CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter explains the procedure in conducting this research, the design of research, determination, and sampling of study, research instruments, data collection procedure, and data analyzation procedure.

3.2 Research Design

By principle, this study runs descriptive research based on the Design and Development Research (DDR) Approach proposed by Klein (2007) The aim is to develop the tahfiz al-Quran learning model for SVI. According to Richey, Klein (2007), design and development research is the systematic study of design, development and evaluation processes with the aim of establishing an empirical basis for the creation of instructional and non-instructional products and tools and new or enhanced modules that govern their development. This design of the research is also suitable to develop and design various fields of research, for example, learning strategy, program development, model development and product development (Flink & Searns, 1993; Ulrich, Eppinger & Goyal, 2011).

Developmental research is categorized into two categories, Type 1 and Type 2, as in Table 3.1. Type 1 consists of research on product design and development, product evaluation, and validation of tool or technique. Type 2 consists of studies on model development, model use, and model validation. This study is classified under Type 2

due to fact that the study aims on the development of a model.

Table 7 Type Of Development Research

Development Research	Function/ Phase
Type 1	Product design & development
Type 1	Product evaluation
Type 1	Validation of tool or technique
Type 2	Model development
Type 2	Model use
Type 2	Model validation

Source: Richey et al. (2004)

From the discussion, it can be seen that this study can be categorized under development research due to the fact that the study aimed to develop a model.

Richey and Klein (2007) affirm that this method incorporates three systematically phases, which are requirement phase, design and development phase and intervention evaluation assessment and testing. This method is able to assist the researcher to design a certain study while applying multiple instruments and research methods corresponding to the incorporated phases.

Table 8 The Summary of Data Collection Method in Each Phase of DDR

Phase	Applicable Methods
Phase 1: Need analysis	• Interview • Survey • Content analysis
Phase 2: Design	• Delphi technique • Fuzzy Delphi method • Interpretive structural Modelling ISM • Structural Equation Modelling (SEM)
Phase 3: Development	• Expert's Opinion • Interpretive structural Modelling (ISM) • Structural Equation Modelling (SEM)
Phase 4: Evaluation and evaluation	• Interview • Survey • Quasi-Experiment

| | • Pre-Test and Post-test |
| | • Effective test/Summative evaluation /statistical analysis |

Source: Saedah Siraj et al. (2013), the researcher can choose one or more methods above to fulfil the objective and answer the research question.

If examined, this design is exceptionally fitting to be used by the researcher considering the objective of this study, which is to develop the tahfiz al-Quran learning model for SVI students. Afterward, the researcher will coordinate this study based on three main phases, which are:

1. Phase I Needs analysis, which is the phase to identify the requirements or needs for developing this research model. Interviews will be conducted to identify the needs to develop the model.

2. Phase II: The main phase of this study, that is to design and development. During this phase, the researcher will apply the model development approach based on the Fuzzy Delphi Method's consensus and agreement of experts.

3. Phase III: The final phase is the model evaluation phase through the Nominal Group Technique (NGT). NGT is one of the methods to evaluate model using the scale-rating and verbal evaluations. Data analysis will be measured in the format of NGT.

The model development is findings from interviews, content analysis by literature review and Fuzzy Delphi Method's consensus of experts as well as findings of the model's evaluation by experts through Modified Nominal Group Technique (NGT).

As previously described, DDR uses both quantitative and qualitative methods, in which the objectives of the study and the research question are determine the method to be use at each phase in the research (Richey & Klein, 2007). Hence to see the clear picture of research methodology framework, figure 3.1 has been constructed:

Design & Development Research
Tahfiz Al-Quran Learning Model for Students with Visually Impairment

Phase I: Needs Analysis
Interview Method

Phase II: Designing and Development
Fuzzy Delphi Method

Phase III: Evaluation
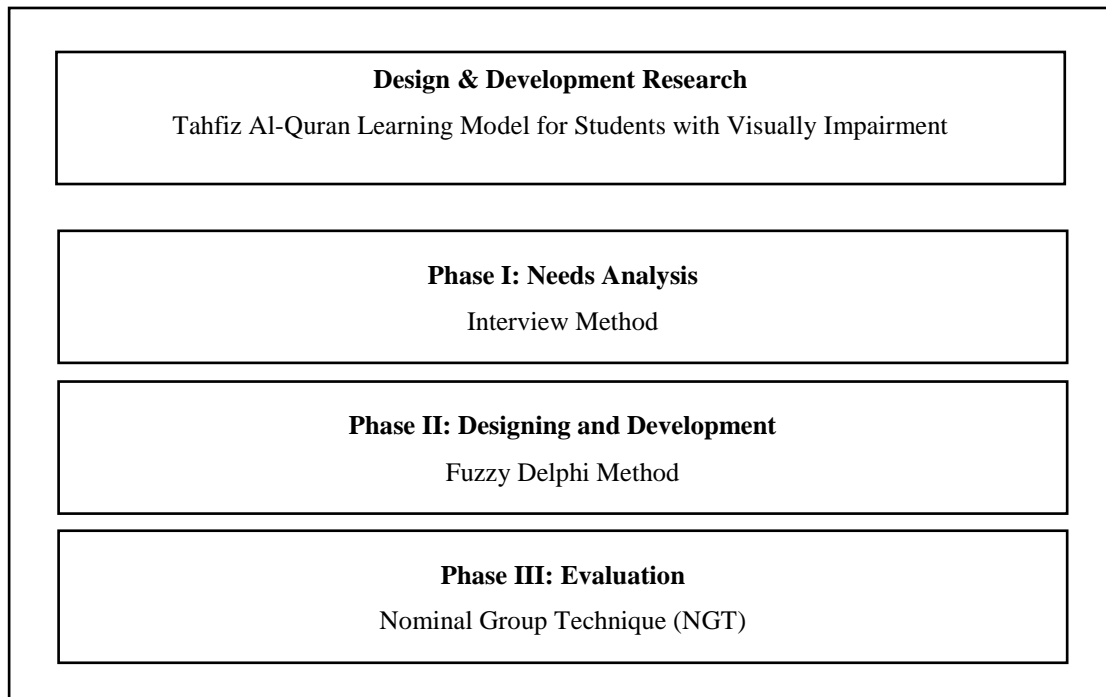Nominal Group Technique (NGT)

Figure 3.1 Research Methodology Framework

Base on Figure 3.1 above shows the methodological framework of the research based on the Design and Development Research (DDR) Approach. The research methodology framework aims to provide a details picture of the research. It's clearly shows there are three phases consist of need analysis phase, design and development phase and evaluation phase.

