CHAPTER 4

RESEARCH METHODOLOGY

4.1 Introduction

The foremost challenge facing *zakat* institutions is the low of patronage by *zakat* payers, which is affecting its role as a body that exists in *Muslim* societies to care for the *Muslim*'s social welfare (Mahadi, 2019). The concept of *zakat* institution demonstrates *Islam*'s strong concern for social and economic justice. It serves as a justifiable redistributor of wealth and income, which is imposed through moral obligation and fiscal measure (Abdullahi, 2018). *Zakat* institutions should be patronised to realise these goals. *Zakat* institutions should come up with some factors that will entice *zakat* payers to patronise their services. In an attempt to design this study, it is of ultimate importance that appropriate choices of methods and procedures be made to augment the validity of the study results this chapter details the research methodology and research design used to collect and analyse the data to test the hypotheses proposed in the previous chapter. It discusses the methodology the study used to answer the research questions and the statistical methods applied to analyse the results that will be presented in the next chapter.

It explains the proposed research design, the research method and instrument, questionnaire technique, the population, and locale of the study, the sampling procedure, and sample size, research instrument, ethical research consideration, pilot testing, descriptive statistics, as well as the reliability and validity of the instrument. The chapter also explains the concepts and measurements of the variables of the study as well as the data collection and data analysis procedures.

4.2 Research Paradigm

A research paradigm is a way or an approach or a model or a pattern to conduct research. The word paradigm was first used by an American philosopher called Thomas Kuhn (1962), which means a philosophical way of thinking. The word has its etiology in Greek, where it means pattern. In academic research, the term paradigm is used to explain a researcher's 'worldview' (Mackenzie & Knipe, 2006). This worldview is the outlook, or thinking, or school of thought or set of shared beliefs that informs the meaning or interpretation of research data. Or, as Lather (1986) explains, a research paradigm inherently reflects the researcher's beliefs about the world that s/he lives in and wants to live in. It constitutes the abstract beliefs and principles that shape how a researcher sees the world, and how s/he interprets and acts within that world.

A paradigm is characterised as "an integrated cluster of substantive concepts, variables and problems attached with corresponding methodological approaches and tools…" (Kuhn, 1962). Also, kuhun (1977) said that the word paradigm denotes research culture with a set of beliefs, values, and assumptions that a community of researchers has in common regarding the nature and conduct of research. Different research paradigms are usually used for different research purposes. Cohen *et al.* (2007) contended that social reality could be viewed in various ways and constructed on correspondingly different interpretations. These social formations of the world or phenomenon can be confronted by examining the underpinning assumptions. Every research depends on philosophical assumptions concerning what constitutes valid research, and which research method is appropriate for developing a certain field of research (Antwi & Hamza, 2015). Burrell and Morgan (1979) recognised four sets of assumptions, which are ontologies, epistemologies, models of human beings, and methodology. The ontological assumptions deal with the nature of the presence of the social phenomenon being inspected, while assumptions of an epistemological phenomenon are based on knowledge, i.e., its nature and forms, how it can ve attained, and how to communicate it to the human beings (Cohen *et al.*, 2007).

It is the conceptual lens through which the researcher inspects the methodological aspects of their research project to decide the research methods that will be used and how the data will be analysed. Guba and Lincoln (1994) define a paradigm as an elementary set of beliefs or worldview that monitors research action or an investigation. Hitchcock and Hughes (1995) propose that ontological assumptions bring about epistemological assumptions, while the epistemological assumptions bring about methodological consideration, and these bring about instrumentation and data collection issues. So, selecting the research methodology depends on the paradigm that guides the research. It is important to know these assumptions before the research is accompanied and evaluated.

4.2.1 Ontology

Ontology is a division of philosophy related to the assumptions we make in order to believe that something makes sense or is real, or the very nature or essence of the social phenomenon we are investigating (Scotland, 2012). It is the philosophical study that studies the nature of existence or reality, of being or becoming, as well as the basic categories of things that exist and their relations. It assists researchers in conceptualising the form and nature of reality and what he believes can be known about that reality. Philosophical assumptions about the nature of reality are essential to understanding how researchers make meaning of the data he gathers. These assumptions, concepts or propositions aids to familiarise his thinking about the research problem, its significance, and how you might tackle it to contribute to its solution. Ontology is so crucial to a paradigm because it aids in providing an understanding of the things that constitute the world, as it is known (Scott & Usher, 2004).

4.2.2 Epistemology

Epistemology refers to "the branch of philosophy that studies the nature of knowledge and the process by which knowledge is acquired and validated" (Gall, Gall, & Borg, 2003, p. 13). It is concerned with "the nature and forms [of knowledge], how it can be acquired and how communicated to other human beings" (Cohen, Manion, & Morrison, 2007, p. 7). It is the epistemological question that guides a researcher to debate "the possibility and desirability of objectivity, subjectivity, causality, validity, generalisability" (Patton, 2002, p. 134). Obeying to an ontological belief system (explicitly or implicitly) guides one to certain epistemological assumptions. So, if a singular verifiable truth is assumed, “then the posture of the knower must be one of objective detachment or value freedom to be able to discover ‘how things really are’ and ‘how things work’” (Guba & Lincoln, 1994, p. 108).

