the relationship between work status congruence, satisfaction with work-life balance, and affective commitment.

To achieve the study objectives, the anticipated integrative framework was empirically investigated via a self-administered survey using sample from services industry employees (n=893). The data was preliminarily examined by utilising the exploratory factor analysis, and obtaining the Cronbach Alphas to find the internal reliability of scales used in this study. The descriptive statistics, Pearson correlation, independent samples t-tests, and one-way analysis of variance (ANOVA) were then employed to analyse the data further.

Subsequently, structural equation modelling (SEM) analysis was used to affirm the hypothesised framework of study. In order to test the research hypotheses, primary data were collected from standard and non-standard employees (i.e. full-time, part-time, temporary or contract workers) working in private companies located around Kuala Lumpur and the neighbouring state of Selangor. Different companies from the services industry were approached so as to avoid contextual constraints associated with focusing on just one company. All participants were assured of confidentiality.

While some non-standard work arrangements and work-life balance researchers employ longitudinal study design to adhere to the time period needed by the theory; there were also those who espoused cross-sectional designs (e.g. Zeytinoglu et al., 2011; Kanwar et al., 2009). Hence this research utilised quantitative approach especially a cross-sectional field study that allowed more ordered data gathering from huge number of representative subjects (Zikmund, Babin, Carr, & Griffin, 2009). This cross-sectional field study obtained data between April and October 2011.

Generally, prior researchers on non-standard work arrangements have utterly depended mainly on cross-sectional design and most of the past studies have been dominated by the field survey approach (e.g. Wittmer & Martin, 2011; Holtom et al., 2002). However, Chang et al. (2010) in their meta- analyses study of 245 empirical work-family/life balance studies published between 1987 and 2006, found that studies of work-life balance were just recently developed since mid 2000s and most of them were mainly using qualitative methods, perhaps due to shortage of conclusive theoretical frameworks and validated instruments.

Therefore, this study that integrates a body of knowledge on non-standard work arrangements with studies of work-life balance is conducted quantitatively to close the gaps of methodological deficiency of newly developed knowledge of work-life balance. This study also focused on the survey method to enable it to be more conclusive and exclusive since the sample will involve all dimensions of standard and non-standard employees including full-time and part-time as well as permanent and contractual or temporary basis, who worked standard or non-standard work schedule, as these were lacking in the past studies (Holtom et al., 2002).

The survey method was also chosen since it would enable a fair comparison between the results of this study and the precedents. Further, this method provided the mechanism to examine the benefits associated with employees' congruent preferences for work status and schedule in the most effective and efficient manner considering the time and cost constraints of this study. The target population where this study would be generalised was all employees including standard and non-standard workers who were working in organisations operating under the services sector.

Non-standard employees represent a major proportion of the workforce for the entire services industry (Giannikis & Mihail, 2011). In Malaysia, the exact number of non-standard employees was not provided by Malaysian authorities such as the Department of Statistics. However, most of the employees were working in services sector, i.e. 59.2 percent of total Malaysian employee population with 5 per cent of the overall workers were working less than 29 hours per week (Key Indicator of the Labour Market Malaysia 2001-2010, 1/2011, Table 4.1 & 6.1).

It was observed from the literature review in Chapter 2 that most non-standard work arrangements which researchers focused on examining separately were two major groups of non-standard employees either part time or temporary/contract workers while past studies in work-life balance have concentrated on studying its effect towards standard employees i.e. full-time and permanent workers. However, the findings from such a rather homogenous grouping may not be generic in the bigger population (Sekaran & Bougie, 2010). Hence, the unit of analysis of this research was the individual employees of services organisations in Malaysia. They included standard and non-standard workers; the latter includes all types of non-standard employees i.e. part-time, temporary and contract workers. Table 4.1 summarises the different components of the research design in this study.

Table 4.1

The Research Design of the Study

Issues involved	Decisions made
The purpose of the study	<i>Hypothesis testing</i>
Extent of researcher interference	<i>Minimal</i>
Study setting	<i>Field study</i>
Unit of analysis	<i>Individual</i>
Time horizon	<i>Cross-sectional</i>
Data collection method	<i>Questionnaires</i>
Data analysis	<i>Quantitative</i>

4.3 Sample and Data Collection Procedures

When selecting the sample, proper attention was given to make certain that a mixture of subgroups with regard to several pertinent demographic profiles of the general employee population were incorporated fairly in the sample (Sekaran & Bougie, 2010). Thus, the non-probability convenience sampling method was adopted involving collecting information from members of the population who were conveniently available to provide pertinent information related to the study. The use of non-probability sampling is deemed as suitable and adequate given that the key purpose of this amalgamated framework was to obtain theoretical generalisability, and not population generalisability (Schumacker & Lomax, 2010).