3.3   Phase I: Needs Analysis

Phase Purpose. The purpose of needs analysis is to oversee the needs to develop tahfiz al-Quran learning model for SVI by answering the first and second research questions, which are:

1. How the learning process of tahfiz al-Quran for SVI?

2. What are the problems and challenges faced by SVI during memorising the Quran?

3. Are there any needs for development tahfiz al-Quran learning model for SVI?

3.3.1   Data Collection Technique

The study for this phase is qualitative by using the interview method. The justification for this proposed method of interview is the initial and general views on the phenomena of this study and subsequently will be conducted with more focus on certain issues and phenomena (Ghazali Darussalam, 2016). Additionally, Kahn and Cannell (1975) explain that the interview is a conversation with specific purposes, while according to Kadushin (1993), the interview is a conversation with a goal.

Besides that, the purpose of the need analysis is to identify the cause of the problem and do what is necessary to solve the problem (Reinbold, 2013). Since the need analysis phase provides important information in determining the design and development in the next phase Gagne et al. (2005) researcher choose interview methods to explore and investigate issues related to tahfiz al-Quran learning of SVI.

With the interview method, the researcher will be able to identify the actual requirements and the challenges to develop the tahfiz al-Quran learning model as well as the elements fitting for SVI. Likewise, a systematic and efficient tahfiz al-Quran learning elements for SVI could also be designed.

3.3.2 Research Samples

For sample selection in this phase, the researcher through purposive sampling selects the participants involved. Purposive sampling is defined as samples that are purposely selected because they meet the criteria, characteristics and containing information as required by the study (Ghazali Darussalam, 2016). According to Chua (2006), purposive sampling is a sampling where a group of the subject with certain characteristics based on knowledge and specific purpose of the study is chosen as research participants.

Based on Gay, L. R., & Airasian (2003) views, there are two indicators used to determine the selection of study participants which are the potential participant in the study they wanted to conduct and the matching of information obtained from the participants.

Creswell (2012) stated that the number of ideal qualitative participants was in the range of 3 to 10 people depending on the depth of the study. They have the view that small numbers of samples would suffice in case of clear and limited study design. According to Creswell (2008), significant differences between quantitative and

qualitative research samples are samples for qualitative research are purposive sampling.

A semi-structured interview will be conducted on 7 participants which 4 of them will represent as completed in memorising the whole al-Quran while 3 of them undergoing in memorising al-Quran. It is to determine the need of developing tahfiz al-Quran learning model for SVI. As specified by Krohn (2008), students and teachers are the main sources to gather information for the need's analysis phase. These participants are able to share opinions on the needs in developing the tahfiz al-Quran learning model for SVI. Table 3.3 shows the list of participants selected in this phase:

Table 9 Summary for The Classification of Participants in Phase 1

	Completed in memorising al-Quran
P1	Editor, Persatuan Orang-Orang Cacat Penglihatan Islam Malaysia (PERTIS)
P2	Lecturer of SVI, Darul Quran Jakim
P3	Student of Diploma Tahfiz wal Qiraat, Darul Quran, Jakim
P4	Student of Diploma Tahfiz wal Qiraat, MARSAH, Johor
	Undergoing in memorising al-Quran
P5	Students of SVI, Darul Quran Jakim
P6	Students of SVI, Darul Quran Jakim
P7	Students of SVI, Darul Quran Jakim

The figure above indicates classification of participants. Researcher chooses the purposive sampling technique by selecting two groups of SVI which are completed in memorising al-Quran and undergoing in memorising al-Quran. Besides, according to Nor Tutiaini (2019) there are two types of experts which are among professional and

field. All the participants in this phase involved the expert in the fields that have involvement with their own experience.

3.3.3   Research Instruments

Qualitative data in this study is acquired by using only one data collection method, which is an interview. With the interview approach, the researcher will be able to identify the needs to develop the tahfiz al-Quran learning model for SVI. In terms of the questions, they are semi-structured interview questions with open-ended answers corresponding to the researcher's preference (Ghazali & Sufean, 2016). Gay & Airasian (2000) explains semi-structured interview allows the following questions corresponding to the given answers to obtain clearer and in-depth information.

The interview protocol was constructed base on previous study. There were propose five open ended question that allowed the participants to give the point of view based on their own experienced in learning memorising al-Quran as a SVI. The open-ended question allowed the topic to be explored and let the participants to provide the feedback in their own words without assuming the answer (Seaman, J., & Tinti-Kane, 2013).

When questions have been distributed to the selected participants, information that will be gathered will be transcript by transcription coding as follows:

Table 10 Transcription Coding of Interview with Participants

Participant	CODE
Participant 1	R1

Participant 2	R2
Participant 3	R3
Participant 4	R4
Participant 5	R5
Participant 6	R6
Participant 7	R7

Table 3.4 shows the coding matrix of the arranged interview before being analyzed with the inductive analysis method Cresswell (2003) and subsequently identifying the themes for participants' interaction on each answer given by them.

3.3.4   Data Analysis

The analysis procedure conducted on the need's analysis phase for the interview study was carried out using ATLAS.ti 8 software. ATLAS.ti 8 is a scientific software that assists in organising, generate codes and data analysis in an efficient and structured manner (Ekasatya, 2016). The researcher had carried out a number of procedures or qualitative data analysis measures through ATLAS.ti 8. The steps involved analysing data from the conducted interviews by transcribing them to accommodate the theme and category identification process. Thereafter, the researcher conducted the data input process by generating several primary documents to register the transcribed interview data into the ATLAS.ti 8 software.

The texts that have been transcribed are now more detailed and elaborated, can be summarised or represented by an array of simple themes called as codes. The codes were categorised according to themes determined by the researcher. This is because the coding approach adopted in this research is prior coding. Prior coding is code that has

been prepared in advance based on the theory used in the study (Ekasatya, 2016). Consequently, the researcher developed quotations by marking the data and information coincide with the categories of the established codes. Finally, the researcher conducted analysis by presenting the findings through network illustrations. Network is graphic illustrations that visualise the relation between every entity beginning with documents, codes, quotations and hyperlinks (Othman, 2018).