There are many types of knowledge in epistemology. Knowledge acquired from past experience is known as empirical knowledge. A fact can be identified based on past experience. Hence, empirical knowledge cannot be built on reasoning. Likewise, epistemological knowledge can be proportional. Propositional knowledge can be referred to as knowing facts about various fields. This can also be categorised into individual and collective knowledge. An individual’s knowledge is built on what a person claims to know, while collective knowledge is built on what a particular community or group of people know. Epistemology includes all these types of knowledge. Knowledge certainly exists in the mind. Anyone who does not believe that a specific thing happens or occurs cannot know it (Maitreyi, 2016). The belief must be real, and only then will it be referred to as knowledge. In other ways, it has to be real and defensible by sound reasoning before it is referring to as knowledge. So, evidence and reasoning are vital to be present in knowledge. Facts based on false information or lucky guesses cannot be referring to as knowledge. In summary, ontology tries to discover, describe, and relate things in the universe, and epistemology inspects ways to know.

The assumption of epistemology can be assembled into positivism and anti-positivism. Positivism describes the view that knowledge is hard, objective, and tangible; it gives the researcher an observed responsibility, together with a commitment to the methods of natural science, while ant-positivism perceives knowledge as personal, subjective, and a rejection of the ways of the natural science. The realist epistemology gives bath to the constructivist/objectivist research tradition while the idealist epistemology results in the subjectivist tradition of inquiry. The assumptions of ontology and epistemology have straight implications for the methodological concerns of researchers (Cohen *et al.*, 2007; Hitchcock & Hughes, 1995).

Therefore, they need different research methods. Researchers employ an objectivist (or positivist) style to the social world and treat it like the world of natural phenomena as being hard, real and external for an individual to select from a range of traditional options like surveys, experiments, and the like (Cohen *et al.*, 2007). By disparity, the researcher who uses the subjectivist or anti-positivist approach and views the social world as being of a much softer, personal and humanly created kind, will select from a comparable range of recent and emerging techniques, participant observation and personal constructs. The variance between the two main paradigms discussed above is that positivism emphasized an objectivist method of studying a social phenomenon while the ant-positivism emphasize a subjectivist approach to studying a social phenomenon. At this junction, this study has designed its paradigm based on the underlying assumptions of epistemology. Positivism and anti-positivism are the most common paradigms in social science research that verifying theoretical propositions.

Consequently, the foremost aim of theories is to suggest and analyse the relationship that presents between many variables when some uniformities and continuities could be proved through empirical inquiry (Hitchcock & Hughes, 1995). Through paradigms that may have related approaches and research methods, the researcher can only ascertain the most suitable paradigm through the research questions (dash, 2005). As this study is to understand human behaviour by examining factors that can influence zakat payers to pay zakat through zakat institutions; therefore, the study adopts a positivist research paradigm.

4.2.3 Positivism

Positivism observes social science as a structured method to mix deductive logic with the specific empirical observation of individual behavior for a set of possible causal laws to be discovered and confirmed, which can be used as a predictor for general shapes of human activity (Neuman, 2003). Positivism sticks to the view that 'factual knowledge' is acquired only through observation (the senses), measurement, and facts. This has limited the researcher's part in data collection and interpretation, and the research findings are usually observable and quantifiable. Moreover, positivism relies on the number of observations that can be converted into statistical analysis. Positivism is an experimenter's view that knowledge branches from human experience. Social reality nature for positivists is that, apart from a personal idea or thought, empirical facts exist and are governed by laws of cause and effect, stable patterns of social reality as well as additive knowledge (Crotty, 1998; Neuman, 2003; Marczyk *et al.,* 2005).

Researchers who toil from this viewpoint explain in quantitative terms such as how variables interact, shape events, cause outcomes, and affect other variables. Researchers are generally developing and test these explanations in experimental studies. Also, statistical techniques and multivariate analyses are a fragment of the analytical tools for this type of research. It means that the reliability of knowledge is built on direct observation or manipulation of natural phenomena through empirical or experimental means (Lincoind & Guba, 2000, 2005; Neuman, 2003). In sum, positivism masters experience and empirical knowledge. It usually approves a deductive approach. The researchers detached from the study, and there are no requirements for human interest within the study. Moreover, the researcher has to focus on facts. Henceforth, as noted by Cohen *et al*. (2000), these assumptions are determinism, empiricism, and generality.

4.2.4 *Zakat* Institution Paradigm

This study focuses on *Zakat* Institution using the decomposed theory of planned behaviour to test *zakat* payers' intention. Therefore, it is required to explore the paradigm from an *Islamic* worldview. Chapter Two reviewed the literature on *zakat* in the *Shari'ah.* The *Shari'ah* is a complete law that directs all aspects of human life with the understanding that humanity is connected with the oneness of God (*Tawhid*). The foundation of the *zakat* institution is in the *Shari'ah*, which gives the epistemology to create new knowledge and understanding of *zakat* payers rights, *zakat* recipient right, and economic systems (Akthar, 2014). *Islamic* economics depends on an epistemological paradigm (Aydin, 2015). Studies of *Islamic* economic paradigms state that *Islamic* economics and finance relies on an epistemological paradigm that contrasts significantly from the secular paradigm. They suggested that *Islamic* economics and finance should be based on the *Islamic* paradigm, which involves different methods and methodologies regarding data collection and analysis (Choudhury, 2007b; Aydin, 2015). Built on the above arguments and the nature of this study as an empirical study, an epistemological paradigm is hired. Moreover, this research is positivistic because it relies on the number of observations that can be converted into statistical analysis.

