

CHAPTER 3

RESEARCH METHODOLOGY

3.1 Introduction

This chapter will provide an overview of the methodology used in current study. This will include the discussion about the research approach and design, why the sampling was chosen, the phases in the instrumentation development process, and the process of data analysis in the study.

3.2 Research Approach and Design

Research approach and design provide planning and the specific direction towards achieving the research purposes. In deciding which research design will be used, researchers must do thorough planning by taking account of the worldview assumption they want to study combined with the investigation strategies that are possible to be taken, using methods and procedures that lead to its understanding in practical (Creswell, 2018).

A research design will also determine which method to use and how the results will be presented. If the researchers want to do objective measurement and need data that can be present numerically, the quantitative method will be suitable since it is a more straightforward method that can provide numerical and inferential statistic data. This is beneficial when the researchers want to look at the relationship between the variables under controlled situations and involve a large number of participants (Md Shidur, 2017). However, the quantitative method has several disadvantages such as it can only be applicable in situation that can be quantified and may fail to capture important findings. A qualitative method, on the other hand, can help the researcher to study the phenomenon in their natural settings. The results of the qualitative study can help to formulate new theories and ideas, provides insights and help researchers to do

depth investigation (Daniel, 2016). However, the qualitative study may subject to researchers' bias, as the same phenomenon can bring a different meaning to different people (Aspers & Corte, 2019), the nature of closer relationship between the researchers with the subjects studied, and it can be costly and time-consuming (Safdar et al., 2016).

Since both methods have their own strengths and weaknesses, some researchers choose to do both methods in order to gain a more complete and comprehensive understanding of a phenomenon. This is called mixed method study. Mixed method studies might be considered new to some researchers, but it can be dated back to 1980s (Creswell & Plano Clark, 2018). The qualitative data collected can play an important role before starting a quantitative study, while a quantitative study might lead to qualitative research in order to gain further understanding.

According to Pardede (2019) there are four reasons to employ mixed method research:

- i. To enhance the validity of the research findings since it can enrich the study's conclusion.
- ii. To complement the research by helping to understand and clarify the findings.
- iii. To help with the development of an instrument by using the data form from the previous study
- iv. To initiate a new study if contradiction from previous research need clarification.

This shows that mixed method provides a solution to studies that face complex research problems, let alone those that require in-depth understanding that can be provided through this method. Sometimes some studies have different data sets and require integration in a variety of ways that allow for a broader and more detailed understanding of a phenomenon. Various mixed methods can be used for different studies to achieve the objectives and needs of each study. Details related to the mixed method designs are discussed below. This includes the types of mixed method and the use of mixed method in instrument development studies.

3.2.1 Mixed Method Designs

According to Creswell and Plano Clark (2018), there are three core mixed method design which are the convergent design, the explanatory sequential design, and the exploratory sequential design.

i. **The Convergent Design (QUAN + QUAL)**

In the convergent design, researchers can collect and analyse two separate data: qualitative data and quantitative data concurrently or parallel. These data then combined for the purpose of comparing the result to gain more complete interpretation of a phenomenon. For example, the result from conducting a survey on student's issue regarding time management can also be compared to the result of interviewing students regarding the same issue. This can act as validating two different sets of data, comparing the findings and can add on more information on the issue.

The advantages of this method are the data can be collected at the same phase of time and can involve different teams at their own expertise. The data can be compared whether the participants respond differently towards survey vs interview. However, researchers can face challenges such as different set of sample and size; merging the two different sets of data and difficulty to explain the contradictory data if it arises (Creswell & Plano Clark, 2018).

ii. **The Explanatory Sequential Design (QUAN → QUAL)**

In the Explanatory Sequential Design, researchers begin the collection and analysis of quantitative research in the first phase, and then followed by qualitative research. This design helps to further explain the findings in the first phase or extend the research in order to enhance further understanding. When the results of a quantitative study indicate that there is an issue that needs to be addressed, a qualitative study can help to provide a further explanation. For example, in the issue of time management faced by students, there are significant causes found among students that majority were related to gadget addiction. A qualitative study involving focus groups

or interview can be made to extend the study to gain further understanding related to the issue.

The advantages of this design are that it can help the researchers with the quantitative expertise to start their research with their strong orientation first, collect one data type at a time and can design a further study based on the findings in the first phase. The challenges are the ability to retain the participants in lengthy time for both phase, second phase cannot be easily determined, and selecting results and participant to provide the best explanation can be difficult (Creswell & Plano Clark, 2018).

iii. The Exploratory Sequential Design (QUAL → QUAN)

Researchers in this study starts with qualitative research in the first phase. Findings in the first phase help the researchers to develop the quantitative phase in the study such as items for instrument development or activities for an intervention. In the third phase, researchers collect the data with the new feature developed. For example, by collecting data and analyse about time management using qualitative study such as using interview and focus group, researchers build an instrument to assess time management among students. This helps to gain understanding of time management among students.

The advantages of using this design are that it helps the researchers to learn from the first phase to develop the second phase, separate phases can help in straightforward reporting and researchers can be able to produce new instruments. The challenges can be faced by the researchers in using this design are the time completion can be long to complete the three phases, different samples required in different phases and researchers must have expanded skills in qualitative, quantitative, mixed method and instrument development (Creswell & Plano Clark, 2018).

3.2.2 Mixed Method in Instrument Development

In the past few years, more researchers are using mixed method in instrument development. Combining qualitative and quantitative method in an instrument development study is viewed as complimentary. It is now considered as a rigorous method (Taghipoorreynh & de Run, 2020) and act as a systematic study that is needed

to develop constructs in instrument. Some may be confused that the validity of an instrument lies in the quantitative part by doing statistical analysis. However, validity analysis started from the beginning of the study, requiring the right source to understand the phenomenon that occurs (Geranmayeh et al., 2020). Using different data collected and integrate them can help to enhance the quality of the instruments developed (Zhou, 2019).

There are various methods that can be used to gain better understanding of the phenomenon researched in the beginning of instrument development. These can include interviews with experts, focus group, observation study and journal analysis.

Current study employed the Creswell and Plano Clark's Exploratory Sequential Design to develop an instrument. There are three phases involved in this design that is a qualitative phase, a quantitative phase in developing the instrument and testing in quantitative phase. See Figure 3.1.

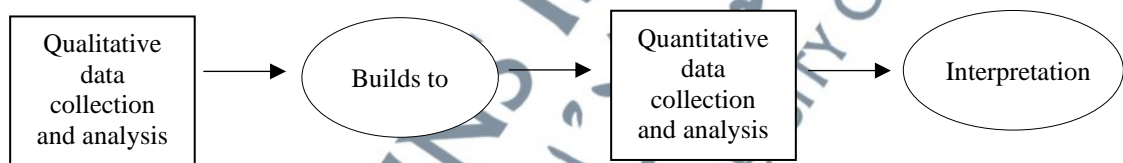


Figure 3.1 The Exploratory Sequential Design by Creswell and Plano Clark (2018)

The study begins with the qualitative phase and then followed by the quantitative phase to develop items and then go through the process of validity and reliability using the pilot study before the final study is conducted.

3.3 Strategies of Developing Instrument

In developing items in a psychological measure, there are three commonly strategies in instrument development which are the rational or sometimes called theoretical approach, empirical approach, and factorial analysis approach.

3.3.1 The Rational/Theoretical Approach/Deductive Method

This approach uses previously established theory to develop the constructs. Items are developed based on the constructs, and there must be a rational link between the items' content, the constructs' definition and understanding (Ruscio, 2015). Established instruments using this approach are Myers-Briggs Type Indicator (MBTI) that has 166 items. It uses Jung's personality theory, to evaluate four extreme structures namely: introvert-extrovert; intuition-sensing; thinking-feeling; and judgment-perception.

This study also uses this approach where the established theory is *Mutadayyin* definition based on al-Shahrastani and Cognitive Behavioral Therapy to develop the *Mutadayyin* Inventory items. The items are constructed based on the characteristics of *Mutadayyin*, how they are manifested through cognitive, emotional and behaviors. The theories in this study allow the *Mutadayyin* Inventory to measure individuals' thought, emotions and behaviors based on their religiousness. Theory determines the content of the items developed and the mechanism for the responses.

3.3.2 The Empirical Approach

The empirical approach develops measures by examining the relationship between items and pattern of responses by different groups. Items will be answered differently by pre-identified group. One of the inventories developed using this method is the Minnesota Multiphasic Personality Inventory (MMPI) where it can differentiate people with mental health problems from normal individuals (Butcher, 2020). Empirical method selects items using validity coefficient and one of their strengths is the ability to select the membership of the group.

3.3.3 The Factorial Analysis Approach

Factorial analysis approach develops items using statistical method by administering them to a large number of participants. Statistic will analyse the pool of items and group the items together to represent a construct. By examining the relationship among the item, factorial analysis confirms the dimensionality of a set of items. Items that are positively correlated with each other is believed to share the same

construct. The Sixteen Personality Factor Questionnaire (16PF) by Cattell is an example that uses this approach (Schermer et al., 2020).

3.4 Instrument Development Model

The qualitative study will be the preliminary study in the first phase involving experts' interviews to define the concept of *Mutadayyin* Inventory and its construct. This method has also been employed by Adibah (2013) in developing Students' Akhlak Evaluation Instrument (IMPAK) and, Ferlis and Rosnah (2016) in developing Subjective Happiness of Physical Disability Person (IKSOKU-F). The qualitative findings obtained from the first phase facilitating the research in developing the consecutive phases which will be done quantitatively (Creswell & Plano Clark, 2018). In current study, the quantitative method will be employed in the second, third and fourth phases in the study. This involved the development of items (second phase), the process for validity and reliability of the items (third phase) and the final study with the target respondents (fourth phase). This study employed the Instrument Development Process Model by Mohammad Aziz Shah (2018) Please refer to Figure 3.1 for details.

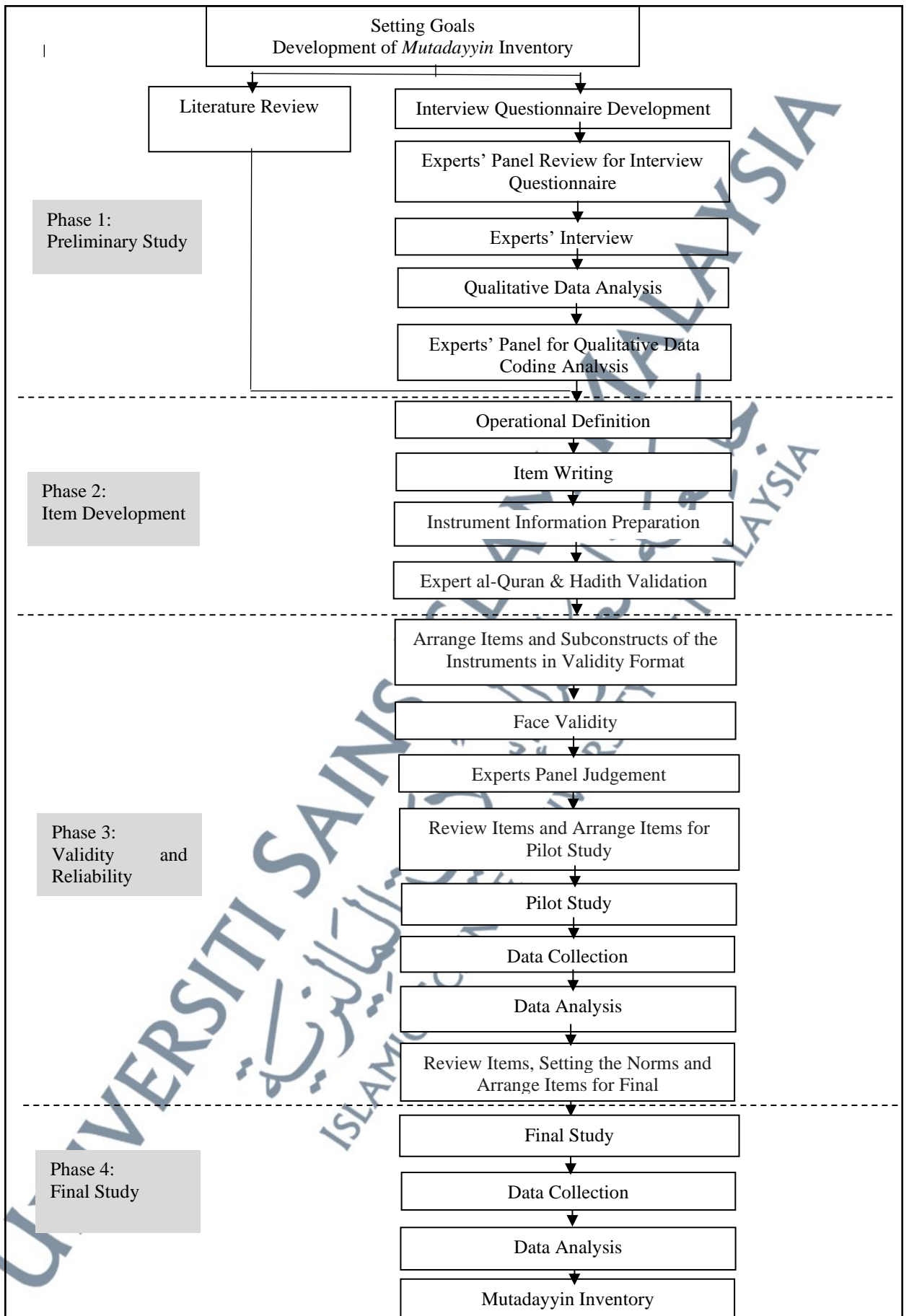


Figure 3.2 *Mutadayyin* Inventory Development Phases

3.5 First Phase – Preliminary Study

This study begins with a literature review of the needs of counseling services among Muslim undergraduate students. As mental health issues keep on become an arising matter, holistic approaches that help the development of students become important. Religiosity becomes the need to be included in the approach to enhance counseling effectiveness. One of the approaches is by using religiosity assessments that help self-introspection. CBT techniques that promote self-awareness on how one's thinking, feeling and act integrated into the assessment to ensure self-introspection can be done systematically. As religiosity needs to be further defined, the study explores to understand the characteristics of religious people which in Arabic the term is called *Mutadayyin*. Definition of *Mutadayyin* was explored among the scholars and this study chose al-Shahrastani's definition as it refers to Gabriel Hadith.

3.5.1 Interview Questionnaires Development

Interview questionnaires developed must be based on the framework established in the study. Constructed questions need to cover not only theoretical aspects but the taking of experiences and perspectives from the panels (Foley et al., 2021). This allows interpretations to be made through the sharing and explanation of interrelated experiences in the context relevant to the study.

The questions started with general ideas to explore the concept of *Mutadayyin* and religiosity according to experts as it helps to define the *Mutadayyin* concept in the current world. This stage is important to extend the *Mutadayyin* concept as suggested by al-Shahrastani in terms of its application amongst the youth, especially undergraduate students. Another question before entailing the development of items was whether it is appropriate to develop religiosity instruments.

The questionnaires were divided into two categories: First category was for Islamic based experts and the second category was for Counseling background experts. The questionnaires for Islamic background experts involved detailing of what were the experts' opinions regarding religiousness, characteristics, believes and behaviors of religious people. Experts were interviewed with questions that aimed to explore the

experts' views about religious people in Islam, the characteristics and the relevancy of religious people in the current world.

While experts for Counseling were more detailed regarding religiousness, cognitive, emotion, and behaviors of religious people. The counseling experts were also asked about the suitability to use CBT as a basis of assessment for religiousness. The process in the first phase can be seen in Figure 3.3.

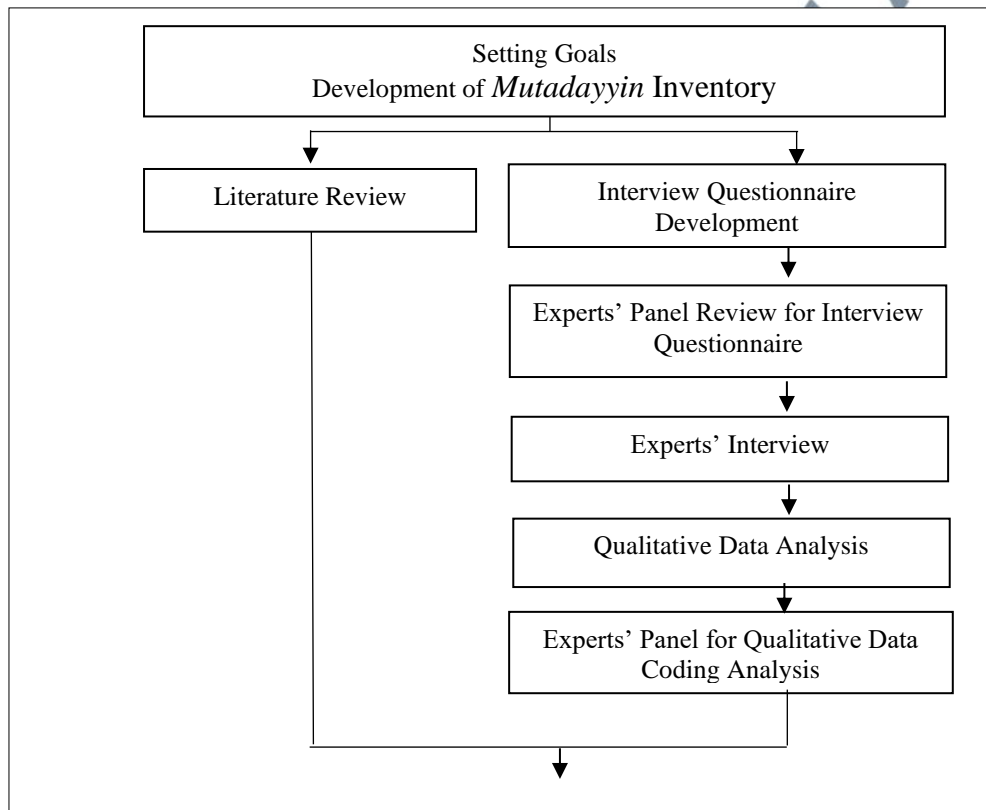


Figure 3.3 Phase 1 - Preliminary Study

3.5.2 Interview Questionnaires Validation

In qualitative study, efforts need to be made to ensure that the interview questions are consistent with the research questions. Receiving feedback on the interview protocol help the researchers to understand how well the interviewee will understand the questions. Refinement of the interview questions can be made using experts' or sample of participants review suggestions.

Before the interview can be conducted, the interview questions and the protocol for conducting the interview must be prepared. This act as an inside guide to conduct

interviews, so that the interviews conducted are directed and not out of place of the study conducted. The critical recommendation from the feedback can help review the irrelevant question and suggested new interview questions (Vveinhardt et al., 2017).

The protocol of an interview can be first reviewed by experts or tested by the expectant sample of respondent. It was suggested by Yeong et al., (2018) where selection of the experts should be made among those who are familiar with the subject that being studied. Researchers can test the interview question at a convenience sample that is similar to the interviewee that will participate in the study (Harrell & Bradley, 2009). Testing the interview question with a couple of respondents that would not participate in the study can be helpful to refine the questions and make it more understandable (Castillo-Montoya, 2016). In this study, two experts were chosen to represent the educational backgrounds that were relevant. One expert has a qualification in Counseling and Islamic Studies, while another expert has a qualification in Islamic Studies. Both experts have background in qualitative research, see Table 3.1. These experts have similar academic qualification with future experts that will participate in the study. After the experts provided their views and comments on the constructed protocol, the researcher corrected it in accordance with the comments they provided.

Table 3.1 Expert List Chosen for Interview Questionnaires Validation

Panel Code	Category	Area of Expertise	Title	Institution/ Agency
Panel 1	Academia	Counseling and Psychotherapy & Islamic Psychology	Dr.	USIM
Panel 2	Academia	Islamic Studies & Quranic and Hadith Studies	Dr.	USIM

The process to validate the interview protocol can help to determine the interview questions. It helps to address the most relevant and significant religiosity issues. It also assists in self-introspection that is relevant in the counseling process. This is to ensure the entailment of the item development in a later process can be done effectively.