3.3.5 Validation of Interview Protocol by Field Experts

The constructed question set of the interview is based on previous studies and was validated by experts for the purpose of face validity and language validity to avoid misunderstandings. The interview protocol will be reviewed by field of expert to see the compatibility between the research objectives and the theme with the research question as well. Improvements will be made, if any.

Besides, according to Bogdan, R., & Biklen (2007), verification of the interview data collected should be done to increase the validity and reliability of the primary qualitative data by providing the completed transcripts written to the study participants. Thus, following the interview session, the researcher transcribed the data and conducted face validity by submitting the transcribed data to field experts for purpose of validating each conversation to avoid data deviations.

3.4 Phase II: Designing and Development

The design and model development phase involve systematic processes to explain the background of a theory and studies in research design (Richey & Klein, 2014).

Phase Purpose. The main focus or purpose of this phase is to develop and design the tahfiz al-Quran learning model for SVI that can be able to be implemented within the circle of SVI *tahfiz* in Malaysia. Fuzzy Delphi Method is proposed in this phase to gain consensus and agreements from experts and answer the third question of this study:

4. What is the appropriate design and development of the Tahfiz al-Quran Learning Model for SVI based on experts' opinions?

3.4.1 Data Collection Technique

The model of development phase involves a set of questionnaires to investigate the elements in developing the tahfiz al-Quran learning model suitable for SVI.

The model of development phase applies the Fuzzy Delphi Method (FDM). FDM is a combination of Fuzzy set of theories with the Delphi technique which was introduced by Murray, T. J., Pipino, L. L., Van Gigch (1985) and it is not a new technique. FDM is more to improvisation for the Delphi technique and is a value-added instrument towards the pre-existing Delphi technique. This improvisation is a more effective measuring instrument because of its ability to resolve uncertain issues referring to a study (Ramlan & Ghazali, 2018). This method also produces a technique

diversification to gather empirical data (Hsu & Sandford, 2007). FDM is not to be treated as a method of research, but instead just a technique or method applicable to gain consensus of several experts acting as respondents who are separately appointed. It is to form an instrument or set of questionnaires with accurate 5-point Likert Scale (Ghazali Darussalam, 2016).

The Fuzzy Delphi method can be used to gain experts consensus on a particular problem. This is evidenced by the success of the research in obtaining the agreement of study participants through the application of the Fuzzy Delphi technique. The following are studies that have applied Fuzzy Delphi techniques in their studies such as determination of teacher competency in teaching and learning management (Mohd Ridhuan Mohd Jamil, Shariza Said, 2014); the requirements of "riadhah ruhiyyah" for the professionalism of the teaching in Islamic education (Habibah @ Artini Ramlie, Zaharah Hussin, 2014); Facebook framework development (FB) for school curriculum (Nurulrabihah Mat Noh, Saedah Siraj, Mohd Ridhuan Mohd Jamil, 2014).

This study employs FDM to gather experts' consensus in identifying each item in the tahfiz al-Quran Learning Model of SVI which is going to be developed by the researcher based on experts' consensus. It also Process of developing the components, elements, and items of each sub-elements in the form of competency and priority of developing tahfiz al-Quran model for SVI.

3.4.2 Research Samples

In this phase, the researcher employed Fuzzy Delphi Method with purposive sampling. According to Hasson, F., Keeney, S., McKenna (2000), sampling method suitable with FDM is non-probability sampling, either purposive or criterion sampling. This method is selected based on the study's objective to deeply observe their knowledge and experience towards the researched field (Noraini Idris, 2010; Richey & Klien, 2007; Marican, 2005). According to Noraini (2010), purposive sampling is also known as judgment sampling because it will involve individual judgment to select research samples based on the researcher's knowledge and study requirements.

This method will conduct based on considerations and opinions from experts. Every acquired decisions and data will be focused and based on the agreement and consensus from experts on the researching issue (Ramlan & Ghazali, 2018).

Fuzzy Delphi Method does not have a specific method in selecting experts (Kaplan, 1971). The most important aspects in selecting experts are the impact and quality of the consensus pertaining to the study (Jacob, 1996). According to Pill (1971), the selected experts must have the expertise and experience in a certain field and capable to contribute their opinions as well as consensual opinions on the needs of a particular study. Hence the experts also selected are based on the following criteria:

1. Knowledgeable in the field studied (Delbecq et al., 1975; Swanson & Holton, 2009).
2. Experts can give total commitment until the study is completed.
3. Experts have no personal interest in this review to avoid bias in the study

In a form of selecting experts which proposed by Adler, M., & Ziglio (1996), the suitable number of experts in the Fuzzy Delphi Method is between 10 to 15 people if there is high consistency (homogenous) among the experts. However, Jones, H. & Twiss (1978) suggested that the number of experts involved was 10 to 50 experts in carrying out the Delphi method. In the context of this study, researcher appointed 17 experts in tahfiz al-Quran studies.

The panel of experts consists of SVI of *tahfiz* teachers, SVI lecturers, SVI, lecturers of Tahfiz Institutions and from amongst the public universities. Table 3.5 shows the list of experts selected in this phase:

Table 11 Needs Analysis Phase Respondents of Needs Analysis Phase

Position	Field of Expertise	Experience (years)	Numbers	Institution
Lecturer, Public Universities	Al-Quran Education and Al-Quran *Tahfiz*	>10	6	Universiti Malaya (UM) Universiti Kebangsaan Malaysia (UKM) Universiti Perguruan Sultan Idris (UPSI)
Lecturer, Private University	Al-Quran Education and Al-Quran *Tahfiz*	>10	1	Kolej Universiti Islam Antarabangsa Selangor (KUIS)
Lecturer, Darul Quran, Jakim	Al-Quran Education and Al-Quran *Tahfiz*	>10	3	Darul Quran, Jakim
Teacher, SK Pendidikan Khas	Al-Quran Education and Al-Quran *Tahfiz*	>10	4	Sekolah Rendah Kebangsaan Pendidikan Khas Alma Sekolah Menengah Pendidikan Khas, Setapak
Teacher, SVI of Tahfiz Institution	*Hafidz* (Memoriser al-Quran of SVI) Teacher of tahfiz al-Quran for SVI education	>5	3	Tahfiz Sahabat Islami, Negeri Sembilan, Maahad Tahfiz Tarbiyyah, Kelantan Personal Tutor of Tahfiz al-Quran

The above table exhibits 17 experts involved in developing the tahfiz al-Quran model for SVI students. Majority of them are experts with the knowledge in al-Quran as well as having their own experience of more than five years in tahfiz al-Quran teaching.

