CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

Previously, chapter 2 presents a related literature review concerning the issues of coaching and mentoring. This chapter, on the other hand, details the methodology used to achieve the research objectives. This chapter begins with the research approach, which highlights the approaches chosen in answering the research questions. The research design of the study is the next phase. Subsequently, we have the research participants and this is followed by the research context to highlight the context of the study. The research methods and instruments which outline the techniques to apply follow from here. The procedures of the research, together with how the researcher collected and analysed the data, are described later. Ethical consideration, validity and trustworthiness of the instruments selected are also described. Finally, the researcher ends this chapter with a concluding remark.

3.2 Research Approach

In general, the research approach refers to the overall orientation of the research. To determine the approach of this study, it is vital to refer to the research questions, and only then the research objectives can be fulfilled (Bloomberg & Volpe 2008; Creswell 2012; Silverman 2010). Therefore, it is essential to choose a specific

approach for research, and it should be based on its appropriateness to answer the research questions. As mentioned earlier, in Chapter 1 (refer section 1.6), the research described in this study first intended to identify the roles and responsibilities of SISC+. Secondly, they sought to explore the many records of successes and challenges of SISC+ during the process of coaching and mentoring in the workplace. Finally, it aims to examine the influence of coaching and mentoring by the SISC+ in teaching and learning among English Language teachers. From the research objectives, this study was looking for answers to the questions of "What" and "How", therefore it is vital to highlight the research questions that can be answered by utilising both approaches due to the study characteristic which requires insightful experts' information on the topic. Furthermore, this study lies in the experiences of specific people who are involved in this phenomenon, so the responses from all participants are equally essential and fairly evaluated, either statistically or non-statistically.

In this study, the researcher chose to use a mixed-method approach to study and get suitable answers for the research questions in chapter 1 (refer Section 1.6). The mixed-method approach was appropriate to obtain an understanding of the phenomenon of coaching and mentoring with regard to their roles and responsibilities as well as their success and challenges completing their duty and to examine their influences towards the teaching and learning of the teachers coached. A mixed-method approach is also appropriate because it allows the research questions to be answered by providing a rich picture of the actual conditions surrounding the practices of SISC+.

The researcher seeks to understand coaching and mentoring – a new phenomenon in the Malaysian education industry. Embracing a mixed-method

approach is more suitable for a better understanding because of the nature of this. The responses given by the SISC+ were based on the information given by their coachees.

The coachees, together with their SISC+, were interviewed to get rich data for this mixed-method study. The answers provided by the SISC+ and their coachees gave a meaningful contribution towards understanding the issues and at the same time this process enables them to stimulate their own experiences as coachees. It is a great help in the study because the participants can expand on their responses during the interview. The responses of the participants are not limited to a certain extent only, but it also stretches to a new understanding of the topic. This is explained further in the analysis of findings in chapter 4. Further explanation of the participants will be explored in section 3.4.

The intention of studying the issues involving the coaches is to improve the understanding of the coaching and mentoring phenomenon by obtaining information from the personal experiences of the SISC+ themselves. Nevertheless, to support their views and responses on the overall issues pertaining to coaching and mentoring by SISC+, the opinions of the coachees are essential too, which can only be established from a large number of participants. According to Creswell (2012), qualitative research is the study of contextual principles, such as the roles of the participants, the physical setting, and a set of situational events that guide the interpretation of discourse. In comparison, quantitative research allows the researcher to collect the data from the participants in a numerical format to achieve a high level of reliability and accuracy.

In a mixed-method approach, the data were gathered about factors that predict a concept on several instruments for developing better, more context-specific instruments(Creswell, 2007). A mixed-method approach helps to explain results (or

how mechanisms work) in causal models because it helps to distinguished as a highly-contextual approach where data is gathered over long periods and in natural, real-life settings rather than giving a brief view of the phenomenon studied (Gray, 2004).

As pointed out by Creswell (2012), combining qualitative and quantitative data best understands and explains a research problem. Therefore, by using a mixed-method approach, it helps to increase the overall strength of this research as well as in triangulating the method (refer to section 3.9). In addition to that, Corbetta (2003) points out that different approaches can provide a complete vision of social reality when viewed from different angles. Thus through engaging, different approaches in this study helped the researcher to answer the research questions systematically because of the nature of both approaches. Through the mixed-method approach, it allows the researcher to know and understand different things that provide for greater insight into this research. Therefore, the approaches for all questions are dominated by the mixed-method approach because of the nature of the research questions (refer chapter 1 section 1.6). By utilising a mixed-method approach across these various data, the findings have been able to be corroborated. In the next section, the researcher will continue with the design selected for this study.

3.3   Research Design

Primarily, this section will be focusing on a description of the research design selected for this study. Creswell et al. (2010) identified research design as a procedure for collecting, analysing, interpreting, and reporting data in research studies. Research design, thus, refers to the overall strategy that will integrate the different components of the study in a comprehensible and meaningful way to ensure that the evidence obtained will effectively address the research problem in a logical way.

This study employs a case study. Yin (2003) defines a case study research method as an empirical inquiry that investigates a contemporary phenomenon within its real-life context; when the boundaries between phenomenon and context are not clear, and in which multiple sources of evidence are used. For this study, it was essential to analyse the phenomenon of coaching and mentoring by SISC+ to gain a better understanding of their roles and responsibilities, successes and challenges and their influences towards the teaching and learning of the teachers. As such, the design of this study does not only contribute to the base of coaching and mentoring knowledge, but it also makes the study more robust because a case study is known as an in-depth study of a particular research problem.

In this study, the researcher conducted a case study on the coaching and mentoring among the SISC+. A case study is an appropriate design because it helps to narrow down the coaching and mentoring into easily researchable examples and in this case, the study on roles, characteristics, success, and challenges of the coaches. As outlined by Creswell (2009), a case study is a research that involves the study of an issue explored through one or more cases within a bound system (Creswell, 2009).

Furthermore, the advantage of the case study research design is that the researcher can focus on a specific case that is the issues derived from the creation of the SISC+ posts. Drawing on the same topic, Stake (1995, 2000, 2006) mentioned that a case study could either be intrinsic or instrumental depending on the aims of the study. "Intrinsic" refers to a situation when the researcher's only interest lies in understanding a specific case with no intention of theorising or comprehending any concept; whereas "instrumental" is when the researcher's aim is beyond the case that is to gain perspective on a phenomenon. In this present study, it is noted that this is an instrumental case study because of the emphasis on a specific phenomenon: coaching

and mentoring by SISC+. The cases are the SISC+ from Rembau, Kuala Pilah and Jempol and Jelebu. This study provides in-depth and descriptive accounts of the SISC+ experiences in the coaching and mentoring phenomenon.

A distinction was also made to categorise this case study as a single case study or a multiple case study. As proposed by Stake (2000), an instrumental case study encompasses into becoming a collective study or multiple-case study an supported by Yin (2012), a case study can become a single study or multiple studies. It is understood that a case study is carried out by investigating more persons instead of one because to study an issue such as the experiences, it should come from numerous sources so that the subject is well-represented.

On the other hand, in this study, more than one participant is involved. Therefore this present study is a descriptive multiple-case study because of the distinguishing features between a case study and a multiple case study where a multiple case study includes more than one single case. Thus, it means that the participants chosen are based on similar characteristics such as the fact that they are previously teachers who are now working as SISC+ in the PPD office of the Ministry of Education and that they also came from different contexts. These features were described to highlight the appropriateness of this replication logic notion in a multiple-case study.