3.5.3 Panels Interview

The interviews were semi-structured face to face interview. Semi-structured interview can provide the opportunity for the expert to talk in depth about a certain subject and help direction of the interview to stay for the research purpose (Mohajan, 2017). Steinberg (2011) in Libakova and Sertakova (2015) identified that there are four types of experts: Typical expert, key expert, theoretical expert and false expert. Typical expert will answer the interview based on his knowledge. Key expert can provide factual information, reflects on the subject being discussed and making his own independent conclusion. Theoretical expert might not be directly involved in the subject being discussed but he can express his own opinion and extending the idea. False expert is the one who is ignorant in the issue being discussed and cannot say anything beneficial for the interview. As Libakova and Sertakova said the first three types of experts are the greatest value as they can provide useful information in the subject being studied. This study focused on interviewing the panels that are categorized as typical and key experts. The number of experts chosen in a study depends on the types of the qualitative approach that being employed (Creswell & Poth, 2017). There are no specific numbers as how many experts should be interviewed. However, it depends on whether the data has achieved the level of saturation level, and this is also difficult for the researchers to decide (Baker & Edwards, 2012). As looking at how many experts should be interviewed, this study refers to other studies in items development such as Students' *Akhlak* Evaluation Instrument (IMPAK) development that interviewed a total of five experts (Adibah, 2013), while other study in adolescent health literacy instrument interviewed 12 experts (Jasmin, 2017). Number of experts depends on the experts' knowledge areas that need to be covered. As in IMPAK's development studies, the experts came mainly from two areas: Akhlak and Religious Studies while in adolescent health literacy instrument's study, there are few different areas needed to be covered such as General Health Specialist, Adolescent Health Specialist, School Curriculum Development Specialist and Adolescent Psychologist. In this study, 10 experts were chosen as three main different background of experts were needed, which were i) Counseling; ii) Religious Studies and iii) the combination of both Counseling and Religious Studies. The criteria for the experts chosen for the interview were: i) academic qualification, at least master's holder in their field of expertise; ii) active in

teaching/practice, writings and publications; and iii) agreed to be interviewed. The experts who have both religious and counseling-based background can help to explain the possibility of integration between counseling-based theory into Islamic religiosity questionnaire. This was to identify the application of CBT elements in a person's religiousness assessment. Below are the details of experts interviewed as panels, see Table 3.2.

Table 3.2 Expert List Chosen for Interview

Panel Code	Category	Area of Expertise	Title	Institution/ Agency
Panel 1	Academia	Islamic Thought & Islamic Studies	Professor Dato'	USIM
Panel 2	Academia	Aqidah & Islamic Philosophy	Professor Emeritus Tan Sri	USIM
Panel 3	Academia	Education & Islamic Studies	Professor Dato'	USIM
Panel 4	Industry	Counseling Supervision	Professor	MATROLL
Panel 5	Industry	Islamic Thought	Dr	JAKIM
Panel 6	Academia	Counseling and Islamic Studies	Associate Professor	UKM
Panel 7	Academia	Religious Comparison and Religious Sociology	Associate Professor	UKM
Panel 8	Academia	Psychology & Counseling	Associate Professor	UPSI
Panel 9	Academia	Counseling and Islamic Studies	Dr.	UPSI
Panel 10	Industry	Counseling and Islamic Studies	Mr.	PKMAINS

The interviews were recorded and transcribed to text and sent back to the panels to get their consent. The texts were modified according to the correction by the panels and ready for data analysis.

3.6 Qualitative Data Analysis

The qualitative data in this preliminary study was analyzed using Atlas T.I 8 to search for the theme that can contribute to strengthening the item development. The interviews were recorded and transcribed for code extraction. These qualitative data were analyzed using thematic analysis to emerge recurrent themes raised by the experts.

The common themes found used for further process to refine the development of the items as the well-articulated theoretical foundation can be a key to successfully determines items generation that relevant to the construct (Hinkin, 1998).

Nowell et al., (2017) suggested the process of conducting a thematic analysis through six phases of rigorous processes. See Table 3.3.

Table 3.3 Phases of Thematic Analysis Process

Phase	Thematic Analysis	Process
Phase 1	Familiarizing yourself with your data	Name the file and the participants. Use Excel to log the raw data and analysed in software.
Phase 2	Generating initial codes	Develop code manual for operational definition. Data can be coded to different themes.
Phase 3	Searching for themes	Deductive codes to form the main themes. Develop subthemes if required.
Phase 4	Reviewing themes	Review the themes and subthemes. Some themes might collapse. Some themes might need to be broken down into separate themes.
Phase 5	Defining and naming themes	Read through the data and consider all aspects of the data and see if all coded fitted and describe the scope and the content of each theme
Phase 6	Producing the report	Report codes and themes, refer to literature if it is supported, can add the knowledge through new theoretical and practical interpretations

This study followed these phases and employed both deductive and inductive methods for item generation where it was based on a literature review (Hinkin, 1995) and also from experts' interviews (Morgado et al., 2017). This, according to Choy (2014), is the best way to complement a quantitative study if one is not enough to provide the expected result. Morgado et al., (2017) reviewed that inductive and deductive method is the way forward for construct development studies.

See Figure 3.4 for an illustration of how the data from the interview were integrated into item development.

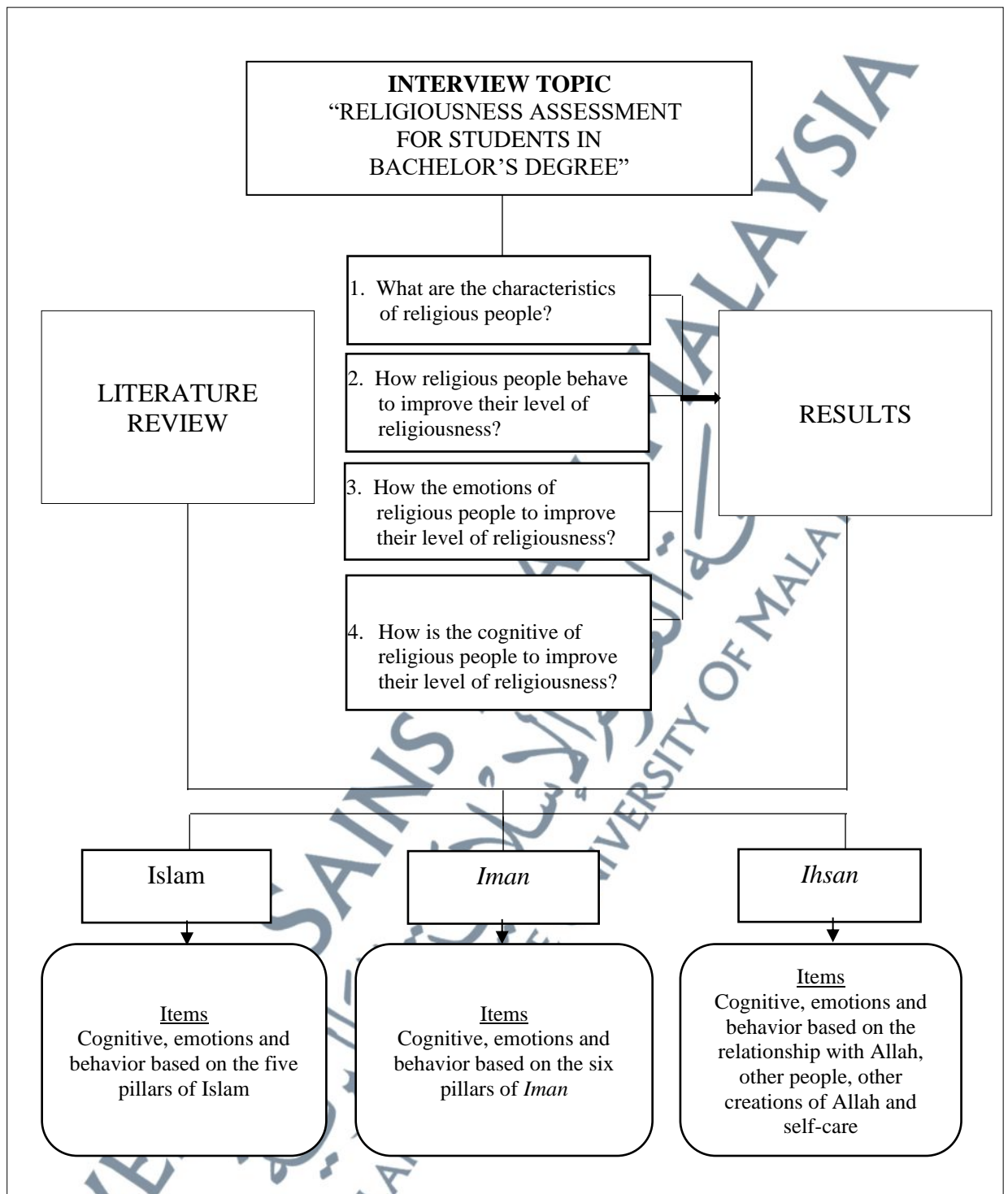


Figure 3.4 Integration of Qualitative Findings in the Preliminary Phase into Item Development Phase

3.6.1 Qualitative Data Coding Analysis Validation

The data were coded according to categories, Islam, *Iman*, and *Ihsan* according to cognitive, emotional and behavioral, while *Ilm* came later and added as a category after being mentioned a few times by the experts and also been categorized into cognitive, emotional and behavioral. After the data was coded, the validation by other experts is needed in qualitative research to ensure that the right methodology is used (Keller, 2017). This study chose two experts to validate the coding. A minimum of two experts are needed to establish inter-rater reliability (O'Connor & Joffe, 2020). The experts are chosen for their backgrounds. First expert has a Counseling education background, and the second expert has a Counseling and Islamic Studies education background, see Table 3.4.

Table 3.4 Expert List Chosen for Coding Validation

Panel Code	Category	Area of Expertise	Title	Institution/ Agency
Panel 1	Academia	Counseling	Dr.	UPSI
Panel 2	Academia	Counseling & Islamic Studies	Dr.	UPSI

As the interview results were coded according to the integrated Islamic religiosity and elements of CBT, the experts education background and experience in counseling field and Islamic Studies will help to review the coded statement. The themes and the coded sample of interview statement were e-mailed to the experts after they agreed to participate in the study, see Appendix B. Their agreements were calculated using Cohen Kappa.

3.7 Second Phase – Item Development

After the interview results were being coded and validated by the experts, the second phase of the study entailed the development of items according to the themes found. This phase began by preparing the operational definition for each construct then proceed with items writing. Items writing including the process of how each of the items was derived based on theoretical, result from the panels interview, reference to the CBT approach, al-Quran, Hadith's quotations and previous assessments on

religiosity. Instrument information was prepared after item writings which included planning for the question type, the number of items, scaling and scoring (see Figure 3.5).

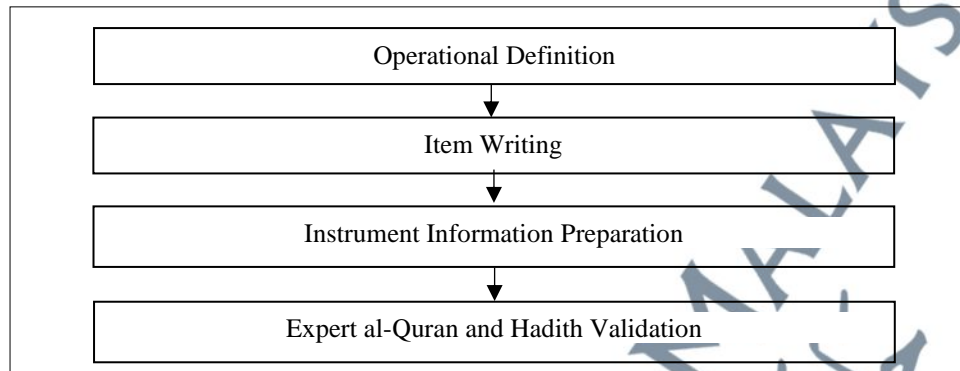


Figure 3.5 Phase 2- Item Development

Items listed were given to expert al-Quran and Hadith to validate the references used accordingly. This is so that the verses of the Qur'an and Hadith quotations can be validated by experts in the field and misinterpretation errors can be avoided. This method is used by other researchers such as Jasmi (2012) and Abokhodair et al., (2020). Experts in the field of the Quran and Hadith were asked to examine the verses of the Quran and selected Hadith passages in accordance with the items constructed, see Table 3.5.

Table 3.5 Expert List Chosen for al-Quran and Hadith References

Panel Code	Category	Area of Expertise	Title	Institution/ Agency
Panel 1	Academia	Quran and Sunnah Studies	Dr	USIM
Panel 2	Academia	Hadith Studies	Dr	USIM

The experts chosen are from the Faculty of al-Quran and Sunnah studies to examine the Quran verses, and from expert in Hadith studies to examine the Hadith verses.

Mutadayyin Inventory was developed with 180 items in the beginning, consisting of items for each subconstruct listed as in Table 3.6. It was developed with four constructs. Three constructs, Islam, *Iman*, and *Ihsan* are based on al-Shahrastani's interpretation of *Mutadayyin* that was based on Gabriel Hadith. The fourth construct had been added based on experts' interview qualitative analysis which is *Ilm*.

Table 3.6 List of *Mutadayyin* Inventory Items During Development Phase

Construct	Subconstruct	Element	Number of Items	Total items	Total Negative Items
Islam	Islam Cognitive	Thoughts and beliefs related to five pillars of Islam: i. Pronounce syahadah ii. Perform five times prayer a day iii. Fasting in the month of Ramadhan iv. Pay zakat v. Perform Hajj in Mecca	3 3 3 3 3	15	5
	Islam Emotion	Emotions and feelings related to the five pillars of Islam i. Pronounce syahadah ii. Perform five times prayer a day iii. Fasting in the month of Ramadhan iv. Pay zakat v. Perform Hajj in Mecca	3 3 3 3 3	15	5
	Islam Behavior	Actions and practices related to five pillars of Islam i. Pronounce syahadah ii. Perform five times prayer a day iii. Fasting in the month of Ramadhan iv. Pay zakat v. Perform Hajj in Mecca	3 3 3 3 3	15	5
<i>Iman</i>	<i>Iman</i> Cognitive	Thoughts and beliefs related to six pillars of <i>Iman</i> i. Believe in Allah ii. Believe in His angels iii. Believe in His Scriptures iv. Believe in apostles and prophets v. Belief in the Day of the Hereafter vi. Belief in <i>qada'</i> and <i>qadar</i>	3 3 3 3 3 3	18	6
	<i>Iman</i> Emotion	Emotions and feelings related to six pillars of <i>Iman</i> i. Believe in Allah ii. Believe in His angels iii. Believe in His Scriptures iv. Believe in apostles and prophets v. Belief in the Day of the Hereafter vi. Belief in <i>qada'</i> and <i>qadar</i>	3 3 3 3 3 3	18	6
	<i>Iman</i> Behavior	Action and practices related to six pillars of <i>Iman</i> i. Believe in Allah ii. Believe in His angels iii. Believe in His Scriptures iv. Believe in apostles and prophets v. Belief in the Day of the Hereafter vi. Belief in <i>qada'</i> and <i>qadar</i>	3 3 3 3 3 3	18	6
<i>Ihsan</i>	<i>Ihsan</i> Cognitive	Thoughts and beliefs related to:	3		

Construct	Subconstruct	Element	Number of Items	Total items	Total Negative Items
		i. Take care of his relationship with Allah ii. Take care of his relationship with others iii. Do good to other Allah's creation including animals, trees, and environment. iv. Take care of oneself by taking care of his body, mind and soul and leave self-destructive acts	3 3 3	12	4
	<i>Ihsan</i> Emotion	Emotions and feelings related to: i. Take care of his relationship with Allah ii. Take care of his relationship with others iii. Do good to other Allah's creation including animals, trees, and environment. iv. Take care of oneself by taking care of his body, mind and soul and leave self-destructive acts	3 3 3 3	12	4
	<i>Ihsan</i> Behavior	Actions and practices related to <i>Ihsan</i> : i. Take care of his relationship with Allah ii. Take care of his relationship with others iii. Do good to other Allah's creation including animals, trees, and environment. iv. Take care of oneself by taking care of his body, mind and soul and leave self-destructive acts	3 3 3 3	12	4
<i>Ilm</i>	<i>Ilm</i> Cognitive	Thoughts and beliefs related to knowledge, learning, and education		15	5
	<i>Ilm</i> Emotion	Emotions and feelings related to knowledge, learning, and education		15	5
	<i>Ilm</i> Behavior	Action and practices related to knowledge, learning, and education		15	5
	Total			180	60

3.8 Third Phase – Validity and Reliability

Achieving high validity and reliability in measurement development is a high priority since it will determine how the measurement can be trusted to test what it is supposed to test. In this study, there were a few phases taken to ensure the validity and reliability of the instrument (see Figure 3.6).

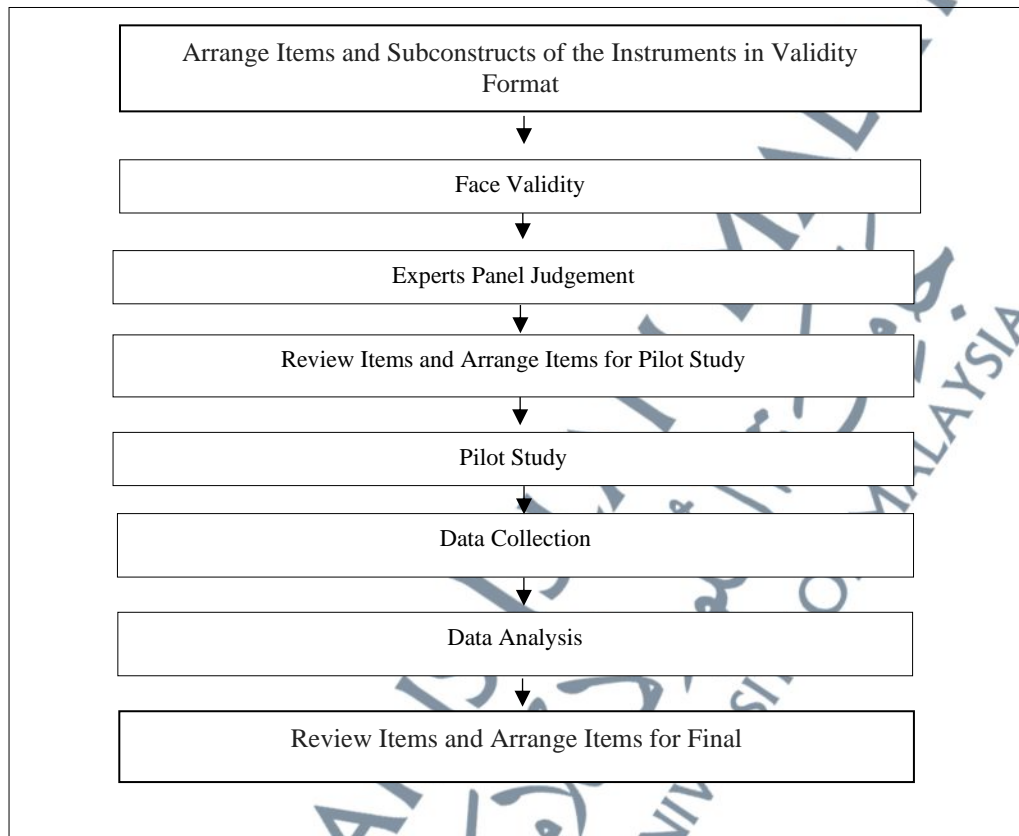


Figure 3.6 Phase 3- Validity and Reliability

3.8.1 Face Validity Study

Face validity is a study to administer the instrument to the group of people relevant to the final respondents to ensure that items included in the measure can be easily understood, less ambiguity and relevant to be asked (Connell et al., 2018).

According to Mosier (1947) "... the test is considered to be valid if the sample of items appears to the subject matter experts to represent adequately the total universe of appropriate test questions" (p. 208). He further argued that this validity of definition could be accomplished through subjective rather than empirical analysis. Face validity is usually performed among those who consists of the sample to be studied. The test has

face validity if its content appears relevant to a sample of the population that will take the test (Taherdoost, 2016).