In general, the use of the SEM technique entails a bigger sample (Byrne, 2010). Numerous reasons influencing the needed sample size for SEM include missing data, average error variance of indicators, model complexity, multivariate distribution of data, and estimation techniques (Hair, Black, Babin, & Anderson, 2009). According to Malhotra (2010), a sample size of lesser than 200 respondents would be too small for a model with more than ten variables since it could direct to the deprived power of significance test and unsound parameter estimates. Hair et al. (2009) suggested a minimum of five subjects per parameter estimate (inclusive of path coefficients and error terms). This research model has a total of 53 paths. Therefore, at least 265 samples should be required for SEM modelling based on Hair et al. (2009). Nevertheless, as this study aims to examine multiple services organisations in single study (e.g. bank, hotel, hospital, restaurant, supermarket), a target sample size of 1,200 respondents was decided, taking into account that some might not respond.

As this study targeted employees from the services sector, correspondence to request permission to conduct the survey were sent to 100 Malaysian services companies which were listed in the Malaysia's Directory of Companies, whose addresses were available via their companies' website. The letters were sent between January and February 2011. Due to low response rate, follow-up action was taken by making personal phone calls to their respective Human Resource Departments. Despite this effort, from a total of 100 companies that were contacted, only seven companies responded positively to participate in the survey. The rest were reluctant to participate, either due to their privacy policies or their desire not to allow their employees to be interrupted with non-work related activities.

The participating companies comprised of two banks, one hotel, one hospital, one supermarket and two franchise restaurants which were located in Kuala Lumpur, the capital city of Malaysia and its neighbouring state of Selangor. In general, non-standard employment is an urban phenomenon in Malaysia particularly in the services sector (Che Rose et al., 2008; Subramaniam et al., 2011). Therefore, the focus is on services employees working in Kuala Lumpur and Selangor, i.e. the largest urban area in Malaysia where most of the largest services companies are located. Furthermore, the locations were restricted to these areas to make it practical for the researcher to make an appropriate number of visits to each participating organisation. Data was collected from employees of various work status and ranks to minimise biasness of tasks performed as pointed out in past studies (e.g. Holtom, et al., 2002).

The researcher personally conducted the survey with the support of the human resource officers in each of the seven participating companies. The human resource officers helped the researcher by giving the authorisation letter for the researcher to visit and distribute questionnaires to various departments, units, or branches in their company. The questionnaire distribution was executed in person by the researcher by asking participation from any employees of the visited companies who were voluntarily and conveniently available to answer the survey. All the participants were notified in advance that their involvement in the survey should be voluntary and that all their responses and data would be kept classified, and that such data would not be utilised for other than academic intentions.

It took about seven months to distribute, administer, and collect the completed questionnaires. Apart from these issues there were also other problems such as the distance location between each of the companies and their branches as well as the gap of survey dates and times of the participating companies. For example, the actual survey was done in the first and second week of April 2011 for the first participating company while for the seventh company, the administration of the survey was done over a period of 5 weeks from the months of September till October 2011.

From a total of 1,200 questionnaires that were distributed in the seven participating companies, only 893 were returned completed. This gave a response rate of 74% based on the following proportions: 405 from a hospital (45%), 206 from two restaurants (23%), 178 from two banks (20%), 89 from a hotel (10%) and only 15 from a supermarket (2%). All of the 893 completed questionnaires were usable and none were omitted from further analysis. This was because the researcher had checked all the questionnaires individually upon its return from the respondents, to ensure their

usability and completeness. Most prior studies of work status congruence and work-life balance had focused either one or two of organisations (Holtom et al., 2002; Carr et al., 2010; Kanwar et al., 2009), but this study attempted to include more services organisations so as to improve the generalisability of study outcomes (Wittmer & Martin, 2011; Chang et al., 2010).