Furthermore, conducting a multiple-case study can increase the validity of the research (Merriam 1998) for the reasons of well-representation and better triangulation. Since this study is descriptive, the proposed study should just describe the phenomenon and not predict future behaviour (Merriam 1998). However, it is essential to make such an indication to embrace a multiple-case study concept, and it

has to employ the duplication logic notion (Yin 2012). Figure 3.1 presents the differences between single-case designs and multiple-case designs.
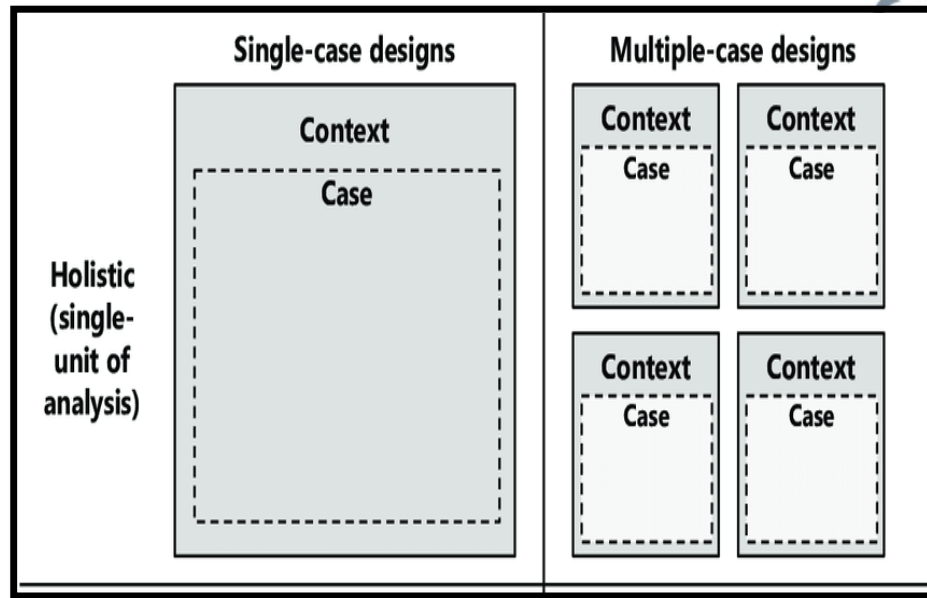

Figure 3.1: Differences of a case study and multiple case study design

The above figure is an adaptation of how Yin (2012) distinguishes single-case and multiple-case designs. In summary, this section demonstrates the rationale for adopting a case study design to fit with the present study. Based on the discussion above, this case study is a multiple-case study as it matches all the criteria listed above. Further elaboration of the research participants is addressed in the next section.

3.4 Research Participants

This section focuses on the selected participants for this study. The researcher begins with the selection of the sample size. Generally, the sample size should not be so large or difficult to achieve data saturation, theoretical saturation, or informational redundancy (Sandelowski, 1995). This view supported by Creswell (2003) that the minimum sample size for a case study is between 3 and 5 persons. Using these

sampling methods enable the researcher to select specific subjects who will provide the most extensive information about the coaching and mentoring phenomenon.

Thus, to get specific information, and in this study, the specific information concerns coaching and mentoring, the appropriate participants are the people involved in it. Hence, selecting the SISC+ and their coachees is very appropriate because they involved directly in the process of coaching and mentoring. The participants that were selected for this mixed-method approach were the SISC+ and their coachees(refer to table 4.2.1). These SISC+ and their coachees would make a great subject in this purposive sampling because of the needs of the study to include only those with expertise in that particular area. Streubert and Carpenter (1999) view that qualitative methods require a small, purposive sample for completeness. Thus, their responses and information are essential in developing a comprehensive understanding of coaching and mentoring.

Furthermore, this is mixed-method research; thus, the selected participants were based on their direct experience of the phenomenon. Consequently, it enables the researcher to have different views and opinions since this study intends to find answers for the roles and responsibilities of coaches as well as their successes and challenges in completing their tasks and how these coaches influence their coachees.

3.4.1 Participants for the interview

In this study, two sets of participants involved in the semi-structure interview. The first set of participants were three SISC+, while the second set of the participants were three coachees. The second set of participants (the three coachees) were also involved as the respondents of the survey. Each SISC+ proposed the name of their coachees to be one of the participants of the semi-structured interview. Precisely how

the interview was carried out and analysed are detailed in the upcoming section. They were represented by pseudonyms deemed important to reassure the confidentiality of their identity. Table 3.1 presents the summary of the pseudonyms.

Table 3.1: Summary of pseudonyms

No.	Pseudonym	
1	Participant 1	Razak
2	Participant 2	Zarah
3	Participant 3	Hayati
4	Coachee 1	Yasmine
5	Coachee 2	Ariffin
6	Coachee 3	Saras

The above table illustrates the pseudonym for each participant in the interview. It is essential to keep the privacy and confidentiality of the participants. The participants in these semi-structured interviews were identified by pseudonyms to protect their identities in this research. No names or any other identifying participant information is documented in this study (Creswell, 2003).

3.4.1.1 Participants for interview-SISC+

The participants discussed in this sub-section is the SISC+. They are the SISC+ from Kuala Pilah, Jempol Jelebu and Rembau. The participants from these districts are selected as the research participants because of the reasons that will be demonstrated in the research context headings. The samples from the selected districts are strategically selected for in-depth interviews in the case study. Thus, selecting three coaches from different districts in Negeri Sembilan is an ideal way to find answers

about their roles, characteristics as well as the challenges they go through during the process of coaching and mentoring. Participant 1 is the SISC+ from the Jempol Jelebu district and has been teaching English for 27 years. He started his career as SISC+ since 2014.   Participant 2 is a female SISC+ from Rembau. She has been teaching English for 25 years before she joined PPD Rembau as SISC+. The last participant is Puan Hayati from Kuala Pilah with 18 years of experiences in teaching English subject. All these three participants has become the SISC+ since 2014 in their respective districts. Since then, they have performed their duties as coaches and conducted the coaching and mentoring with their coachees. Detail informations about the participants will be discussed in Chapter 4.

3.4.1.2 Participants for interview - coachees

For the second sets of the participants for the interview, three coachees were selected by the SISC+. The same coachees are also the participants of the classroom observation. The answers given by the coachees allow the researcher to get their opinions and views about being coached by the coaches or SISC+. The responses are then regarded as an explanation for identifying the opinions and attitudes of the whole population from which the sample was taken (Unisa, 2000). The views and opinions given by the coachees are very important to the researcher to measure the extent of the influences of coaches towards their coachees in terms of teaching and learning in the classroom. In the following section, the researcher will detail the information about the respondents of the questionnaires.

For the second sets of the partcipants, three coachees were selected to take part in the interview. The first participant- Miss Yasmine is the coachee for Encik Razak. She has been teaching English for the past 7 years. Previously she has been teaching

English together with Encik Razak in the same school. The second participant is the coachee of Puan Zarah-the SISC+ from Rembau. His name is Ariffin and has been teaching for more than 12 years. His major is Teaching English as a second language and he has vast knowledge in digital technology. The final participant from this set is Puan Saras, the coachee of Puan Hayati from Kuala Pilah. Puan Saras is a teacher in one of the schools in Kuala Pilah with 10 years of experience in teaching English. In the next section, the researcher presents information about the respondents for the questionnaires. The questionnaires were sent to the SISC+ so that they can distribute them to their coachees whenever they have meetings with them.

3.4.2   Respondents for questionnaires

Besides collecting data from the semi-structured interview, the responses from the respondents of the questionnaires also serve as the supporting data. The information obtained from them is essential on the issues revolving coaching and mentoring, and then the answers were analysed to answer the research questions. The answers given by the respondents in the survey allowed the researcher to get various opinions and views from the lens of the coachees.

The respondents for the survey questionnaires in the survey method will be described in this section. The respondents for the survey are selected among the coachees of the respected SISC+. The respondents in the survey are the teachers coached by the SISC+. They are the primary school English Language teachers in the respective districts. SISC+ has to coach between 25 and 30 teachers in a year. Thus, the researcher distributed the questionnaires to the coachees through their respective SISC+ to share about the influences of coaching and mentoring by SISC+ that can facilitate their teaching and learning of English language.