Face validity can be assessed by those who are not experts but can provide useful feedback to improve the items tested. It can be conducted to small number of respondents, but representative of the actual sampling (Mohd Effendi, 2015). In this study, face validity study was conducted among ten students using convenience sampling method to check the level of language used that can be understood by the future targeted students. Ten respondents for face validity were suggested by Gay et al., (2012) and Mohd Effendi (2015). Feedback from the candidates helps to improve the items in terms of clarity and language. Ten students were invited to participate consisting of five males and five females. All students were Malay and Muslim, from four different faculties that agreed to participate in the study as can be seen in Table 3.7 and their result of evaluation is shown in Table 3.8 and Table 3.9. Their comments were considered before finalizing items for experts' review.

Table 3.7 Student List Chosen for Face Validity

Panel Code	Year	Gender	Faculty
Panel 1	3	Male	Faculty of Economics and Muamalat
Panel 2	3	Female	Faculty of Science and Technology
Panel 3	3	Female	Faculty of Science and Technology
Panel 4	3	Female	Faculty of Science and Technology
Panel 5	3	Female	Faculty of Science and Technology
Panel 6	4	Male	Faculty of Science and Technology
Panel 7	3	Male	Faculty Syariah and Law
Panel 8	3	Female	Faculty of Major Languages Studies
Panel 9	2	Male	Faculty of Economics and Muamalat
Panel 10	2	Male	Faculty of Leadership and Management

The scale for the students was set in 10 points Likert scale (1 strongly disagree to 10 strongly agree) in terms of clarity and easy to understand (Rozman & Ahmad Jazimin, 2015). In this study, content validity for face validity was calculated using the formula by Sidek and Jamaludin (2005) as below:

$$\frac{\text{Total of the expert score (x)}}{\text{Maximum score}} \times 100\% = \text{Content Validity Achieved}$$

The content validity for face validity according to each item is listed in the Table 3.8 below:

Table 3.8 The Validity Coefficient for Face Validity

BIL	ITEM	VALIDITY COEFFICIENT
ISLAM COGNITIVE		
1.	I believe with <i>syahadah</i> I become a responsible Muslim <i>Saya percaya syahadah menjadikan saya Muslim yang bertanggungjawab</i>	0.97
2.	I believe my <i>syahadah</i> is not void <i>Saya percaya syahadah saya tidak terbatal</i>	0.93
3.	I believe <i>syahadah</i> does not play any role as long as one is good (negative item) <i>Saya percaya syahadah tidak memainkan peranan selagi seseorang itu baik (negative item)</i>	0.76
4.	I think prayer does not help reduce stress (negative item) <i>Saya fikir solat tidak membantu mengurangkan stress (negative item)</i>	0.87
5.	I believe the prayers form my personalities <i>Saya percaya solat membentuk peribadi saya</i>	1.00
6.	I believe that taking care of prayer time can teach about time management <i>Saya anggap menjaga waktu solat boleh mendidik mengurus masa</i>	0.97
7.	I believe fasting and body health are not related (negative item) <i>Saya percaya berpuasa dan kesihatan badan tidak ada kaitan (negative item)</i>	0.75
8.	I believe fasting is a shield against restrictive things <i>Saya percaya puasa menjadi perisai menahan daripada melakukan perkara mungkar</i>	0.97
9.	I believe in Ramadhan is special from other months <i>Saya percaya bulan Ramadhan istimewa daripada bulan-bulan lain</i>	0.96
10.	I think there is a link between paying <i>zakat</i> with blessings of sustenance <i>Saya fikir bayar zakat dan keberkatan rezeki ada kaitan</i>	0.97
11.	I believe <i>zakat</i> helps the economy of Islam to become stronger <i>Saya percaya zakat membantu ekonomi orang Islam kukuh</i>	0.74
12.	I believe the income I earn is my right alone (negative item) <i>Saya percaya pendapatan yang saya perolehi adalah hak saya seorang sahaja (negative item)</i>	0.86
13.	I do not believe performing Haj before I die is necessary (negative item) <i>Saya tidak percaya memunaikan haji sebelum meninggal dunia adalah perlu (negative item)</i>	0.79
14.	I believe that <i>mabrur</i> pilgrimage (accepted by Allah) is invaluable <i>Saya percaya haji yang mabrur mendapat ganjaran yang tidak ternilai</i>	0.97
15.	I believe the pilgrimage is completely self-surrender to Allah S.W.T <i>Saya percaya haji merupakan penyerahan diri sepenuhnya kepada Allah S.W.T</i>	0.95
ISLAM EMOTION		
16.	I do <i>syahadah</i> with sincerity <i>Saya bersyahadah dengan ikhlas</i>	0.96
17.	I do not have any doubt when I do <i>syahadah</i> <i>Saya tiada rasa ragu-ragu apabila bersyahadah</i>	0.99
18.	I feel less slavery to Allah when I do <i>syahadah</i> (negative item) <i>Saya kurang rasa penghambaan kepada Allah apabila bersyahadah (negative item)</i>	0.83
19.	I feel nervous if performing the prayers late <i>Saya berasa gelisah jika menunaikan solat lewat</i>	0.99
20.	I often pray with full attention (<i>kusyuk</i>) <i>Saya selalu solat dengan kusyuk</i>	1.00
21.	I often unable to internalize the reading in prayer (negative item) <i>Saya selalunya tidak dapat menghayati bacaan dalam solat (negative item)</i>	0.98
22.	I am impatient when fasting (negative item) <i>Saya kurang bersabar apabila berpuasa (negative item)</i>	0.92
23.	I feel sympathy for the hardship of the poor when fasting <i>Saya berasa simpati dengan kesusahan orang miskin apabila berpuasa</i>	0.97
24.	I enjoy fasting	0.97

BIL	ITEM	VALIDITY COEFFICIENT
	<i>Saya berasa seronok berpuasa</i>	
25.	I feel grateful if I can pay <i>zakat</i> <i>Saya rasa bersyukur jika dapat membayar zakat</i>	0.96
26.	I feel calm if my <i>zakat fitrah</i> has been paid <i>Saya merasa tenteram jika zakat fitrah saya telah dibayar</i>	0.99
27.	I am envious of those who accept <i>zakat</i> (negative item) <i>Saya rasa iri hati dengan penerima zakat (negative item)</i>	0.93
28.	I feel worried if I am unable to perform Haj before I die <i>Saya bimbang jika tidak menunaikan haji sebelum meninggal dunia</i>	0.97
29.	I feel happy if I am able to perform Haj in healthy condition <i>Saya berasa gembira jika saya dapat menunaikan haji dalam keadaan sihat</i>	1.00
30.	I am happy to be able to perform Haj even from unknown sources (negative item) <i>Saya bahagia jika dapat menunaikan haji walaupun dari sumber yang tidak diketahui (negative item)</i>	0.95
ISLAM BEHAVIOR		
31.	I always renew my <i>syahadah</i> <i>Saya selalu memperbaharui syahadah saya</i>	0.99
32.	I always forget to pronounce <i>syahadah</i> before bed (negative item) <i>Saya selalu lupa mengucap syahadah sebelum tidur (negative item)</i>	0.99
33.	I always pronounce <i>Lailahaillallah Muhammad Rasullullah</i> <i>Saya selalu menyebut Lailahaillallah Muhammad Rasullullah</i>	0.98
34.	I pray compulsory five times a day at early time <i>Saya solat wajib lima kali sehari di awal waktu</i>	0.99
35.	I rarely pray in a congregation (negative item) <i>Saya jarang solat secara berjemaah (negative item)</i>	1.00
36.	I pray with <i>tokmaninah</i> (pause before starting another movement) <i>Saya bersembahyang dengan tomakninah</i>	0.98
37.	I fast without avoiding things that reduce the reward (negative item) <i>Saya berpuasa tanpa menghindari perkara yang boleh mengurangkan pahala (negative item)</i>	0.94
38.	I always have <i>sahur</i> when I fast <i>Saya selalu bersahur apabila berpuasa</i>	1.00
39.	I increase my practice of worship when fasting <i>Saya memperbanyakkan amal ibadah apabila berpuasa</i>	1.00
40.	My caretaker or I pay for my <i>zakat fitrah</i> every year <i>Saya atau penjaga saya membayar zakat fitrah untuk diri saya setiap tahun</i>	0.88
41.	I make sure my family members pay <i>zakat</i> <i>Saya memastikan ahli keluarga saya membayar zakat</i>	0.99
42.	I ignore about <i>zakat</i> payment (negative item) <i>Saya tidak ambil tahu tentang bayaran zakat (negative item)</i>	0.97
43.	I save money to perform Haj <i>Saya menyimpan wang untuk menunaikan haji</i>	1.00
44.	I have not trained myself regarding the pilgrimage (negative item) <i>Saya tidak melatih diri saya berkaitan ibadah haji (negative item)</i>	0.93
45.	I have signed up for the pilgrimage <i>Saya telah mendaftar untuk menunaikan haji</i>	1.00
IMAN COGNITIVE		
46.	I believe that Allah Almighty makes everything <i>Saya percaya bahawa Allah Maha Kuasa mencipta segala sesuatu</i>	0.99
47.	I think the existence of this world is not proof of the existence of Allah (negative item) <i>Saya fikir kewujudan alam bukan bukti kewujudan Allah (negative item)</i>	0.97
48.	I believe that Allah is perfect in nature <i>Saya percaya Allah sempurna sifatnya</i>	1.00
49.	I believe there are angels around me with their respective duties <i>Saya percaya adanya malaikat di sekeliling saya dengan tugas masing-masing</i>	0.99
50.	I believe there are angels who write everything I do <i>Saya percaya ada malaikat mencatat setiap apa yang saya lakukan</i>	0.99

BIL	ITEM	VALIDITY COEFFICIENT
51.	I'm not sure the angels really exist (negative item) <i>Saya tidak yakin malaikat benar-benar ada (negative item)</i>	0.97
52.	I believe the Qur'an as the last holy book <i>Saya percaya al-Quran sebagai kitab suci terakhir</i>	0.99
53.	I do not expect the contents of the Qur'an will be preserved until the Day of the Hereafter (negative item) <i>Saya tidak jangka isi kandungan al-Quran akan terpelihara sehingga hari akhirat (negative item)</i>	0.96
54.	I believe the Qur'an as a revelation from Allah <i>Saya percaya al-Quran adalah wahyu daripada Allah</i>	1.00
55.	I believe the Prophets and Messengers were sent by Allah to guide people <i>Saya percaya para Nabi dan Rasul diutuskan Allah untuk membimbing manusia</i>	1.00
56.	I believe that Prophet Muhammad S.A.W is the best example of all humanity <i>Saya percaya Nabi Muhammad S.A.W adalah contoh teladan terbaik kepada semua umat manusia</i>	0.99
57.	I believe Prophet Muhammad S.A.W is not free from sin (negative item) <i>Saya percaya Nabi Muhammad S.A.W ada dosa (negative item)</i>	0.97
58.	I believe humans will be awakened in the Hereafter to be judged <i>Saya percaya manusia akan dibangkitkan pada Hari Kiamat untuk diadili</i>	1.00
59.	I do not hesitate there is life after death <i>Saya tidak ragu-ragu akan adanya kehidupan setelah mati</i>	0.99
60.	I do not believe we need to prepare for life in the hereafter (negative item) <i>Saya tidak percaya kita perlu membuat persediaan untuk kehidupan akhirat (negative item)</i>	0.96
61.	I believe that everything that happens there is wisdom behind it <i>Saya percaya bahawa setiap sesuatu yang terjadi ada hikmah di sebaliknya</i>	0.99
62.	I believe Allah will not burden me with things that I cannot bear <i>Saya percaya Allah tidak akan membebankan saya dengan perkara yang tidak mampu ditanggung oleh saya</i>	0.99
63.	I believe I have to rely on myself solely in whatever I do (negative item) <i>Saya percaya saya perlu bergantung kepada diri sendiri semata-mata dalam apa jua saya lakukan (negative item)</i>	0.97
IMAN EMOTION		
64.	I am pleased with the will of Allah S.W.T <i>Saya redha dengan kehendak Allah S.W.T</i>	1.00
65.	I feel inferior to Allah Almighty <i>Saya merasa rendah diri di hadapan Allah Yang Maha Agung</i>	1.00
66.	I less trust Allah after my efforts (negative item) <i>Saya kurang bertawakkal kepada Allah setelah berusaha (negative item)</i>	0.99
67.	I am impressed by the angels who always obey Allah's command <i>Saya merasa kagum dengan malaikat yang sentiasa mematuhi perintah Allah</i>	0.98
68.	I feel at ease even though I know the angels have recorded what I did (negative item) <i>Saya merasa selesa walaupun tahu malaikat ada mencatat apa yang saya lakukan (negative item)</i>	0.97
69.	I feel scared if imagined tortured by the angels in the grave <i>Saya berasa gerun jika membayangkan seksaan malaikat di alam kubur</i>	1.00
70.	I am not impressed with the contents of the verses of the Quran (negative item) <i>Saya tidak merasa kagum dengan isi kandungan ayat-ayat al-Quran (negative item)</i>	0.99
71.	I feel calm when I read al-Quran <i>Saya merasa tenang apabila membaca al-Quran</i>	1.00
72.	I feel sorry to read the disaster that fall into the unbelievers in the Quran <i>Saya berasa insaf membaca bala yang menimpa golongan yang engkar dalam al-Quran</i>	0.90
73.	I was not overwhelmed when I remembered the sacrifice of Prophet Muhammad S.A.W to his people (negative item) <i>Saya tidak terharu bila mengenangkan pengorbanan Nabi Muhammad S.A.W terhadap umatnya (negative item)</i>	0.97
74.	I enjoy reading the history of the prophets <i>Saya seronok dapat membaca sirah nabi-nabi</i>	1.00
75.	I was amazed by the struggles of the prophets <i>Saya merasa kagum dengan perjuangan para nabi</i>	1.00

BIL	ITEM	VALIDITY COEFFICIENT
76.	I hope to receive my book of practice through the right hand on the Day of Resurrection <i>Saya mengharapkan menerima buku amalan melalui tangan kanan pada Hari Kebangkitan nanti</i>	0.88
77.	I'm not afraid to imagine my situation after death (negative item) <i>Saya tidak takut membayangkan keadaan saya selepas mati (negative item)</i>	1.00
78.	I feel afraid of the punishment in the Day of Hereafter if I do not obey Allah's command <i>Saya merasa takut hukuman di Hari Akhirat jika saya engkar perintah Allah</i>	0.99
79.	I was always depressed by Allah's test to me (negative item) <i>Saya selalu tertekan dengan ujian Allah kepada saya (negative item)</i>	0.98
80.	I feel calm depend on Allah alone <i>Saya berasa tenang bergantung harap kepada Allah semata-mata</i>	1.00
81.	I do not despair of expecting Allah's grace <i>Saya tidak putus asa mengharapkan rahmat Allah</i>	0.99
IMAN BEHAVIOR		
82.	I do not practice shirk (worship other than Allah) <i>Saya tidak melakukan perkara syirik</i>	0.99
83.	I sometimes do the superstitious thing (negative item) <i>Saya kadangkala ada melakukan perkara tahyul (negative item)</i>	0.98
84.	I obey Allah's command as much as I can <i>Saya melaksanakan apa yang diperintahkan oleh Allah semampu saya</i>	0.97
85.	I do good deeds and being conscious that they are recorded by angels <i>Saya membuat perkara kebaikan dan sedar ianya dicatat oleh malaikat</i>	1.00
86.	I did not take care of my conversation though I was aware that my conversations were recorded by angels (negative item) <i>Saya tidak menjaga percakapan saya walaupun sedar perbualan saya direkod oleh malaikat (negative item)</i>	0.98
87.	I stay away from sinful things because I do not want the angels to record my sins <i>Saya menjauhi perkara maksiat kerana tidak mahu malaikat mencatat dosa saya</i>	0.98
88.	I refer the Quran as a life guidance <i>Saya merujuk al-Quran untuk panduan hidup</i>	0.99
89.	I do not devote time to read the Qur'an every day (negative item) <i>Saya tidak membaca al-Quran setiap hari (negative item)</i>	0.98
90.	I read the Quran interpretations <i>Saya membaca tafsir al-Quran</i>	1.00
91.	I try to internalize the ethical behavior of the Prophet in my daily life <i>Saya cuba melaksanakan kelakuan etika nabi dalam kehidupan seharian</i>	0.97
92.	I always recite praises (<i>salawat</i>) for Prophet Muhammad S.A.W <i>Saya selalu berselawat kepada Nabi Muhammad S.A.W</i>	1.00
93.	I less in following the sunnah of the Messenger of Allah (negative item) <i>Saya kurang mengikut sunnah Rasulullah (negative item)</i>	1.00
94.	I often pray to Allah for good in the hereafter <i>Saya selalu berdoa kepada Allah supaya mendapat kebaikan di akhirat</i>	1.00
95.	I practice goodness as the preparation for the day of hereafter <i>Saya berbuat amal kebaikan sebagai bekalan di hari akhirat</i>	0.99
96.	I'm less prepared to face the day of <i>akhirat</i> (negative item) <i>Saya kurang membuat persediaan untuk menghadapi hari akhirat (negative item)</i>	1.00
97.	I did not strive to do something because it was destined (negative item) <i>Saya tidak berusaha bersungguh-sungguh melakukan sesuatu kerana ianya telah ditakdirkan (negative item)</i>	0.97
98.	I was trying to get the best in my life <i>Saya berikhtiar mendapatkan yang terbaik dalam hidup saya</i>	1.00
99.	I am trying to make a difference in my life toward goodness <i>Saya berusaha membuat perubahan dalam hidup saya ke arah kebaikan</i>	1.00
IHSAN COGNITIVE		
100.	I always thought myself as a devout servant of Allah <i>Saya sering berfikir diri saya sebagai seorang hamba Allah yang taat</i>	0.99
101.	I think Allah always observing me <i>Saya fikir Allah sentiasa memerhatikan saya</i>	1.00
102.	I often think human's perception is more important than Allah's perception (negative item)	0.99