3.4.3 Research Instrument

According to (Ridhwan et al., 2014), to form questions for Fuzzy Delphi technique based on previous studies research, interview of experts and focus group. Hence, in building set of questionnaires, the researcher adopted two methods which are interview from phase I and items from the previous studies research. The followings are the methods adopted for the purpose of designing the tahfiz al-Quran model for SVI.

The construction of questions to experts is refined by the findings from the interview in Phase I, which needs analysis. Apart from that, it was formed based on some reconstruct items from previous studies done by Azmil Hashim et al. (2014) and Azmil and Kamarul Azmi (2016). The table below illustrates the summary of research instruments:

Table 12 Summary of Research Instruments

Variable Items	Referral Source	No. of Questions
PREPARATION ASPECT		
• Cognitive	Noornajihan et al., (2011); Fathiyah et al., (2018); Hajarul, (2016); Farah Ilyani et al. 2018	6

•	Affective	Noornajihan et al., (2011); Fathiyah et al., (2018); Intan Zakiah & Munif, (2016); Azmil et al., (2014); Murihah et. al 2005	8
•	Physical	Fathiyah et al., (2018); Aminuddin & Ishak, (2012); Azmil et al., (2014)	6
•	Spiritual	Fathiyah et al., (2018); Azmil et al., (2014); Azmil & Kamarul, (2016); Zainora (2016)	10
	LEARNING PROCESS ASPECT		
•	Method of memorising	Azmil et al., (2014); Noornajihan et al., (2011); Fathiyah et al., (2018), Nor Musliza & Mokmin, (2014) Nordin et.al (2019)	7
•	Technique of memorising	Abdul Hafiz et al, (2003), Sedek & Mustaffa, (2013) Wan Ariffin et al, 2013,Azmil & Misnan, (2014) Azmil & Kamarul, (2016), Musliza & Mokmin, (2014), M.Toriq & Abd. Razak (2018) Nordin et.al (2019)	32
•	Aids Tools	Noornajihan et al, (2011), Norakyairee et. al (2013), Ahmad Yunus & Asmilyia (2016), Hajarul et, al (2010)	7
•	Reinforcement	Sedek & Zulkifli, (2015); Azmil & Kamarul, (2016), Nordin et.al (2019)	4
•	Retention	Sedek & Mustaffa (2013) Azmil & Kamarul, (2016), Abdul Hafiz & Hasimah (2004), Nordin et.al (2019)	9

Research questionnaires employ a Likert Scale containing 5 options of scales which are highly not suitable on scale 1, not suitable on scale 2, less suitable on scale 3, suitable on scale 4 and very Suitable on scale 5. This scale is used to ease experts in stating their agreements on items' suitability before the data is analyzed to gather experts' consensus for the purpose of developing the model. Consequently, the tahfiz al-Quran learning model for SVI is developed by using FDM.

i-   Focus Group Discussion

After all items were constructed from the interviews, a focus group discussion was arranged to analyse and discuss the elements, constructs and items to be consolidated in the FDM questionnaires. Concisely, the FGD technique was established by S Emory Bogardus in 1926. This technique elaborates group interview in the social psychological field (Wilkinson, 2016). FGD technique was employed to discuss and analyse each item, whether it is relevant to be in the tahfiz al-Quran learning model for SVI. The FGD derive as a content validity as well. The effectiveness of FGD rely on the moderator's competency in manoeuvring the session, besides from the systematic arrangement of the interview protocol (Hidayah, Zabidi, & Azhan, 2018).

The MCO was still in order during the FGD of which the session took place online through the Skype application. 5 experts, a moderator and an observer attended the session, of which one of them is expert in teaching and learning al-Quran of SVI at IPG, Pendidikan Khas, four are experienced in memorising al-Quran among SVI. The following table exhibits the details on the involved experts for the session.

Table 13 List of Experts for The Instrument Construction in FGD

No.	Institution	Field of Expertise
1	Lecturer in education of special needs, IPG Pendidikan Khas, Cheras	Teaching and learning al-Quran of SVI
2	Malaysian Association for The Blind (MAB), IPoh Perak	Teacher & *Hafidz* (Memoriser al-Quran of SVI)
3	Bachelors of Degree, Kolej Universiti Islam Antarabangsa Selangor (KUIS)	*Hafidz* (Memoriser al-Quran of SVI) at MARSAH Johor
5	Diploma Tahfiz wal Qiraat, Darul Quran Jakim	*Hafidz* (Memoriser al-Quran of SVI),
6	Maahad Tahfiz al-Munir, Bukit Pinang, Alor Setar	*Hafidz* (Memoriser al-Quran of SVI),

Despite having close similarity to the interview protocol, the data gathered through FGD is more accurate as it has undergone discussion and argued consistently by every experts of their respective fields. In general, FGD will be conducted in two sessions, with observing breaks for the experts to ensure quality data can be harnessed. Each session is conducted in 3-4 hours. Upon discussion and analysing, the 90 items, become 93 items. The addition of the items when there were some items need to break down into several others items. Besides, there were also items removed because of similar meaning with the other items and not being applied by SVI. There also have some items switched to other constructs. The discussion and consensus were achieved well.

ii-   Face Validity

Face validity is a procedure that needs to be obliged by the researcher before conducting a study. Determination of face validity refers to the capability of research instrument to contain information that incorporates the components of the studied field (Cresswell, 2008; Chua, 2006; Pallant, 2001). Cresswell (2007) suggests researchers to refer the experts in certain fields of study to validate the elements or questions in the research instrument. According to Makki, M.H., Abd-El-Khalick, F. & Boujaoude (2003), there are at least three experts in the related field needed for experts' measure method. Therefore, the researcher gathered opinions from four experts in related fields to validate the elements and constructs to be applied in the study afterward. This evaluation instrument will undergo face validity and content validity before the questionnaire is overseen by the selected groups of respondents. The followings are the experts involved for face validity:

Table 14 List of Experts for Face Validity

EXPERT NO.	FIELD OF EXPERTISE
P1	Lecturer in the Faculty of Major Language Studies
P2	Bahasa Melayu teacher in Sekolah Menengah Integrasi Sains Tahfiz, MAIWP
P3	Lecturer of Quranic dan Sunnah Studies
P4	Student, Diploma Tahfiz al-Quran of SVI

From the above table shows the face validity that involved four experts to observe the language and sentence structure to make it easier to understand. Overall, the experts involved provided positive comments for the suitable and required elements in this mode

3.4.4 Data Analyzation Procedure

FDM approach is involved analyzing the model design in order to identify, evaluate and validate all main components including their contained elements. There are procedures to follow in order to obtain findings with FDM based on three rules of experts' consensus which are (1) threshold value (d), (2) percentage of experts' consensus and (3) fuzzy score value (A). The procedures will make it able to obtain empirical findings. e 3.2 shows the study's procedure flowchart

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┌──────────────────────────────────────────────────────────────────────────────┐
│  ┌─────────────────┐        ┌─────────────────┐      ┌─────────────────┐       │
│  │ Determination   │        │   Construct     │      │                 │       │
│  │ and selection   │ ────▶  │ questionnaire   │ ──▶  │  Distribute and │       │
│  │ of experts      │        │  for experts    │      │  collect data   │       │
│  └─────────────────┘        └─────────────────┘      └─────────────────┘       │
│                                                                                │
│  ┌─────────────────┐        ┌─────────────────┐      ┌─────────────────┐       │
│  │  Linguistic     │        │ Interval        │      │  Fuzzy Ratings  │       │
│  │  Variables      │        │ Determination   │      │  Aggregates     │       │
│  │  Determination  │ ────▶  │ Number):        │ ──▶  │ Number):        │       │
│  │ *Shifting from  │        │ Threshold Value │      │ Percentage of   │       │
│  │ Likert Scale to │        │ (d) *Data       │      │ Experts'        │       │
│  │ Fuzzy Scale     │        │ Analyzation     │      │ Agreement       │       │
│  │                 │        │ (Triangular     │      │ *Data Analyzation│      │
│  │                 │        │ Fuzzy           │      │ (Triangular Fuzzy│      │
│  └─────────────────┘        └─────────────────┘      └─────────────────┘       │
│                                                                                │
│  ┌─────────────────┐        ┌─────────────────┐                                │
│  │  Defuzzication  │        │    Ranking      │                                │
│  │ Data Analyzation│ ────▶  │  Determination  │                                │
│  │ (Defuzification │        │    Process      │                                │
│  │ Process): Fuzzy │        │                 │                                │
│  │ Scoring Value(A)│        │                 │                                │
│  └─────────────────┘        └─────────────────┘                                │
└──────────────────────────────────────────────────────────────────────────────┘
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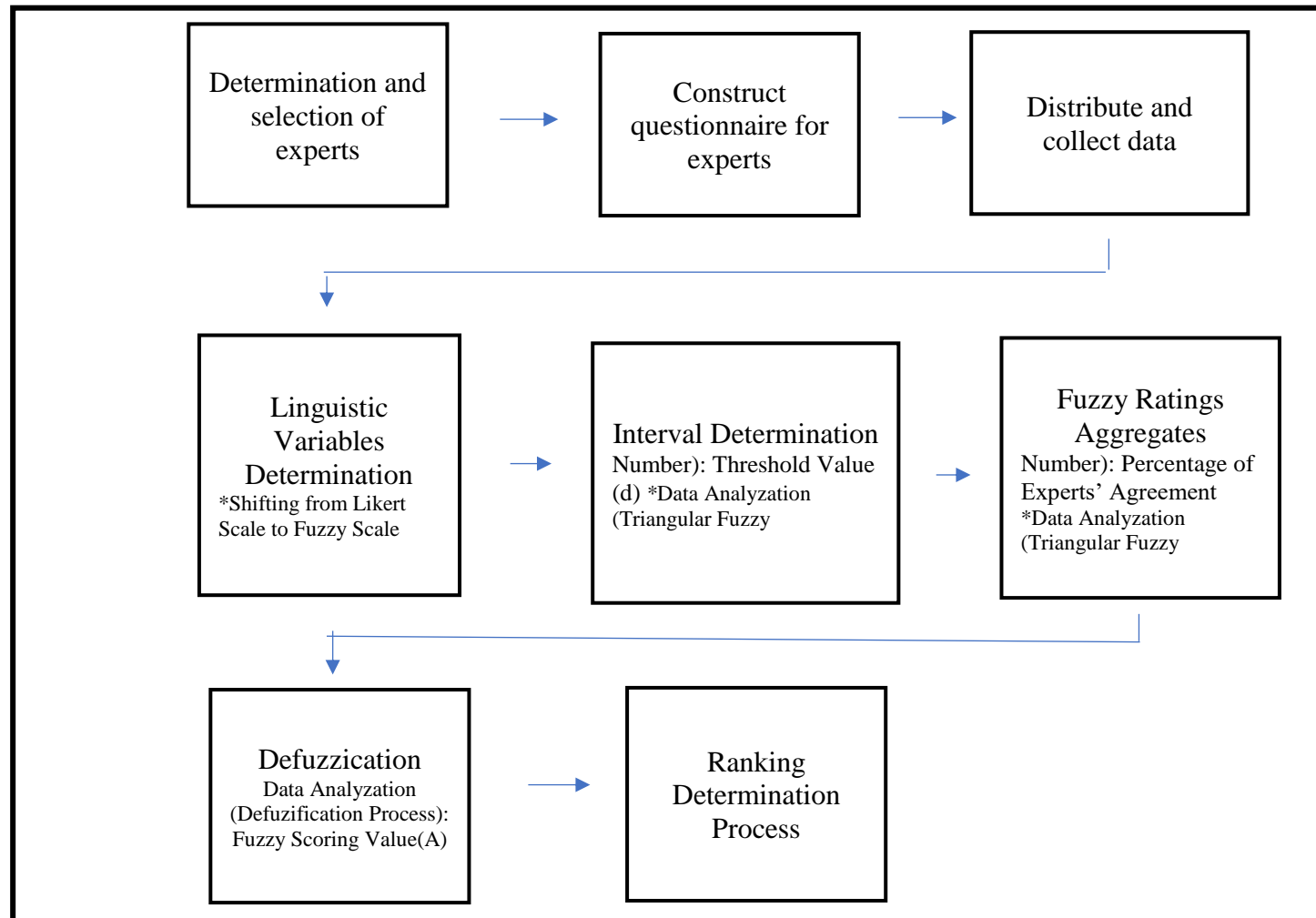
Figure 3.2 presents the procedure flowchart in employing FDM to obtain experts' consensus. The descriptions for this flowchart are according to these steps:

Step 1: Selection of experts. Selection of experts is crucial to ensure the experts about to be selected are capable to give accurate opinion related to the study context. In this study, there will be 17 incorporate experts.