A total of 75 questionnaires were sent to the respective respondents. However only 55 questionnaires were returned to the researcher, and it met the required inclusion criteria. This represented 73% of the expected population. This indicates that the response rate exceeds its predetermined responses of more than 60%. Response rates approximating 60% for most research should be the goal of researchers and certainly are the expectation of the Editor and Associate Editors of the *Journal* (Fincham, 2008). This section has provided the study with the background of the respondents of the survey while in Chapter 4, the researcher will detail and connect the demographic, background and information of these respondents for a clearer explanation concerning the background of the respondents.

3.5   Research Context

The centre of this research was on the coaching and mentoring of SISC+ in Negeri Sembilan by the Ministry of Education. This section sets the location for the research by describing the context of the study that motivated the research. In this study, the research context includes the environment and conditions as well as the culture and location of the participants.

The selected context arises from the desire to answer the objectives of this study. As a result, the research context was based in Negeri Sembilan. Negeri Sembilan currently comprises of six districts namely Seremban, Port Dickson, Rembau, Jempol, Jelebu and Tampin. For the purpose of this study, the researcher selected three districts as the resaecrh context. The districts involve are Kuala Pilah, Jempol Jelebu and Rembau. These three districts were considered as rural areas because of the geographical setting, thus the information gathered from the participants in this setting is important in this study.

According to the MEB, the achievement of students in rural areas is still low compared to the students in the city (MOE, 2012). Thus, the selection of these three districts is appropriate because all three are located in rural areas. Moreover, the researcher was also from Negeri Sembilan but from a different context of the research thus she was able to conduct the study for an extended period, which is essential to achieve the objectives of this study. Hence, by providing different data sources namely the persons and the context enabled the researcher to corroborate the findings. In conclusion, selecting the context of the research is important and it is led by the objectives of the research.

3.6   Research Methods

This section focuses on describing the research methodology used in the research. It is one of the essential elements in research, whereby it refers to the techniques that the researcher uses to gather information for the study. The researcher made a close reference to the research questions before employing the research methods to meet the objectives of the research specifically the roles and responsibilities, successes and challenges and the influence of SISC+ towards the teaching and learning of the teachers. The choice of research method is also in line with the research approach and design to make conclusions about a coaching and mentoring phenomenon.

It is often challenging to measure coaching and mentoring (West & Milan, 2001). However, the measurement can be used to provide data around which the goal-setting, as well as the action plan of the research, can be developed. With that awareness, the researcher used the semi-structured interview, observations, document analysis and survey methods to gather the information needed to explore into the

phenomenon of coaching and mentoring by SISC+. The purpose of mixing both approaches is because qualitative is to capture thick, rich information and to gain more understanding of the case study while the portion of quantitative measures is to provide additional important information. Thus, based on the justification above, interview, document analysis, observation and survey are suitable research methods for the present study. Table 3.2 presents a summary of research questions, methods, instruments and analysis chosen to enhance the understanding of the research methodology.

Table 3.2: Summary of research methodology

No.	Research Questions	Method	Instruments	Analysis
1.	How does the SISC+ perceive and deliver their roles and responsibilities?	Interviews Observation Document Analysis Survey	Interview Protocol Observation Data Sheet Questionnaires	Thematic Analysis Descriptive Analysis
2.	What are the successes and challenges of SISC+ during the process of coaching and mentoring in the workplace?	Interviews Observations Document Analysis Survey	Interview Protocol Observation Data Sheet Questionnaires	Thematic Analysis
3.	How does the coaching and mentoring by the SISC+ influence the teaching and learning of the teachers?	Survey Interview	Questionnaires Interview Protocol	Descriptive Analysis Thematic Analysis

The table above highlights the summary of the research methodology for this research. For each of the research question, the researcher highlights the methods, types of instruments and the employed analysis. It is important to note that for this research, interview protocols and constructs in the questionnaires were designed in a structured manner to further help the researcher in the identification of the themes in this study and eventually will provide the critical information needed with regard to

the research questions. By aligning all the sections and constructs in each research instrument, it has allowed the researcher to increase the usefulness of all the data in the research process while ensuring their necessity for the study. To indicate the themes of the sections in the interview protocol, observations and questionnaires, the researcher looked closely into the objectives of the research and also have a clear understanding of the information needed to satisfy the reasons for carrying out the research. Thus, five themes were selected in accordance with the research objectives. The selection of the themes is essential to get the particular information that leads to the answers of the research questions. By structuring the themes into five different sections, it has allowed the researcher to achieve the objectives of the research and consequently, it has answered the research questions. Moreover, by aligning and structuring the themes for interview protocols and questionnaires, the researcher has minimised the difficulties in making data comparable (Harris, 2015).

The semi-structured interview and questionnaires were an adaptation from The California Reading First Year 5 Evaluation Report (Haager et.al 2008). It explores the value of coaching with the intent to examine the roles of coaches in depth. In the survey some of the selected items were used to determine teachers', coaches', and principals' views of the roles and functions of coaches. Therefore, the researcher has adapted some of the selected items in The California Reading First Year 5 Evaluation Report (Haager et.al 2008) and used it for the interview and questionnaires. This contributed to the existing research on the phenomenon of coaching and mentoring by SISC+ through applying, validating, and extending the standardised research instruments.

It also facilitates the researcher in terms of the discussion of the analysis because the themes are structured, and the researcher has greater control of the

interview protocols as well as the constructs in the questionnaire. The themes are divided into five sections, as follows:

Table 3.3: Sections in interview and constructs in questionnaires

i)	**View of the Relationship between SISC+ And the Coachees**
ii)	Knowledge and skills provided by SISC+
iii)	Roles and Responsibilities of SISC+
iv)	Improvement of Lesson Quality
v)	Professional Development

Table 3.3 presents the selected themes that have been divided into five focused sections. These themes were used in the interview protocols, observation datasheets and questionnaires. Following this, the researcher proceeded with the procedures for each of the research instruments. Next, the researcher will detail each of the research method, instruments as well as the procedures involved in the analysis of the research questions.

3.6.1 Interviews

In this section, the researcher will describe the methods chosen for the research methodology. The first paramount method is an interview. The purpose of the interview is to examine the views, experiences, and beliefs of individuals on specific matters. For this research, the purpose is to answer the questions on the roles and responsibilities of SISC+ as well as on the successes and challenges they have to face during the process of coaching and mentoring, and finally to get some responses on

the influences of SISC+ towards the teaching and learning of the teachers. In this research the selected type of interview are semi-structured interview, which consists of several key questions that help to define the areas that are to be explored. Semi-structured interviews are often the sole data source for a qualitative research (Adams & Cox, 2008). This type of interview allows the participants to answer the questions without restrictions because only a few questions are predetermined while the rest of the questions are not planned. To accommodate the participants, interviews were conducted at their choice of location to avoid any uneasiness or discomfort. The selected venues for the interview were casual, allowing for a more flexibility and freedom in the interactions between the researcher and the participants. The researcher conducted a semi-structured interview face to face to get the information needed for research. Since the coaches and the coachees come from different districts, it is best for the researcher to set an appointment first to meet them individually at their preferred place and time. Interviews approximately lasted for an hour.

As mentioned in section 3.4, the participants of this research came from three different districts(refer to section 4.2.1). Representatives from different districts were strategically selected for in-depth semi-structured interviews. Following the aligned and systematic sections in the interview, the researcher prepared two sets of interview protocol for the coaches as well as for the coachees to suit the needs of different participants. The first set of participants comprised of the SISC+ (coaches) while the second set of participants was the coachees of the SISC+. These interviews captured the participants' beliefs, thoughts, and experiences, which could not be easily observed (Patton, 2002). Through the information gathered from the interview with the different participants who have shared significant experiences of coaching and mentoring at their districts, this allowed the researcher to look into the issues and meaning of the

coaching phenomenon through the lens of the participants. The interviews have served as a tool to explore the roles and responsibilities of SISC+ from the opinions of the SISC+ themselves as well as their coachees. At the same time, the interview has helped the researcher to investigate the successes and the challenges they had to go through during the process of coaching and mentoring. Interviewing both participants has enabled the researcher to get thorough information for the research questions. It is through the interview with the ones who have shared experiences of coaching and mentoring at their districts that had helped the researcher to explore into the issues in this study. It is, therefore, necessary for the researcher to use interview as the tool to gather the data because of the need to interact and generate more comprehensive information ideas in a mutual discourse with the coaches .