BIL	ITEM	VALIDITY COEFFICIENT
	<i>Saya seringkali berfikir pandangan manusia lebih penting daripada pandangan Allah (negative item)</i>	
103.	I believe in facilitating the business of others, my business will be simplified <i>Saya percaya memudahkan urusan orang lain, urusan saya akan dipermudahkan</i>	0.98
104.	I believe the best person is the one that benefits others <i>Saya percaya orang yang terbaik adalah yang memberi manfaat kepada orang lain</i>	0.97
105.	I do not think gossiping about others is bad (negative item) <i>Saya fikir bergosip tentang orang lain tidak memberi kesan buruk (negative item)</i>	0.99
106.	I believe I should not take care of the environment (negative item) <i>Saya percaya saya tidak perlu menjaga alam sekitar (negative item)</i>	0.99
107.	I believe all creations are made to complement one another <i>Saya percaya semua makhluk dijadikan untuk melengkapi satu sama lain</i>	0.98
108.	I believe the cruelty on the animal is a tyrant act <i>Saya percaya perbuatan menyiksa binatang adalah perbuatan zalim</i>	0.99
109.	I believe covering aurat is my duty as a Muslim <i>Saya percaya menutup aurat adalah kewajipan saya sebagai seorang Islam</i>	0.99
110.	I don't think taking care of health is the responsibility of every Muslim (negative item) <i>Saya fikir menjaga kesihatan diri bukanlah tanggungjawab setiap Muslim (negative item)</i>	1.00
111.	I believe Allah loves people who take care of hygiene <i>Saya percaya Allah sukakan orang yang jaga kebersihan diri</i>	0.98
IHSAN EMOTION		
112.	I was very scared of Allah's wrath on me <i>Saya sangat takutkan kemurkaan Allah</i>	1.00
113.	I am very hopeful of the blessings of Allah in whatever I do <i>Saya sangat mengharapkan keberkatan dari Allah dalam apa jua saya lakukan</i>	1.00
114.	I rarely feel gratitude to God for the favored grace (negative item) <i>Saya jarang bersyukur kepada Allah atas nikmat yang diberikan (negative item)</i>	1.00
115.	I am happy to be able to give charity <i>Saya merasa gembira apabila dapat bersedekah</i>	0.99
116.	I feel satisfied after releasing my anger to others (negative item) <i>Saya berasa puas hati selepas melepaskan kemarahan saya pada orang lain (negative item)</i>	0.95
117.	I'm happy to be able to help others <i>Saya berasa gembira apabila dapat membantu orang lain</i>	0.99
118.	I feel indifferent when I see the nature being tainted (negative item) <i>Saya rasa acuh tak acuh sahaja apabila melihat alam dicemari (negative item)</i>	0.98
119.	I'm happy when I can feed animals <i>Saya rasa gembira apabila dapat memberi haiwan makan</i>	1.00
120.	I feel calm when I see the beauty of nature <i>Saya rasa tenang apabila melihat keindahan alam</i>	1.00
121.	I'm happy when eating healthy food <i>Saya rasa gembira jika makan makanan yang sihat</i>	0.98
122.	I am grateful when I am healthy <i>Saya berasa bersyukur apabila saya sihat</i>	1.00
123.	I'm easy to feel sad because I'm often depressed (negative item) <i>Saya mudah berasa sedih kerana sering tertekan (negative item)</i>	0.99
IHSAN BEHAVIOR		
124.	I avoid myself from doing things that keep me away from Allah <i>Saya hindarkan diri dari melakukan perkara yang menjauhkan saya dari Allah</i>	1.00
125.	I refrain myself from doing things that are prohibited to gain the pleasure of Allah <i>Saya menahan diri dari melakukan perkara yang dilarang demi mendapat keredhaan Allah</i>	0.99
126.	I rarely perform munajat to Allah (worship Allah by praying, zikr, etc) (negative item) <i>Saya jarang bermunajat kepada Allah (negative item)</i>	1.00
127.	I do not cheat others no matter what the consequences are <i>Saya tidak menipu orang lain walau apa pun kesan akibat daripadanya</i>	0.96
128.	I do not gossip about other people <i>Saya tidak bergosip mengenai orang lain</i>	0.98
129.	I did not keep a promise when promised (negative item) <i>Saya tidak menepati janji apabila berjanji (negative item)</i>	0.98

BIL	ITEM	VALIDITY COEFFICIENT
130.	I'm not torturing animals <i>Saya tidak menyiksa haiwan</i>	1.00
131.	I always help throw garbage in the streets <i>Saya selalu membantu membuang sampah di jalanan</i>	0.98
132.	I rarely recycle used items (negative item) <i>Saya jarang kitar semula barang-barang terpakai (negative item)</i>	0.99
133.	I do <i>istinjak</i> (self-cleansing after discharge) perfectly <i>Saya melakukan istinjak (pembersihan diri selepas buang air) dengan sempurna</i>	0.98
134.	I rarely exercise for health (negative item) <i>Saya jarang beriadah untuk menjaga kesihatan (negative item)</i>	1.00
135.	I do not do things that are harmful to me <i>Saya tidak membuat perkara mudharat terhadap diri saya</i>	0.99
ILM COGNITIVE		
136.	I believe the knowledge of Allah is broad and human knowledge limited <i>Saya yakin ilmu Allah luas dan ilmu manusia terbatas</i>	1.00
137.	I believe intellect is needed to spread religious knowledge <i>Saya percaya kebijaksanaan perlu digunakan untuk mengembangkan ilmu agama</i>	1.00
138.	I do not believe all Muslims need to learn (negative item) <i>Saya tidak percaya semua orang Islam perlu belajar (negative item)</i>	0.97
139.	I believe it is able to practice the acceptable <i>ibadah</i> of Allah without knowledge (negative item) <i>Saya percaya boleh melaksanakan amalan yang diterima Allah tanpa ilmu (negative item)</i>	0.96
140.	I believe all Muslims need to learn religious knowledge <i>Saya percaya semua orang Islam perlu belajar ilmu agama</i>	1.00
141.	I believe that knowledgeable community will create a prosperous society <i>Saya percaya masyarakat yang berilmu akan membentuk masyarakat sejahtera</i>	0.99
142.	I believe learn knowledge needs to come from the right source <i>Saya percaya belajar ilmu perlu datang dari sumber yang benar</i>	0.98
143.	I believe everything I think is true (negative item) <i>Saya percaya semua yang saya fikirkan adalah benar (negative item)</i>	0.99
144.	I believe learning is <i>jihad</i> <i>Saya percaya belajar adalah jihad</i>	1.00
145.	I do not believe that early religious education is important (negative item) <i>Saya tidak percaya pendidikan awal agama penting (negative item)</i>	0.98
146.	I believe studying religious knowledge will be able to warn about life in the hereafter <i>Saya percaya belajar ilmu agama dapat memberi peringatan tentang kehidupan akhirat</i>	0.99
147.	I believe reading is one of the ways to get knowledge <i>Saya percaya membaca adalah salah satu cara mendapatkan ilmu</i>	1.00
148.	I believe Allah will help those who want to learn about His religion <i>Saya percaya Allah akan membantu mereka yang ingin belajar tentang agamaNya</i>	0.99
149.	I believe my faith in Islam is the same though learning more (negative item) <i>Saya fikir keyakinan saya pada agama sama sahaja walaupun makin banyak belajar (negative item)</i>	0.96
150.	I believe that Allah loves His servants to study <i>Saya percaya Allah sukakan hambaNya menuntut ilmu</i>	0.99
ILM EMOTION		
151.	I can appreciate something when I learn more about it <i>Saya dapat menghayati ilmu apabila saya banyak belajar tentangnya</i>	0.98
152.	I like to learn religion, so I can be more committed Muslim <i>Saya suka belajar agama supaya menjadi Muslim yang lebih komited</i>	1.00
153.	I feel bored when I study (negative item) <i>Saya rasa bosan bila belajar (negative item)</i>	1.00
154.	I feel happy when I live my life according to religion <i>Saya rasa hidup sejahtera apabila mengamalkan kehidupan mengikut lunas agama</i>	0.93
155.	I am happy to be able to practice the knowledge that I learned <i>Saya bahagia bila dapat beramal ilmu yang saya belajar</i>	0.97
156.	I feel further away from Allah when I learn more knowledge (negative item) <i>Saya rasa lebih jauh dengan Allah bila saya belajar lebih banyak ilmu (negative item)</i>	0.98

BIL	ITEM	VALIDITY COEFFICIENT
157.	The more I learn; I feel more afraid of leaving Allah's command <i>Makin saya belajar, saya makin takut untuk meninggalkan perintah Allah</i>	0.97
158.	I do not feel embarrassed when I do not practice what I have learned (negative item) <i>Saya tidak rasa malu tidak mengamalkan apa yang saya belajar (negative item)</i>	0.96
159.	I feel sincere in learning something <i>Saya ikhlas belajar sesuatu ilmu</i>	0.99
160.	I feel I am not patient in the quest for knowledge throughout life (negative item) <i>Saya tidak rasa saya tabah untuk menimba ilmu sepanjang hayat (negative item)</i>	0.96
161.	I am happy being able to control myself from doing immoral things when I have knowledge <i>Saya gembira dapat mengawal diri daripada maksiat apabila ada pengetahuan</i>	0.99
162.	I'm impressed by the parents who can educate young children to worship <i>Saya rasa kagum dengan ibubapa yang dapat mendidik kanak-kanak kecil beribadah</i>	1.00
163.	I feel impressed when I meet people of deep religious knowledge <i>Saya rasa kagum apabila bertemu dengan orang yang luas ilmu agamanya</i>	0.98
164.	I feel rich in wealth is more meaningful than rich in knowledge (negative item) <i>Saya rasa kaya harta lebih bermakna daripada kaya ilmu pengetahuan (negative item)</i>	0.99
165.	I'm happy when I can share knowledge, I've learned <i>Saya gembira bila menyampaikan ilmu yang saya pelajari</i>	1.00
ILM BEHAVIOR		
166.	I do not follow religious guidance continuously (negative item) <i>Saya tidak mengikuti bimbingan agama secara berterusan (negative item)</i>	0.91
167.	I have read books to improve my knowledge <i>Saya membaca buku untuk tingkatan ilmu saya</i>	0.98
168.	I do not study religion other than those in school and university subjects (negative item) <i>Saya tidak belajar agama selain daripada yang termasuk dalam subjek sekolah dan universiti (negative item)</i>	0.96
169.	I studied religion in many aspects at least in general <i>Saya belajar agama dalam pelbagai aspek sekurang-kurangnya secara umum</i>	0.98
170.	I have studied what I have learned based on the Quran and Hadith <i>Saya mengkaji apa yang dipelajari berdasarkan al-Quran dan Hadis</i>	0.99
171.	I had my own method to understand the knowledge <i>Saya mempunyai kaedah sendiri untuk mudah memahami ilmu</i>	0.98
172.	I do not have a teacher when studying religious knowledge (negative item) <i>Saya tidak mempunyai guru apabila belajar agama (negative item)</i>	0.98
173.	I discuss about religion <i>Saya berbincang tentang agama</i>	0.95
174.	I do not ask when I do not understand something (negative item) <i>Saya tidak bertanya apabila tidak faham sesuatu perkara (negative item)</i>	0.96
175.	I make efforts to gain religious knowledge <i>Saya berusaha mendalami ilmu agama</i>	0.99
176.	I conveyed knowledge that I learned to others <i>Saya menyampaikan ilmu saya pelajari kepada orang lain</i>	0.96
177.	I do not make the religious knowledge learned as my life purpose (negative item) <i>Saya tidak menjadikan pengetahuan agama sebagai tujuan hidup saya (negative item)</i>	0.95
178.	When I learned something, I practice it <i>Apabila belajar sesuatu ilmu, saya mengamalkannya</i>	0.99
179.	I try to understand the Quranic <i>Saya berusaha untuk memahami al-Quran</i>	1.00
180.	I studied the various authors' works to explore knowledge <i>Saya kaji karya-karya pelbagai penulis untuk mendalami ilmu</i>	0.97

The validity coefficient for face validity according to subconstructs is listed in the Table

3.9.

Table 3.9 The Validity Coefficient for Face Validity According to Subconstructs

BIL	CONSTRUCT	MINIMUM VALUE	MAXIMUM VALUE	ITEM TOTAL	VALIDITY COEFFICIENT
1.	Islam Cognitive	0.74	1.00	15	0.90
2.	Islam Emotion	0.83	1.00	15	0.96
3.	Islam Behavioral	0.88	1.00	15	0.98
4.	<i>Iman</i> Cognitive	0.96	1.00	18	0.98
5.	<i>Iman</i> Emotion	0.88	1.00	18	0.98
6.	<i>Iman</i> Behavioral	0.97	1.00	18	0.99
7.	<i>Ihsan</i> Cognitive	0.97	1.00	12	0.99
8.	<i>Ihsan</i> Emotion	0.95	1.00	12	0.99
9.	<i>Ihsan</i> Behavioral	0.96	1.00	12	0.99
10.	<i>Ilm</i> Cognitive	0.96	1.00	15	0.99
11.	<i>Ilm</i> Emotion	0.93	1.00	15	0.98
12.	<i>Ilm</i> Behavioral	0.91	1.00	15	0.97

The value of validity coefficient range between 0.90 to 0.99 is accepted for face validity as the coefficient validity 0.70 and above is considered a high value (Ahmad Jazimin & Rozman, 2016).

3.8.2 Expert Review Study

After the item writings were completed and corrected as suggested in the face validity stage, it was organized into expert validity format and submitted to the panel of experts.

The purpose of the instrument given to a panel of experts is to ensure that it does not conflict with the concept, language and legal structure of the instrument (Adibah, 2013). The panel of experts was given the operational definition of each construct and scoring sheets to give scores on how they agree on each item to be on the scale. The scoring sheet is followed using the format by Mohammad Aziz Shah (2018). This is to assess the degree of relevancy and representativeness of each item on a scale based on the operational definition given. This is called content validity, and it is important because it assesses the degree to which instrument items represent a proper sample of the theoretical content of a construct. This step of content validity should be taken care of before the instrument will be administered. Before the pilot test was conducted, the items have been revised according to the suggestion by the experts. According to Hair

et al., (2019) the more the experts the better, but suggesting four to six experts to evaluate items and their relations to the constructs.

There were two categories of experts: Academia and Practitioner. Counseling experts consisted of academia and practitioners; while other areas of expertise for Islamic Studies, Psychometric, and Language, all experts were from academia. See Table 3.10 below.

Table 3.10 Expert List Chosen for Content Validity

Panel Code	Category	Area of Expertise	Title	Institution/ Agency
Panel 1	Academia	Psychology & Counseling	Professor	UPSI
Panel 2	Academia	Counseling	Dr	UNIMAS
Panel 3	Academia	Counseling and Islamic Studies	Associate Professor	UKM
Panel 4	Academia	Counseling	Dr	UKM
Panel 5	Academia	Islamic Studies and Syariah	Associate Professor	USIM
Panel 6	Academia	Islamic Studies and Counseling	Dr	USIM
Panel 7	Practitioner	Psychology & Counseling	Madam	UMP
Panel 8	Practitioner	Psychology & Counseling	Madam	UPM
Panel 9	Academia	Counseling and Islamic Studies	Karyawan Tamu	USIM
Panel 10	Academia	Counseling	Associate Professor	OUM
Panel 11	Academia	Psychometric	Dr	UKM
Panel 12	Academia	Psychometric	Dr	UTM
Panel 13	Academia	Malay Language	Dr	UKM

All experts have a minimum qualification of master's degree. Only one academia expert has Islamic Studies background and two academia experts from Counseling background. Four other experts are from mix backgrounds of Counseling and Islamic studies or have shown interest in Islamic religiosity studies from their writings and publications. All these experts are lecturers and active in research and publications. There are two practitioners involved in the study who were registered counselors in their specific institutions with a minimum of ten years experiences in practice. They have also showed interest in religiosity content during their talk. These

mixtures of experts' background are believed can help to improve the items since both backgrounds, Islamic Religiosity Studies and Counseling are needed to examine the items before its ready to be administered in a pilot study. The experts in Psychometrics and Language Studies are from their perspectives background and have experience in instruments development. Experts' feedbacks help in improving the items and items being examined to address their specific constructs and subconstructs.

Items which were inappropriate or inaccurate in terms of content were reword and rewritten for the pilot study. 180 items during the development phase remained but negative items were reduced from 60 to 29 items. Below is the list of the negative items before and after the experts' review. See Table 3.11.

Table 3.11 Negative Items Before and After Experts' Review

BIL	ITEM NUMBER	NEGATIVE ITEM BEFORE EXPERT REVIEW	STATUS	ITEM AFTER EXPERT REVIEW
ISLAM COGNITIVE				
1.	Q 3	I believe <i>syahadah</i> does not play any role as long as one is good <i>Saya percaya syahadah tidak memainkan peranan selagi seseorang itu baik</i>	CHANGED TO POSITIVE	I believe <i>syahadah</i> is important for a person to be good <i>Saya percaya syahadah penting untuk seseorang menjadi baik</i>
2.	Q 4	I think prayer does not help reduce stress <i>Saya fikir solat tidak membantu mengurangkan stress</i>	CHANGED TO POSITIVE	I am sure I pray perfectly <i>Saya yakin saya solat dengan sempurna</i>
3.	Q 7	I believe fasting and body health are not related <i>Saya percaya berpuasa dan kesihatan badan tidak ada kaitan</i>	CHANGED TO POSITIVE	I believe fasting is related to body health <i>Saya percaya puasa dengan kesihatan badan berkaitan</i>
4.	Q 12	I believe the income I earn is my right alone <i>Saya percaya pendapatan yang saya perolehi adalah hak saya seorang sahaja</i>	REMAINED NEGATIVE	I believe the income I earn is my right alone <i>Saya percaya pendapatan saya adalah hak mutlak saya</i>
5.	Q 13	I do not believe performing Haj before I die is necessary <i>Saya tidak percaya menunaikan haji sebelum meninggal dunia adalah perlu</i>	REMAINED NEGATIVE	I do not believe performing Haj before I die is a must <i>Saya tidak percaya menunaikan haji sebelum meninggal dunia adalah satu kewajipan</i>
ISLAM EMOTION				
6.	Q 18	I do not appreciate the meaning of <i>syahadah</i> <i>Saya kurang menghayati makna syahadah</i>	CHANGED TO POSITIVE	I do appreciate the meaning of <i>syahadah</i> <i>Saya menghayati makna dua kalimah syahadah</i>
7.	Q 21	I often unable to internalize the reading in prayer <i>Saya sukar menghayati bacaan dalam solat</i>	REMAINED NEGATIVE	I am difficult to internalize the reading in prayer <i>Saya sukar untuk menghayati bacaan dalam solat</i>
8.	Q 22	I am impatient when fasting <i>Saya kurang bersabar apabila berpuasa</i>	CHANGED TO POSITIVE	I am more patient when fasting <i>Saya makin banyak bersabar apabila berpuasa</i>
9.	Q 27	I am envious of those who accept <i>zakat</i> <i>Saya rasa iri hati dengan penerima zakat</i>	REMAINED NEGATIVE	I have doubts where <i>zakat</i> money is channelled <i>Saya berasa ragu-ragu ke mana wang zakat disalurkan</i>

BIL	ITEM NUMBER	NEGATIVE ITEM BEFORE EXPERT REVIEW	STATUS	ITEM AFTER EXPERT REVIEW
10.	Q 30	I am happy to be able to perform Haj even from unknown sources <i>Saya bahagia jika dapat menunaikan haji walaupun dari sumber yang tidak diketahui</i>	CHANGED TO POSITIVE	I am anxious if I violate the prohibition of ihram during Hajj <i>Saya gelisah jika melanggar larangan ihram semasa haji</i>
ISLAM BEHAVIORAL				
11.	Q 32	I always forget to pronounce <i>syahadah</i> before bed <i>Saya selalu lupa mengucap syahadah sebelum tidur</i>	CHANGED TO POSITIVE	I pronounce <i>syahadah</i> everyday <i>Saya mengucap syahadah setiap hari</i>
12.	Q 35	I rarely pray in a congregation <i>Saya jarang solat secara berjemaah</i>	REMAINED NEGATIVE	SAME
13.	Q 37	I fast without avoiding things that can reduce the reward <i>Saya berpuasa tanpa menghindari perkara yang boleh mengurangkan pahala</i>	CHANGED TO POSITIVE	I fast by avoiding things that can reduce the reward <i>Saya berpuasa dengan menghindari perkara yang boleh mengurangkan pahala</i>
14.	Q 42	I ignore about <i>zakat</i> payment <i>Saya tidak ambil tahu tentang bayaran zakat</i>	CHANGED TO POSITIVE	I prioritize the payment of my <i>zakat</i> <i>Saya mengutamakan bayaran zakat saya</i>
15.	Q 44	I have not trained myself regarding the pilgrimage <i>Saya tidak melatih diri saya berkaitan ibadah haji</i>	CHANGED TO POSITIVE	I make preparations to perform hajj <i>Saya membuat persediaan untuk mengerjakan ibadah haji</i>
IMAN COGNITIVE				
16.	Q 47	I think the existence of this world is not proof of the existence of Allah <i>Saya fikir kewujudan alam bukan bukti kewujudan Allah</i>	REMAINED NEGATIVE	SAME
17.	Q 51	I am not sure the angels really exist <i>Saya tidak yakin malaikat benar-benar ada</i>	REMAINED NEGATIVE	I do not believe angels exist <i>Saya tidak percaya malaikat wujud</i>
18.	Q 53	I do not expect the contents of the Qur'an will be preserved until the Day of the Hereafter <i>Saya tidak jangka isi kandungan al-Quran akan terpelihara sehingga hari akhirat</i>	REMAINED NEGATIVE	I do not believe that the contents of the Qur'an will be preserved until the hereafter <i>Saya tidak percaya akan isi kandungan al-Quran terpelihara hingga akhirat</i>
19.	Q 57	I believe Prophet Muhammad S.A.W is not free from sin <i>Saya percaya Nabi Muhammad S.A.W ada dosa</i>	CHANGED TO POSITIVE	I believe Prophet Muhammad S.A.W was protected by Allah from all sins <i>Saya percaya Nabi Muhammad S.A.W dipelihara Allah dari segala dosa</i>
20.	Q 60	I do not believe we need to prepare for life in the hereafter <i>Saya tidak percaya kita perlu membuat persediaan untuk kehidupan akhirat</i>	CHANGED TO POSITIVE	I believe we need to prepare for life in the hereafter <i>Saya percaya kita perlu membuat persediaan untuk kehidupan akhirat</i>
21.	Q 63	I believe I have to rely on myself solely in whatever I do <i>Saya percaya saya perlu bergantung kepada diri sendiri semata-mata dalam apa jua saya lakukan</i>	REMAINED NEGATIVE	I believe that every success that happens is because of my efforts alone <i>Saya percaya bahawa setiap kejayaan yang berlaku adalah kerana usaha saya semata-mata</i>
IMAN EMOTION				
22.	Q 66	I less trust Allah after my efforts <i>Saya kurang bertawakkal kepada Allah setelah berusaha</i>	CHANGED TO POSITIVE	I put my trust in Allah S.W.T after trying <i>Saya bertawakkal kepada Allah S.W.T setelah berusaha</i>
23.	Q 68	I feel at ease even though I know the angels have recorded what I did <i>Saya merasa selesa walaupun tahu malaikat ada mencatat apa yang saya lakukan</i>	REMAINED NEGATIVE	I feel not guilty of making mistakes even knowing angels always record my practices <i>Saya rasa tidak bersalah melakukan kesalahan walaupun tahu malaikat sentiasa mencatat amalan saya</i>
24.	Q 70	I am not impressed with the contents of the verses of the Quran	REMAINED NEGATIVE	I am not impressed with the contents of the verses of the Quran