4.4 Questionnaire Design

The survey instrument was a five-page self-administered questionnaire that comprised of four major sections containing mostly close-ended questions totalling 40 items to depict the variables anticipated in the research framework, and the demographic characteristics of the respondents. Self-administered questionnaires were suitable to be engaged for this research due to certain factors. Firstly, it is a reasonably more economical technique that can boost response rate (Sekaran & Bougie, 2010). Secondly, to accommodate no sensitive questions in this research; i.e. respondents were only asked about their perceptions towards certain aspects influencing their satisfaction with work-life balance and work-related attitudes. Thirdly, the questions and scales were easy to understand and straightforward. Lastly, concise and comprehensible written directions were specified together with verbal instructions before the administration of the questionnaires (Sekaran & Bougie, 2010).

In addition, the standardised questionnaire provided an opportunity for the respondents to reply in full with accurate answers. As the respondents were from different organisations, a standardised questionnaire ensures fast response. An information sheet that explained the objectives of the survey, the voluntary nature of participation, and as assurance of confidentiality of the responses accompanied each set of questionnaires.

The researcher's contact details were stated in the information sheet, in the event the participants required further information about the research.

There were several efforts that were made while designing the questionnaire to minimise the source of response error. The attempts included mixing all the attitude items thoroughly in the measures so that the subjects could not recognise the construct being assessed by these scaled items, and some of the measurements in the questionnaire were reversed coded (i.e. negatively worded) to diminish the subjects' inclination to instinctively answer to one end of the scale (Sekaran & Bougie, 2010). Written instructions that required the respondents to give the response that best described their feelings were included. The questionnaire was translated directly (i.e. one-for-one or word-for-word) from English language to the Malay language (Harkness & Schoua-Glusberg, 1998), along with assessment and reconciliation by language academics and through pilot group. This is to enable the respondents to select a language that they were most proficient in. This is to ensure that the responses were most accurate and also to increase the number of participants in the survey. The final questionnaires (original and the translated versions) are presented in Appendices A and B.

The first section of the questionnaire consisted of seven items measuring work status congruence. All scales were adopted or adapted from prior published studies with certain wording adjustment and examined directly on a 7-point Likert scale ranging from "strongly disagree" to "strongly agree". All items relating to the measurement of the work status congruence constructs were utilised in line with the suggestions by Holtom et al. (2002). The questionnaires were also pre-tested to make certain of their precision and simplicity of understanding. In addition, reliability for all scales was

confirmed using internal consistency with the intention to establish whether the items are measuring the operationalised construct (Cooper & Schindler, 2003).

The second section was designed to investigate the respondents' satisfaction with work-life balance using seven items based on a previous research instrument namely the satisfaction with work-family balance by Valcour (2007). The third section consisted of nine items of work-related attitudes measures, i.e. six-item affective commitment scale developed by Meyer et al. (1993) and three-item job satisfaction scale by Cammann, Fichman, Jenkins, and Klesh (1983). Each item was rated on a 7-point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Finally, the last section describes demographic characteristics to derive a conclusion of the subjects' profile. Demographic data incorporated in the questionnaire were gender, race, age, marital status, highest level of academic qualification achieved, monthly gross income, tenure in organisation, job designation level, work status, and work schedule.

4.5 Research Measures

The established and valid research measures with high reliabilities of past studies were adopted in this study with certain adjustments for a certain measures. However, the measures were subjected to exploratory factor analysis (EFA). The EFA was used to assess the underlying structure of the measures in the sample from Malaysia. Subsequently the measures were also tested with confirmatory factor analysis (CFA) for further assessment using Structural Equation Modelling (SEM). The following subsections provide details of the research measures, including the sources, adjustments, and examples of each measure.

4.5.1 Work Status Congruence Measures

Work status congruence was conceptualised in the present study as the subjects' agreeableness with the match between what employees prefer and what their employers were offering to them in terms of their work statuses, schedules, shifts, and hours. There were a total of seven items adapted from Holtom et al. (2002). The measures have indicated a good reliability in Holtom et al.'s (2002) study which they found that work status congruence scale has an internal reliability of .82. However, in Holtom et al.'s (2002) study, work status congruence was examined in samples of part time and full time employees only and not for other non-standard employees such as contractual and temporary employees.

Therefore, one of the original items in Holtom et al.'s (2002) study was asking whether it was the employee's choice to work full-time or part-time. Hence, in this study the item was adjusted to include other non-standard work status i.e. contract or temporary. Hence, the item was rephrased as, "*It is my choice to work full-time, part-time, contract or temporary*". Other items of the measures were, "*The person in charge of my schedule works hard to fit my work schedule with my other responsibilities*", "*I generally work my preferred schedule*", "*I generally do not choose how many hours I work per week (reverse scored)*", "*The person in charge of my schedule works hard to get me the hours I need each week*", "*I often work a shift that is not convenient for me (reverse scored)*", and "*I like the shift I typically work*".