3.6.2   Observations

In this case study research, observation is selected as one of the methods. Observations by the researcher are one of the primary sources of collecting data to answer the research questions on the roles, responsibilities, success and challenges of the SISC+. The data collected through observations are essential to the study. The use of observation is for the researcher to gain direct information about the event that is the coaching and mentoring. The researcher got the chance to watch all the occurrences and then corroborate all the data for analysis.

During the observation, the researcher witnessed the verbal discussion, gestures, and facial expressions from both the coaches and the coachees. All these were important to gain in-depth information about the whole phenomenon. According to Schmuck (1997), observations provide researchers with ways to check for non-verbal expressions of feelings, to determine who interacts with whom, grasp how

participants communicate with each other, and check how much time is spent on various activities (Schmuck, 1997). The advantage of doing this observation is it allowed the researcher to verify definitions of terms that participants use in interviews as well as monitor their activities. The researcher was also able to observe situations that the participants have described in interviews, thereby making them aware of distortions in the explanation. The observation is vital in this study because it is the systematic description of events in the research context chosen for the study(refer to 3.5). Leff et al. (2003) mentioned that direct observation has the advantage of getting information from natural or unplanned events. During the observation, the researcher stated all the occurrences in the observational datasheet, which will be detailed below.

3.6.3 Document Analysis

Another important research method for this mixed-method study is document analysis to gather adequate information. A range of documents is analysed to corroborate the evidence obtained through the interviews. Yin (2012) asserted that the most critical use of documents in a case study is to corroborate and augment evidence from other sources. In this study, several documents were analysed, including Malaysian Education Blueprint, Buku Pengurusan DTP, the online data for courses, the logbooks of the SISC+, and the forms used by the SISC+ during their process of coaching and mentoring. Such documents are of great value to examine the study from different angles and enrich the researcher's knowledge about the roles, responsibilities, successes, and challenges of SISC+. The document helped to give more information on the roles and responsibilities of coaches during the process of coaching and mentoring. The document analysis research method also helps to support and strengthen the research as well as to complement other methods that are

interviews, observations and survey. Apart from that, it helps to track changes and development and provide details that informants of the interviews have forgotten.

3.6.4   Survey

In this section, the researcher wishes to highlight another research method, which is the survey. To make the research more significant, the researcher used the survey method. Survey research is an efficient and effective way to evaluate teachers' perceptions of professional learning (Desimone, 2009). The survey is a useful method to collect information from coachees involving the influences of SISC+ towards their teaching and learning The constructs in the survey helped the researcher to seek measurable responses from the coaches/teachers who serve as the respondents in the study. The views and opinions given by the teachers are very important to the researcher to meet the research objectives.

Additionally, in this mixed-method research, the researcher applied the survey method to gain more statistically significant information from a large group of the population about coaching and mentoring. Survey methods is critical features of effective professional learning that can be measured well with surveys by Desimone (2009). The descriptive statistics, together with a simple graphic analysis is used to describe the basic features of the data in this study. For this case study, a survey method is vital to enable the researcher to collect and analyse information so that she can arrive at statistically significant conclusions. This is supported by Denscombe (2010), who pointed out that the possibility of generating a large amount of data, as explained . The next section details the instruments used for the four research methods discussed earlier.

3.7   Research Instruments

For each of the research methods, the researcher utilised appropriate research instruments to ease the research methodology. In the following subsection, the research explained in details the research instruments for each of the research methods.

3.7.1   Instrument- Interview protocol

The instruments used for the interview is the interview protocols. The interview protocol contains questions that were used to ask the participants of this research. It is not only a set of questions but also a procedural guide for directing a new qualitative researcher throughout the interview process (Jacob & Ferguson, 2012). The interview protocols were formatted based on the five focus themes. The samples of the items in the interview protocols are presented in Table 3.4 below.

Table 3.4: A sample of items in interview protocols

Themes	Questions for SISC+	Questions for coachees
View of the relationship between SISC+ And the coachees	Describe your views of the relationship between SISC+ and the coachees	Describe your understanding about coaching and mentoring relationship between you and your SISC+?
Knowledge and skills provided by SISC+	Did you collaborate with teachers to plan, teach and debrief the lessons?	Did your SISC+ demonstrate the teaching practice of 21st-century teaching and learning?
Roles and responsibilities of SISC+	What kind of support you give to the coachees? Can you please elaborate?	Did SISC+ fulfil your needs as coachees? If no, can you please elaborate?
Improvement of lesson quality	Did you provide useful information, materials and resources for English Language subject?	Did SISC+ provide useful information, materials and resources for English Language subject?
Professional development	Did you conduct workshop focusing on issues of teacher learning and/or classroom practice? Can you please elaborate?	Did SISC+ conduct workshops focusing on issues of teacher learning and/or classroom practice? Can you please elaborate?

The themes emerged in the interview protocols were from the discussion in the literature review. A general interview guide approach was utilised to direct the interview. This guide contained predetermined questions, yet it allowed flexibility in the manner that the questions were posed (Patton, 2002; Turner, 2010). It began with introductory questions that were descriptive in nature, easy to answer, and based on the participant's experiences (sample question: ''How was your coaching and mentoring today"). During the interview, the research also probed the interviewee to get more details on specific matters. The probes used most frequently for meaningful questions were: ''Are there any specific characteristics that you would use to describe coaching?'' It is important for the researcher to probe the interviewee as pointed by Patton (2002) that probing is to facilitate more in-depth and rich responses or to provide direction regarding the desired level of response from the participant. At some points, the researcher also needs to switch gears and focus on social skills like active listening, rapport, and empathy, although the transitions hindered the process. Asking appropriate questions and relying on the participants to divulge the meaning of their life experience require patience and skill for the researcher (Creswell, 2013). Thus, the participants can pursue an idea or response in more detail and specific.   See the interview protocol in Appendix 1. The next explanation is on the instrument used for the second research method, the observations.

3.7.2   Instrument- Observational DataSheet

The observational data sheets were used to record what the researcher has observed. The observational data sheet was also structured according to the five themes mentioned in Table 3.2 (refer to table 3.7). The observational datasheet is an excellent instrument for the researcher to collect the data for this study because the

researcher witnessed the whole process of coaching and mentoring. The record of the process is a valuable source of data for this research; therefore, this instrument helped to gather all the necessary information. The researcher prepared the datasheet and included all the specific details such as name, time, and setting(refer to Appendix 3 & 4). This information is essential for the analysis of data later. The researcher kept and organised all the datasheet included the date on which the data was collected, the specific location of the research setting

The datasheet used it to record all the occurrences, including the various activities and interactions that occur during the process of coaching and mentoring. The researcher observed the participants' nonverbal behaviours and verbal behaviours alike and paid close attention to conversations between the participants(the SISC+ and their coachees). The researcher watched and listened to the process of coaching and mentoring in the direct observation and every single piece of evidence of the scene was recorded in the observational datasheets. All the entries in the observational datasheet were useful in the analysis of data to strengthen the findings. All the information gathered during the observation was recorded systematically for the data analysis process. These data sheets were formatted similar to the interview protocols and based on the five focus themes that emerged from the discussion in the literature review (refer to table 3.2). In the next subsection, the researcher continues with the document analysis checklist.