BIL	ITEM NUMBER	NEGATIVE ITEM BEFORE EXPERT REVIEW	STATUS	ITEM AFTER EXPERT REVIEW
		<i>Saya tidak merasa kagum dengan isi kandungan ayat-ayat al-Quran</i>		<i>Saya tidak berasa kagum dengan isi kandungan ayat al-Quran</i>
25.	Q 73	I am not overwhelmed when I remembered the sacrifice of Prophet Muhammad S.A.W to his people <i>Saya tidak terharu bila mengenangkan pengorbanan Nabi Muhammad S.A.W terhadap umatnya</i>	REMAINED NEGATIVE	SAME
26.	Q 77	I am not afraid to imagine my situation after death <i>Saya tidak takut membayangkan keadaan saya selepas mati</i>	CHANGED TO POSITIVE	I am afraid to imagine my situation after death <i>Saya takut membayangkan keadaan saya selepas mati</i>
27.	Q 79	I was always depressed by Allah's test to me <i>Saya selalu tertekan dengan ujian Allah kepada saya</i>	REMAINED NEGATIVE	I feel very upset with the destiny of my life <i>Saya merasa sangat kesal dengan takdir hidup saya</i>
IMAN BEHAVIORAL				
28.	Q 83	I sometimes do the superstitious thing <i>Saya kadangkala ada melakukan perkara tahyul</i>	REMAINED NEGATIVE	I sometimes have followed the customs of the elders which are in conflict with religion <i>Saya kadangkala ada mengikut adat orang tua-tua yang bercanggah dengan agama</i>
29.	Q 86	I did not take care of my conversation though I was aware that my conversations were recorded by angels <i>Saya tidak menjaga percakapan saya walaupun sedar perbualan saya direkod oleh malaikat</i>	REMAINED NEGATIVE	I still do bad things even though I know the angels recorded it <i>Saya masih melakukan perkara yang tidak baik walaupun tahu malaikat mencatatnya</i>
30.	Q 89	I do not devote time to read the Qur'an every day <i>Saya tidak membaca al-Quran setiap hari</i>	CHANGED TO POSITIVE	I read the Quran everyday <i>Saya membaca al-Quran setiap hari</i>
31.	Q 93	I less in following the sunnah of the Messenger of Allah <i>Saya kurang mengikut sunnah Rasulullah</i>	CHANGED TO POSITIVE	I try to follow the sunnah of the Prophet <i>Saya berusaha mengikut sunnah Rasulullah</i>
32.	Q 96	I am less prepared to face the day of akhirat <i>Saya kurang membuat persediaan untuk menghadapi hari akhirat</i>	REMAINED NEGATIVE	SAME
33.	Q 97	I did not strive to do something because it was destined <i>Saya tidak berusaha bersungguh-sungguh melakukan sesuatu kerana ianya telah ditakdirkan</i>	REMAINED NEGATIVE	SAME
IHSAN COGNITIVE				
34.	Q 102	I often think human's perception is more important than Allah's perception <i>Saya seringkali berfikir pandangan manusia lebih penting daripada pandangan Allah</i>	CHANGED TO POSITIVE	I think Allah's view is more important than man's view <i>Saya beranggapan pandangan Allah lebih penting dari pandangan manusia</i>
35.	Q 105	I do not think gossiping about others is bad <i>Saya fikir bergosip tentang orang lain tidak memberi kesan buruk</i>	CHANGED TO POSITIVE	I think gossip has a bad effect on other people <i>Saya fikir mengumpat memberi kesan yang buruk kepada orang lain</i>
36.	Q 106	I believe I should not take care of the environment <i>Saya percaya saya tidak perlu menjaga alam sekitar</i>	REMAINED NEGATIVE	I believe caring for the environment is not my responsibility <i>Saya percaya menjaga alam sekitar bukanlah tanggungjawab saya</i>
37.	Q 110	I think taking care of health is not the responsibility of every Muslim <i>Saya fikir menjaga kesihatan diri bukanlah tanggungjawab setiap Muslim</i>	REMAINED NEGATIVE	SAME

BIL	ITEM NUMBER	NEGATIVE ITEM BEFORE EXPERT REVIEW	STATUS	ITEM AFTER EXPERT REVIEW
IHSAN EMOTION				
38.	Q 114	I rarely feel gratitude to God for the favored grace <i>Saya jarang bersyukur kepada Allah atas nikmat yang diberikan</i>	CHANGED TO POSITIVE	I am thankful to God for the blessings of life given <i>Saya bersyukur kepada Allah atas nikmat kehidupan yang diberikan</i>
39.	Q 116	I am satisfied when I can vent my anger to others <i>Saya berasa puas hati selepas melepaskan kemarahan saya pada orang lain</i>	REMAINED NEGATIVE	I am satisfied when I can vent my anger to others <i>Saya berpuas hati apabila dapat melepaskan kemarahan saya kepada orang lain</i>
40.	Q 118	I feel indifferent when I see the nature being tainted <i>Saya rasa acuh tak acuh sahaja apabila melihat alam dicemari</i>	CHANGED TO POSITIVE	I am saddened to see the environment polluted <i>Saya sedih apabila melihat alam sekitar dicemari</i>
41.	Q 123	I am easy to feel sad because I am often depressed <i>Saya mudah berasa sedih kerana sering tertekan</i>	REMAINED NEGATIVE	I have a hard time managing my emotions well <i>Saya sukar menguruskan emosi saya dengan baik</i>
IHSAN BEHAVIORAL				
42.	Q 126	I rarely perform <i>munajat</i> to Allah (worship Allah by praying, <i>zikir</i> , etc) <i>Saya jarang bermunajat kepada Allah</i>	REMAINED NEGATIVE	I complain more to man than to Allah S.W.T. <i>Saya lebih banyak mengadu kepada manusia berbanding kepada Allah S.W.T</i>
43.	Q 129	I did not keep a promise when promised <i>Saya tidak menepati janji apabila berjanji</i>	CHANGED TO POSITIVE	I kept my promise beyond what was promised <i>Saya menunaikan janji melebihi apa yang dijanjikan</i>
44.	Q 132	I rarely recycle used items <i>Saya jarang kitar semula barang-barang terpakai</i>	REMAINED NEGATIVE	I do not recycle used items <i>Saya tidak kitar semula barang-barang terpakai</i>
45.	Q 134	I rarely exercise for health <i>Saya jarang beriadah untuk menjaga kesihatan</i>	REMAINED NEGATIVE	I do not exercise to take care of my health <i>Saya tidak beriadah untuk menjaga kesihatan</i>
ILM COGNITIVE				
46.	Q 138	I do not believe all Muslims need to learn <i>Saya tidak percaya semua orang Islam perlu belajar</i>	CHANGED TO POSITIVE	I believe all Muslims need to study religion <i>Saya percaya semua orang Islam perlu belajar agama</i>
47.	Q 139	I believe it is able to practice the acceptable <i>ibadah</i> of Allah without knowledge <i>Saya percaya boleh melaksanakan amalan yang diterima Allah tanpa ilmu</i>	REMAINED NEGATIVE	I believe I can perform worship perfectly without knowledge <i>Saya percaya saya boleh melakukan ibadah dengan sempurna tanpa ilmu</i>
48.	Q 143	I believe everything I think is true <i>Saya percaya semua yang saya fikirkan adalah benar</i>	REMAINED NEGATIVE	I believe in logical things only <i>Saya percaya perkara yang logik akal sahaja</i>
49.	Q 145	I do not believe that early religious education is important <i>Saya tidak percaya pendidikan awal agama penting</i>	CHANGED TO POSITIVE	I believe early religious education is important <i>Saya percaya pendidikan awal agama itu penting</i>
50.	Q 149	I believe my faith in Islam is the same though learning more <i>Saya fikir keyakinan saya pada agama sama sahaja walaupun makin banyak belajar</i>	CHANGED TO POSITIVE	I think my confidence in religion increased the more I learned <i>Saya fikir keyakinan saya kepada agama semakin meningkat semakin banyak saya belajar</i>
ILM EMOTION				
51.	Q 153	I feel bored when I study <i>Saya rasa bosan bila belajar</i>	CHANGED TO POSITIVE	I like to study religion <i>Saya suka belajar ilmu agama</i>
52.	Q 156	I feel further away from Allah when I learn more knowledge <i>Saya rasa lebih jauh dengan Allah bila saya belajar lebih banyak ilmu</i>	CHANGED TO POSITIVE	I feel closer to Allah S.W.T when I learn more about religion

BIL	ITEM NUMBER	NEGATIVE ITEM BEFORE EXPERT REVIEW	STATUS	ITEM AFTER EXPERT REVIEW
				<i>Saya rasa lebih dekat dengan Allah S.W.T bila saya belajar lebih banyak ilmu agama</i>
53.	Q 158	I do not feel embarrassed when I do not practice what I have learned <i>Saya tidak rasa malu tidak mengamalkan apa yang saya belajar</i>	CHANGED TO POSITIVE	I am ashamed of not practicing the religious knowledge I learned <i>Saya rasa malu tidak mengamalkan ilmu agama yang saya belajar</i>
54.	Q 160	I feel I am not patient in the quest for knowledge throughout life <i>Saya tidak rasa saya tabah untuk menimba ilmu sepanjang hayat</i>	CHANGED TO POSITIVE	I think I have the perseverance to acquire religious knowledge for a lifetime <i>Saya rasa saya tabah untuk menimba ilmu agama sepanjang hayat</i>
55.	Q 164	I feel rich in wealth is more meaningful than rich in knowledge <i>Saya rasa kaya harta lebih bermakna daripada kaya ilmu pengetahuan</i>	REMAINED NEGATIVE	I think having wealth is more meaningful than having religious knowledge <i>Saya rasa memiliki harta lebih bermakna daripada memiliki ilmu agama</i>
ILM BEHAVIORAL				
56.	Q 166	I do not follow religious guidance continuously <i>Saya tidak mengikuti bimbingan agama secara berterusan</i>	CHANGED TO POSITIVE	I take religious guidance classes on an ongoing basis <i>Saya mengikuti kelas bimbingan agama secara berterusan</i>
57.	Q 168	I do not study religion other than those in school and university subjects <i>Saya tidak belajar agama selain daripada yang termasuk dalam subjek sekolah dan universiti</i>	REMAINED NEGATIVE	I do not study religion other than that taught in school and university subjects <i>Saya tidak belajar agama selain daripada yang diajar dalam matapelajaran sekolah dan universiti</i>
58.	Q 172	I do not have a teacher when studying religious knowledge <i>Saya tidak mempunyai guru apabila belajar agama</i>	CHANGED TO POSITIVE	I have a teacher to refer to religious matters <i>Saya mempunyai guru untuk merujuk hal agama</i>
59.	Q 174	I do not ask when I do not understand something <i>Saya tidak bertanya apabila tidak faham sesuatu perkara</i>	CHANGED TO POSITIVE	I ask when I do not understand something about religion <i>Saya bertanya apabila tidak faham sesuatu perkara tentang agama</i>
60.	Q 177	I do not make the religious knowledge learned as my life purpose <i>Saya tidak menjadikan pengetahuan agama sebagai tujuan hidup saya</i>	REMAINED NEGATIVE	I do not put the study of religion as one of the purposes of life <i>Saya tidak meletakkan mempelajari ilmu agama sebagai salah satu daripada tujuan hidup</i>

In terms of scoring, 5 Likert scales were used in the pilot study: 1) Not at all true about myself (*Sangat tidak benar tentang diri saya*); 2) Not true about myself (*Tidak benar tentang diri saya*); 3) Halfway true about myself (*Sederhana benar tentang diri saya*); 4) True about myself (*Benar tentang diri saya*); and 5) Very true about myself (*Sangat benar tentang diri saya*). These Likert scales were chosen because it helps to identify the agreement of self-reflection (Sinaian, 2014).

3.8.3 Content Validity Results

When developing a new instrument, there must be evidence that the instrument developed can measure what it is intended. This is because the result of an instrument

can be used to make inferences about the individuals. The purpose of the instrument should be clearly defined and examined for its content validity. Each set of newly constructed instrument items should be submitted to multiple experts for evaluation. The constructs should be well defined based on the theory used so that it can act as a guide in developing the items. This is to ensure the items are accurate with the theory defined for the construct (Hughes, 2018). In order to enhance the validity of the items that have been developed, it is recommended for the items to be evaluated by qualified experts so that the domains contained in the measurement tools represent the field of the study. Using experts' evaluation, the constructed items can be examined to see to what extent they can represent each construct measured (Polit & Beck, 2006). Experts help to review items so that items meet the measurement aspects of a construct (Kumar, Salim, & Ramayah, 2013) and use accurate and correct in terms of language (Tsang, Royse, & Terkawi, 2017).

The scale for the experts was set in 10 points Likert scale (1 strongly disagree to 10 strongly agree) (Ahmad Jazimin & Rozman, 2016; Mohammad Aziz Shah, 2018). In this study, content validity by the expert was using the formula by Sidek and Jamaludin (2005) as in Table 3.12 and according to subconstructs in Table 3.13 below:

$$\frac{\text{Total of the expert score (x)}}{\text{Maximum score}} \times 100\% = \text{Content Validity Achieved}$$

Table 3.12 Content Validity Achieved According to Items

BIL	ITEM	VALIDITY COEFFICIENT
ISLAM COGNITIVE		
1.	I believe with <i>syahadah</i> I become a responsible Muslim <i>Saya percaya syahadah menjadikan saya Muslim yang bertanggungjawab</i>	0.90
2.	I believe my <i>syahadah</i> is not void <i>Saya percaya syahadah saya tidak terbatal</i>	0.90
3.	I believe <i>syahadah</i> does not play any role as long as one is good (negative item) <i>Saya percaya syahadah tidak memainkan peranan selagi seseorang itu baik (negative item)</i>	0.82
4.	I think prayer does not help reduce stress (negative item) <i>Saya fikir solat tidak membantu mengurangkan stress (negative item)</i>	0.82
5.	I believe the prayers form my personalities <i>Saya percaya solat membentuk peribadi saya</i>	0.91
6.	I believe that taking care of prayer time can teach about time management <i>Saya anggap menjaga waktu solat boleh mendidik mengurus masa</i>	0.88
7.	I believe fasting and body health are not related (negative item) <i>Saya percaya berpuasa dan kesihatan badan tidak ada kaitan (negative item)</i>	0.87
8.	I believe fasting is a shield against restrictive things <i>Saya percaya puasa menjadi perisai menahan daripada melakukan perkara mungkar</i>	0.88

BIL	ITEM	VALIDITY COEFFICIENT
9.	I believe in Ramadhan is special from other months <i>Saya percaya bulan Ramadhan istimewa daripada bulan-bulan lain</i>	0.91
10.	I think there is a link between paying <i>zakat</i> with blessings of sustenance <i>Saya fikir bayar zakat dan keberkatan rezeki ada kaitan</i>	0.88
11.	I believe <i>zakat</i> helps the economy of Islam to become stronger <i>Saya percaya zakat membantu ekonomi orang Islam kukuh</i>	0.89
12.	I believe the income I earn is my right alone (negative item) <i>Saya percaya pendapatan yang saya perolehi adalah hak saya seorang sahaja (negative item)</i>	0.89
13.	I do not believe performing Haj before I die is necessary (negative item) <i>Saya tidak percaya menunaikan haji sebelum meninggal dunia adalah perlu (negative item)</i>	0.87
14.	I believe that <i>mabrur</i> pilgrimage (accepted by Allah) is invaluable <i>Saya percaya haji yang mabrur mendapat ganjaran yang tidak ternilai</i>	0.89
15.	I believe the pilgrimage is completely self-surrender to Allah S.W.T <i>Saya percaya haji merupakan penyerahan diri sepenuhnya kepada Allah S.W.T</i>	0.93
ISLAM EMOTION		
16.	I do <i>syahadah</i> with sincerity <i>Saya bersyahadah dengan ikhlas</i>	0.91
17.	I do not have any doubt when I do <i>syahadah</i> <i>Saya tiada rasa ragu-ragu apabila bersyahadah</i>	0.82
18.	I feel less slavery to Allah when I do <i>syahadah</i> (negative item) <i>Saya kurang rasa penghambaan kepada Allah apabila bersyahadah (negative item)</i>	0.82
19.	I feel nervous if performing the prayers late <i>Saya berasa gelisah jika menunaikan solat lewat</i>	0.89
20.	I often pray with full attention (<i>kusyuk</i>) <i>Saya selalu solat dengan kusyuk</i>	0.89
21.	I often unable to internalize the reading in prayer (negative item) <i>Saya selalunya tidak dapat menghayati bacaan dalam solat (negative item)</i>	0.89
22.	I am impatient when fasting (negative item) <i>Saya kurang bersabar apabila berpuasa (negative item)</i>	0.90
23.	I feel sympathy for the hardship of the poor when fasting <i>Saya berasa simpati dengan kesusahan orang miskin apabila berpuasa</i>	0.90
24.	I enjoy fasting <i>Saya berasa seronok berpuasa</i>	0.91
25.	I feel grateful if I can pay <i>zakat</i> <i>Saya rasa bersyukur jika dapat membayar zakat</i>	0.90
26.	I feel calm if my <i>zakat fitrah</i> has been paid <i>Saya merasa tenteram jika zakat fitrah saya telah dibayar</i>	0.88
27.	I am envious of those who accept <i>zakat</i> (negative item) <i>Saya rasa iri hati dengan penerima zakat (negative item)</i>	0.88
28.	I feel worried if I am unable to perform Haj before I die <i>Saya bimbang jika tidak menunaikan haji sebelum meninggal dunia</i>	0.88
29.	I feel happy if I am able to perform Haj in healthy condition <i>Saya berasa gembira jika saya dapat menunaikan haji dalam keadaan sihat</i>	0.93
30.	I am happy to be able to perform Haj even from unknown sources (negative item) <i>Saya bahagia jika dapat menunaikan haji walaupun dari sumber yang tidak diketahui (negative item)</i>	0.87
ISLAM BEHAVIORAL		
31.	I always renew my <i>syahadah</i> <i>Saya selalu memperbaharui syahadah saya</i>	0.88
32.	I always forget to pronounce <i>syahadah</i> before bed (negative item) <i>Saya selalu lupa mengucap syahadah sebelum tidur (negative item)</i>	0.87
33.	I always pronounce <i>Lailahaillallah Muhammad Rasullullah</i> <i>Saya selalu menyebut Lailahaillallah Muhammad Rasullullah</i>	0.92
34.	I pray compulsory five times a day at early time <i>Saya solat wajib lima kali sehari di awal waktu</i>	0.88
35.	I rarely pray in a congregation (negative item) <i>Saya jarang solat secara berjemaah (negative item)</i>	0.87
36.	I pray with <i>tokmaninah</i> (pause before starting another movement)	0.88