As asked through the items, work status congruence were measuring congruent preferences for work status (first item), work schedule (second and third items), work hours (fourth and fifth items), and work shift (sixth and seventh items). Two out of the

seven items (i.e. fourth and sixth items) were reverse scored and all the seven items were summed up to obtain the measure of work status congruence. For the ease of comprehension by the respondent, this study employed a 7-point Likert scale with anchors ranging from 1 = strongly disagree, to 7 = strongly agree. A higher score indicated a more favourable congruence towards the employees' preferred and actual work status, schedule, shift and hours.

4.5.2 Satisfaction With Work-Life Balance Measures

Satisfaction with work-life balance was conceptualised in this study as an attitude component that reflected positive feelings associated with the balance between the employees' work and non-work lives (Valcour, 2007). Satisfaction with work-life balance was measured by seven items adapted from Valcour (2007) that captured affective and cognitive aspects of balance satisfaction with some modifications made for the original measure. This scale was named the satisfaction with work-family balance in Valcour's (2007) study, but it was renamed work-life in this study as the adapted scale was adjusted to rephrase the items that included 'family' to 'non-work' instead. This is to answer recent researchers' call to make items equally relevant to respondents with and without family and to accommodate other non-work concerns of employees (Hayman, 2009; Chang et al., 2010).

The items for the measures were, "*I am successful in balancing my work and non-work life*", "*I am satisfied with the balance between my job and non-work life*", "*I am satisfied with the way I divide my time between work and non-work life*", "*I am satisfied with the way I divide my attention between work and non-work life*", "*I am satisfied with how well my work life and my non-work life fit together*", "*I am satisfied*

with my ability to balance the needs of my job with those of my non-work life”, and “I am satisfied with the opportunity I have to perform my job well and yet be able to perform non-work related duties adequately”.

Like other measures in this study, the respondents indicated their responses on a 7-point Likert scale ranging from 1 = strongly disagree, to 7 = strongly agree. None of the items were reverse scored. All the seven items were summed to obtain the total satisfaction score with the higher score indicating more favourable affective attitude towards work-life balance. These items have indicated a good reliability in Valcour’s (2007) study, which has an internal reliability of .93.

4.5.3 Job Satisfaction Measures

Job satisfaction is the extent to which an employee is satisfied and is enjoying with the current overall job. This study adopted the three-item global job satisfaction measure developed by Cammann et al. (1983). Those items have good internal reliability of .91 in Cammann et al.’s (1983) original study. This measure was also used by few recent studies of non-standard work arrangements (e.g. Senter & Martin, 2007; Martin & Sinclair, 2007).

Respondents indicated their responses on a 7-point Likert Scale ranging from 1 = strongly disagree, to 7 = strongly agree. Thus, higher scores indicated higher perceptions of overall satisfaction one has over his or her present job. There was no reverse scored item and all three items were aggregated to obtain the measure of job satisfaction. The items were, *“In general, I like my work”*, *“I feel fairly satisfied with my present job”*, and *“I find real enjoyment in my work”*.

4.5.4 Affective Commitment Measures

Affective commitment was measured using a revised version of Meyer et al.'s (1993) six-item scales [originally by Allen and Meyer's (1990) eight-item measures]. Subjects were asked to indicate their responses on a 7-point Likert scale ranging from 1 = strongly disagree, to 7 = strongly agree. Three of the items were reverse scored. The six items were summed to obtain the total affective commitment score with the higher score indicating more favourable affective influences toward the employees' commitment. This measure was also used by a few recent studies of non-standard employment (e.g. Felfe et al., 2008; Gavino et al., 2010).

These items have a good internal reliability of .87 in Meyer et al.'s (1993) study. The items of the measures were, *"I would be very happy to spend the rest of my career with this organisation"*, *"I really feel as if this organisation's problems are my own"*, *"I do not feel a strong sense of 'belonging' to my organisation (reverse scored)"*, *"I do not feel 'emotionally attached' to this organisation (reverse scored)"*, *"I do not feel like 'part of the family' at my organisation (reverse scored)"*, and *"This organisation has a great deal of personal meaning for me"*. Consistent with prior studies of non-standard employment, this study also did not include the two other components of Allen and Meyer's (1990) scale of organisational commitment, i.e. continuance and affective commitment (e.g. Holtom et al., 2002; Maynard et al., 2006; Felfe et al., 2008).