4.3 Research Approach

There are three significant approaches to research based on the findings, namely, descriptive, exploratory, and explanatory. Descriptive research is an attempt to describe the phenomenon. Descriptive research is frequently designed to collect data that describe the characteristics of persons, events, or situations. It is used when research is trying to describe what is occurring in detail, increasing our understanding, and try to fill in the omitted part. While exploratory research is used when little is known about the situation, or there is no information on how similar problems or research problems have been solved in the past. In that case, preliminary work is essential to realise what is occurring, assess the magnitude of the problem, and gain familiarity with the study. Exploratory research is an attempt to lay the foundation that will lead to forthcoming studies (Sekaran and Roger, 2014: Yogesh, 2006). As this research attempts to explain why *zakat* institutions are not well patronised in Kwara State and how to patronise *zakat* institutions in the state, the explanatory approach is embraced.

4.4 Explanatory Research

Explanatory research is an attempt to explain the reasons for known phenomena. It is conducted for an issue that has not been properly researched and provides it with operational definitions and a research model. It focuses on explaining the aspect of your study in a detailed manner (Lawrence, nd). Typically, explanatory research is quantitative, and hypotheses are tested by measuring relationships between variables using statistical techniques (De Vaus, 2011). This research measures the factors that influence zakat payers to patronise *zakat* institutions. A particular factor will increase the likelihood of a given outcome but never be sure about outcomes. This research uses the decomposed theory of planned behaviour to test the effects of trust, knowledge, family influence, transparency, religiosity, intention, and amil on the patronage of *zakat* institutions.

4.5 Research Design

Research design is described as the strategic plan, logical process, and structural technique of data collection and data analysis. It connects data to the researcher's initial questions and logically to his findings and conclusions. According to De Vaus (2001), research design centers on the logical structure of the inquiry and not the logistical matters. Therefore, good research needs good design before data collection. This is needed in order to confirm that the evidence obtained is appropriate to provide relevant answers to the stipulated research questions (Ogunbameru, 2004; Yin, 2007). Different types of research designs are used for different kinds of research based on the objectives of the study. These include exploratory, conclusive designs, longitudinal designs, case study designs, multiple, and single cross-sectional survey designs.

The research design employed in this present study is explanatory research design. It is an explanatory research design because it explains *zakat* payers' understanding about *zakat*, it explains why *zakat* payers did not pay to *zakat* institutions and factors that can influence them (*zakat* payers) to pay *zakat* through *zakat* institutions. This research design for this study is represented by a structural diagram to clarify the flow of this research (Figure). This research first reviews the past literature and identifies the gaps, then followed by the definition of factors. Through the identification of research gaps and the research objectives, the appropriate approach was chosen. Therefore, the study employed an explanatory research design.

This study adopted a quantitative methodology to ascertain the factors influencing *zakat* payers to patronise *zakat* institutions in Kwara State. The quantitative method is "for the most part described by a strategy of defining speculations that are tried through controlled experiment or statistical investigation". Zikmund (2005) clarified that the quantitative method is the study that concentrates on deciding or drawing information in a type of numbers. Quantitative research is "entailing the collection of numerical data and exhibiting the view of the relationship between theory and research as deductive, a predilection for future natural science approach, and as having an objectivist conception of social reality" (Bryman & Bell, 2015).

An explanatory method is applied to recognise the differences and similarities from respondents' answers. This research assembled data from both primary and secondary sources. The primary data are collected from the respondents through the questionnaire. At the same time, the secondary data were attained from the literature and the published documents that are relevant to the *zakat*, *zakat* payers, *zakat* institutions, and DTPB.