BIL	ITEM	VALIDITY COEFFICIENT
	<i>Saya bersembahyang dengan tomakninah</i>	
37.	I fast without avoiding things that reduce the reward (negative item) <i>Saya berpuasa tanpa menghindari perkara yang boleh mengurangkan pahala (negative item)</i>	0.88
38.	I always have <i>sahur</i> when I fast <i>Saya selalu bersahur apabila berpuasa</i>	0.90
39.	I increase my practice of worship when fasting <i>Saya memperbanyakkan amal ibadah apabila berpuasa</i>	0.92
40.	My caretaker or I pay for my <i>zakat fitrah</i> every year <i>Saya atau penjaga saya membayar zakat fitrah untuk diri saya setiap tahun</i>	0.91
41.	I make sure my family members pay <i>zakat</i> <i>Saya memastikan ahli keluarga saya membayar zakat</i>	0.91
42.	I ignore about <i>zakat</i> payment (negative item) <i>Saya tidak ambil tahu tentang bayaran zakat (negative item)</i>	0.87
43.	I save money to perform Haj <i>Saya menyimpan wang untuk menunaikan haji</i>	0.89
44.	I have not trained myself regarding the pilgrimage (negative item) <i>Saya tidak melatih diri saya berkaitan ibadah haji (negative item)</i>	0.84
45.	I have signed up for the pilgrimage <i>Saya telah mendaftar untuk menunaikan haji</i>	0.87
IMAN COGNITIVE		
46.	I believe that Allah Almighty makes everything <i>Saya percaya bahawa Allah Maha Kuasa mencipta segala sesuatu</i>	0.93
47.	I think the existence of this world is not proof of the existence of Allah (negative item) <i>Saya fikir kewujudan alam bukan bukti kewujudan Allah (negative item)</i>	0.92
48.	I believe that Allah is perfect in nature <i>Saya percaya Allah sempurna sifatnya</i>	0.92
49.	I believe there are angels around me with their respective duties <i>Saya percaya adanya malaikat di sekeliling saya dengan tugas masing-masing</i>	0.93
50.	I believe there are angels who write everything I do <i>Saya percaya ada malaikat mencatat setiap apa yang saya lakukan</i>	0.93
51.	I'm not sure the angels really exist (negative item) <i>Saya tidak yakin malaikat benar-benar ada (negative item)</i>	0.91
52.	I believe the Qur'an as the last holy book <i>Saya percaya al-Quran sebagai kitab suci terakhir</i>	0.93
53.	I do not expect the contents of the Qur'an will be preserved until the Day of the Hereafter (negative item) <i>Saya tidak jangka isi kandungan al-Quran akan terpelihara sehingga hari akhirat (negative item)</i>	0.87
54.	I believe the Qur'an as a revelation from Allah <i>Saya percaya al-Quran adalah wahyu daripada Allah</i>	0.89
55.	I believe the Prophets and Messengers were sent by Allah to guide people <i>Saya percaya para Nabi dan Rasul diutuskan Allah untuk membimbing manusia</i>	0.94
56.	I believe that Prophet Muhammad S.A.W is the best example of all humanity <i>Saya percaya Nabi Muhammad S.A.W adalah contoh teladan terbaik kepada semua umat manusia</i>	0.94
57.	I believe Prophet Muhammad S.A.W is not free from sin (negative item) <i>Saya percaya Nabi Muhammad S.A.W ada dosa (negative item)</i>	0.93
58.	I believe humans will be awakened in the Hereafter to be judged <i>Saya percaya manusia akan dibangkitkan pada Hari Kiamat untuk diadili</i>	0.94
59.	I do not hesitate there is life after death <i>Saya tidak ragu-ragu akan adanya kehidupan setelah mati</i>	0.94
60.	I do not believe we need to prepare for life in the hereafter (negative item) <i>Saya tidak percaya kita perlu membuat persediaan untuk kehidupan akhirat (negative item)</i>	0.95
61.	I believe that everything that happens there is wisdom behind it <i>Saya percaya bahawa setiap sesuatu yang terjadi ada hikmah di sebaliknya</i>	0.93
62.	I believe Allah will not burden me with things that I cannot bear <i>Saya percaya Allah tidak akan membebankan saya dengan perkara yang tidak mampu ditanggung oleh saya</i>	0.94

BIL	ITEM	VALIDITY COEFFICIENT
63.	I believe I have to rely on myself solely in whatever I do (negative item) <i>Saya percaya saya perlu bergantung kepada diri sendiri semata-mata dalam apa jua saya lakukan (negative item)</i>	0.92
IMAN EMOTION		
64.	I am pleased with the will of Allah S.W.T <i>Saya redha dengan kehendak Allah S.W.T</i>	0.92
65.	I feel inferior to Allah Almighty <i>Saya merasa rendah diri di hadapan Allah Yang Maha Agung</i>	0.93
66.	I less trust Allah after my efforts (negative item) <i>Saya kurang bertawakkal kepada Allah setelah berusaha (negative item)</i>	0.83
67.	I am impressed by the angels who always obey Allah's command <i>Saya merasa kagum dengan malaikat yang sentiasa mematuhi perintah Allah</i>	0.93
68.	I feel at ease even though I know the angels have recorded what I did (negative item) <i>Saya merasa selesa walaupun tahu malaikat ada mencatat apa yang saya lakukan (negative item)</i>	0.91
69.	I feel scared if imagined tortured by the angels in the grave <i>Saya berasa gerun jika membayangkan seksaan malaikat di alam kubur</i>	0.95
70.	I am not impressed with the contents of the verses of the Quran (negative item) <i>Saya tidak merasa kagum dengan isi kandungan ayat-ayat al-Quran (negative item)</i>	0.89
71.	I feel calm when I read al-Quran <i>Saya merasa tenang apabila membaca al-Quran</i>	0.96
72.	I feel sorry to read the disaster that fall into the unbelievers in the Quran <i>Saya berasa insaf membaca bala yang menimpa golongan yang engkar dalam al-Quran</i>	0.91
73.	I was not overwhelmed when I remembered the sacrifice of Prophet Muhammad S.A.W to his people (negative item) <i>Saya tidak terharu bila mengenangkan pengorbanan Nabi Muhammad S.A.W terhadap umatnya (negative item)</i>	0.89
74.	I enjoy reading the history of the prophets <i>Saya seronok dapat membaca sirah nabi-nabi</i>	0.91
75.	I was amazed by the struggles of the prophets <i>Saya merasa kagum dengan perjuangan para nabi</i>	0.91
76.	I hope to receive my book of practice through the right hand on the Day of Resurrection <i>Saya mengharapkan menerima buku amalan melalui tangan kanan pada Hari Kebangkitan nanti</i>	0.90
77.	I'm not afraid to imagine my situation after death (negative item) <i>Saya tidak takut membayangkan keadaan saya selepas mati (negative item)</i>	0.94
78.	I feel afraid of the punishment in the Day of Hereafter if I do not obey Allah's command <i>Saya merasa takut hukuman di Hari Akhirat jika saya engkar perintah Allah</i>	0.92
79.	I was always depressed by Allah's test to me (negative item) <i>Saya selalu tertekan dengan ujian Allah kepada saya (negative item)</i>	0.90
80.	I feel calm depend on Allah alone <i>Saya berasa tenang bergantung harap kepada Allah semata-mata</i>	0.92
81.	I do not despair of expecting Allah's grace <i>Saya tidak putus asa mengharapkan rahmat Allah</i>	0.92
IMAN BEHAVIORAL		
82.	I do not practice shirk (worship other than Allah) <i>Saya tidak melakukan perkara syirik</i>	0.92
83.	I sometimes do the superstitious thing (negative item) <i>Saya kadangkala ada melakukan perkara tahyul (negative item)</i>	0.86
84.	I obey Allah's command as much as I can <i>Saya melaksanakan apa yang diperintahkan oleh Allah semampu saya</i>	0.93
85.	I do good deeds and being conscious that they are recorded by angels <i>Saya membuat perkara kebaikan dan sedar ianya dicatat oleh malaikat</i>	0.95
86.	I did not take care of my conversation though I was aware that my conversations were recorded by angels (negative item) <i>Saya tidak menjaga percakapan saya walaupun sedar perbualan saya direkod oleh malaikat (negative item)</i>	0.93
87.	I stay away from sinful things because I do not want the angels to record my sins <i>Saya menjauhi perkara maksiat kerana tidak mahu malaikat mencatat dosa saya</i>	0.94

BIL	ITEM	VALIDITY COEFFICIENT
88.	I refer the Quran as a life guidance <i>Saya merujuk al-Quran untuk panduan hidup</i>	0.92
89.	I do not devote time to read the Qur'an every day (negative item) <i>Saya tidak membaca al-Quran setiap hari (negative item)</i>	0.94
90.	I read the Quran interpretations <i>Saya membaca tafsir al-Quran</i>	0.94
91.	I try to internalize the ethical behavior of the Prophet in my daily life <i>Saya cuba melaksanakan kelakuan etika nabi dalam kehidupan seharian</i>	0.89
92.	I always recite praises (<i>salawat</i>) for Prophet Muhammad S.A.W <i>Saya selalu berselawat kepada Nabi Muhammad S.A.W</i>	0.95
93.	I less in following the sunnah of the Messenger of Allah (negative item) <i>Saya kurang mengikut sunnah Rasulullah (negative item)</i>	0.92
94.	I often pray to Allah for good in the hereafter <i>Saya selalu berdoa kepada Allah supaya mendapat kebaikan di akhirat</i>	0.94
95.	I practice goodness as the preparation for the day of hereafter <i>Saya berbuat amal kebaikan sebagai bekalan di hari akhirat</i>	0.93
96.	I'm less prepared to face the day of <i>akhirat</i> (negative item) <i>Saya kurang membuat persediaan untuk menghadapi hari akhirat (negative item)</i>	0.94
97.	I did not strive to do something because it was destined (negative item) <i>Saya tidak berusaha bersungguh-sungguh melakukan sesuatu kerana ianya telah ditakdirkan (negative item)</i>	0.92
98.	I was trying to get the best in my life <i>Saya berikhtiar mendapatkan yang terbaik dalam hidup saya</i>	0.94
99.	I am trying to make a difference in my life toward goodness <i>Saya berusaha membuat perubahan dalam hidup saya ke arah kebaikan</i>	0.96
IHSAN COGNITIVE		
100.	I always thought myself as a devout servant of Allah <i>Saya sering berfikir diri saya sebagai seorang hamba Allah yang taat</i>	0.94
101.	I think Allah always observing me <i>Saya fikir Allah sentiasa memerhatikan saya</i>	0.94
102.	I often think human's perception is more important than Allah's perception (negative item) <i>Saya seringkali berfikir pandangan manusia lebih penting daripada pandangan Allah (negative item)</i>	0.92
103.	I believe in facilitating the business of others, my business will be simplified <i>Saya percaya memudahkan urusan orang lain, urusan saya akan dipermudahkan</i>	0.92
104.	I believe the best person is the one that benefits others <i>Saya percaya orang yang terbaik adalah yang memberi manfaat kepada orang lain</i>	0.94
105.	I do not think gossiping about others is bad (negative item) <i>Saya fikir bergosip tentang orang lain tidak memberi kesan buruk (negative item)</i>	0.90
106.	I believe I should not take care of the environment (negative item) <i>Saya percaya saya tidak perlu menjaga alam sekitar (negative item)</i>	0.90
107.	I believe all creations are made to complement one another <i>Saya percaya semua makhluk dijadikan untuk melengkapi satu sama lain</i>	0.90
108.	I believe the cruelty on the animal is a tyrant act <i>Saya percaya perbuatan menyiksa binatang adalah perbuatan zalim</i>	0.93
109.	I believe covering <i>aurat</i> is my duty as a Muslim <i>Saya percaya menutup aurat adalah kewajipan saya sebagai seorang Islam</i>	0.86
110.	I don't think taking care of health is the responsibility of every Muslim (negative item) <i>Saya fikir menjaga kesihatan diri bukanlah tanggungjawab setiap Muslim (negative item)</i>	0.94
111.	I believe Allah loves people who take care of hygiene <i>Saya percaya Allah sukakan orang yang jaga kebersihan diri</i>	0.95
IHSAN EMOTION		
112.	I was very scared of Allah's wrath on me <i>Saya sangat takutkan kemurkaan Allah</i>	0.93
113.	I am very hopeful of the blessings of Allah in whatever I do <i>Saya sangat mengharapkan keberkatan dari Allah dalam apa jua saya lakukan</i>	0.93
114.	I rarely feel gratitude to God for the favored grace (negative item) <i>Saya jarang bersyukur kepada Allah atas nikmat yang diberikan (negative item)</i>	0.88
115.	I am happy to be able to give charity	0.94

BIL	ITEM	VALIDITY COEFFICIENT
	<i>Saya merasa gembira apabila dapat bersedekah</i>	
116.	I feel satisfied after releasing my anger to others (negative item) <i>Saya berasa puas hati selepas melepaskan kemarahan saya pada orang lain (negative item)</i>	0.90
117.	I'm happy to be able to help others <i>Saya berasa gembira apabila dapat membantu orang lain</i>	0.93
118.	I feel indifferent when I see the nature being tainted (negative item) <i>Saya rasa acuh tak acuh sahaja apabila melihat alam dicemari (negative item)</i>	0.86
119.	I'm happy when I can feed animals <i>Saya rasa gembira apabila dapat memberi haiwan makan</i>	0.92
120.	I feel calm when I see the beauty of nature <i>Saya rasa tenang apabila melihat keindahan alam</i>	0.93
121.	I'm happy when eating healthy food <i>Saya rasa gembira jika makan makanan yang sihat</i>	0.95
122.	I am grateful when I am healthy <i>Saya berasa bersyukur apabila saya sihat</i>	0.94
123.	I'm easy to feel sad because I'm often depressed (negative item) <i>Saya mudah berasa sedih kerana sering tertekan (negative item)</i>	0.90
IHSAN BEHAVIORAL		
124.	I avoid myself from doing things that keep me away from Allah <i>Saya hindarkan diri dari melakukan perkara yang menjauhkan saya dari Allah</i>	0.90
125.	I refrain myself from doing things that are prohibited to gain the pleasure of Allah <i>Saya menahan diri dari melakukan perkara yang dilarang demi mendapat keredhaan Allah</i>	0.92
126.	I rarely perform <i>munajat</i> to Allah (worship Allah by praying, <i>zikr</i> , etc) (negative item) <i>Saya jarang bermunajat kepada Allah (negative item)</i>	0.92
127.	I do not cheat others no matter what the consequences are <i>Saya tidak menipu orang lain walau apa pun kesan akibat daripadanya</i>	0.89
128.	I do not gossip about other people <i>Saya tidak bergosip mengenai orang lain</i>	0.90
129.	I did not keep a promise when promised (negative item) <i>Saya tidak menepati janji apabila berjanji (negative item)</i>	0.91
130.	I'm not torturing animals <i>Saya tidak menyiksa haiwan</i>	0.94
131.	I always help throw garbage in the streets <i>Saya selalu membantu membuang sampah di jalanan</i>	0.90
132.	I rarely recycle used items (negative item) <i>Saya jarang kitar semula barang-barang terpakai (negative item)</i>	0.90
133.	I do <i>istinjak</i> (self-cleansing after discharge) perfectly <i>Saya melakukan istinjak (pembersihan diri selepas buang air) dengan sempurna</i>	0.92
134.	I rarely exercise for health (negative item) <i>Saya jarang bertadah untuk menjaga kesihatan (negative item)</i>	0.92
135.	I do not do things that are harmful to me <i>Saya tidak membuat perkara mudharat terhadap diri saya</i>	0.91
ILM COGNITIVE		
136.	I believe the knowledge of Allah is broad and human knowledge limited <i>Saya yakin ilmu Allah luas dan ilmu manusia terbatas</i>	0.94
137.	I believe intellect is needed to spread religious knowledge <i>Saya percaya kebijaksanaan perlu digunakan untuk mengembangkan ilmu agama</i>	0.91
138.	I do not believe all Muslims need to learn (negative item) <i>Saya tidak percaya semua orang Islam perlu belajar (negative item)</i>	0.94
139.	I believe it is able to practice the acceptable <i>ibadah</i> of Allah without knowledge (negative item) <i>Saya percaya boleh melaksanakan amalan yang diterima Allah tanpa ilmu (negative item)</i>	0.92
140.	I believe all Muslims need to learn religious knowledge <i>Saya percaya semua orang Islam perlu belajar ilmu agama</i>	0.94
141.	I believe that knowledgeable community will create a prosperous society <i>Saya percaya masyarakat yang berilmu akan membentuk masyarakat sejahtera</i>	0.93

BIL	ITEM	VALIDITY COEFFICIENT
142.	I believe learn knowledge needs to come from the right source <i>Saya percaya belajar ilmu perlu datang dari sumber yang benar</i>	0.92
143.	I believe everything I think is true (negative item) <i>Saya percaya semua yang saya fikirkan adalah benar (negative item)</i>	0.92
144.	I believe learning is jihad <i>Saya percaya belajar adalah jihad</i>	0.94
145.	I do not believe that early religious education is important (negative item) <i>Saya tidak percaya pendidikan awal agama penting (negative item)</i>	0.94
146.	I believe studying religious knowledge will be able to warn about life in the hereafter <i>Saya percaya belajar ilmu agama dapat memberi peringatan tentang kehidupan akhirat</i>	0.94
147.	I believe reading is one of the ways to get knowledge <i>Saya percaya membaca adalah salah satu cara mendapatkan ilmu</i>	0.94
148.	I believe Allah will help those who want to learn about His religion <i>Saya percaya Allah akan membantu mereka yang ingin belajar tentang agamanya</i>	0.96
149.	I believe my faith in Islam is the same though learning more (negative item) <i>Saya fikir keyakinan saya pada agama sama sahaja walaupun makin banyak belajar (negative item)</i>	0.94
150.	I believe that Allah loves His servants to study <i>Saya percaya Allah sukakan hambaNya menuntut ilmu</i>	0.95
ILM EMOTION		
151.	I can appreciate something when I learn more about it <i>Saya dapat menghayati ilmu apabila saya banyak belajar tentangnya</i>	0.94
152.	I like to learn religion, so I can be more committed Muslim <i>Saya suka belajar agama supaya menjadi Muslim yang lebih komited</i>	0.94
153.	I feel bored when I study (negative item) <i>Saya rasa bosan bila belajar (negative item)</i>	0.90
154.	I feel happy when I live my life according to religion <i>Saya rasa hidup sejahtera apabila mengamalkan kehidupan mengikut lunas agama</i>	0.92
155.	I am happy to be able to practice the knowledge that I learned <i>Saya bahagia bila dapat beramal ilmu yang saya belajar</i>	0.93
156.	I feel further away from Allah when I learn more knowledge (negative item) <i>Saya rasa lebih jauh dengan Allah bila saya belajar lebih banyak ilmu (negative item)</i>	0.93
157.	The more I learn; I feel more afraid of leaving Allah's command <i>Makin saya belajar, saya makin takut untuk meninggalkan perintah Allah</i>	0.93
158.	I do not feel embarrassed when I do not practice what I have learned (negative item) <i>Saya tidak rasa malu tidak mengamalkan apa yang saya belajar (negative item)</i>	0.94
159.	I feel sincere in learning something <i>Saya ikhlas belajar sesuatu ilmu</i>	0.93
160.	I feel I am not patient in the quest for knowledge throughout life (negative item) <i>Saya tidak rasa saya tabah untuk menimba ilmu sepanjang hayat (negative item)</i>	0.92
161.	I am happy being able to control myself from doing immoral things when I have knowledge <i>Saya gembira dapat mengawal diri daripada maksiat apabila ada pengetahuan</i>	0.92
162.	I'm impressed by the parents who can educate young children to worship <i>Saya rasa kagum dengan ibubapa yang dapat mendidik kanak-kanak kecil beribadah</i>	0.92
163.	I feel impressed when I meet people of deep religious knowledge <i>Saya rasa kagum apabila bertemu dengan orang yang luas ilmu agamanya</i>	0.92
164.	I feel rich in wealth is more meaningful than rich in knowledge (negative item) <i>Saya rasa kaya harta lebih bermakna daripada kaya ilmu pengetahuan (negative item)</i>	0.94
165.	I'm happy when I can share knowledge, I've learned <i>Saya gembira bila menyampaikan ilmu yang saya pelajari</i>	0.96
ILM BEHAVIORAL		
166.	I do not follow religious guidance continuously (negative item) <i>Saya tidak mengikut bimbingan agama secara berterusan (negative item)</i>	0.92
167.	I have read books to improve my knowledge <i>Saya membaca buku untuk tingkatan ilmu saya</i>	0.92
168.	I do not study religion other than those in school and university subjects (negative item)	0.93

