CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

The component that plays an important role in research is the research methodology. Its aim is to decide the direction of the study in order to ensure that the study is valid and reliable. According to Babbie (2015), methodology is the process of learning or the science of determining the procedures of collecting data, identifying, interpreting, and forecasting phenomena using selected methods or techniques. Furthermore, research methodology will become the most important component of the data collection and analysis process. Its aim is to ensure that all necessary data and information for this study is gathered. The study design, population and sample, research instrument, reliability and validity, data collection procedures, and data analysis procedures will all be covered in this chapter

3.2 Research Design

The most important element for every researcher is to select the most appropriate research design in completing the research. In order to empirically test the relationship between dependent and independent variables, the researcher used a quantitative design, which included sampling responses from survey questionnaires. Because of their robustness and scientific methodology (Saunders et al., 2012; Ghauri & Gronhaug, 2005), quantitative approaches were selected, as well as the ability to gather data from a wide group of respondents (Morgan, 1998). Creswell (2013) said that quantitative research is better suited for learning and understanding how one or more variables affect each other. The quantitative method is the most common method in social sciences such as management, business, and human research. Apart from that, the survey method is the most suitable method to generalize the study results, describe the real phenomenon, and examine the relationship among variables (Creswell, 2013).

The quantitative method is executed through structured closed-ended questions or the Likert scale. This approach also includes a structured question form in which the respondents' answer options are predetermined. The Likert scale consists of seven scales ranging from very strongly disagree to very strongly agree. This scale was chosen in this study to support the previous actions of past studies that believed such a scale has been shown high validity in measuring the variables (Henard & Dacin, 2010; Zehir et al., 2011). Furthermore, Dawes (2008) discovered that when data are used for factor analysis, regression analysis, or structural equation modelling, the Likert scale is appropriate and suitable to be used. Therefore, the suggested research design ideally fits to be consistent with the research objective of this study.

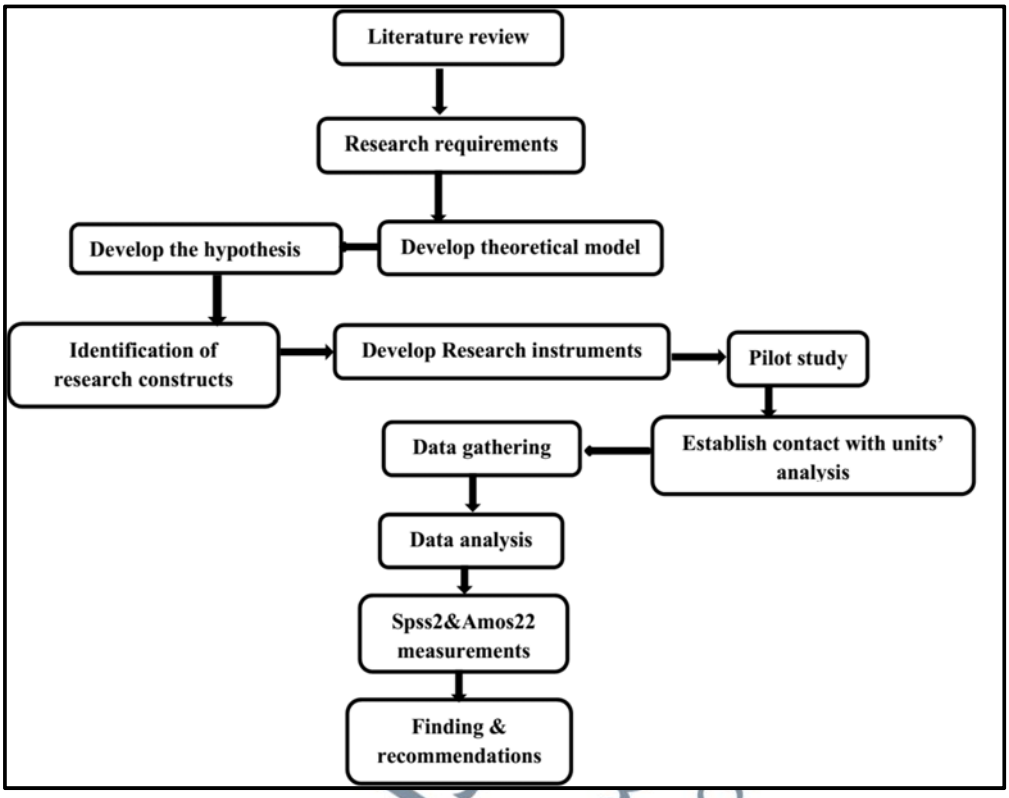

Figure 3.1: Research Design

Figure 3.1 shows the general flow of the research design that was used as a guideline in this entire study. The research design begins from identification of the research construct phase in the figure. However, the previous phase before identification of research constructs which started from literature review until developing the hypothesis were discussed in Chapter Two. These phases played a vital role in designing the entire study. In this chapter, each of the phases beginning from identification of research constructs until data analysis are explained in detail in the following sub-topics. The next two phases will be discussed and elaborated in the following chapter of this study which are Chapters Four and Five.

3.3 Location and Sample of the Study

In order to run the research, the researcher must identify the location and subjects of the study. These are vital elements for everyone either researcher or the public to know about the location and subjects of the study and to determine the significance of the location and subjects of the study. For this study, the researcher conducted the study on public primary and secondary school teachers in the HLP programme for year 2018, all over public universities in Malaysia. For the information, Malaysia has a total of 20 public universities, which are mentioned below.