3.7.3 Instruments-Document Analysis Checklist

The research objectives saw the importance of document analysis because it documented everything about the formation of the post of SISC+ as well as the scenario of the education system in Malaysia. Because of the significant use of

documents in this research, it has made document analysis a useful and beneficial method for this research. In this document analysis the researcher employed a checklist to complete the process. Analysing documents incorporates coding content into themes similar to how focus group or interview transcripts are analysed (Bowen,2009). Thus, the checklist were formatted similarly to the interview protocols and observational datasheets. It is essential to list all the data from the documents. In order to complete the analysis the researcher followed O'Leary's 8 steps process. Figure 3.2 below depicts O'Leary's 8-step planning process that should take place not just in the document analysis, but in the textual analysis (2014).
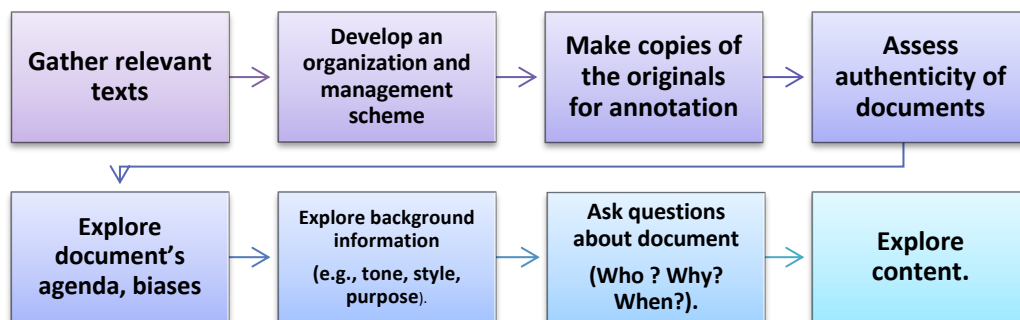
```
┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐
│   Gather     │   │ Develop an   │   │ Make copies  │   │   Assess     │
│  relevant    │ → │ organization │ → │ of the       │ → │ authenticity │
│   texts      │   │ and          │   │ originals    │   │ of documents │
│              │   │ management   │   │ for          │   │              │
│              │   │ scheme       │   │ annotation   │   │              │
└──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘

┌──────────────┐   ┌──────────────┐   ┌──────────────┐   ┌──────────────┐
│   Explore    │   │ Explore      │   │ Ask          │   │              │
│ document's   │ → │ background   │ → │ questions    │ → │   Explore    │
│ agenda,      │   │ information  │   │ about        │   │  content.    │
│ biases       │   │ (e.g., tone, │   │ document     │   │              │
│              │   │ style,       │   │ (Who ? Why?  │   │              │
│              │   │ purpose).    │   │ When?).      │   │              │
└──────────────┘   └──────────────┘   └──────────────┘   └──────────────┘
```

Figure 3.2: Planning process of document analysis

Figure 3.2 above illustrates the eight steps suggested by O'Leary in the analysis of documents. Taking the above steps as a basis of the document analysis, the researcher used the document analysis because of the many ways it can support and strengthen this research. The checklist is essential to corroborate with the data from interviews, observations, and surveys. The next sub-section is the discussion on the questionnaire which is the instrument for the survey method.

3.7.4   Instrument- Questionnaires

As a research method, the questionnaires in a survey are applicable to gain specific information from the opinions of the coachees. It served as the purpose of collecting data or information, which gave insight into the nature of the problem surrounding coaching and mentoring among teachers. An introductory sheet is attached as the first page of the questionnaire so that the respondents know why they need to answer the questionnaires. As suggested by Tharenou, Donohue and Cooper (2007), the respondents also need to know the importance of the research and the need for them to respond within a required time.

The items in the questionnaires were separated into different themes and formatted in a manner similar to the interview protocols, observational datasheets and document analysis and based on the five focus themes that emerged from the discussion in order to find answers for the research question, which constitute the data for the research. The questionnaires comprised demographic background, aspects of coaching and mentoring, and descriptions of coaching and mentoring. The demographic background data includes the gender, age, academic qualification, current service location and years of service. Aspects of coaching on the other hand, focus on the length of the coaching engagement, the frequency of the coaching and the inclusion of a pre-lesson conference, a lesson observation, and a post-lesson conference. The participants were also required to respond to the items structured in the focused themes, which would enable the researcher to look into all the information given in further detail. They were required to answer the questionnaires within the stipulated time given by the researcher.

The questionnaire used a Likert-type scale to rate the level of influences from

the coaching and mentoring done by the coaches. The respondents were offered a choice of five responses with the neutral point to allow them to express how much they agree or disagree with a particular item. The items in the questionnaires were clear, understandable, and inoffensive and also unbiased to sustain the interest of respondents and gradually stimulate their answers. There are 30 items altogether. Below are the sample items that were used in the questionnaires. All items were designed thoroughly and sent for validation by an expert in the field(refer section 3.10 for details on the validation process). The samples of the items in the questionnaires are presented in Table 3.5.

Table 3.5: A sample of items in the questionnaires

Themes	Items
View of the relationship between SISC+ And the coachees	I feel my SISC+ respects my opinions and understands my situation as a teacher.
Knowledge and skills provided by SISC+	SISC+ and I discuss significant and worthwhile English Language content
Roles and responsibilities of SISC+	SISC+ provides me with the teaching of 21st century education
Improvement of lesson quality	SISC+ shows me how to write a better lesson plan.
Professional development	SISC+ conducts meaningful workshop focusing on issues of teacher learning and/or classroom practice

Table 3.5 demonstrated the focused themes and sample questionnaires. As mentioned earlier the researcher divided the themes of the questionnaires in accordance with the themes in the interview protocol and in the observational data sheet. In the process of research, planning is an essential feature to ensure the findings of the result. Thus, in the next section, the researcher will proceed with another aspect of the research that is the research procedure.

3.8 Research Procedures

In the previous discussion, the researcher has defined the research methods together with the research instruments. In this section, the researcher has outlined the procedures for each of the research methods mentioned in section 3.6 above. The researcher also obtained permission from the Educational Planning and Research Division (EPRD), Ministry of Education, Malaysia to conduct the research. The permission was granted from EPRD for the researcher to conduct the study. Refer to Appendix 4 for the permission letter. Before advancing into the procedures of each research method, this section discusses the phases taken in completing the research procedures as a whole.

3.8.1 Research Phases

There are four phases involved in the research procedures. Data were collected using the specific research instruments as described in the above section. The four phases are as below:-

3.8.1.1 Pilot Study

This pilot study aims at testing the clarity of the interview questions, as well as to check that all the administrative procedures are working correctly and, if not, to rectify them before the main study. This pilot study was done to gather data and provide guidance for the study on coaching and mentoring among SISC+. It is essential to conduct the pilot study in order to evaluate the effectiveness of research instruments to use in this case study. The results from the pilot study enabled the identification of flaws that can be addressed. Thus, the research conducted a carefully and manageable pilot study to increase the quality of this research. In a pilot study, the

researcher tried out the semi-structured interview protocol and involved three SISC+. They are the SISC+ of other subjects from the same research context - Rembau, Kuala Pilah, Jempol, and Jelebu. They were interviewed using a partial of semi-structured interview protocol that was prepared to cover all the details on the coaching and mentoring phenomenon in Malaysia.

3.8.1.2 Observations

The next phase in completing the research is observations. Observations were done to observe the process of conducting coaching and mentoring by the SISC+. In completing the observations the researcher employed the observational datasheet (refer 3.7.2). Observations were made to witness the process of coaching and mentoring by the SISC+. Through observation, the researcher can learn about the activities of the participants involved in the study- the SISC+ and their coachees. The observations were conducted by the researcher from the beginning of the lesson until the end of the process f coaching and mentoring done by the SISC+. It was an hour lesson while the process of coaching and mentoring were about an hour. By way of witnessing in the observations, the researcher had the chance to see how the process of coaching is conducted. The researcher saw how the SISC+ observed the teaching of their coachees and then how the SISC+ discussed with the teachers about the teaching and learning. Details of how the observations took place are detailed in Section 3.9.

3.8.1.3 Interview

The third phase in completing the research is the interview. The interview is the primary source of data for this study. The researcher conducted the semi-structured interview with the participants to gather important data for this study on

coaching and mentoring by SISC+. As mentioned earlier in 3.6.1; the researcher conducted different interviews for two sets of participants. The first set of participants consists of the SISC+ while the second set of interview are the coachees of the SISC+. Each of the SISC+ selected one of their coachees to be interviewed; therefore, 6 participants were interviewed altogether. The coachees who involved in the interview were also the ones who took part in the observations. The details about the process and procedures of the interview were detailed in 3.92. The next phase is document analysis.