BIL	ITEM	VALIDITY COEFFICIENT
	<i>Saya tidak belajar agama selain daripada yang termasuk dalam subjek sekolah dan universiti (negative item)</i>	
169.	I studied religion in many aspects at least in general <i>Saya belajar agama dalam pelbagai aspek sekurang-kurangnya secara umum</i>	0.92
170.	I have studied what I have learned based on the Quran and Hadith <i>Saya mengkaji apa yang dipelajari berdasarkan al-Quran dan Hadis</i>	0.96
171.	I had my own method to understand the knowledge <i>Saya mempunyai kaedah sendiri untuk mudah memahami ilmu</i>	0.96
172.	I do not have a teacher when studying religious knowledge (negative item) <i>Saya tidak mempunyai guru apabila belajar agama (negative item)</i>	0.89
173.	I discuss about religion <i>Saya berbincang tentang agama</i>	0.89
174.	I do not ask when I do not understand something (negative item) <i>Saya tidak bertanya apabila tidak faham sesuatu perkara (negative item)</i>	0.96
175.	I make efforts to gain religious knowledge <i>Saya berusaha mendalami ilmu agama</i>	0.94
176.	I conveyed knowledge that I learned to others <i>Saya menyampaikan ilmu saya pelajari kepada orang lain</i>	0.94
177.	I do not make the religious knowledge learned as my life purpose (negative item) <i>Saya tidak menjadikan pengetahuan agama sebagai tujuan hidup saya (negative item)</i>	0.92
178.	When I learned something, I practice it <i>Apabila belajar sesuatu ilmu, saya mengamalkannya</i>	0.93
179.	I try to understand the Quran <i>Saya berusaha untuk memahami al-Quran</i>	0.94
180.	I studied the various authors' works to explore knowledge <i>Saya kaji karya-karya pelbagai penulis untuk mendalami ilmu</i>	0.92

Table 3.13 Content Validity According to Subconstructs

BIL	CONSTRUCT	MINIMUM VALUE	MAXIMUM VALUE	ITEM TOTAL	VALIDITY COEFFICIENT
13.	Islam Cognitive	0.82	0.93	15	0.88
14.	Islam Emotion	0.82	0.93	15	0.88
15.	Islam Behavioral	0.84	0.92	15	0.89
16.	Iman Cognitive	0.87	0.95	18	0.93
17.	Iman Emotion	0.86	0.96	18	0.91
18.	Iman Behavioral	0.86	0.96	18	0.93
19.	Ihsan Cognitive	0.86	0.95	12	0.92
20.	Ihsan Emotion	0.86	0.95	12	0.92
21.	Ihsan Behavioral	0.89	0.94	12	0.91
22.	Ilm Cognitive	0.91	0.96	15	0.94
23.	Ilm Emotion	0.90	0.96	15	0.93
24.	Ilm Behavioral	0.89	0.96	15	0.93

Content validity for items shows that the highest value of the coefficient for items reviewed by experts was 0.96 and the lowest value of the coefficient was 0.82. Validity coefficients more than 70% is considered good, achieved high level and relevance to be used (Sidek & Jamaluddin, 2005; Mohammad Aziz Shah et al., 2014;

Ahmad Jazimin & Rozman, 2016). Islam Cognitive and Islam Emotion constructs have the lowest coefficient value which is 0.82 while *Ilm* Cognitive has the highest coefficient value of 0.94.

3.9 Pilot Study

A pilot study is a pre-testing of a particular research instrument in a small setting used to assess the practicalities in preparation of the final study (Malmqvist et al., (2019). In this study where instrument development is carried out, the need to identify whether the constructs and items developed can measure the *Mutadayyin* concept is important by observing how well the respondents can respond to the items developed, and how the items can interact within and between the constructs to produce measuring instruments that have high reliability and validity. Pilot study can also be used to improve the final study where the practitioners can practice the effectiveness of data collection and analysis technique (Doody & Doody, 2015). As this study intend to use Rasch Measurement Model (RMM), the findings from the pilot study can help to strengthen the items to be used in final study. If the result of a pilot study supported the instrument development's theory, the validity and reliability can be established, and the tools suggested can be used to assess the population targeted (Horita et al., 2020).

A pilot study was taken place in one of the public universities in Malaysia. The population in February 2018 was 9173 for undergraduates' students (Facts & Figures, Student Affairs Division, 2018). The sampling technique used was proportion stratified sampling, where the level of stratified proportion is the faculty. The sampling chosen was from different gender, faculties and years of study to represent the sampling that will be recruited in final study (Doody & Doody, 2015). The procedure of the pilot test used a paper and pencil test questionnaire distributed to a sample of students as shown in Table 3.14.

Table 3.14 Sampling Technique Calculation for Pilot Study

Faculty	Population	Rate	Percentage	Target Sampling
FPQS	1724	0.188	18.79	75
FKP	1354	0.148	14.76	59
FSU	1330	0.145	14.50	58
FEM	1696	0.185	18.49	74

FPBU	772	0.084	8.42	34
FST	1597	0.174	17.41	70
FPG	139	0.015	1.52	6
FPSK	318	0.035	3.47	14
FKAB	243	0.026	2.65	11

The main purpose of the study is to ensure that the instrument works properly in the final study by dropping items that do not fit after the Rasch analysis (Mohd Effendi, 2015). The RMM estimates the degree of suitability of items that measures a construct and provides calculations to ensure that the scale is accurately calibrated. After the analysis, the best items were chosen from the pool of the items, the unfit items were discharged, and items were rearranged, ready for the final study.

3.10 Pilot Study Results

Data were analysed using SPSS 23 and Winstep 3.73. 25 outliers were removed before the data were run in Winstep. Instrument response rate was 92.5%, exceeding the proposed rate of 90% (Mohd Effendi, 2015). 401 respondents' result was analysed in the pilot study. The data were analysed using the Rasch Measurement Model (RMM). RMM is a modern psychometric theory that helps giving an idea of the functionality of the items to anticipate individual performance. RMM prioritizes individual capabilities and item difficulty levels. This help giving the reliability of the items as well as the reliability of the person. Several tests are employed under RMM such as item fit, unidimensionality, local independence, item polarity, differential item functioning, reliability index, separation index, item person map, scale revision, and scalogram. The RMM help to ensure the validity and reliability of an instrument (Bond, 2003).

3.11 Respondents' Demography

The respondents' demography in Table 3.15 shows that male students recorded 94 (23.4%) and female students 307 (76.6%). Year 3 was the highest number of samples with 196 (48.9%). In terms of faculty, FST recorded the highest number of respondents with a total of 84 (20.9%).

Table 3.15 Demography of Respondents

Gender		
Male	94	23.4
Female	307	76.6
Year of Study		
Year 1	10	2.5
Year 2	186	46.4
Year 3	196	48.9
Year 4	9	2.2
Faculty		
FPQS	64	16.0
FKP	63	15.7
FSU	40	10.0
FEM	65	16.2
FPBU	33	8.2
FST	84	20.9
FPg	5	1.2
FPSK	4	1.0
FKAB	43	10.7
TOTAL	401	100

3.12 Person and Item Reliability

Table 3.16 represents the reliability of the person. The analysis shows that the reliability of the person was 0.95 approximating the suggested value of the model i.e. 0.96 (Adibah, 2013; Azrilah, Mohd Saidfudin, & Azami Zaharim, 2013). Person separation is also good which is reported at 4.48, which shows the study manage to divide the respondents into more than 2 groups (Adibah, 2013; Azrilah, Mohd Saidfudin, & Azami Zaharim, 2013).

Table 3.16 Person Reliability

	TOTAL SCORE	COUNT	MEASURE	MODEL ERROR	INFIT MNSQ	ZSTD	OUTFIT MNSQ	ZSTD
MEAN	406.6	114.8	4.16	.21	1.03	.2	.93	-.2
S.D.	26.1	.6	1.00	.04	.19	1.3	.28	1.2
MAX.	449.0	115.0	6.39	.34	1.53	3.7	1.83	5.2
MIN.	325.0	112.0	1.61	.16	.62	-3.6	.32	-2.9
REAL RMSE	.22	TRUE SD	.98	SEPARATION	4.48	Person RELIABILITY	.95	
MODEL RMSE	.21	TRUE SD	.98	SEPARATION	4.68	Person RELIABILITY	.96	
S.E. OF Person MEAN = .07								

DELETED: 184 Person

Person RAW SCORE-TO-MEASURE CORRELATION = .98

CRONBACH ALPHA (KR-20) Person RAW SCORE "TEST" RELIABILITY = .96

Table 3.17 represents the reliability of the item. The analysis shows that the reliability of the item is 0.98 equals the suggested value of the model of 0.98 (Adibah, 2013; Azrilah, Mohd Saidfudin, & Azami Zaharim, 2013). Cronbach Alfa value 0.96 is characterized as excellent as its records value above 0.94 (Fisher, 2007). Item separation reported 7.73 which is more than two groups. This show item difficulties have been well distributed and positioned items on the logit scale are to have high reliability. According to Fisher (2007), the separation index between three to four as good and the index exceeds five as brilliant.

Table 3.17 Item Reliability

	TOTAL	COUNT	MEASURE	MODEL	INFIT		OUTFIT	
	SCORE				ERROR	MNSQ	ZSTD	MNSQ
MEAN	672.1	189.6	.00	.17	.99	.1	.93	-.1
S.D.	68.6	.6	1.45	.06	.17	1.5	.26	1.7
MAX.	754.0	190.0	3.58	.42	1.46	4.4	1.59	4.8
MIN.	470.0	188.0	-3.01	.12	.66	-3.2	.33	-3.0
REAL RMSE	.19	TRUE SD	1.44	SEPARATION	7.73	Item	RELIABILITY	.98
MODEL RMSE	.18	TRUE SD	1.44	SEPARATION	7.88	Item	RELIABILITY	.98
S.E. OF Item MEAN = .14								

3.13 Scale Calibration

Rasch analysis can help to determine the validity of the scale (Adibah, 2013) and review whether the scale used can be maintained or vice versa (Mohd Effendi, 2015). Table 3.18 below shows the calibration analysis of instrument rating scales with 5 scales. The arc shape for each category did not show a comfortable peak where scale 2 can be seen sank compared to other scales, see in Figure 3.7. The measure set for the structure to be used was s in the range of $1.4 < s < 5.0$ (Azrilah, Mohd Saidfudin, & Azami Zaharim, 2013). If looking at Table 4.1, scale 3 does not fit between the range. However, in choosing which scale to be merged with other scales, the study choose scale 2 merged to scale 1 as scale 2 shown sank compared to other scales and the observed count of responses was lower compared to other scales. This is also following the guidelines that collapsing the scales should be logical (Bond & Fox, 2007). Keeping the medium scale will allow the individuals who want to report their moderate agreement able to do so (Krosnick & Presser, 2009).

Table 3.18 Average Measurement Category: Average Observed

SUMMARY OF CATEGORY STRUCTURE. Model="R"

CATEGORY LABEL	OBSERVED SCORE	OBSVD COUNT	SAMPLE %	INFINIT AVRGE	OUTFIT EXPECT	MNSQ	MNSQ	ANDRICH THRESHOLD	CATEGORY MEASURE
1	1	9	0	2.47	-.19	2.38	3.00	NONE	(-3.73)
2	2	113	1	1.33*	.55	1.53	2.10	-2.37	-2.07
3	3	1671	8	1.74	1.56	1.16	1.26	-1.67	-.30
4	4	6339	29	2.85	3.00	.92	.74	.91	2.04
5	5	13673	63	4.85	4.81	.97	.98	3.13	(4.30)
MISSING		45	0	4.27					

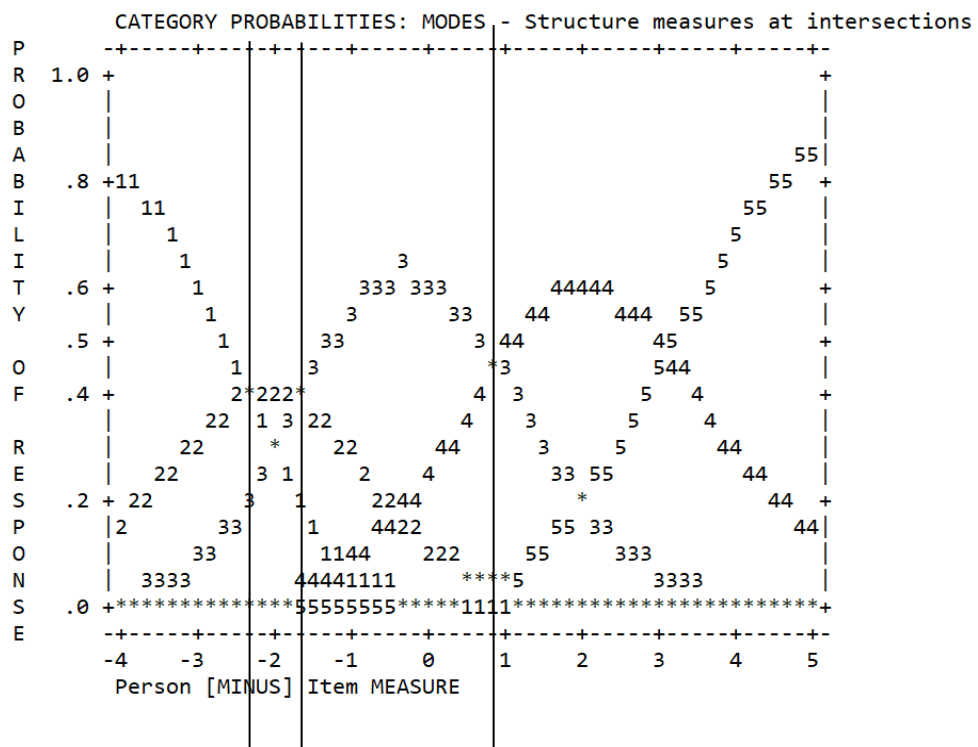


Figure 3.7 The Size of The Structure on The Crossing of The Rating Scale

After merging, the peak of each arc of the scales looks more comfortable in Figure 3.8 and all values except the merging scale of 1 and 2 were within the range $1.4 < s < 5.0$ (Table 3.19).

Table 3.19 Average Measurement Category: Average Observed - Scale Calibration

SUMMARY OF CATEGORY STRUCTURE. Model="R"

CATEGORY LABEL	OBSERVED SCORE	OBSVD COUNT	SAMPLE %	INFINIT AVRGE	OUTFIT EXPECT	INFINIT MNSQ	OUTFIT MNSQ	ANDRICH THRESHOLD	CATEGORY MEASURE
1	1	9	0	2.64	.38	2.35	1.88	NONE	(-5.44)
2	2	1805	8	1.82*	1.58	1.20	1.33	-4.34	-1.65
3	3	6433	29	2.98	3.13	.92	.75	1.05	2.17
4	4	13787	63	5.01	4.98	.99	1.01	3.29	(4.46)
MISSING		46	0	4.42					

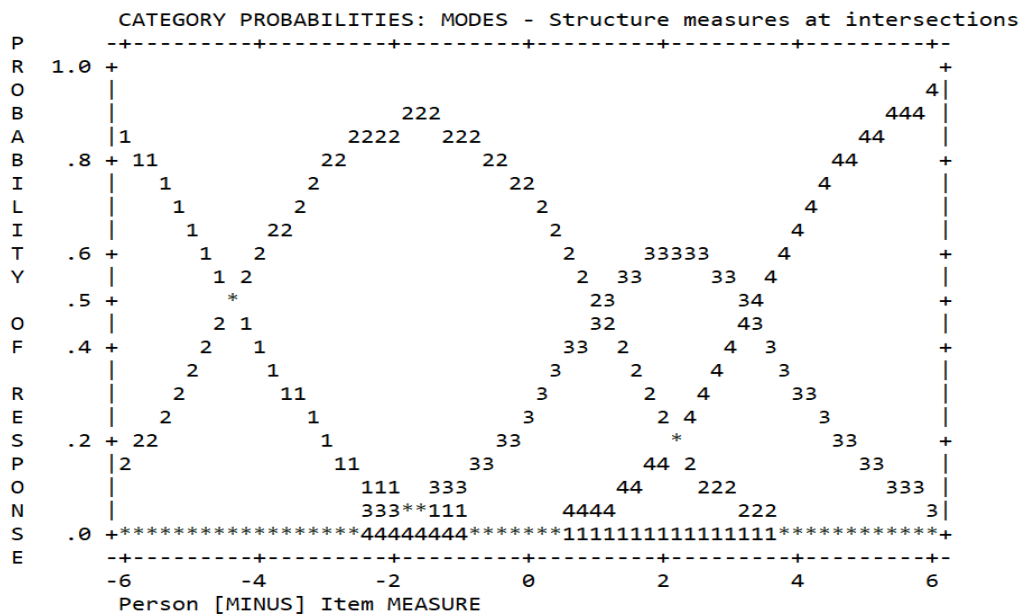


Figure 3.7 The Size of The Structure on The Crossing of The Rating Scale after Scale Calibration

3.14 Unidimensionality

Findings in Principal Component Analysis of Residual (PCA) in Table 3.20 shows the raw variance explained by measures is 45.4% and was close to the expected model of 47%. This result meets the RMM requirement at least a minimum achievement of raw variance explained by the measure of 40% (Azrilah, Mohd Saidfudin, & Azami Zaharim, 2013). Measured distraction rate or variance which was not explained in the first contrast recorded a value of 3.1% and categorized as excellent

and adequate as it was not more than 15% (Azrilah, Mohd Saidfudin, & Azami Zaharim, 2013). The minimum rate of 3:1 was achieved with the ratio of raw variance explained of 45.4% with unexplained variance in the first contrast of 5.6%. This shows the validity of the constructs in *Mutadayyin* Inventory pointing to one dimension only and measuring the dimensions to be measured.

Table 3.20 Principal Component Analysis of Residual (PCA)

TABLE 23.0 data378 ZOU392WS.TXT Mar 27 10:11 2019
 INPUT: 376 Person 180 Item REPORTED: 190 Person 115 Item 4 CATS WINSTEPS 3.73

Table of STANDARDIZED RESIDUAL variance (in Eigenvalue units)

		-- Empirical --	Modeled
Total raw variance in observations	=	210.8 100.0%	100.0%
Raw variance explained by measures	=	95.8 45.4%	47.0%
Raw variance explained by persons	=	35.7 16.9%	17.5%
Raw Variance explained by items	=	60.1 28.5%	29.5%
Raw unexplained variance (total)	=	115.0 54.6%	100.0%
Unexplned variance in 1st contrast	=	6.4 3.1%	5.6%
Unexplned variance in 2nd contrast	=	5.8 2.8%	5.1%
Unexplned variance in 3rd contrast	=	3.7 1.8%	3.2%
Unexplned variance in 4th contrast	=	3.6 1.7%	3.2%
Unexplned variance in 5th contrast	=	3.2 1.5%	2.8%

STANDARDIZED RESIDUAL VARIANCE SCREE PLOT

Table 3.21 Subconstructs Eigen Value According to Constructs

Subconstructs	Eigen Value
Islam Cognitive	2.2
Islam Emotion	2.2
Islam Behavior	1.4
<i>Iman</i> Cognitive	2.3
<i>Iman</i> Emotion	1.7
<i>Iman</i> Behavior	1.9
<i>Ihsan</i> Cognitive	1.8
<i>Ihsan</i> Emotion	1.6
<i>Ihsan</i> Behavior	1.5
<i>Ilm</i> Cognitive	2.3
<i>Ilm</i> Emotion	2.0
<i>Ilm</i> Behavior	1.9

The eigenvalue for each subconstruct in Table 3.21 shows value 2.3 and below as Linacre (2009) suggested that value below 3 indicates that the second dimension did not clearly exist.