Taken together, the research measures were adopted or adapted from well established prior researchers as summarised in Table 4.2. This study consequently validated the operationalisation of the study variables or constructs towards standard and various types of non-standard (e.g. part-time, temporary, or contract) services employees.

Table 4.2

The Research Measures of the Study

Variable	Source	Number of Item	Reliability	Scale
Work status congruence	Holtom et al. (2002)	Seven	.82	7-point Likert scale with anchors ranging from 1 = strongly disagree, to 7 = strongly agree
Satisfaction with work-life balance	Valcour (2007)	Seven	.93	
Job satisfaction	Cammann et al. (1983)	Three	.91	
Affective commitment	Meyer et al. (1993)	Six	.87	

4.6 Pilot Study

Since all items employed in this study were taken from validated instruments by other researchers, the content validity is established. Nevertheless, to validate the measurement scales, a pilot study was conducted among 60 employees from two organisations in the state of Selangor. This was done in order to resolve any inaccuracy and inadequacy before the actual field study was done. In addition, this pilot study was to make certain that there was no vagueness with the phrasing of the measures and that the questions established were easily understood by the participants. The participating employees were also asked to give their general opinions, reactions, comments, or suggestions for improvements of the questionnaire. They were questioned to assess the lucidity of the statements, the length, format, and instructions for overall survey, the level of language used in terms of sensitivity, and the easiness in understanding in order to ensure no uncertainties and communication blunder.

From the pilot study, the length of time needed to complete the questionnaire was also estimated to be around five to ten minutes. The pilot study found that only minor improvements were necessary such as clarity of the instructions and readability of the

questionnaires. Respondents who had participated in this pilot study were not included in the main study. An initial reliability assessment was conducted using the Cronbach coefficient reliability test (Malhotra, 2010). Bernstein, Garbin, and Teng (2011) suggested that alpha coefficients between .50 and .60 are deemed appropriate for pre-test results. Generally, the alpha scores or the internal consistencies for all the measures in this pilot study exceeded the benchmark of .60; i.e. work status congruence ($\alpha = .70$), satisfaction with work-life balance ($\alpha = .93$), job satisfaction ($\alpha = .75$), and affective commitment ($\alpha = .69$). The reliability results revealed a reasonable initial indication of internal consistencies of all items used in the pilot study.

4.7 Data Analysis Strategy

This study employed two statistical software packages to process raw data and to test the hypotheses of the study. The IBM Statistical Package for Social Sciences (SPSS) version 18.0 was used to obtain the descriptive statistics of the demographic characteristics of the employees and to check the means and standard deviations for all variables. These descriptive analyses provided a basis for subsequent examination of the differences in the respondent groups. The independent sample t-tests and one-way ANOVA were used to test the differences between the studied constructs and selected demographic variables. The cross-tabulation analysis was used to identify any significant differences between selected demographic characteristics. The Pearson correlation coefficients and their associated significant values were used to interpret the output from the correlation analysis.

The data entry process of 34 variables was double confirmed to curtail error. This was accompanied by the data cleaning process which frequencies for all the variables were carefully assessed to identify any missing data and extreme values in the data set. Then, the data screening techniques were used to make sure that the data had been correctly entered and to make sure the variables were normally distributed. Normality checks are important because non-normality would affect the validity of the results (Coakes & Ong, 2011). The skewness and kurtosis were generated using SPSS to assess the normality of the observed variables. In addition, preceding to data analysis, the other test of assumptions for multivariate analysis was also performed to ascertain that the data fulfilled the collinearity assumptions.

Meanwhile, the internal consistencies of the scales were determined using the reliability analysis. In addition, the SPSS program was used to perform the exploratory factor analysis (EFA). Subsequently, the data was analysed further in Structural Equation Modelling (SEM); an analytic technique that provides an overall test of model fit and an assessment of model parameters (Byrne, 2010). The SEM was also adopted to validate the measurements and to specify, estimate, and confirm the hypothesised relationship of the variables in the research model. The IBM SPSS Analysis of Moment Structures (AMOS) version 18.0 was used for the SEM analysis. The following sub-sections provide a general overview of the EFA, SEM, and mediation analysis.