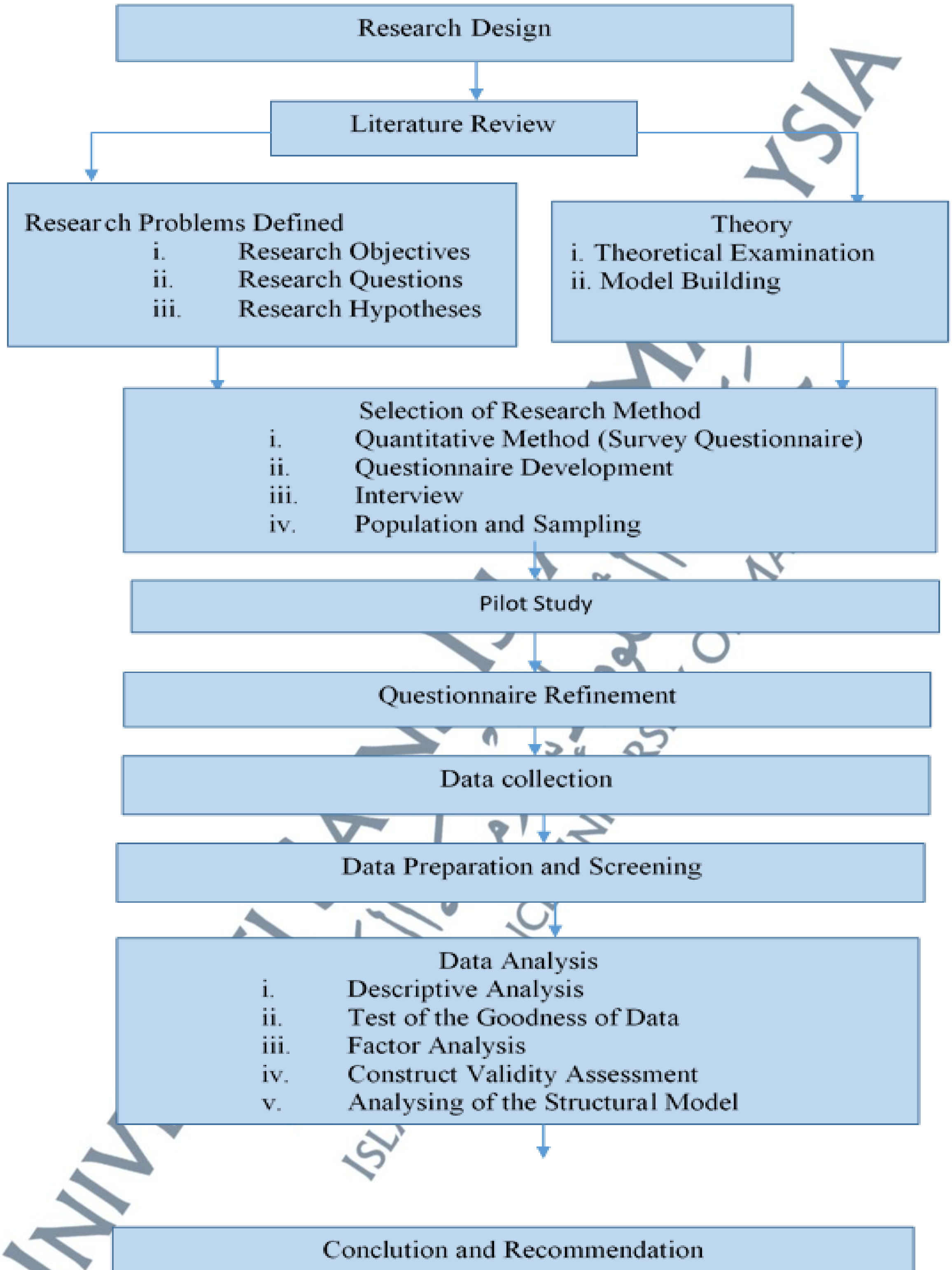

Figure 4.1: Research Design

Since quantitative research is associated with explanatory design, this research borrows the survey questionnaire as it is the main instrument of data collection and face-to-face. The survey represents one of the most common types of quantitative, social science research, which is associated with a structured questionnaire (Gideon, 2012). Before the data collection, a pilot study was accompanied to check the validity and reliability of the questionnaire. Therefore, the questionnaire was restructured, built on the feedback from the pilot study. The subsequent stage was data collection, simple interview, and data analysis. Data were analysed through the help of Statistical Package for Social Science (SPSS) and Structural Equation Modelling (SEM). So, the results and findings were provided. And lastly, conclusions and recommendations were provided based on findings.

4.6 Quantitative Research Method

Quantitative research is defined as requiring the collection of numerical data and demonstrating the view of the relationship between theory and research as deductive, a fondness for future natural science approach, and as having an objectivist conception of social reality. Bryman and Bell (2015). Epistemological assumptions lead to methodological considerations, and this study is positivist or objectivist and, therefore, it hires the quantitative data analysis. Though, Marsh (1982) claims that a quantitative survey can offer information and explanations that are "adequate at the level of meaning" while identifying that survey research has not always been good at deal with the subjective dimension of behaviour.

The research uses *zakat* payers and potential *zakat* payers as respondents from 16 local governments in Kwara state, Nigeria, to collect relevant data. The explanatory approach is applied in other to allow the researcher to indicate the differences and resemblances from the respondents' answers. The research collected data from both primary and secondary sources. The primary data are collected from the respondents with the aid of the questionnaire and in-person interview survey process. At the same time, secondary data were attained from the literature and published documents that are related to *zakat* and *zakat* institution. This research is built on a quantitative approach through a survey questionnaire and in-person interviews.

Quantitative methods of gathering data concentrate on the amount of relationship among variables while the quantitative data assemble instruments detecting the relationship between measured variables. Every time this method is applied, the researcher is isolated from the study, and the result is context-free. The main ingredients of quantitative instruments are measurement, statistics, and numerical data. Using this instrument, it is essential to make a clear description of the data collection and analysis of procedures. As the approach mainly uses deductive reasoning, it selects the tiniest complicated explanation and provides a statement of statistical probability. The quantitative method makes a more detailed description of a phenomenon. It basically offers a generalization of the data gathered with carefully synthesized interpretations.