3.8.1.4 Document Analysis

Document analysis as a data source. In addition, the documents used by SISC+ as the instruments during their coaching and mentoring were analysed thoroughly to get more explicit depictions of the issues. It is not just a process of lining up a collection of excerpts that convey whatever the researcher desires. The researcher must maintain a high level of objectivity and sensitivity in order for the document analysis results to be credible and valid (Bowen, 2009). The document analysis was as critical as other research methods as it provides data for the analysis. The document analysis is onel of the process that took longer time to finish because it was done along with the discussion of each research question. The document analysis were understated and can be used without enforcing the participants. The details of document analysis can be retrieved in 3.9.3. Through the analysis of documents involved in coaching and mentoring by SISC+ has helped the researcher to unveil uncertainty in performing the SISC+ job.

Next subsection, the researcher outline the procedures for each of the collected data. Data were then gathered from these sources in four ways – interview protocols,

document analysis checklists, observational datasheet and questionnaires. All these elements were discussed earlier. This section is the step-by-step on collecting the data before proceeding to the data analysis section.

3.8.2   Interview Procedures

Subsequently, the researcher approached the three English Language SISC+ about the intention of the researcher to interview them for the actual study. Permission was granted from the coachees to be interviewed, and then the time, also the place for the interview were discussed through phone calls. Phone calls were made and this was followed by an email asking for their permission. The planning was described to them as to make them aware that besides interviewing them, the researcher also intended to interview their coachees, and their coachees were supposed to answer the questionnaires. All the three SISC+ agreed to the interview but requested that it was held at their preferred venues. The researcher agreed to the request and prepared for the interview in these locations. Each interview covered a discussion on their experience as an instructional coach. The interviews were conducted face-to-face after setting an appointment with the coaches. The semi-structured interview with the participants began by assuring them about confidentiality with informed consent. The consent form of the participants (see Appendix 4) is essential in a research to know the consensus of the participants without any form of constraint. As mentioned earlier, there are two sets of participants for the interview in order to have clearer picture about the coaching and mentoring experiences.

At the beginning of each interview, the researcher introduced herself to the interviewees and then explained the purpose of the research to formalise the interviewees with the research topic. The participants were interviewed to explore

their roles and responsibilities as a coach as well as the successes and challenges in completing their duty as coaches. After the interviews were transcribed, the transcriptions were attached to the email and sent to the participants for 'member checking' that will be explained later. All the participants agreed with the data. All the data from the semi-structured interview were collected and properly organised. Next is the explanation of the observations of procedures.

3.8.3   Observations Procedures

For the observations, the researcher sought permission from the SISC+ to allow the researcher to observe their process of coaching and mentoring. In doing so, firstly, the researcher had to obtain permission from the school administrators. The researcher also asked for permission from the administration team to take some photos as evidence. However, the researcher was not allowed to take photos of the observation.

Next, the researcher set an appointment with the SISC+ for the observations. To ease the process of observation, the researcher had made the arrangement to observe the process of coaching and mentoring and then the coachees were interviewed on the same day. The participants agreed with the arrangement made by the researcher. The researcher decided that it is the formal observation and asked specific questions after the process of coaching and mentoring. During the observations, the researcher watched every event that occur from the beginning. The observations were made, and the researcher noted all the findings in the observation datasheet. The feedback given to the coachees by the SISC+ or the answers given to counter the feedback was also documented for data analysis.

In the datasheet, the researcher scribbled all the incidents, such as the conversations and the behaviours of the participants of the observations. The

researcher observed how the SISC+ conducted coaching and mentoring from the beginning until the end of the process.

Through the observation of the coaching and mentoring by the SISC+, the researcher gained adequate information and essential evidence about the phenomenon. These include the roles, responsibilities, successes, and challenges of the coaches as well as the influences of the SISC+ towards the teaching and learning of the teachers. The data collected from the observation were equally important in this study. It served as a complement to the other data sources. The researcher noted how the SISC+ and the coachees had engaged in a reflective discussion for consolidation. All the conversations in the discussions, as well as the body language, were observed, and the researcher recorded it in the observational datasheet. This is vital information for the data analysis. Next, is the document analysis procedures.

3.8.4   Document Analysis Procedures

In the process of analysing documents, Bowen (2009) stated that the document analysis follows the same procedures by including coding content into themes similar to the analysis of the interview transcripts (Bowen, 2009). The procedures include careful, focused reading and re-reading of data from the selected documents as well as coding and category construction. The researcher followed the eight steps of analysing the documents as proposed by O' Leary (refer to figure 3.2 in section 3.6.3). Step eight refers to the process of exploring the "conscious" data, or the genuine content of the documents. The researcher determines what is currently being searched for, then documents and manages the frequency and amount of occurrences within the document selected in the document analysis. Then the information is then coordinated into what is the objectives of the research. In the final step, exploring the documents,

the researcher recognised the patterns and categorised the documents carefully according to the thematic analysis for further analysis. Then the researcher categorised them into categories used for further analysis, making it a useful practice for grounded theory.

The information gathered from the document analysis merged well into data from interviews and observations. As a pivotal aspect in the transformation, coaching and mentoring were defined in the above documents. Thus, using the supplementary data collected in the document analysis, this has helped the researcher to answer the research questions. The researcher has examined the documents, such as the SISC+ logbooks, Buku Pengurusan DTP 3.0 as well as MEB, to get the necessary information. The document were analysed using the document checklist because the data collected from the documents were essential to gain insight into the transformation of education in Malaysia.

3.8.5 Survey Procedures

A survey is another method used by the research to collect the data for this study on coaching and mentoring. In designing the questionnaires for this survey, the researcher already have a clear research question that defines what to find out. Then the researcher decided on the questions or statements by considering the type of questions, the content of the questions, the phrasing of the questions and then the ordering and layout of the survey.

The researcher also plans on the simple language to ask in order to reduce the risk that the collected data did not reflect the respondent's meaning. It is essential to use simple language because inadequate questionnaires can lead to poorly phrased copy that could confuse people. Next, the researcher distributed the questionnaires to

the SISC+. To administer the questionnaires, the researcher sent the questionnaires to the coachees through their respective SISC+. This is because the questionnaires were specified to the teachers under the supervision of the coaches. The number of coachees under the supervision of each coach is between 25 and 30 teachers.

After getting all the returned questionnaires, the researcher started to organise the data for analysis. The data was analysed and then the researcher started to process the data with the aids of statistic analysis - SPSS. Next, the researcher gathered all the data and analysed it accordingly to get the answers. The collection of data such as questionnaires with the SISC+ and their coachees, observations, document analysis, as well as survey questionnaires were analysed accordingly. Thus, the respondents were required to send back the questionnaire to the researcher within the time stipulated. In the following section the researcher continues with data analysis procedures.

3.9   Data Analysis Procedure

This section clarifies the process of data analysis in this study for both approaches. The researcher conducted an ongoing analysis since the beginning of the data collection process. In this mixed-method study, data analysis is done concurrently with data collection because of the mixture of data-collection methods; therefore, much information can be gathered. According to Yin (1994), the first principle of data collection in a case study is to use multiple sources of evidence. There are multiple sources of data in this study- Data from interview, observations, document analysis and survey.The data from the participants of these different sources were gathered to answer the research questions that guided this study.

After getting all the necessary data and information from both qualitative and quantitative approaches, the data were analysed thoroughly by the researcher. First of

all, the researcher arranges and organises data from all sources (transcripts from interviews, observation datasheets, documents checklists, questionnaires) for easy retrieval.

The analysis includes the use of ATLAS.ti as the qualitative computer software to manage the data as well as Statistical Package for Social Sciences (SPSS) for quantitative data. The data from interviews, observations and documents were carefully analysed using thematic analysis- the main analysis method where the focus of the process was to code, and then put the codes or data extracts into themes(refer Table 4.2). On the other hand, the data from questionnaires were also organised systematically to be processed using Statitiscal Package for Social Science(SPSS).