4.7.1 Exploratory Factor Analysis (EFA)

The exploratory factor analysis (EFA) is a popular multivariate statistical technique used to explore the underlying factors among the variables and to reduce data into smaller set of components (Bernstein et al., 2011). The main purpose of EFA is, “...to

find a way to condense (summarise) the information contained in a number of original variables into smaller set of new, composite dimensions or variates (factors) with a minimum loss of information...” (Hair et al., 2009, p.96). Gerbing and Hamilton (1996) recommended that researchers use EFA prior to confirmatory factor analysis (CFA). Kelloway (1995) as cited in Hurley et al. (1997, p.668) suggested that, “...EFA is more appropriate than CFA in the early stages of scale development because CFA does not show how well your items load on the non-hypothesised factors.”

Based on these recommendations, this study conducted EFA for each measure in the study. This study had also conformed to the instrument validation process as suggested by Hair et al. (2009). Firstly, an exploratory measurement assessment was done by using exploratory factor analysis and reliability tests for internal consistencies of the measures. The means of the sums of multiple items were calculated after the dimensions of multiple indicator measures were analysed. Secondly, a measurement model was established subject to a series of validity tests using CFA before the testing of hypotheses in the structural model. These measurement model validity checks included unidimensionality assessment, convergent validity, discriminant validity, and fit indices. The construct reliability was decided again following the validation procedures.

4.7.2 Structural Equation Modelling (SEM)

Structural equation modelling (SEM) was used to empirically examine the relationships among the exogenous and endogenous constructs of the research model as per Figure 3.1 (i.e. work status congruence, satisfaction with work-life balance, job satisfaction, and affective commitment) by using the maximum likelihood estimation procedure in Analysis of Moment Structures (AMOS) version 18.0. The use of SEM is deemed to be

appropriate in this study as it is a highly useful and powerful statistical technique that was almost a hybrid of two methods (factor analysis and multiple regression analysis) (Hair et al., 2009). SEM is a better statistical tool and has several advantages over other statistical techniques such as multivariate regression and analysis of variance (ANOVA) because it has the capabilities to model relations from variables to constructs as well as between observed and unobserved constructs (Hoyle, 2011). However, SEM may be useful only if the data fulfils the requirements of adequate sample size, multivariate normal distributions, and absence of collinearity problems (Byrne, 2010). Therefore, the examination of violations of the assumptions of SEM in terms of sample size, data normality and collinearity are necessary because it may distort the analysis.

Additionally, SEM takes a confirmatory, rather than an exploratory approach to data analyses and the estimates are based on information from the full covariance matrix (Byrne, 2010). SEM is an easily applied technique for assessing direct and indirect effects and can integrate both unobserved and observed variables into a model (Byrne, 2010). SEM also is referred as a mixture of both interdependence and dependence methods, i.e. exploratory factor analysis and regression analysis can be performed more systematically in one step (Hair et al., 2009). Further, SEM makes possible to test and analyse multiple structural relationships simultaneously in a hypothesised model while maintaining statistical efficiency (Hair et al., 2009; Byrne, 2010).

Moreover, SEM has the capability to determine the goodness-of-fit between the hypothesised model and the actual data (Kline, 2010), to assess the measurement errors in the statistical estimation process and could be used to avoid any underestimation of mediation effects (Byrne, 2010). Commonly, it was the benefit and popularity of SEM that influenced the adoption of this method in scrutinising the data. Particularly, the

absolute factor for using SEM in this research was to permit the simultaneous investigation of multiple structural relationships, to examine the goodness-of-fit of the proposed theoretical framework, so that to ensure the theoretical model fit the observed data well. In addition to model fit analysis, alternative model examination can be attained with the use of SEM and the effects of all the determinants in this study can be tested simultaneously at once, as contrasting to having to perform a series of regression equations (Baron & Kenny, 1986).

While exploratory factor analysis can be utilised to deduce and conclude data (Malhotra, 2010), it is essential to carry out confirmatory factor analysis in order to investigate, establish, and adjust the projected study framework or model (Anderson & Gerbing, 1988). Thus, Anderson and Gerbing's (1988) two-step approach was used to test the hypothesised model. Firstly, a confirmatory factor analysis (CFA) was performed to specify the relationships between the observed indicators and unobserved constructs in the measurement model (Hair et al., 2009). According to Hair et al. (2009), researchers should report at least one incremental index and one absolute index, in addition to the chi-square value; and at least one of the indices should be badness-of-fit index in evaluating the validity of measurement models.