Table 3.1: List of Public Universities in Malaysia

No.	University	Region
1	Universiti Malaya (UM)	West
2	Universiti Sains Malaysia (USM)	North
3	Universiti Kebangsaan Malaysia (UKM)	West
4	Universiti Putra Malaysia (UPM)	West
5	Universiti Teknologi Malaysia (UTM)	South
6	Universiti Islam Antarabangsa Malaysia (UIAM)	West
7	Universiti Utara Malaysia (UUM)	North
8	Universiti Malaysia Sarawak (UNIMAS)	Sarawak
9	Universiti Malaysia Sabah (UMS)	Sabah
10	Universiti Perguruan Sultan Idris (UPSI)	North
11	Universiti Sains Islam Malaysia (USIM)	South
12	Universiti Teknologi Mara (UiTM)	West
13	University Malaysia Terengganu (UMT)	East
14	Universiti Tun Hussein Onn Malaysia (UTHM)	South
15	Universiti Teknikal Malaysia Melaka (UTeM)	South
16	Universiti Malaysia Pahang (UMP)	East
17	Universiti Malaysia Perlis (UniMAP)	North
18	Universiti Sultan Zainal Abidin (UniSZA)	East
19	Universiti Malaysia Kelantan (UMK)	East
20	Universiti Pertahanan Nasional Malaysia (UPNM)	North

This study involved respondents from teachers in public primary and secondary schools who are furthering their tertiary level of education, i.e., Master's and PhD at public universities in Malaysia under the MOE programme which is HLP for the year 2018.

As mentioned earlier in Chapter One, HLP is one of Malaysia's government programmes to encourage and give the opportunity to all government servants to further their studies. Basically, there are three types of programmes which are study leave with scholarship, study leave without scholarship, and part-time study. This programme will be offered once a year based on each ministry in the government service. For teachers in Malaysia, MOE is in charge of this programme. Teachers who intended to apply for this programme must go through several stages like fill up all the requirement forms, attend the interview session, seat for a preparation course, and pass all the examinations. The teachers who were chosen for this programme will be given a study leave depending on the study level. For example, for Master's level, teachers are entitled to two years of study leave and for PhD level, three years study leave will be allocated.

3.4 Population and Sampling

Population and sample are important in this research as it provides the information that will become the output of the study. As stated by Rusli and Hasbee (2011), the population is described as "all people who have the characteristics that the researcher needs to learn". Meanwhile, according to Bryman (2000), population refers to the entire interested group that the researcher wants to investigate and gather information from. Besides that, the population is not just large to represent the wholeness of the samples, but they might also spread across a wide geographical area, such as across the country.

Due to time and financial limitations in undertaking a quantitative analysis, it is difficult for each researcher to collect information from everyone (Bryman, 2012). To address these issues, research sampling should be used without jeopardizing the population's overall conclusion. Apart from that, Hair et al. (2010) argued that the ultimate goal of sampling is the establishment of representativeness or to reduce biases, thus able to make inferences from the findings based on a sample of a larger population. This statement was also supported by Bryman (2012), the method of choosing a number of samples or a few participants that can later be used in research to identify or justify a social pattern that is applicable to hundreds of millions of people who are not interested in the analysis is known as sampling. As a result, population sampling is used to represent a sample of the population.

The population of this research is the public primary and secondary school teachers in Malaysia who are furthering their studies at a tertiary level at public universities under the HLP programme by MOE, Malaysia for the year 2018. The total number of target population of this study is 555 HLP teachers for the year 2018 (MOE statistic, 2019). The population was chosen based on the characteristics of the study itself, which require gaining information from the HLP programme for public primary and secondary school teachers in Malaysia to examine the roles of WFE as a mediator to the relationship between lifelong learning and job satisfaction. Apart from that, public primary and secondary school teachers under the HLP programme by MOE were chosen only for year 2018 because there is a two-year maximum length of time given under the HLP programme for a master's programme and three years for a PhD programme. Moreover, the respondents from the population were still in their learning process at their particular university when the data were collected for this study. The data from the sample respondents were collected through online questionnaires (Google

Form) via the Telegram application. Furthermore, it will discuss the problem of respondents' fitness to participate in the study (Hair et al., 2010). Therefore, there are no issues on the location, as the online survey was used to reach respondents from far and thousands of milestones.

The technique employed by the researcher to obtain a random sample from the population is called method of sampling. According to Bryman (2012), there are two types of sampling methods which are probability and non-probability sampling. In the probability sampling method, the sample should be selected randomly, so that they can properly represent the population under the study. The representativeness is vital because the findings from the sample will be generalized towards the whole population.

Non-probability sampling is not used in this analysis because it does not imply random sampling, whereas probability sampling does. Randomness is crucial where the aim of a study is to generalize and prevent biases (Creswell, 2013). Therefore, in this current study, the probability method which is random sampling was chosen. According to Cooper and Schindler (2011) and Creswell (2009), the random sampling method is a probability method since the selected participants are predetermined and no selection requirements are needed.

In the random sampling technique, it ensures that any member of the population has a fair probability of becoming a sample (Yurchisin & Park, 2010). In this method, the characteristics of the population towards the research problem under study is homogenous and the sampling frame or the list of population elements is available. The researcher used random number generator from the Google web to choose the sample from population. Further details were discussed in data collection procedure of this chapter. This study's sampling process and procedures are based on Churchill and Iacobucci (2009). Figure 3.2 depicts the process and procedures.