Step 2: Construct a questionnaire for experts. During this process, the construction of questionnaires for experts can be conducted through several methods which are (1) interview; (2) focus group discussion; (3) by document analysis and literature review. In addition, by using questionnaires from other literature studies related to a certain ongoing study (Chang, Hsu & Chang, 2011; Dullfields, 1993).

Step 3: Data distribution and collecting process. There are several approaches can be used which are (1) workshop seminar by inviting involved experts; (2) individual meeting with experts; (3) circulate the questionnaires to the selected experts via email and other media. However, in this phase, the researcher decides to meet the selected and identified experts individually to facilitate discussion and explanation process pertaining to issues that may exist in the items and other reasons.

Step 4: Determining linguistics variables. This step involves the shifting process of all linguistics variables into Triangular Fuzzy Number (Hsieh, T.Y., Lu, S.T., Tzeng, 2004). The linguistic scale is similar to the Likert Scale used in other studies but it is added with fuzzy numberings based on Triangular Fuzzy Number. Each received response was determined by number 3 to represent fuzziness expert opinion. The three values are as follows:
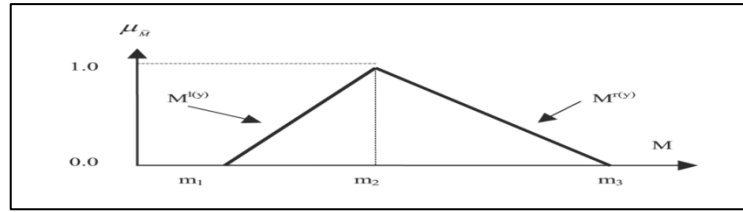
Figure 3.2 Triangular Fuzzy Number

M1 = minimum value; M2= medium value; M3= maximum value.

The scale of the agreement must be 3, 5 and 7 in linguistics scale. The higher scale makes more accurate respond analysis to be obtained (Muhammad Ridhuan, 2013). Table 3.9 displays linguistics variables for 5 scales where it displays measurement representation for certain items and Fuzzy value scale it represents.

Table 15 Linguistics Variables Scale Sample

5 Patterns Fuzzy Scale	Fuzzy Number		
Linguistics Variables	m1	m2	m3
Very agree	0.60	0.80	1.00
Agree	0.40	0.60	0.80
Not sure	0.20	0.40	0.60
Disagree	0.00	0.20	0.40
Very disagree	0.00	0.00	0.20

(Source: Chang, Hsu & Chang, 2011)

Following the response from chosen experts, the researcher is required to convert all Likert scale into fuzzy scale. This process is also known as identifying mean responses of each fuzzy numbers (Benitez, J.M., Martin, J.C., & Roman, 2007). This process is done based on the formula;

$$M = \frac{\sum_{i=1}^{n} m_i}{n}$$

Step 5: Identification process of "d" Threshold value. Data analyzation based on the triangular fuzzy number where it intends to obtain threshold (d) value. The threshold

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value is important in identifying the degree of consensus among the experts (Thomaidis, N.S., Nikitakos, N., & Dounias, 2006). Intervals for each fuzzy numbers are m=(m1, m2, m3) and n=(n1, n2, n3). According to Cheng, C.H., & Lin (2002), if the threshold value is less or similar to 0.2, it means that the experts' consensus has been achieved. Meanwhile, group consensus must be above 75% for each item, otherwise, the second round should be run.

$$d\left(\tilde{m}, \tilde{n}\right) = \sqrt{\frac{1}{3}\left[(m_1 - n_1)^2 + (m_2 - n_2)^2 + (m_3 - n_3)^2\right]}.$$

Step 6: Determining the percentage of group consensus. Identifying the alpha stage of Fuzzy rating aggregates after experts' consensus is achieved by adding a fuzzy number for each item (Ridhuan, 2013). Calculation and determination of Fuzzy values is by using formula: Amax = 1 4
╱(m1+m2 + m3). The percentage value of experts' consensus must be equivalent to or more than 75.0% (Chu & Hwang, 2008; Murry & Hammons, 1995).

$$\tilde{A} = \begin{bmatrix} \tilde{A}_1 \\ \tilde{A}_2 \\ : \\ : \\ \tilde{A}_m \end{bmatrix} \text{ where } \tilde{A} = r_{i1} \times w_1 + r_{i2} \times w_2 + \ldots\ldots\ldots\ldots r_{in} \times w_n$$

$$i = 1, 2, \ldots\ldots\ldots, m$$

Step 7: Defuzzification process phase. Data analyzation through the average of fuzzy numbers or average response. This analyzation is intended to obtain a fuzzy scoring value (A). To ensure compliance with the third rule, fuzzy scoring value (A) must be above or equivalent to the median value (α value – cut) which is 0.5 (Tang & Wu, 2010; Bodjanova, 2006). This shows that experts accept the particular elements consensually. Other functions for fuzzy scoring value (A) are applicable to determine ranking and

priority of certain elements according to experts' consensus. The formula involves to obtain fuzzy scoring value (A) is as follows:

$$A = 1/4 \, (m_{1+} m_{2+} m_3).$$

Step 8: Ranking determination process or the sub-phase for this model. The ranking determination process is by selecting model elements based on the defuzzification value bound by experts' consensus whereby the highest-ranking element is the highest priority in the model (Fortemps, P.& Reubens, 1996).
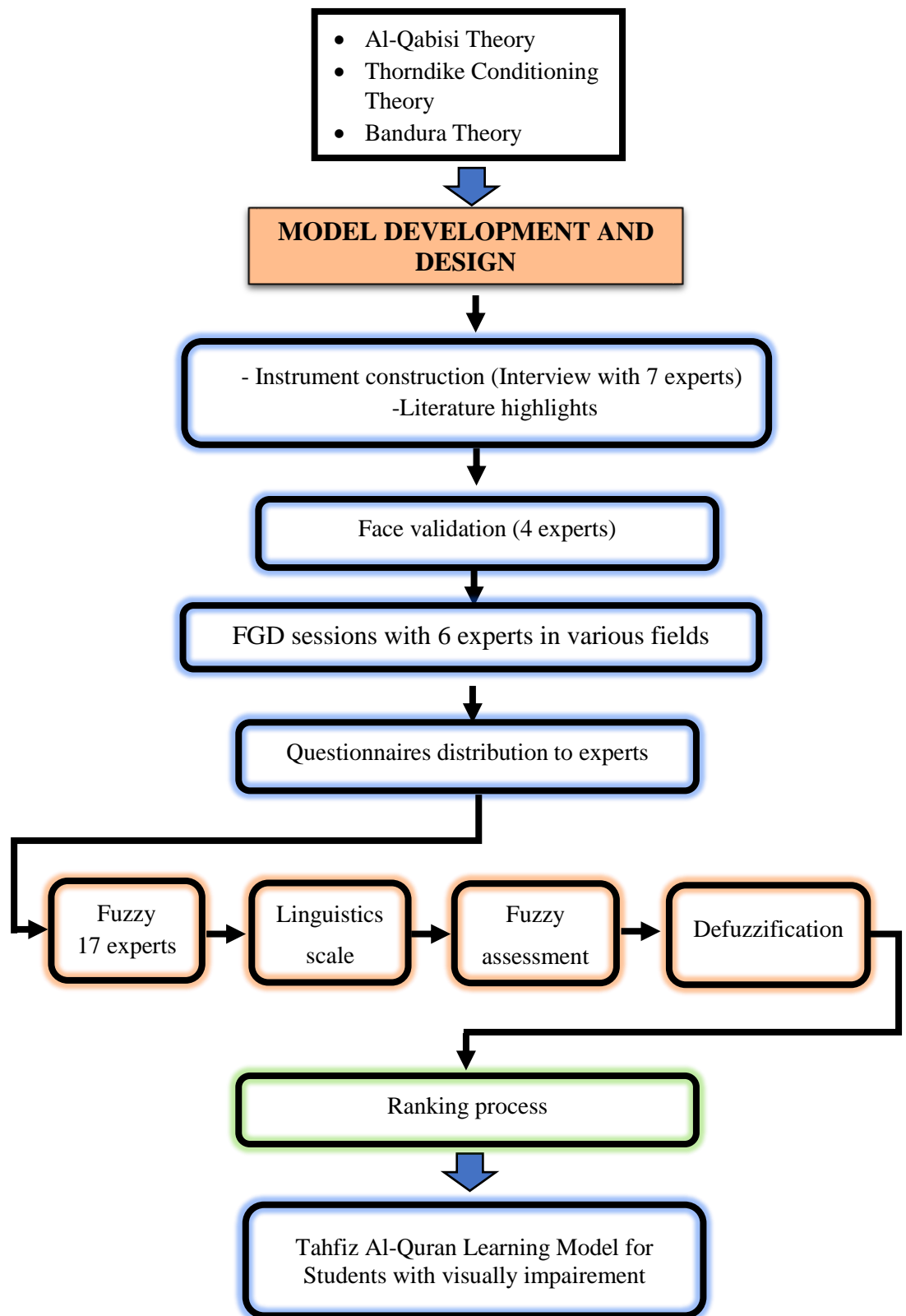
Figure 3.3 Flowchart of Process for Design and Development

3.5   Phase III: Evaluation

Purpose of Evaluation: To assess model's usability. The assessment was conducted by experts by evaluating the suitability and usability of developed model. This phase is carried out to answer the question of the study as follows:

What is the evaluation of the Tahfiz al-Quran Learning Model for SVI developed according to experts' views?

In this phase, the model evaluation test is going to be using the Nominal Group Technique (NGT). The basis is to evaluate the developed model's evaluation whether it fits into the scope of this study.

3.5.1   Data Collection Technique

For the data collection technique in this phase, NGT method was adopted. Nominal Group Technique (NGT) is a technique to gather research data based on structured meeting of a group to gather agreements from the members of the group (Varga Atkins & Mclsaac, 2011). According to Aizzat Mohd Nasurdin, Intan Osman and Zainal Ariffin Ahmad (2006). NGT is a method that involves decision-making process in the form of face-to-face small-group discussion. In addition, the advantage and strength of NGT in data collection process is its semi-qualitative and structured features (Dobbie et al. 2004; O'Neil, & Jackson, 1983; Perry & Linsley, 2006).

In light of this study, the researcher has applied the Nominal Group Technique (NGT) to observe experts' consensus on the developed Tahfiz al-Quran Learning Model for SVI. Another factor of applying this technique is because the researcher would be

able to acquire the knowledge of the percentages and acceptance by the experts on each main component and elements' priority developed in the model. This also shown that the benefit of NGT is an approach to resolve any issues constructively and structurally to reach consensus and agreement in a broad issue (Williams et al., 2006; Aizzat Mohd. Nasurdin et al., 2006) that will produce a prioritized suggestions or resolutions afterwards (Dobbie et al., 2004; Aizzat Mohd. Nasurdin et al., 2006).

Additionally, this technique provides the opportunity to generate the members' unique idea in assessing the provided items (Dobbie et al., 2004). An item is accepted when it attained a percentage value of over 70% (Saidah Siraj et al.,2020). Hence, the researcher adopted NGT as the assessment tool for the final phase because the assessment is not only interpretable in the form of data, but also in the data transcription of the expert's panellist members' commentaries. The employment of NGT as the assessment technique of the third phase in model development was also seen in the studies by Ridhuan Jamil (2016), Habibah (2017), Hafiz Saleh (2018), and Amani (2019).