The quantitative approach is useful as it helps the researcher to avoid bias in collecting and presenting data. In order to prevent selection biases, the researcher focused the *zakat* payers and potential *zakat* payers to make up the population, and the sample of the study would be drawn from the targe population, which will be discussed in detail under- population and sample below (4.7). The data gathering procedures also generate epistemological postulations that reality is objective and unitary, which can only be comprehended employing surpassing an individual's perspective. This phenomenon, in turn, should be deliberated or explained using data analysis collected with aid of objective forms of measurement and in-person interviews. To prevent bias in data analysis, the use of structural equation modeling statistical technique is embraced; it is suitable for this research because it deals with latent constructs.

Moreover, the quantitative data-collecting methods are used mostly when a study attempts to measure the cause and effect relationships between the variables in the study. The purpose of the quantitative approach is to prevent subjectivity through collecting and exploring information that describes the experience being studied. Therefore, there are no right and wrong answers. And the researcher certifies that all responses are unspecified and confidential. No personally recognisable information is requisite in answering the questionnaire unless the respondents willingly give personal or contact information in any of the comments.

4.7 Population and Sample

A sum of 350 *zakat* payers and potential *zakat* payers were selected in Kwara State, Nigeria to determine *zakat* payers' intention to pay their *zakat* through *zakat* institutions. To get relevant information, specific criteria were set. Any qualified participants selected for this sample was *zakat* payers and potential *zakat* payers who are working adult in Kwara state. The criterion was adopted to ensure that the participants understood the nature of the study as well as the terminologies used in the questionnaire, making it easy for them to complete the survey components. The qualified respondents were chosen from business people, artists, farmers, handcraft government parastatals, and private companies such as state government secretariats, local government secretariats, government ministries, and schools in Kwara State.

Purposive sampling was used for sample selection. Purposive sampling is also called judgment sampling is a sampling technique in which a researcher relies on his or her judgment when choosing respondents of the population to participate in the study. It aims to choose people whom you are sure could correspond to the objectiveness of your study. It uses when someone wants to access a particular subset of people. Therefore, the purposive sample gives a highly representative sample of this studied population, assuming that there is limited missing data. To carry out this sampling strategy, the researcher identified all the eligible *zakat* payers and potential *zakat* payers in the population and then selected respondents from each stratum to form the sample.

The *zakat* payers and potential *zakat* payers in Kwara State are working adults from age 18 to 60 because only people who have property can give *zaka*t. According to the United Nations (2017), 53.2% out of the total population is between 15 and 65 years of age (the working-age population). Since this study focuses on the *zakat* payers and potential *zakat* payers as the population, therefore, age of 18 to 60 is assumed to be 37% of the total *Muslim* population. As it has been discussed in the earlier chapter, the *Muslim* population in the state is around 1,848.000. Therefore, 37% of the total *Muslim* population will be 683.760. In order wards, the targeted population for this research is six hundred and eighty-three thousand, seven hundred and sixty people. With the aid of

Krejcie & Morgan (1970) method of selecting the sample is applied, 350 samples were selected from the identified population.

4.8 Research Instruments and Construction

The research instrument is described as a tool used for data collection or means of gathering the needed information from respondents (De Vaus, 2001). There are different types of data collection tools that can be used by survey researchers to obtain information from respondents. These include observation, interviews, and questionnaires. The instruments to be hired would be mixed ones which include questionnaires and face-to-face interviews or simple personal interviews. This instrument is count as more appropriate than relying on only secondary data, as the former is more reliable than the latter in the situation of Nigeria as far as data collection is concerned. The English language is expected to be used to acquire information and data from all the instruments hired. However, the local language might be used during the survey to get more appropriate and precise data from the respondents if the situation requests it. Therefore, this would demand the researcher to employ a standby interpreter during the period of the survey.

4.8.1 Questionnaire

In this research, one of the instruments used was a self-administered questionnaire to collect data from the sample population of this study due to its various advantages, which can be harnessed for the actualisation of the objectives of the study. The primary data was collected through a structured questionnaire that was personally administered to both *zakat* payers and potential *zakat* payers. Closed-ended questions were asked from the respondent in the questionnaire, as this count as appropriate sufficient and detailed information about the respondents in the research (Pallant, 2011). Since this research is quantitative and involves a large number of respondents, hence, it employs closed-ended questions offered with a set of static options from which respondents pick the applicable and appropriate option. For the research questions, only vital question and relevant to this study were asked. Moreover, the researcher need to decide precisely what he needs to know and try to put her self in the position of the respondents, and how he would respond or reply to the questions (Bryman & Bell, 2015). All the questions in the questionnaire were adapted from previous studies (Shafinah & Kaswadi, 2014) except media awareness and *zakat* manager, which was developed by the researcher.