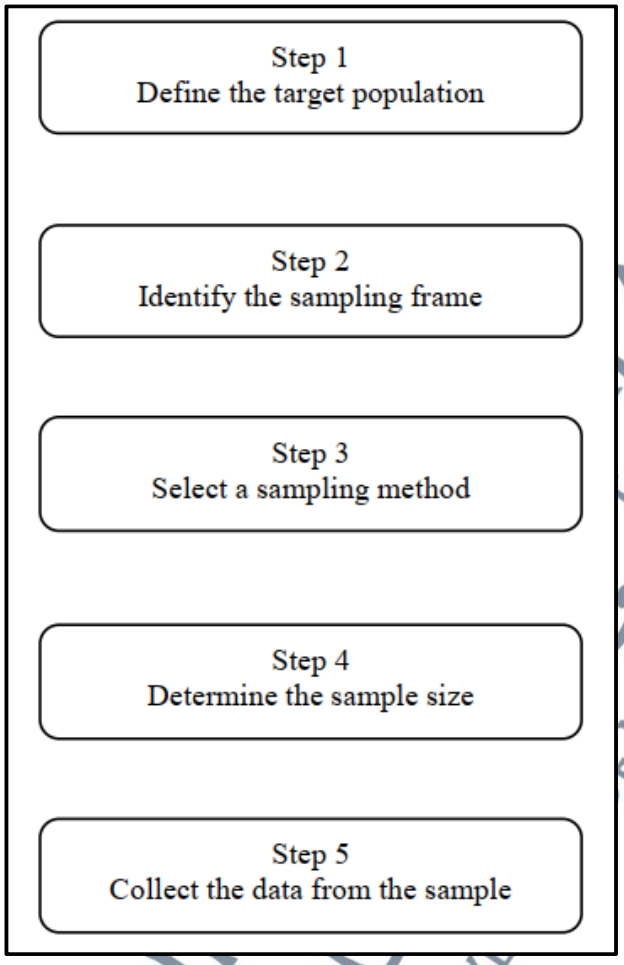

Figure 3.2: Sampling Procedure
Source: Based on Churchill and Iacobucci (2009)

3.4.1 Determination of the Sample Size

In order to use the SEM to test the proposed structural model and hypotheses, sample size is a critical factor in this study. For quantitative surveys, a minimum sample size of 300 to 500 respondents is recommended (Creswell, 2013). However, for this current study, the researcher will use the Krecjie and Morgan (1970) table to determine the sample size. From the total of 555 teachers under the HLP programme by MOE in 2018, Krecjie and Morgan's table suggested that the best sample size to be used for this study is 225. Hair et al. (2014) concluded that sample sizes in the range of 100 to 400 are enough and suitable to run the SEM. To prove the hypothesis relationship of this

study, the researcher used SEM. Therefore, in this current study, a sample size of 225 derived from Krecjie and Morgan's table would be adequate to run and use in SEM. To counter the possible issue of a lack of responses, this research employed the recommendation by Hair et al. (2010) to increase the sample size. As a result, the sample size for this analysis was increased to 350 respondents.

Table 3.2: Krecjie and Morgan's Sample Size Table

TABLE FOR DETERMINING SAMPLE SIZE FROM A GIVEN POPULATION

N	S	N	S	N	S	N	S	N	S
10	10	100	80	280	162	800	260	2800	338
15	14	110	86	290	165	850	265	3000	341
20	19	120	92	300	169	900	269	3500	246
25	24	130	97	320	175	950	274	4000	351
30	28	140	103	340	181	1000	278	4500	351
35	32	150	108	360	186	1100	285	5000	357
40	36	160	113	380	181	1200	291	6000	361
45	40	180	118	400	196	1300	297	7000	364
50	44	190	123	420	201	1400	302	8000	367
55	48	200	127	440	205	1500	306	9000	368
60	52	210	132	460	210	1600	310	10000	373
65	56	220	136	480	214	1700	313	15000	375
70	59	230	140	500	217	1800	317	20000	377
75	63	240	144	550	225	1900	320	30000	379
80	66	250	148	600	234	2000	322	40000	380
85	70	260	152	650	242	2200	327	50000	381
90	73	270	155	700	248	2400	331	75000	382
95	76	270	159	750	256	2600	335	100000	384

Note: "N" is population size
"S" is sample size.

Krejcie, Robert V., Morgan, Daryle W., "Determining Sample Size for Research Activities", Educational and Psychological Measurement, 1970.

3.5 Research Instrument

Questionnaires were selected as the data collection instrument because, according to De Vaus (1991) and Easterby-Smith et al. (2002), questionnaires are one of the most common data collection methods used by researchers today. Questionnaires are often regarded as an effective data collection technique for examining and measuring the excellent outcome of the researcher's requirement and interest aligned with the study's objective (Sekaran & Bougie, 2010). Aside from that, questionnaires

have the benefit of increasing the consistency and generality of the results, as well as making respondents more confident in giving honest answers (Aaker & Day, 1995).

One of the major concerns of any researcher in collecting data, including in this current study, is costing and according to Fowler (2013), when compared to other approaches, the survey questionnaire approach is cost effective and simple. This is one of the main reasons why in this current study the researcher chose questionnaires as the method of data collection. Furthermore, researchers in the field of job satisfaction have consistently used this approach in their studies due to its methodological effectiveness in assessing the statistical variable relationships (Ridzuan et al. 2018, Ahmad I.T. et al. 2018; Sarah Yuliarini et al. 2012; Skaalvik & Skaalvik, 2017).