3.5.2   Research Procedure

Basically, NGT was developed by Delbecq et al. (1975). However, along over time, NGT underwent several modifications and adapted according to the context of the study (Jamil & Noh, 2020). Despite the changes, the basic principles that are the pillars in the NGT process are still maintained, which is; (1) identification of problems through discussion; and (2) the voting process. Hence, based on the context of this study NGT process is carried out as follows (Jamil & Noh, 2020);

Researcher will appoint a moderator to conduct the workshop more efficiently. The NGT process will begin with the moderator explaining the study conducted to the participants so that the experts were clear about the workshop's purpose. Then the moderator presents the prototype of integrating memorised verses with aqli knowledge model. The model shown is intended to guide the experts to start the NGT session. The NGT process continues with experts to share and discuss the model presented.

At this stage, experts can express their views and ideas and change the structure of model, component of model, elements of model, or items presented and decide whether to retain or reject something irrelevant to the study's context. Only component of model, elements of model, or items achieving mutual agreement are selected and incorporated into the model. This phase also allows experts to present ideas that feel relevant and necessary. The NGT process ends after all experts vote on the elements that have been listed (Jamil, 2016; Noh, 2020).

However, during the assessment of this model, Malaysia is still observing its MCO due to the COVID-19 pandemic, forcing every assessment process to be conducted online. All experts gathered online through the Skype application to discuss, giving opinions and assess the prototype of this model. The table below explains the procedure in conducting NGT online.

Table 16 Summary of The Procedure in Conducting NGT

NO.	STEPS	EXPLANATIONS
1	Presentation of the model's prototype by the researcher	The researcher briefly presents the issues, objectives and method of research. The researcher extensively presents the elements, constructs and items in the model.

2	Idea generation by the participants.	Each expert was allocated time to take note, remark and comment the presented model.
3	Idea sharing among the participants.	Moderator provided the chance to each expert panellist to express their opinions, ideas and comments on the presented model.
4	Discussion on the items, themes and elements of the researching issue.	Discussions were conducted on items that needed to be improvised, retained or dismissed. At this stage, sentence structuring can be discussed.
5	Rating process by the experts	Due to the online platform and the rating process conducted in privacy, the Google Form's link for the rating was provided after all procedures were conducted. Each expert was required to conduct rating instantly. The rating was in the scale of 1-5 to state the appropriateness of the item.

3.5.3 Research Sample

The sampling technique in this phase is purposive sampling which aims to obtain the necessary information through knowledgeable individuals (Sekaran & Bougie, 2019). Experts in this session should be selected based on their expertise and knowledge that can provide the best results related to the ongoing study (Noh, 2020).

In determining the number of experts involved for the NGT method, scholars have outlined several opinions. According to the Van de Ven and Delbecq (1971) remark the number of experts in the research adopting NGT as its data collection method is from 5 to 9 peoples. In contrast, Allen, Dyas, and Jones (2004) argue that the number of experts must be between 9 to 12 peoples. As for Harvey and Holmes (2012), they assert the most ideal and the best number of research participants is from 6 to 12 peoples. On account of those views, this research decided to employ 8 experts. The following table shows the criteria for selection experts for evaluating the tahfiz al-Quran learning model for SVI.

Table 17 Respondents for Evaluation Phase of NGT Method

Qualification	Field of Expertise	Experience (years)	Numbers	Institution
Doctorate	Al-Quran Education and *Tahfiz* Al-Quran of SVI	>5	3	Universiti Kebangsaan Malaysia (UKM) Universiti Sains Islam Malaysia (USIM) IPG Pendidikan Khas, Cheras
Bachelor's Degree	*Hafidz* (Memoriser al-Quran of SVI)	>5	2	Kolej Universiti Islam Antarabangsa Selangor (KUIS) International Islamic University Malaysia (IIUM)
Diploma	*Hafidz* (Memoriser al-Quran of SVI)	>5	3	Darul Quran, Jakim Kolej Pengajian Islam Johor (MARSAH)

The above table exhibits 8 experts involved in evaluating the tahfiz al-Quran model for SVI. 8 individuals with expertise and experience have been chosen. Every single of them obtains at least 5 years of experience in the field of tahfiz al-Quran as well as having experience in al-Quran studies or tahfiz al-Quran studies.

3.5.4 Research Instruments

Questionnaires are developed based on findings from Phase II (Fuzzy Delphi's experts' consensus) than presented in the NGT's evaluation. There are five sections in each questionnaire filled up by respondents which are Section A. respondents' demographical, Section B, suitability of model's main components, Section C, suitability of each element in each model's main components Section D, suitability of element contents in each model's main components and Section E, the overall opinion on the evaluation of learning model for SVI of al-Quran *tahfiz*.

Due to the online platform and the rating process conducted in privacy, the Google Form's link for the rating was provided after all procedures were conducted.

Each expert was required to conduct rating instantly. The rating was in the scale of 1-5 to state the appropriateness of the item.

3.5.5 Data Analyzation Procedure

The conducted data analyzation involves the score value of the voting made by experts that were converted into percentage form and compared with the conditions of evaluation assessment fixed based on literature. The accepted range in NGT measurement is the score percentage exceeding 70%. The range must align and matches with the views by the group of scholars that the percentage of acceptance of an element must be based on score's percentage value in which its usability of an element as measured by the participants must be at least 70%.

Table 3.12 shows examples of analysis of study findings using Nominal Group Technique (NGT) consisting of assessed items, group score, percentage, ranking and evaluation status.

Table 18 An Example of Findings Analysis Using NGT Template

Item	Total scores of study participants (n=9)	Percentage (%)	Ranking	Evaluation status
1	37	82.3	3	Appropriate
2	39	86.7	2	Appropriate
3	40	88.9	1	Appropriate
4	30	66.7	-	Rejected

3.6 Conclusions

As a conclusion, the design of this conducted study applies the Design, Development & Research (DDR) approach were for Phase I which is the needs analysis phase, the interview method is undertaken. According to Phase II which is the design and development phase, it involves the application of the Fuzzy Delphi Method. This approach requires selecting experts that are suitable to the context of the study. Questionnaires are distributed to discuss components and elements in relative with the undertaken study and subsequently developing the tahfiz al-Quran learning model for SVI. For Phase III which is evaluation, it involves the application of NGT where it also gathers the experts through a workshop with the purpose to assess the evaluation of the developed tahfiz al-Quran learning model for SVI. Research findings will be discussed and summarized in the following chapters 4 and 5