The items used in the constructs of each investigated variables in this study have been operationalized by the previous studies. To be more appropriate with this study, the researcher did the crucial validation and rephrased the sentences. While items from intention, attitude were adopted from (Mohd Dali 2014; Abubakar & Ram, 2017 & Sahaida & Leha 2017) subjective norms from (Bobek, Hageman, & Kelliher, 2013; Saad & Haniffa, 2014) and perceived behavioural control were adapted from (Taniguchi & Marshall, 2014 & Asmah *et al*., 2013) Taylor & Todd (1995a) & Ajzen (n.d), the items that measure variables in attitude, like knowledge, and religious were adapted from Farikha Amilahaq & Nunung Ghoniyah (2018), Family influence adapted from Yusuf Haji-Othman 2016, items measure trust were adopted from Syadiyah *et al.*, 2018, item measure transparency adopted from Euis Amalia, 2019, Lastly, items that measure *zakat* manager and media awareness were developed by the researcher.

In this study, the survey questionnaire was divided into four sections: a section on respondents' profile, one section on the understanding of *zakat* payers, anther section on what are the reasons for not patronising *zakat* institutions, and the last section on factors that can influence *zakat* payers' patronage of *zakat* institutions. The profile section comprises the socio-demographic characteristics of the respondents such as gender, age, education, as well as marital status as the objective of this survey is to explore the intention of *zakat* payers on the patronage of *zakat* institutions, particularly, on the effect which this will have on their payment through it. The questions on understanding of *zakat* payers and reasons for not pay *zakat* to *zakat* institutions were structured using descriptive statistics, while questions on factors that influence *zakat* payers' patronage of *zakat* institutions were structured using the Likert format. Although, most of the items used the questionnaire were adapted from different studies, such as Zuhairah *et al.*, 2017, Tah Suhaila *et al*., 2015, Erlane Ghani *et al*., 2018, Syadiyah *et al*., 2017, Farah *et al*,. 2015, Abdussalam *et al.*, 2015, Nur Ba rizh & Hafiz Majdi 2010, Yusuf, 2016, Ram Al-jaffri *et al.,* 2018, Qurrah Ayuniyya, 2011. In this type of survey, five options were provided for every statement or question. These options represent the degree of agreement each respondent has on the given statement or question.

This study used 5 Likert scale, since there is no theoretical reason to rule out different lengths of response scale. In survey research, various lengths from two Likert to eleven or more have been used (Johns, 2010). Johns added to his statement that, when it comes to Likert scales, the longer, the better. Considering the responses reliability from a survey participants, there are chances that the 5 point scale may perform better than 3 point scale owing to the choice of items on the scale defined by the construct of the survey (Joshi *et al.*, 2015). The 5 Likert surveys were selected for this questionnaire because it will enable the respondents to answer the survey questions easily. It also provides more options, which in turn increases the chances of meeting the objective reality of people (Joshi *et al.*, 2015). Moreover, since this research is quantitative, this research instrument allowed the researcher to carry out the survey effectively with the use of statistical data interpretation.

4.8.2 Interview

It has been proved that interviews can be hired as an explanatory tool to propose hypotheses and recognise research variables as well as for examing relationships and testing hypotheses. It is equally described as "interpersonal, face-to-face conversation" (Taylor *et al.*, 2009:75; Punch, 2005; Sekaran & Bougie, 2013). The personal interview in this study was carried out in order to attain some information that is applicable to the study. This interview trailed after the questionnaire survey to discover in detailed the findings from the latter, sometimes this is very crucial (Taylor *et al.*, 2009: & Sekara, 2009). The 8 interviewees purposively selected as respondents (two *zakat* administrators from each *zakat* institutions, and 6 *zakat* payers) among those who respond to the questionnaire. This is to get more understanding of the study. The researcher sure that the interview questions were appropriated to obtain necessary information and data for the analysis and discussion as well as to draw a conclusion on the study. It was important to book an appointment in advance for the sake of convenience for the interviewees. The responses from the interview were recorded and written down, and later, the two were verified and compared. Therefore the questions used in the interviews were attached as appendices.

4.8.3 Pilot Study

The pilot test is essential to be carried out to satisfy the reliability of the adopted questionnaire used for this specific study earlier to final and complete data collection. This is very significant in the sense that it would help the researcher in identifying the problem of understanding unclear wording, clearness of questions as well as duration required to complete the questionnaire with each respondent. It is also served as a monitor to the success of the expanded study, as many adjustments are necessary before the final study. The pilot study presents sufficient proof that the present study/research would be achievable and successful when examining the association between and among the possible variables in the study. Moreover, it proposes opportunities for employing inferential statistics to generalize results from a sample to a population (Vollertsen, 2005:77).

For the pilot test, 65 copies of the questionnaire were given out to Nigerian students studying in Universiti Sains Islam Malaysia and International Islamic University Malaysia, in which 50 copies were successfully reverted. Following the completion of the pilot study, the researcher got suggestions or recommendations for necessary corrections on the questionnaire (like the question about incomes, many respondents did not answer it and suggested that the researcher should range it from some amount to some amount) to ensure understanding, all irrelevant, questions were removed, and vague or difficult terminologies were changed to simpler ones. Nevertheless, the pilot study was only used for testing purposes. The respondents, as well as their answers, were not included in the main study process. The questions were constructed from different sources, including the literature review and statement given by the people who had participated in the pilot study. Table 4.1 below summaries the pilot test study for reliability coefficients of the scales/variables equal to or above.70.