The dependent variable in this study is job satisfaction while the independent variable is lifelong learning. In regards to the section on independent variable, it contains sub-dimensions (motivation, knowledge and skills, career development) to test the chosen terms for the measurement of constructs (lifelong learning) as predictors of teachers' job satisfaction. Lifelong learning construct was measured using AARP Survey on Lifelong Learning (Harris Interactive Inc, 2002) and Lifelong Learning Questionnaire by Knapper and Cropley (2000). AARP Survey on Lifelong Learning was originally designed to conduct a survey of 1019 people age 50 and older to explore how and why they learn about new things. The original version of this questionnaires explores typical learning methods, learning motivations, learning interests, and the life-event contexts in which learning take place. Meanwhile, the original Lifelong Learning Questionnaire by Knapper and Cropley (2000) covered area of need for lifelong learning, motivation to engage in lifelong learning as well as knowledge and skills. Lifelong Learning Questionnaire has been widely used since its development (Kirby,

Knapper, Lamon, & Egnatoff, 2010). Thus, in this current study the questionnaire was adopt and adapt to suit the objectives of the study.

The mediation variable is WFE. Variables were assessed using a questionnaire developed from pre-existing scales. The questionnaire items were derived from previously accepted research instruments used in previous studies. WFE questionnaire derived from Carlson et al. (2006) consist of 9 items scale to measure this construct and another 9 items scale to measure family work enrichment (FWE) construct. However, this current study adopt and adapt 9 items scale to measure WFE direction (development, affect, and capital).

The questionnaire consists of basically four sections which are Section A, Section B, Section C and Section D. Section A is for respondent's demographic and consists of eight (8) questions. Section B consists of eighteen (18) questions related to lifelong learning. Each of the sub-dimensions in Section B represent six (6) questions each. Meanwhile, for Section C the respondents need to answer nine (9) questions regarding WFE. For Sections B and C, the respondents need to choose the answers based on the 7 Likert scale choices starting from very strongly disagree to very strongly agree. The last part of the questionnaire is Section D. This section consists of thirty six (36) questions also with 7 Likert scale choices too.

The decision to adopt the Likert scale was made so that the appropriate statistics will fall into place (Boone & Boone, 2012). The Likert scale is most frequently seen as a seven-point scale ranging from 'strongly disagree' to 'strongly agree'. Each scale measures the result by examining how strongly subjects agree or strongly disagree with the statement on a seven-point scale. The seven-point scale is the most favourable; if higher than that, the increases in reliability would be so minimal that the attempt to

analyse the difference or refine the instrument would be in vain (Croasmun & Ostrum, 2011).

3.5.1 Back to Back Translation

The questionnaire items were prepared in two languages which are English and the Malaysian national language (Bahasa Melayu) because Bahasa Melayu is the primary language in this country. Since the original items of the questionnaire were adopted and adapted from previous Western studies, therefore the items were translated to Bahasa Melayu and then translated back to English. Firstly, the translation of the questionnaire into Bahasa Melayu was done by the researcher since the researcher is a Malaysian Malay and fluent in Bahasa Melayu.

Once the questionnaire was translated into Bahasa Melayu, the questionnaire was then checked through back-to-back translation for equivalency in consultation with an independent expert. Then, the Bahasa Melayu version of the questionnaire was translated back to the English version. This procedure was done by an English teacher from SK Tun Syed Ahmad Shahabudin, Melaka, Madam Linda De'Costa who is fluent in both Bahasa Melayu and English language. This process was to ensure that the questionnaire still hold the same perspective and meaning as the original English version of the questionnaire. The English and Bahasa Melayu versions were sent to four lecturers in the management field to certify that the version reflects the original meaning of the English version, and it would be understood by the target respondents. This indicates that both the translated Bahasa Melayu and English versions of the questionnaire carry the same and consistent content with the original English version of the questionnaire.

This translation was done for research purposes especially in cross-cultural studies (Brislin, 1970; Soriano & Foxall, 2002). The questionnaire was prepared into dual languages purposely to make it easier for respondents to respond to the questionnaire since Bahasa Melayu is their mother tongues. The translation process ensured that there are no major differences in the interpretation of the questionnaire items. The aim of translating into Bahasa Melayu was to ensure consistency in responses (Bates & Khasawneh, 2005). The comments and alteration were noted, then modified and adjusted according to the suggestions by the experts.

3.5.2 Items of Instrumentation

To collect data in a quantitative type of research, there are several methods that can be used and one of it is a survey. Survey in a quantitative study is very convenient and can collect large amounts of data. As mentioned earlier, this current study used a survey questionnaire that consists of dual languages which are English and Bahasa Melayu. The first page of the questionnaire contains background details as well as an introductory cover letter, which ensures the security and confidentiality of feedback. This matter was also recommended by Smith and Dainty (1991).

The questionnaire contained 71 items including eight questions related to personal information and another section about lifelong learning, work-family enrichment and job satisfaction. The complete questionnaire was only approximately seven pages including the title and instruction page. As stated by Saunders et al. (2012), a longer questionnaire would lower the response rates comparable to a shorter questionnaire; thus, the basic principle is to retain questionnaires as short and brief as possible. The variables were measured in Table 3.3 as follows.