In the analysis of qualitative data from interview transcriptions, observational datasheet, document checklist the researcher employed the six-step thematic analysis as proposed by Braun and Clarke (2006). Thematic analysis is a qualitative analytic method for 'identifying, analysing and reporting patterns (themes) within data. However, frequently it goes further than this, as it interprets various aspects of the research topic (Braun & Clarke, 2006). There are 6 phases of conducting the thematic analysis as guided by Braun and Clark, which are:

i)   Becoming familiar with the data.

ii) Measuring the initial codes.

iii) Searching for themes.

iv) Reviewing themes.

v)   Defining and naming themes.

vi) Producing the report.

Next the data were analysed and transcribed. The researcher employed ATLAS.ti software which helped to ease the researcher in managing the data in order to create

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reports systematically and reliably. Through the use of this software, the number of potential mistakes decreases while the consistency and transparency of the analysis process increase. In summary, the data analysis process employed the thematic analysis using the six steps as discussed by Braun and Clarke (2006) and this process was made more accessible with the use of ATLAS.ti software to manage the data.

The next step is the analysis of the questionnaires. For the analysis of closed-ended questions, SPSS was used in getting information such as for information concerning frequencies and descriptive statistics. It offers extensive data-handling capabilities and numerous statistical analysis routines that can analyse small to extensive data statistics. The researcher then converted the raw data into numbers for data entry.

The questions were analysed through the quantitative content analysis carried out by the researcher to answer the research objectives. Content analysis is the process of analysing verbal or written communications in a systematic way to measure variables quantitatively (Polit & Hungler, 1995). Data were analysed by using descriptive statistics and presented in frequency tables and bar graphs. Descriptive statistics are used to present quantitative descriptions in a manageable form. Descriptive statistics will be used to "indicate general tendencies in the data [e.g., mean]…the spread of scores [e.g., standard deviation]…or a comparison of how one score relates to all others [e.g., percentile rank]" (Creswell, 2003). Frequency distributions were also calculated. Through descriptive statistics, it has helped the researcher to simplify large amounts of data in a sensible way. As for conclusion, in order to get a clear picture of the research methodology, figure 3.3 shows the graphic representation of the summarised research methodology.
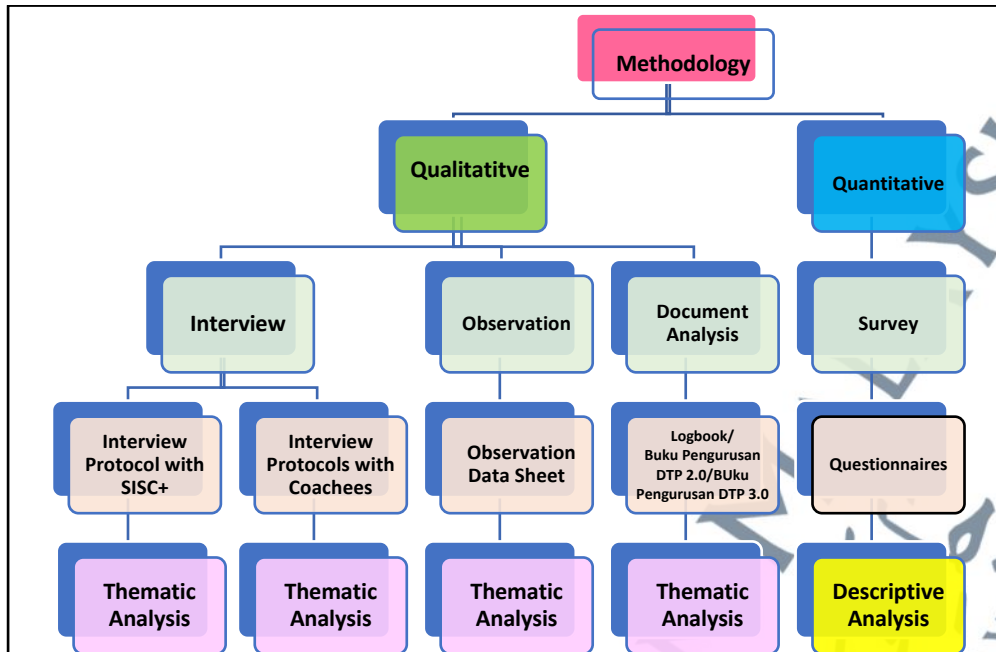
Figure 3.3: A summary of the research methodology

The research methodology for this study are summarised in Figure 3.3. It shows the beginning of the research methodology and then it is divided into two: the qualitative and quantitative approaches and it appears at the second layer. In the qualitative approach, the researcher utilised three research methods- interview, observation and document analysis to gain information about the overall issues pertaining to coaching and mentoring by SISC+; this is shown at the third layer. Finally, after getting all the information needed from different sources as stated above, the researcher proceeded to the next step that is conducting the data analysis. In the next section, the researcher continues with the ethical considerations in conducting this research.

3.10   Ethical consideration

The research conducted requires not only expertise and diligence but also honesty and integrity. This is done to recognise and protect the rights of human

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subjects. To render the study ethical, the rights to self-determination, anonymity, confidentiality and informed consent were observed. Burns and Grove (1993) defined informed consent as the prospective subject's agreement to participate voluntarily in a study, which was reached after the assimilation of essential information about the study. Since this study involved interactions with human, it might have some ethical implications. Therefore, it is important to establish trust with the research participants, and this was achieved by ensuring anonymity and confidentiality among all participants. The researcher carefully explained the research process and how the data were presented, providing as much information on the study and its aims and objectives without influencing the responses. The SISC+ and their coachees' consent was obtained before they completed the interviews and questionnaires through telephone coversations. They were also told about the purpose of the study, the procedures to collect the data and they were assured that there would be no potential risks or costs involved. The participants were informed of their rights to voluntarily consent or decline to participate in the interview, observations, as well as the survey and they were allowed to withdraw from participating at any time without penalty. Along with the questionnaires, the researcher attached the introductory page for them to read and revise before they answered the questionnaires. The consent form is also attached (refer Appendix 2). The researcher was also thankful to the research participants and respondents who provided a lot of insightful information for this study by answering the questionnaires and also the interview.

3.11   Validity And Trustworthiness

A few strategies were used to determine the validity and trustworthiness as well as the accuracy of interpretations and findings of this study. According to Patton

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(1999), a researcher has an obligation to be methodical in reporting sufficient details of data collection and the processes of analysis to permit others to judge the quality of the resulting product. Therefore, it is the accountability of the researcher to ensure the validity and reliability of this research. The researcher has taken careful measure in ensuring the validity and trustworthiness of this research. There are four strategies applied by the researcher to ensure the validity and trustworthiness of this research. The accuracy and credibility of the findings of this study were established using these strategies. Each of these strategies was discussed in relation to the literature before the discussion of how it was applied in this study took place. The strategies are:

1. Triangulations

2. Member Checking/Participant Validation

3. Validity Assessment

4. Cronbach Alpha

3.11.1 Triangulation

In this section, the researcher highlighted the first measure of validity and trustworthiness, namely the triangulation. Triangulation is essential in research because it can increase the strength of research. Triangulation is a strategy that can be used to strengthen the confidence of the research findings (Arksey & Knight, 1999). In this section, the researcher has outlined the types and methods as well as the benefits of triangulation for this study. The triangulation of the questionnaires, interviews, and document analysis (Maxwell, 1996; Yin, 1994) ensures that accurate conclusions will be drawn. Triangulation is essential because it can be used to extend the understanding of the issues concerning coaching and mentoring and consequently, it helps to

reinforce the findings of this qualitative study. In table 3.6, the researcher highlights the triangulation in this study to increase validity and trustworthiness.