Table 4.1: Reliability Values for Pilot Test

Variable	**No of the Items Used**	**Cronbach's Alpha**
Religious	5 out of 7	.762
Intention	5 out of 6	.801
Knowledge	5 out of 5	.739
Zakat managers	5 out of 5	.854
Family influence	5 out of 5	.779
Trust	5 out of 5	.869
Transparency	5 out of 5	.844
Media awareness	5 out of 5	723

Source: Researcher's computation

From table 4.4 above, the result of the reliability of the scales/variables runs for the pilot test shows that all the variables taken into consideration in the study have good internal consistency, with their Cronbach's alpha coefficients above the considered acceptable value of .70 (Pallant, 2011 and Hair *et al.*, 2010). Although, items in variables have to be removed/dropped before they arrived at their acceptable Cronbach's alpha above .70.

4.8.4 Data Collection Method

This study uses a survey approach to collect data. As per Saunders and Lewis (2014), a survey is a polite strategy for collecting information from respondents. This instrument accumulates information by asking overviews of the respondent in terms of measuring and the investigation of information of a population (Zikmund, 2003). A questionnaire was employed precisely on understanding about *zakat*, reasons *zakat* is not paid to *zakat* institution, and the factors that can influence *zakat* payers to patronise *zakat* institutions. After making the necessary adjustments and modifications to the questionnaires, they were distributed by the researcher personally. This study targeted 350 respondents. Three hundred and fifty questionnaires were distributed to *zakat* payers and potential *zakat* payers in Kwara State, but only 314 were completed and useful. The respondents were asked to complete the questionnaire on the spot and return it to the researcher immediately after completion. If the respondent had any questions, they could seek clarification by asking the researcher. Also, the researcher made appointments and arrangements with the *zakat* payers, *zakat* administrators, and *zakat* recipients. They were given a chance to choose time for the interview at their own convenient time and place. Interview with the few respondents also arranged in such a way to be convenient for them, in terms of time and place. Therefore, their observations and expectations towards *zakat* institutions were examined.

Furthermore, respondents were drawn from the two *zakat* institutions in the satate. One adminstrator was selected from each *zakat* institutions in the state. Generally, questions related to the two *zakat* institutions were asked such as the general information about the two institutions, the functions of the two *zakat* institutions, how acceptable or populate is the committee among the *zakat* payers in Kwara State, how the institutions identify the zakatable individuals and organization in the state, what are their efforts to make sure that the zakatable individuals pay the real due or who usually guide them in ensuring the proper accounting of their properties and *zakat* due. These areas where the two selected *zakat* administrators were interview. One of *zakat* administrators interviewed at his residence while the other one interviewed at the secretary's office.

The second interview is followed after the questionnaire survey to explore in detail the findings from the latter. This interview occurred with six randomly selected respondents among those who respond to the questionnaire. This is to get more understanding of the study. This was planned as part of the instrument of this study to get more understanding of the study. The researcher made sure that all the questions that were asked were relevant to obtain necessary information and data for the analysis and discussion as well as to draw a conclusion on the study. An appointment was made in advance for the convenience of the interviewees. The interview occurred at the office of 3 respondents, the researcher met one of them at his residence while two of them met at their shops. Responses were recorded and written down, and later, the two were verified and compared. Therefore, the question used in the interviews were attached as appendices.

4.9 Data Analysis

After the data were collected from various sources, it was reviewed, analysed, and ordered according to themes. The method of evaluating data using analytical and logistical reasoning to examine each element of the data provided is known as data analysis. There are various techniques of analysing data in qualitative or quantitative research. The core and clear difference between qualitative research and quantitative research can only be seen through how data are treated (DiClemente & Delaney, 2005). For this study, the data will be analysed with the aid of structural equation modeling (SEM), Analysis of Moment Structures (AMOS) Version 22, and Statistical Package for the Social Science (SPSS).

After the respondents answered the questionnaires, the researcher gathered the completed questionnaires. The responses for each item were arranged and computed with the help of SPSS software. To attain this, a Likert scale was used to represent the answer to each question. For the interview analysis as primary data, the researcher would have to review the recorded tapes and notes during the interviews to make the necessary adjustment/amendment. It is expected to be conducted in the English language, and in a situation where the local language is used, however, however translation too is English is firstly paramount and required before it can be used for any analysis. In addition to this, it is important to code the data/information after the data collection immediately before any analysis begins (Strauss & Corvin, 1990, cited in Abdussalam, O.I).