Table 3.3: Variables and number of question

Section	Variables	Number of items
A	Demographic	8
B	Lifelong Learning	18
C	Work Family Enrichment	9
D	Job Satisfaction	36
	Total	**71**

3.5.2.1 Demographic Section

The first section is the demographic section, which was created by the researcher to collect personal information from the respondents. Under this section, the researcher sought information about (1) gender, (2) marital status, (3) age, (4) level of education, (5) grade or position, (6) teaching experience, (7) working spouse, and (8) number of children. Table 3.4 shows the items for demographic background. Details about the demographic section of the study can be seen in Table 3.4 as follows.

Table 3.4: Items of Demographic Background

Items	Details
Gender	Male
	Female
Marital Status	Single
	Married
	Divorced
Age	25-30 years
	31-35 years
	36-40 years
	41-45 years
	>46 years

Level of Education	Master
	PhD
Grade / Position	DG 41
	DG 44
	DG 48
	DG 52
	DG 54
Teaching Experience	11– 20 years
	21– 30 years
	>30 years
Working Spouse	Yes
	No
Number of Children	3-4
	5-6
	>6

3.5.2.2 Lifelong Learning Section

All the items from this section which consisted of 18 items were adapted from the AARP Lifelong Learning Survey conducted by Harris Interactive Inc, New York and Knapper and Cropley (2000). This section was divided into three sub-sections, where each of contained items on the dimensions of motivation, knowledge and skills, and career development.

Each of these sub-sections consisted of six (6) items describing the opinions on learning. The items start with a question "What are your opinions on learning?" to describe learning intention among the respondents.

The items from this scale start with a statement "I learn because….". All the items in this section came with a 7 Likert scale point to be chosen. It starts from (1) very

strongly disagree until (7) very strongly agree. All the items for this section are listed in Table 3.5.

Table 3.5: Items for Lifelong Learning

No.	Items
	What are your opinions on learning?
	Motivation
9	I learn because I can enjoy my hobbies or recreational activities better.
10	I learn because I can give back something to my community.
11	I learn because I can understand myself better.
12	I learn because I can help other people.
13	I learnt because I feel that I am a self-directed learner.
14	I learnt because I love for its utmost importance.
	Knowledge and skill
15	I learn because I can improve my job skills to make work easier or to get ahead.
16	I learn because I can keep up with what is going on in the world.
17	I learn because I can understand and get along with others better.
18	I learn because I can talk about things with my children or grandchildren.
19	I learn because I know the basic skills I need every day, such as reading, writing or basic math.
20	I learnt because when I learn something new I try to focus on the details rather than on the 'big picture'.
	Career development
21	I learn because I can earn a degree or certification that will advance my career or help me earn more money.
22	I learn because I can manage my career life better.
23	I learn because for my own spiritual or personal growth.
24	I learn because for the simply joy of learning something new.
25	I learn because I prefer to have others plan on my learning.
26	I learn because I seldom think about my own learning and how to improve it.

Source: AARP Lifelong Learning Survey (2000) & Knapper and Cropley (2000)

3.5.2.3 Work Family Enrichment (WFE) Section

Work-family enrichment is exemplified by nine questions. Carlson et al. (2006) were the first to create this construct. They discovered that enrichment has several dimensions. There are three dimensions for WFE direction: affect, development, and capital. Following that, a high citation count (e.g., Google Scholar: 289 citations; Web of Science: 140 citations) indicates that the scale is common among work-family scholars. Apart from that, the researcher adopted to use the Carlson et al. (2006) WFE measure because it is the only validated scale that captures all of the key components of enrichment put forth in the conceptual definition.

A statement, "My involvement in my work……" appeared for the items of these scales. All of the scoring were done on a seven-point scale, with very strongly disagree to very strongly agree. The nine items are as in Table 3.6.

Table 3.6: Items for Work Family Enrichment (WFE)

No.	Items	Reliability (coefficient alpha)
	My involvement in my work…	
	Developmental	**0.72**
27	helps me to understand different viewpoints and this help me be a better family member.	
28	helps me to gain knowledge and this helps me a better family member.	
29	helps me acquire skills and this helps me be a better family member.	
	Affect	**0.88**
30	puts me in a good mood and this helps me be a better family member.	
31	makes me feel happy and this helps me be a better family member.	

32	makes me cheerful and this helps me be a better family member.	
	Capital	**0.90**
33	helps me feel personally fulfilled and this helps me be a better family member.	
34	provides me with a sense of accomplishment and this helps me be a better family member.	
35	provides me with a sense of success and this help me be a better family member.	

Source: Carlson et al. (2006)

3.5.2.4 Job Satisfaction Section

The final part of this research instrument was designed to assess job satisfaction among the HLP programme teachers in Malaysian public primary and secondary schools. A seven-point scale was used to assess job satisfaction among them. The items for the scales were derived and adopted from Spector's Job Satisfaction Survey (1997). A total of 36 items were listed in this section which represented nine facets (pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, co-workers, nature of work, and communication). The scale shows promising validity and reliability (Spector, 1997). The computed Cronbach's alpha value for this scale is .82, which is a very good level. An instruction to "Please circle the one number for each question that comes closest to reflecting your opinion about it" appeared ahead of these scales.