Table 3.6: Triangulation of data sources and methods

ITEMS		Triangulation of Data Sources									Triangulations of Methods	
		People		Context			Instruments				Qualitative	Quantitative
		SISC+	Coachees	Rembau	Jempol-Jelebu	Port Dickson	Interview Protocols	Observations	Document Analysis	Questionnaires		
RQ1:- HOW DOES THE SISC+ PERCEIVE THEIR ROLES AND RESPONSIBILITIES?												
Sub-Themes	Helping	X	X	X	X	X	X	X	X	X	X	X
	Sharing Ideas and Knowledge	X	X	X	X	X	X	X	X	X	X	X
	Professional Development	X	X	X	X	X	X	X	X		X	
	21st century	X	X	X	X	X	X	X	X		X	
RQ2:- WHAT ARE THE SUCCESSES AND CHALLENGES FACED BY SISC+ DURING THE PROCESS OF COACHING AND MENTORING IN THE WORKPLACE?												
Sub-Themes	Acceptance	X	X	X	X	X	X	X		X	X	
	Cooperation	X	X	X	X	X	X	X		X	X	X
	Attitude Problem	X	X	X	X	X	X	X		X	X	X
	Conflicted Roles	X	X	X	X	X	X		X		X	
RQ3:- HOW DOES COACHING AND MENTORING BY THE SISC+ INFLUENCE THE TEACHING AND LEARNING AMONG TEACHERS?												
Sub-Themes	Improvement of Lesson Quality	X	X	X	X	X	X			X	X	X
	Knowledge Growth	X	X	X	X	X	X			X	X	X

Table 3.6 represents the triangulations for this study. The "x" represents which sub-themes were triangulated with which data sources or which methods. By using various kinds of methods and data enabled the researcher to analyse the research questions from multiple perspectives and to provide the minimisation of bias, also to check and establish both the reliability and validity in this mixed-method case study. In this research the researcher employed two types of triangulations namely :

1) Multiple methods (e.g: interviews, observations and document analysis) and,

2) Multiple sources of data (comparison and cross-check of data throughout the data collection period).

(1) Multiple Methods

As above-mentioned triangulation method means using more than one method to collect data on the same topic. The triangulation of methods refers to the different research methods adopted by the researcher. For the qualitative approach, the methods are interviews, observations and document analysis. On the other hand, the research method for quantitative studies is questionnaires. However, Bogdan and Biklen (2003) caution that having more than one method does not carry the actual meaning of triangulation but also can be said as the "verification of the fact" (2003:107). All four methods above were interconnected with each other.

(2) Multiple Sources of Data

As for multiple sources of data, Merriam (2009) gives examples of doing observations at different times or different places, doing interviews with participants from different perspectives, and doing follow-up interviews with the same participants. This study employs the former two but not the last one because there was only one interview. There was no formal follow up interview with the participants, but the researcher had made some phone calls or sent emails to ask for some clarification on any issue. Therefore, the triangulation employed by the researcher has helped to increase the strength and validation of this study, as well as increase the overall assurance of this study. Next sub-section is the member checking/participant validation.

3.11.2 Member Checking / Participant Validation

This study embraces members checking as a method of validity and trustworthiness. Checking the accuracy of the transcripts with participants plays a crucial role in strengthening the trustworthiness of the data. Member checking is viewed as an important aspect of validity and trustworthiness; therefore, in this research, the researcher has taken this kind of measurement in order to ensure the validity of the research. Through member checking, the researcher is exploring the credibility of results. Data or results are returned to participants to check for accuracy and resonance with their experiences. The method was used in this study with the participants of the interview-the SISC+ and the coachees and through member checking, the researcher addresses the participants by providing with the opportunity to engage with, the interpretation of interview after their semi-structured interview. The researcher invites the participants to verify the information that has been gathered from them. They must be able to agree with what is reported and the themes included. Merriam (2009) highlights that it should be done throughout the course. The participants were required to check the transcriptions from the face-to-face interview in members checking. The semi-structured interviews were transcribed and emailed to the participants. The responses given by the participants were important in validating the transcriptions.

3.11.3 Validity Assessment

For face validity assessment of questionnaire, an expert who holds a master's degree in Coaching and Mentoring, and also a lecturer of Coaching and Mentoring Department in Institut Aminuddin Baki in Genting Highlands was engaged for the face validity assessment. Validity assessment conducted in this study is face validity, which

involved subject matter experts to evaluate and agree that the questions/ items are indeed a valid measure of the concept. In other words, the experts evaluated whether each of the measuring items (questions) measures their underlying concept (Sangoseni, Hellman & Hill, 2013). For the validity of items in the questionnaires, the researcher sought help from an expert in the field to validate the items/ question.Few adjustments were made to improve the questionnaires after in-depth discussion with the expert and additional questions were added as suggested by the expert. For the validity of items in the interview protocols and questionnaires, the researcher sought help from an expert in the field to validate the items/ questions.

3.11.4 Realibility Assesment

Following the verification of expert pertaining to interview protocols plus contents of the questionnaire, the questionnaire has become more valid, and especially the face validity of questionnaire. Cronbach alpha test was conducted to assess the reliability of each dimension(focused themes) in the questionnaire, i.e. (1) view of the relationship between SISC+ and the coaches, (2) knowledge and skills provided by SISC+, (3) improvement of lesson quality, (4) roles and responsibilities of SISC+, and (5) professional development (CPD). The rule of thumb for Cronbach's alpha is that dimension(focused themes) with value $0.6 \leq \alpha < 0.7$ is "Questionable", $0.7 \leq \alpha < 0.8$ is "Acceptable", $0.8 \leq \alpha < 0.9$ is "Good" and $0.9 \leq \alpha$ is "Excellent" (DeVellis, 2012; George & Mallery, 2003; and Klein, 2000).

As far as reliability of instrument (questionnaire) is concerned, reliability test was conducted at dimension level and overall level using Cronbach's alpha. The results of reliability tests on each dimension were summarised in Table 3.6. To assess the results, study stick with the rule of thumb for Cronbach's alpha as mentioned

above. Overall, the questionnaire has averaged Cronbach alpha of 0.851, indicating "Good" level of reliability. Therefore, the study concluded that the improved questionnaire exhibited good validity as well as reliability, thus can be used in actual study data collection. The results of the reliability tests on each dimension are summarised in Table 3.7.

Table 3.7: Reliability test of questionnaire

Focussed Themes	Cronbach alpha	Items
View of the relationship between SISC+ and the coaches	0.843	10
Knowledge and skills provided by SISC+	0.838	7
Improvement of lesson quality	0.926	7
Roles and responsibilities of SISC+	0.798	6
Professional development (CPD)	0.854	6
Overall	0.852	36

Table 3.7 encapsulates the results of the steps taken by the researcher to ensure the validity and trustworthiness of the questionnaire's data. The improved questionnaire exhibited good validity as well as reliability, thus it can be used in the actual study data collection. It is rather important to strive to achieve this, as research which has all these qualities can help establish truth (Golshafani 2003). In general, triangulations, pilot study, members checking, validity assessment and Cronbach Alpha enhance the validity and trustworthiness of this study.

3.12   Concluding remarks for Chapter 3

The researcher attempted to gain comprehensive information of coaching and mentoring by using multiple sources of evidence: semi-structured interviews, direct

observation, document analysis and survey questionnaires. This chapter has provided a detailed description of the research methodology with overall methodological issues to answer the research questions. To gain more insight into the coaching and mentoring, as well as into the challenges and the influences of coaching and mentoring, the chapter has outlined the research methodology to gain answers to the research questions in Chapter 1. It has discussed the research approaches, research designs, research participants, research contexts as well as the suitable methods that will be used in the study. In the research methods, the researcher has depicted the instruments used in conducting the study. They comprise of the interview, observations, document analysis and questionnaires. The research procedure was explained together with the data collection and data analysis. Other key points such as validity, trustworthiness, and triangulations as well as ethical considerations, were also described in this chapter. In Chapters 4, 5 and 6 the analysis of the data, the results of the study; as well as the final conclusions, interpretations, and implications are presented.