Following the suggestion of McIntosh (2007), the first overall test of model fit selected was the chi-square (χ^2) test. Chi-square (χ^2) is used to assess the difference between the estimated covariances and observed covariances (Hair et al., 2009). Bentler (1990) proposed that the χ^2 statistics should be lower or insignificant; a significant chi-square statistic indicates a poor model fit. As the chi-square test is extremely sensitive to sample size (Bentler, 1990), the chi-square ratios (χ^2/df) normalised by degrees of freedom was also used. An acceptable ratio for χ^2/df value should be less than 3.0 (Hair

et al., 2009). Following Hair et al.'s (2009) suggestion, other than chi-square and normed χ^2/df value, this study used multiple indices to examine the fit for its measurement model which included Goodness-of-Fit Index (GFI), Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), and a badness-of-fit index, Root Mean Square Error of Approximation (RMSEA) (Hu & Bentler, 1999). For the badness-of-fit index, RMSEA was chosen as it often provides consistent results across different estimation approaches (Byrne, 2010).

According to Hair et al. (2009), the Goodness-of-Fit Index (GFI), the Comparative Fit Index (CFI) and the Tucker-Lewis Index (TLI) with values greater than .90 indicate the model provides an acceptable fit to the data. In addition, the fit indices indicate the model fit the data well when the Standardised Root Mean Squared Error of Approximation (RMSEA) is less than .08 (Byrne, 2010). However, a cut-off value close to .95 for TLI, CFI; and a cut-off value close to .06 for RMSEA would be needed to support that there is a relatively good fit between the hypothesised model and the observed data (Byrne, 2010). Like other SEM adopters, the more stringent criteria proposed by Byrne (2010) for approximate fit indices were adopted in this study.

Once the measurement model was validated, this study proceeded to the second step (i.e. develop and specify the structural model). The structural model, also known as a causal model shows how the unobserved constructs and observed variables were related based on the proposed theoretical model (Hair et al., 2009). According to Hair et al. (2009), it is also used to determine whether the structural relationships among the research constructs were consistent with the theoretical support and to determine the structural model that best fit the data and hence confirming the model. The fit indices that were used to assess the validity of the structural model were the same as for the

measurement model; i.e. the chi-square (χ^2) goodness-of-fit statistics, the chi-square ratio (χ^2/df), the Goodness-of-Fit Index (GFI), the Comparative Fit Index (CFI), the Tucker-Lewis Index (TLI), and the Standardised Root Mean Squared Error of Approximation (RMSEA).

Research model testing and analysis were conducted through three general approaches. Firstly, the proposed model analysis was conducted using covariances and the most widely used maximum-likelihood estimation method with AMOS, hence the significance, direction, and size of each structural parameter could be estimated to test the structural links hypothesised within the model (Anderson & Gerbing, 1988). Secondly, the model development strategy was followed using the model re-specification procedure which aims to identify the source of misfit and then generate a model that achieves better fit of data (Byrne, 2010).

Thirdly, following the competing model strategy, different models with different hypothetical structural relationships were compared and tested against each other (Byrne, 2010). This is to determine the mediating roles of satisfaction with work-life balance satisfaction, and job satisfaction. Satisfaction with work-life balance was hypothesised to mediate the relationships between work status congruence and job satisfaction, and between work status congruence and affective commitment. In the meantime, job satisfaction was hypothesised to mediate the relationships between work status congruence and affective commitment, between satisfaction with work-life balance and affective commitment.

Although the mediation effect can be testified through a series of regression models (Baron & Kenny, 1986), the use of the two-stage techniques and the capability to incorporate both unobserved and observed variables into a SEM model is deemed to be a better method (Hair et al. 2009). Moreover, it is acknowledged that the application of multiple regression analysis used to predict the mediation effect warrants nonexistence of measurement error in the mediator (Baron & Kenny, 1986). This setback can be curtailed with the utilisation of SEM technique as it offers an unequivocal estimation of the measurement error (Byrne, 2010).

4.8 Summary

This chapter explained the methods and strategy that were adapted in this study. It described the research design, sample, and data collection procedures. It also reported the development of questionnaires and selection of the research measures. The chapter also briefly described the exploratory factor analysis (EFA) and structural equation modelling (SEM) that were used in this study. The results from these statistical tests are reported in the next chapter.