Table 3.7: Items for Job Satisfaction

No.	Items	Reliability (coefficient alpha)
	Please circle the one number for each question that comes closest to reflecting your opinion about it.	
	Pay	**0.75**
36	I feel I am being paid a fair amount for the work I do.	
37	Raises are too few and far between.	
38	I feel unappreciated by the organization when I think about what they pay me.	
39	I feel satisfied with my chances for salary increases.	
	Promotion	**0.73**
40	There is really too little chance for promotion on my job.	
41	Those who do well on the job stand a fair chance of being promoted.	
42	People get ahead as fast as they do in other places.	
43	I am satisfied with my chances for promotion.	
	Supervision	**0.82**
44	My supervisor is quite competent in doing his/her job.	
45	My supervisor is unfair to me.	
46	My supervisor shows too little interest in the feelings of subordinates.	
47	I like my supervisor.	
	Fringe Benefits	**0.73**
48	I am not satisfied with the benefits I receive.	
49	The benefits we receive are as good as most other organization offer.	
50	The benefit package we have is equitable.	
51	There are benefits we do not have which we should have.	
	Contingent Rewards	**0.76**
52	When I do a good job, I receive the recognition for it that I should receive.	
53	I do not feel that the work I do is appreciated.	

54	There are few rewards for those who work here.	
55	I don't feel my efforts are rewarded the way they should be.	
	Operating Condition	**0.62**
56	Many of our rules and procedures make doing a good job difficult.	
57	My efforts to do a good job are seldom blocked by red tape.	
58	I have too much work to do at work.	
59	I have too much paperwork.	
	Co-workers	**0.60**
60	I like the people I work with.	
61	I have to work harder at my job because of the incompetence of people I work with.	
62	I enjoy my co-workers.	
63	There is too much bickering and fighting at work.	
	Nature of Work	**0.78**
64	I sometimes feel my job is meaningless.	
65	I like doing the things I do at work.	
66	I often feel that I do not know what is going on with the organization.	
67	My job is enjoyable.	
	Communication	**0.71**
68	Communication seems good within this organization.	
69	The goals of this organization are not clear to me.	
70	I feel a sense of pride in doing my job.	
71	Work assignments are not fully explained.	

Source: Spector's Job Satisfaction Survey (1997)

3.6 Pilot Study

A pilot study must be done in order to access the content validity and reliability of the measurement scale. Yang (2003) recommends conducting a pilot study as a final preparation for data collection which allows further improvements and refine the data collection plan (if any value of weaknesses is found) with respect to both content of the data and procedures to be followed and to collect as many evidences as possible to further enhance the data collection.

Hair et al. (2010) stated that a number of 30 samples from the population is enough and adequate to conduct a pilot test. Therefore, the pilot study was distributed to 41 respondents from the HLP program for primary and secondary school teachers in Malaysia for the year 2018, which were sufficient. Simple random sampling technique is a procedure used for the pilot study. Meaning to say here that, the population of the HLP programme for primary and secondary school teachers have an equal chance to be selected for the pilot study and the selection is not restricted to any particular group of respondents.

This pilot study was done according to the discussion of sampling procedure by Sekaran (2003). Certain clear explanations and details about the survey, such as the content and intent of the questionnaire, were given to the participants. As mentioned earlier, the total population of this current study was 555 respondents. Based on this, the researcher randomly chose 41 respondents and this selection was based on the understanding that they could represent the population of the HLP programme for teachers in primary and secondary schools in Malaysia.

3.6.1 Validity of the Instrument

Sekaran (2003) said that the scale should not only be reliable but also valid. Through a pilot study, this study deliberated the validity of the scale in this section. Pallant (2013) defined validity as "the degree to which the scale evaluates what it is intended to measure". In the meantime, Heir et al. (2014) described validity as "the extent to which a scale or series of measurements adequately reflects the concept of interest". Measurement of validity can be tested using a variety of approaches, including content validity, criterion-related validity, and construct validity (Pallant, 2013).

Content validity can be described as “the measures provide an appropriate and representative set of items that tap the concept” (Sekaran, 2003). In this pilot study, content validity of the measure was done through several processes. Firstly, after the back-to-back translation of the questionnaire, the researcher sent the questionnaire to four senior lectures who are experts in the same field of study. Then, these expert lecturers went through the questionnaire and did some appropriate adjustments to the questionnaire. In general, the lecturers gave positive comment or feedback on the questionnaire.

The content validity of the instruments and scales was measured using the face validity procedure (Sekaran, 2003). The original translated to Bahasa Melayu version and English version of the instruments were submitted to four lecturers in the same field of study for face validity testing. Lynn (1986) advised that a minimum of three experts are permissible, but also indicated that more than 10 was probably unnecessary. Therefore, for the planned face validity of this study, a number of four experts were decided to be taken as the subject to validate this set of questionnaire. The lecturers gave constructive reviews on the instruments and concluded that the scale items were suitable being used in this study. However, the face validity technique is often

considered as inadequate for determining the goodness and quality of measurements in a study (Pallant, 2013; Sekaran 2003).

3.6.2 Reliability of the Instrument

Reliability and validity are tools of an essentially positivist epistemology. According to Leary (2004), reliability is regularity and accuracy of a tool used for measurement of data. This will show how reliable is the measurement of the data which has been adopted to measure the collected data.

The reliability of the questionnaire was analysed using the Cronbach's alpha, which was tested among the standardized items. The Cronbach's alpha was used to measure the consistency of the research in the questionnaire (Frankel & Wallen, 1993). According to Hair et al. (2010) and Berthoud (2000), the alpha value of the item must be above 0.60 and above that is considered as good and acceptable reliable data, while for an alpha value below 0.60 is considered as a weak measurement of data.