3.15 Item Polarity

Item polarity (PTMEA) measures to what extent items measure the same constructs and all items measure a single subconstruct (Bond & Fox, 2007). The best value of the polarity of the item obtained should have a positive value and is between 0.28 to 0.85 logits (Azrilah et al., 2013). In this study after all the analysis above has been done, there were 6 items that less than 0.28 which were numbers 4, 11, 39, 46, 49 and 129. Item 129 was removed while other items remained because of certain considerations. When removing items 4 and 11 under Islam Cognitive, reliability construct decreases. Item 39 in Islam Behavioral, item 46 and 49 in *Iman* Cognitive were re-entered to increase the number of items left in the constructs. Since all of them are still in positive values and there are no values below 0.20, these items are retained. This is because a value of negative or below 0.20 is necessary dropped because it did not measure any constructs (Adibah, 2013), see Table 3.22.

Table 3.22 Item Polarity Measures

BIL	SUB CONSTRUCT	PTMEA		CORR		TOTAL ITEM
		MIN	ITEM	MAX	ITEM	
1	Islam Cognitive	0.22	4	0.45	14	13
2	Islam Emotion	0.27	20	0.57	24	12
3	Islam Behavioral	0.27	39	0.40	37	5
4	<i>Iman</i> Cognitive	0.27	49	0.43	62	7
5	<i>Iman</i> Emotion	0.33	77	0.55	80	12
6	<i>Iman</i> Behavioral	0.33	89	0.51	84	11
7	<i>Ihsan</i> Cognitive	0.32	100	0.50	111	8
8	<i>Ihsan</i> Emotion	0.42	113	0.54	119	9
9	<i>Ihsan</i> Behavioral	0.32	131	0.54	125	6
10	<i>Ilm</i> Cognitive	0.37	136	0.51	141	11
11	<i>Ilm</i> Emotion	0.38	151	0.61	157	11
12	<i>Ilm</i> Behavioral	0.42	178	0.57	171	10
TOTAL						115

After the analysis, the item separation (see Table 3.23) value for each sub construct is above 2.0 and reliability is between 0.85 to 0.99. There are three sub-constructs between 2 to 3 item separation, which shows medium item separation and 9 constructs between 3 to 9 which show high item separation. This result implies that the person sample is large enough to show the hierarchy of item difficulty. The reliability value exceeds 0.8 is accepted (Bond & Fox, 2007).

Table 3.23 Separation of Item and Subconstruct Reliability

BIL	SUB CONSTRUCT	SEPARATION	SUB CONSTRUCT RELIABILITY
1	Islam Cognitive	5.69	0.97
2	Islam Emotion	8.96	0.99
3	Islam Behavioral	3.67	0.93
4	<i>Iman</i> Cognitive	2.46	0.86
5	<i>Iman</i> Emotion	4.61	0.96
6	<i>Iman</i> Behavioral	8.41	0.99
7	<i>Ihsan</i> Cognitive	6.75	0.98
8	<i>Ihsan</i> Emotion	6.91	0.98
9	<i>Ihsan</i> Behavioral	9.01	0.99
10	<i>Ilm</i> Cognitive	2.42	0.85
11	<i>Ilm</i> Emotion	5.23	0.96
12	<i>Ilm</i> Behavioral	2.57	0.87

3.16 Item-Person Map

Item Person Map or sometimes also called Wright map shows the distribution of the difficulty of items in the instrument and is matched by respondent abilities. Both are on continuum measurements, the higher the logit item, the higher the item difficulty, and the higher the logit, the higher the capability of the respondent. All respondents were able to answer *Mutadayyin* Inventory since there were no items exceed the capabilities of respondents. The toughest question was ISE20 which was “I am focused when performing prayer/*Saya kusyuk menunaikan solat*” and the easiest question was IMK58 “I believe humans will be resurrected in Day of Hereafter to be judged/*Saya percaya manusia akan dibangkitkan pada hari akhirat untuk diadili*” (see Figure 3.8).

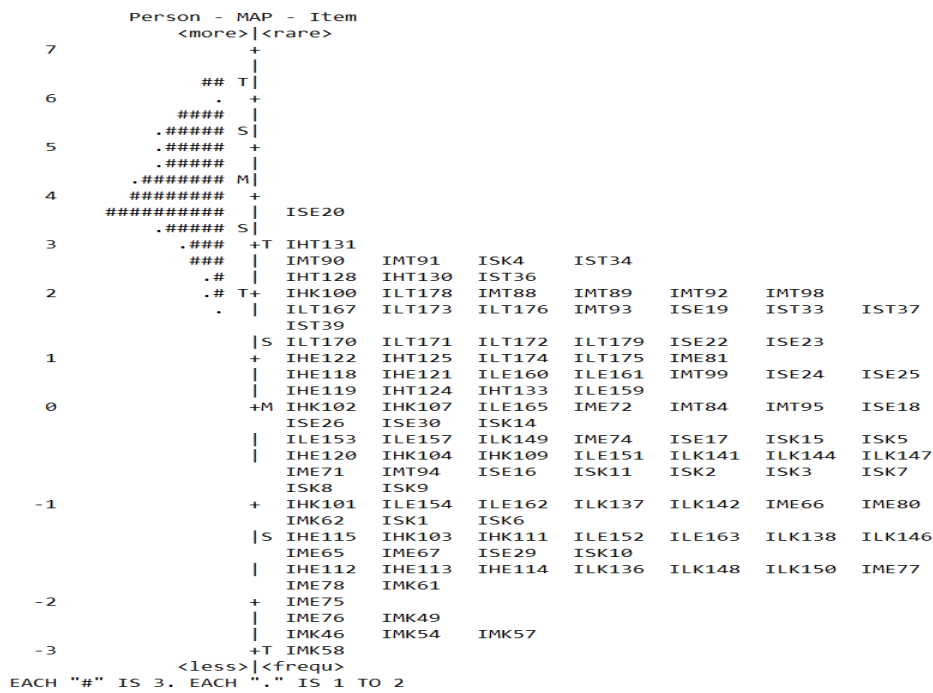


Figure 3.8 Item-Person Map

The outcome of the pilot study helps to revise items for the final study. Some items were removed, and the revised *Mutadayyin* Inventory consists of 115 items. All constructs remained with a minimum of 5 to a maximum of 13 items see Table 3.24.

Table 3. 24 List of Items after Pilot Study According to Constructs

BIL	CONSTRUCT	TOTAL ITEMS BEFORE DELETED	TOTAL DELETED ITEMS	DELETED ITEMS	ITEMS REMAIN	TOTAL ITEMS	ITEMS INCLUDED BACK	ITEMS FOR FINAL STUDY
1	Islam Cognitive	15	4	12, 13, 4, 11	1, 2, 3, 5, 6, 7, 8, 9, 10, 14, 15	11	4, 11	13
2	Islam Emotion	15	3	21, 27, 28	16, 17, 18, 19, 20, 22, 23, 24, 25, 26, 29, 30	12	-	12
3	Islam Behavioral	15	11	31, 32, 35, 38, 39, 40, 41, 42, 43, 44, 45	33, 34, 36, 37	4	39	5
4	<i>Iman</i> Cognitive	18	13	46, 47, 48, 49, 50, 51, 52, 53, 55, 56, 59, 60, 63	54, 57, 58, 61, 62	5	46, 49	7
5	<i>Iman</i> Emotion	18	6	64, 68, 69, 70, 73, 79	65, 66, 67, 71, 72, 74, 75, 76, 77, 78, 80, 81	12	-	12
6	<i>Iman</i> Behavioral	18	7	82, 83, 85, 86, 87, 96, 97	84, 88, 89, 90, 91, 92, 93, 94, 95, 98, 99	11	-	11

BIL	CONSTRUCT	TOTAL ITEMS BEFORE DELETED	TOTAL DELETED ITEMS	DELETED ITEMS	ITEMS REMAIN	TOTAL ITEMS	ITEMS INCLUDED BACK	ITEMS FOR FINAL STUDY
7	<i>Ihsan</i> Cognitive	12	4	105,106, 108, 110	100, 101, 102, 103, 104, 107, 109, 111	8	-	8
8	<i>Ihsan</i> Emotion	12	3	116, 117, 123	112, 113, 114, 115, 118, 119, 120, 121, 122	9	-	9
9	<i>Ihsan</i> Behavioral	12	6	126, 127, 129, 132, 134, 135	124, 125, 128, 130, 131, 133	6	-	6
10	<i>Ilm</i> Cognitive	15	4	139, 140, 143, 145	136, 137, 138, 141, 142, 144, 146, 147, 148, 149, 150	11	-	11
11	<i>Ilm</i> Emotion	15	4	155, 156, 158, 164	151, 152, 153, 154, 157, 159, 160, 161, 162, 163, 165	11	-	11
12	<i>Ilm</i> Behavioral	15	5	166, 168, 169, 177, 180	167, 170, 171, 172, 173, 174, 175, 176, 178, 179	10	-	10
TOTAL		180	70			110	5	115

The assessment for the pilot study has passed Rasch requirements and considered strong to be administered for the final study. Most respondents were competent to answer items in *Mutadayyin* Inventory. *Mutadayyin* Inventory's pilot study shown has good features in terms of its validity and reliability.

3.17 Fourth Phase – Final Study

The fourth phase was the final study, see Figure 3.9 for the process in the final study.

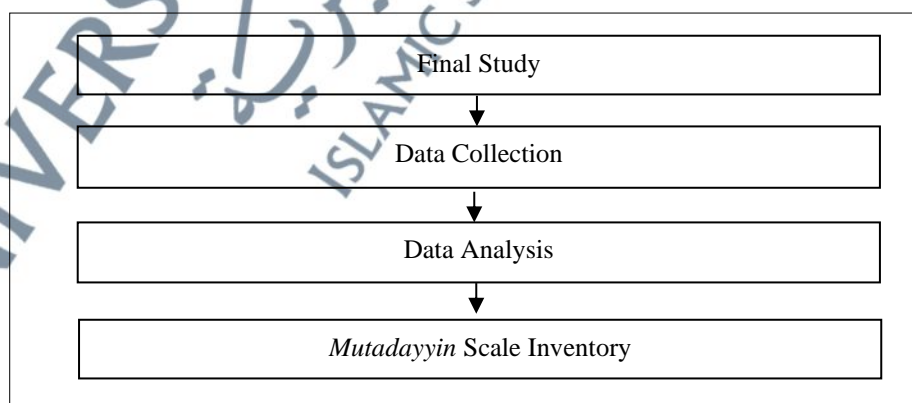


Figure 3.9 Phase 4- Final Study

The final study involved sampling selected so that *Mutadayyin* Inventory can be administered. It will involve data collection that will be analyzed to produce a *Mutadayyin* Inventory that can be used among undergraduate students.

3.17.1 Population and Sampling

This study focused on public universities students as respondents. The public university enrolment was 338,563 for undergraduate in 2018 (Kementerian Pendidikan Malaysia, 2018) and excluding one university that has already involved in the pilot study, the undergraduate total was 328,661. The target group for sampling in this study was Muslim undergraduate students that can answer the questionnaires in Malay in 19 public universities out of 20 universities. The sampling technique used was the proportionate stratified sampling. This sampling was chosen in this study to provide samples from the universities involved according to the proportion calculated. In Table 3.25 it was shown how the sampling technique calculated for target sampling in the final study.

Table 3.25 Sampling Technique Calculation for Final Study

University	Population	Rate	Percentage	Target Sampling
UM	15,816	0.048	4.81	48
USM	21,335	0.065	6.49	65
UKM	18,814	0.057	5.72	57
UPM	15,831	0.048	4.82	48
UTM	20,103	0.061	6.12	61
UUM	25,859	0.079	7.87	79
UIAM	20,072	0.061	6.11	61
UNIMAS	12,961	0.039	3.94	39
UMS	14,710	0.045	4.48	45
UPSI	13,537	0.041	4.12	41
UITM	78,825	0.240	23.98	240
UNISZA	7,652	0.023	2.33	23
UMT	8,755	0.027	2.66	27
UTHM	12,961	0.039	3.94	39
UTEM	10,638	0.032	3.24	32
UMP	9,669	0.029	2.94	29
UniMAP	10,365	0.032	3.15	32

University	Population	Rate	Percentage	Target Sampling
UMK	8,302	0.025	2.53	25
UPNM	2,456	0.007	0.75	7

The target sample was 1000 respondents while the minimum target of the sample was 500 respondents. This is a sufficient number of sample group according to Sekaran (2003) and Linacre (1994) see Table 3.26.

Table 3.26 Sample Size by Linacre (1994)

Item Calibrations or person measures stable within	Confidence	Minimum sample size range (best to poor targeting)	Size for most purposes
± 1 logit	95%	16 † -- 36	30 (minimum for dichotomies)
± 1 logit	99%	27 † -- 61	50 (minimum for polytomies)
$\pm \frac{1}{2}$ logit	95%	64 -- 144	100
$\pm \frac{1}{2}$ logit	99%	108 -- 243	150
Definitive or High Stakes	99%+ (Items)	250 -- 20*test length	250
Adverse Circumstances	Robust	450 upwards	500

The proportionate stratified sampling is used because it involves the selection of universities located in different states and stratification is believed to guarantee the selection of a sample that is truly representative of the study population (Mohd Effendi, 2015). The better the match between the sample profile and the population profile, the better a profile can be estimated (Lynn, 2019). This corresponds with the purpose of this study where the sample by each university were required since the inventory being administered to different university students who are likely to have different backgrounds and different types of courses.

Inventory administrations were performed with the researcher present in person at the universities and the appointment of representatives of the researcher who have been briefed to make the administration of the inventory at the selected universities.

3.17.2 Research Instrument

After the pilot study, all the four constructs: Islam, *Iman*, *Ihsan* and *Ilm* remained. All the subconstructs cognitive, emotion and behaviors under each construct also remained. There were 12 subconstructs and 115 items remained after pilot study ranged between 5 to 13 items in each subconstruct. 65 items were removed as they do not fit with Rasch Analysis. These 115 listed items are considered good items and are able to measure the level of *Mutadayyin* among the university students because it has fulfilled all the assumptions of the Rasch Model by covering item fit analysis, item and person reliability, unidimensionality, item polarity and scale calibration.

Items remained for the final study after the Rasch analysis is listed in Table 3.27. All negative items do not fit after the analysis therefore there was no negative item in the final study.

Table 3.27 List of *Mutadayyin* Inventory Items during the Final Study

Construct	Subconstructs	Element	Number of Items	Total items
Islam	Islam Cognitive	Thoughts and beliefs related to five pillars of Islam: i. Pronounce syahadah ii. Perform five times prayer a day iii. Fasting in the month of Ramadhan iv. Pay zakat v. Perform Hajj in Mecca	3 3 3 2 2	13
	Islam Emotion	Emotions and feelings related to the five pillars of Islam i. Pronounce syahadah ii. Perform five times prayer a day iii. Fasting in the month of Ramadhan iv. Pay zakat v. Perform Hajj in Mecca	3 2 3 2 2	12
	Islam Behavior	Actions and practices related to five pillars of Islam i. Pronounce syahadah ii. Perform five times prayer a day iii. Fasting in the month of Ramadhan iv. Pay zakat v. Perform Hajj in Mecca	1 2 2 0 0	5
<i>Iman</i>	<i>Iman</i> Cognitive	Thoughts and beliefs related to six pillars of <i>Iman</i> i. Believe in Allah ii. Believe in His angels iii. Believe in His Scriptures iv. Believe in apostles and prophets v. Belief in the Day of the Hereafter vi. Belief in <i>qada'</i> and <i>qadar</i>	1 1 1 1 1 2	7

Construct	Subconstructs	Element	Number of Items	Total items
	<i>Iman</i> Emotion	Emotions and feelings related to six pillars of <i>Iman</i> i. Believe in Allah ii. Believe in His angels iii. Believe in His Scriptures iv. Believe in apostles and prophets v. Belief in the Day of the Hereafter vi. Belief in <i>qada'</i> and <i>qadar</i>	2 1 2 2 3 2	12
	<i>Iman</i> Behavior	Action and practices related to six pillars of <i>Iman</i> i. Believe in Allah ii. Believe in His angels iii. Believe in His Scriptures iv. Believe in apostles and prophets v. Belief in the Day of the Hereafter vi. Belief in <i>qada'</i> and <i>qadar</i>	1 0 3 3 2 2	11
<i>Ihsan</i>	<i>Ihsan</i> Cognitive	Thoughts and beliefs related to: i. Take care of his relationship with Allah ii. Take care of his relationship with others iii. Do good to other Allah's creation including animals, trees, and environment. iv. Take care of oneself by taking care of his body, mind and soul and leave self-destructive acts	3 2 1 2	8
	<i>Ihsan</i> Emotion	Emotions and feelings related to: i. Take care of his relationship with Allah ii. Take care of his relationship with others iii. Do good to other Allah's creation including animals, trees, and environment. iv. Take care of oneself by taking care of his body, mind and soul and leave self-destructive acts	3 1 3 2	9
	<i>Ihsan</i> Behavior	Actions and practices related to <i>Ihsan</i> : i. Take care of his relationship with Allah ii. Take care of his relationship with others iii. Do good to other Allah's creation including animals, trees, and environment. iv. Take care of oneself by taking care of his body, mind and soul and leave self-destructive acts	2 1 2 1	6
<i>Ilm</i>	<i>Ilm</i> Cognitive	Thoughts and beliefs related to knowledge, learning, and education		11
	<i>Ilm</i> Emotion	Emotions and feelings related to knowledge, learning, and education		11
	<i>Ilm</i> Behavior	Action and practices related to knowledge, learning, and education		10
	Total			115

Each construct and subconstruct constructed have operational definition (see Appendix G). The instrument is divided into two parts. Part A is the student demographics

profiling involving gender, year of study and university, while Part B involves questions that measure the level of *Mutadayyin* among students.

Scale calibration analysis was conducted during the implementation of the pilot study to measure the suitability of the scale and the result showed that respondents confused with scale 1) Very not true about myself (*Sangat tidak benar tentang diri saya*) and scale 2) Not true about myself (*Tidak benar tentang diri saya*). Based on result in the pilot study, the final study used only four points Likert scale: 1) Not true about myself (*Tidak benar tentang diri saya*); 2) Halfway true about myself (*Sederhana benar tentang diri saya*); 3) True about myself (*Benar tentang diri saya*); and 4) Very true about myself (*Sangat benar tentang diri saya*).

3.18 Software Analysis

In this study, there were a few different analysis software being used for different purposes throughout the study. These include Microsoft Excel, Atlas T.I 8, SPSS 23.0 and Winstep 3.24.

Table 3.28 List of Data Analysis Software

No	Type of Study	Data Analysis Software	Purpose
1	Expert Interview	Atlas T.I 8	Qualitative Analysis
2	Expert Panel Review	Microsoft Excel 10	Content Validity
3	Pilot Study Research	SPSS 23.0 WinSteps 3.73	Descriptive Analysis Rasch Model Analysis
4	Final Study Research	SPSS 23.0 WinSteps 3.73	Descriptive Analysis Rasch Model Analysis

3.19 Conclusions

This chapter describes the methodology in this study. In order to become a sound and reliable measurement, *Mutadayyin* Inventory has undergone a few phases to ensure its face, content and construct validity, and reliability.

There are four phases in the study which were: 1) Preliminary Study, 2) Item Development, 3) Validity and Reliability Test and 4) Final Study. The sampling technique chosen was stratified proportionate sampling where each university involved

had its own sample. After the data collection, data analysis took place which employed the RMM analysis which helps to develop a reliable and valid instrument.