The Cronbach's alpha value indicates how reliable the scales are. Following that, the reliability of each variable is addressed next:

Lifelong Learning, Work Family Enrichment and Job Satisfaction Scales Reliability

Based on the conceptual framework of this study, the independent variable is lifelong learning. This variable was tested during the pilot study, and the reliability test results are in the Table 3.8. With lifelong learning as the independent variable of the study, the value of Cronbach's alpha is equal to 0.948. This value was approved, allowing the researcher to use the instrument in the survey.

Next, the scale of work-family enrichment (WFE) which is the mediating variable of this study was also examined in terms of reliability. The resulted Cronbach's alpha is 0.961, which is higher than 0.6 based on the above results. As a result, the items in this variable are appropriate and applicable for the survey.

Finally, job satisfaction is the study's dependent variable. This variable was also tested during the pilot test, and the reliability test results are also in the Table 3.8. As seen above, the obtained Cronbach's alpha value is 0.951, which is higher than 0.6. This score was found good and acceptable. As a result, the scale can be said to be reliable.

Table 3.8: Cronbach's Alpha for All Variables

Case Processing Summary			
		N	%
Cases	Valid	41	100.0
	Excluded[a]	0	.0
	Total	41	100.0
a. Listwise deletion based on all variables in the procedure.			

Reliability Statistics		
Lifelong Learning Scales	Cronbach's Alpha - .948	N = 18
Work Family Enrichment (WFE) Scales	Cronbach's Alpha - .961	N = 9
Job Satisfaction Scales	Cronbach's Alpha - .951	N = 36

From all the reliability tables above, it can be perceived that the Cronbach's alpha of all variables involved in this study passed the minimum acceptable value of 0.6 (Hair, 2010; Berthoud, 2000). In other words, the variables have reliability items. The instrument's high reliability has been shown by a high reliability coefficient. As a result, no items had to be removed from the questionnaire. Therefore, the researcher could move on to the actual survey.

3.7 Data Collection Procedure

The study was conducted in Malaysia among primary and secondary school teachers who are furthering their studies at a tertiary level under the HLP programme by the MOE for year 2018. Before collecting the data, the researcher needed to seek approval and validation letter as a postgraduate student from the Centre of Graduate Studies, Universiti Sains Islam Malaysia (USIM).

The respondents were invited to answer the survey and it was voluntary. There was no obligation for them to answer the questionnaire. Furthermore, the anonymity and secrecy of the answers were ensured, which indicates that respondents were not asked to share any personal information in the questionnaire. This helped to increase respondents' excitement and readiness to participate in the survey. Furthermore, on the front page of the questionnaire, the respondents were told of the aim of this survey.

After the respondents were identified, the questionnaires were given and distributed to all respondents through the Telegram application. All the respondents were grouped into that Telegram since they were offered and accepted in the HLP programme for the year 2018. The respondents were regarded for the purposes of this study as internal clients. The questionnaires were delivered personally to the respondents' Telegram application via a Google Forms link. The researcher personally sent the questionnaire link via respondents' personal Telegram because the respondents were located in out of reach areas. An arbitrary code number was assigned to each questionnaire in order to associate the feedback received from the respondents.

Accordingly, this research used a simple random sampling method to gather data from respondents. The researcher used a random number generator to choose the respondents. Before that, the researcher had listed 555 population names or nicknames that had been used by the respondents in the Telegram group. Based on Krecjie and

Morgan's table, 225 respondents were enough to be a sample, but the researcher decided to distribute 350 questionnaires randomly to the respondents. The researcher set out the maximum 350 on the number generator, then the system randomly generated the number to identify the respondents.

Before answering the questionnaire, an instruction to take part in that questionnaire survey was attached with the Telegram. After reading and going through the instruction, the respondents were asked to answer all the questions. Several steps were taken in collecting the questionnaires from the respondents. Firstly, the researcher distributed online questionnaires in Google Forms to the targeted respondents. Next, after two weeks, the researcher identified the respondents who are slow or did not respond at all to the questionnaire. The Google Forms system helped the researcher to trace the respondents who had still not responded to the questionnaire by listing their arbitrary code and checked list Telegram name of the respondents. Then, the researcher ticked the arbitrary code of the questionnaire that had been set up to identify the respondents who still had not responded. Lastly, the online questionnaire was resent according to the list of Telegram names who did not respond or answer the questionnaire.

The questionnaires were monitored weekly to get the number of total questionnaires returned per week. The researcher sent a gentle reminder to the respondents who still had not responded and answered the questionnaire. This process was continually done until the fully satisfied response rate was achieved. Approximately three months were allocated for the collecting data process. For the respondents who did not respond to the questionnaire during that duration of time, it was considered as an invalid data and was not counted for analysis purposes.

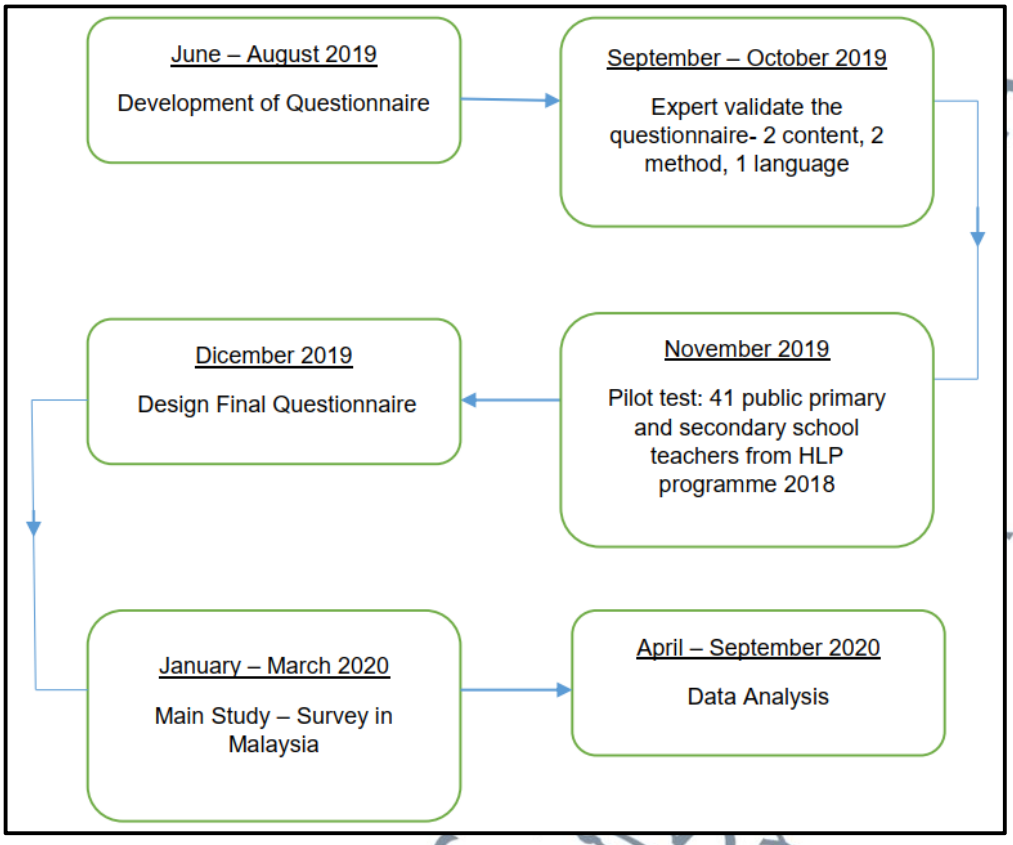

Figure 3.3: Summary of Data Collection Timescale

3.8 Data Analysis Procedure

The collected data were analysed quantitatively due to its potential to describe a phenomena by assembling numerical data, which would be researched quantitatively (Muijs 2011). The data were analysed using two main statistical software, the Statistical Package for Social Science (SPSS) and Analysis of Moment Structures (AMOS) as a quantitative tool of analysis and to facilitate statistical calculations. Each questionnaire feedback was crucial in the system for a detailed input covering the whole component of the study. First of all, the SPSS was used to perform the descriptive statistics like means, standard deviations, frequencies, and percentages (Pallant 2010) to explain the main characteristics of the study respondents. Aside from that, this research used the multivariate data analysis through the structure equation model (SEM) approach to

assess the significant effect between the dependent variable, independent variables, and mediator variable with data from the HLP programme teachers in Malaysian public primary and secondary schools. The quantitative method was used to generalise the better prediction and explanation for the understanding of the relationship between research variables (Babbie, 2015).

The structural equation modeling technique was applied in order to test the theoretical model which was formed using variables that constitute the research subject. Structural equation modeling is a more powerful technique than other multiple analysis techniques in terms of presenting separate and complex relationships between a group of variables (Hair, Black, Babin, & Anderson, 2010). In addition, structural equation modeling, unlike other techniques, allows including defined implicit variables in the studies instead of working with only observed variables (Blunch, 2008; Bollen, 1989; Hoyle, 2012; Kline, 2010).

The AMOS was used to conduct inferential statistic that determines the influence of each variable. It was also used to determine the mediating role of WFE in the relationship of lifelong learning and job satisfaction among the HLP program primary and secondary school teachers in Malaysia. The mediating role of a variable can be tested simultaneously and efficiently by the two-stage process using structural equation modeling, namely the direct effect and the indirect effects, even it may be performed using the SPSS software across a series of regression analyses (Hair et al., 2014; Kashif et al., 2015, 2016; Awang et al., 2015; Mohamad et al., 2016, 2018).

Apart from that, the application of multiple regression analysis to evaluate the mediation effect ensures that there is no measurement error in the mediator, which would potentially risk the accuracy of the estimates (Baron & Kenny, 1986). It was supported by Byrne (2010), using structural equation modelling provides clear

estimates of measurement error which may help to reduce the problem of measurement error. Moreover, this software also validates the measurement model of a latent construct using the Confirmatory Factor Analysis (CFA). Last but not least, analysing and testing the theory using AMOS is fast, efficient and user-friendly (Zainudin, 2010). The statistical analysis techniques used for each research objectives are as in Table 3.8.

Table 3.9: Research Objectives and Statistical Analysis Technique

No.	Research Objectives	Data Analysis
1.	To identify the effect of lifelong learning towards teachers' job satisfaction.	Multivariate data analysis
2.	To identify the effect of lifelong learning towards teachers' WFE.	Multivariate data analysis
3.	To examine the influence of WFE towards teacher's job satisfaction.	Multivariate data analysis
4.	To examine the mediation role of teachers' WFE on relationship between lifelong learning and teachers' job satisfaction.	Multivariate data analysis

3.9 Summary

This chapter discussed the research design and methodology used for this study. Specifically, this chapter explained the research design, the population, sample and sampling, and the instrument used in data gathering. In addition, pilot study, reliability and validity of the research were also discussed. The explanation on the data collection and data analysis procedures had also been concluded to give a better understanding on how this research was conducted. The findings of the analysis based on the data obtained are presented in the following chapter.