4.9.1 Data Preparation and Screening Process

This process includes checking or logging the data, inspecting the data for exactness, computing the data into the computer, converting the data, and developing and recording a database structure that incorporates the various measures (Trochim *et al.*, 2016). The data gathered from the survey needs to be arranged for analysis. As mentioned in sub-topic (4.7), Statistical Package for the Social Science (SPSS) was used by the researcher to set up a database that allows data availability anytime it is needed. IBM SPSS version 23 was used to manage the data and run the simple descriptive analyses to catch reports on data status. It also helps the researcher to preserve the original records of data for the period of the study and longer. The data was screened for accuracy as soon as it was received. This was done to allow the researcher to go back to the sample to explain any problems or errors. This initial data screening was done to know whether the responses were complete and whether all questions were answered. In social research, the excellence of measurement is a top concern (Trochim *et al.*, 2016).

The researcher ensured that the data collation process did not contribute inaccuracies to safeguard the overall quality of the following analyses. The data were keyed in, and a process was set up to inspect the data accuracy. Descriptive statistics were used to encapsulate the data, and this enabled the researcher to ensure that all the data were within acceptable limits and boundaries. Minimum and maximum enable a researcher to spot whether any data were wrongly entered, for instance, entering 11 when a 1 to 5 response was expected. Thus, the study assured there was no illegal entry. Therefore, the rating scale for those items needed to be reversed for all the data to be in the same direction. Normal scale 1 – 5 for the reversal items was changed to 5 – 1.

4.9.2 Missing Value

The processes of data screening and cleaning continued with the treatment of missing values to avoid errors relating to missing data. As underlined in the data preparation above (4.7.1), the first step was to review the questionnaire's completeness. Since the questionnaires were administered by the researcher personally, most of the respondents completed all sections and answered them appropriately. Thus, the usable questionnaires were coded and inputted into the SPSS data editor for analysis. Furthermore, with descriptive statistics, data were screened to detect any missing value and wrong entry. Almost all methods of statistical analyses are afflicted by problems with missing data, and structural equation modeling is no exclusion (Allison, 2003). Since this study is using AMOS software for SEM in the data analysis, any incomplete data would not be accepted. Therefore, all incomplete data were deleted using the listwise deletion method. AMOS uses a procedure known as a Full Information Maximum Likelihood (FIML) to handle missing data. The study ascertained that there were no missing data or illegal entries.

4.9.3 Normality

A normality test was performed to examine the skewness and kurtosis of the data. If the value of skewness and kurtosis is high, it may lead to outliers. It also examines the Shapiro-Wilk. A non-significant result ($P > 0.05$) indicates normality. Therefore, the normality test was done by observing the value of skewness (the symmetry of distribution) and kurtosis (the clustering of scores toward the center of a distribution). The recommended value, according to Hair *et al.*, (2010), is between the ranges of -1 to +1 for skewness. For kurtosis, Coakes and Steed (2000) suggest the statistics ranges of -2 to +2 should be considered. However, Hair *et al*., (2010) further explain that ± 2.58 designates refusing the normality assumption at the 0.01 probability level and ± 1.96 signifies a 0.05 error level. A zero value shows perfect normality in the data distribution; however, it is very unusual in social science research (Pallant, 2005). Therefore, in social science, the skewed score does not necessarily mean there is a problem with the scale but rather mirrors the underlying nature of the construct being measured (Pallant, 2005). In the case of this study, skewness, and kurtosis are not problems because of the large sample size. Normality is sensitive to the sample size (Pallant, 2005; Awang, 2014). Nevertheless, an associated analysis was done to recognise any significant value of skewness.

4.9.4 Response Rate

The study questionnaire was self-administered. A total of 350 questionnaires were disseminated to the respondents, from which 314 were completed and useful. The response rate was calculated by dividing the number of usable responses returned by the total number of respondents. A high response rate indicates that the results of the study can be generalised to the entire population.

4.9.5 Non-Response Bias

Non-response bias refers to the low answer to the questionnaire by potential respondents in a selected sample or population (Fincham, 2008). Non-response bias is a serious problem, which can negatively affect both the validity and reliability of the study findings. If the response rate is lower than the non-response rate in a survey, the study suffers from a non-response bias. The study deals with non-response bias by following the procedures discussed under-population and sampling (4.7.1.5) to select the respondents that can represent the population as a whole. After the data collection, the study checked for the non-response bias by grouping the respondents into two (early and later response). The study compared the early response with a later response using the t-test in SPSS. Any significant result from Levene's Test for Equality of Variances indicates there is a difference from the group. If there are non-significant results, it means the study is free from non-response bias.

4.9.6 Common Method Bias

In social science, the common method bias is a modification that is attributable to the measurement method rather than to the substantive latent constructs, which the measures represent (Podsakoff *et al.,* 2003; Brown, 2006). In other words, it is the deviation type caused by the instrument used to obtain the data. It is a serious problem in social research because, if measures are affected by common method bias, the intercorrelations among the variables may be inflated. Common method bias is one of the primary sources of measurement error. To control this, the study improved items' contents by reducing ambiguous content and avoided double-barrelled questions. It further used Harman's single factor as a statistical remedy. All items measuring latent variables were loaded into a single common factor using exploratory factor analysis in SPSS. It is suggested that common method bias does not affect data if the total variance for a single factor is less than 50% (Podsakoff *et al.,* 2012).

4.10 Demographic Background

Data screening and cleansing have been performed in SPSS before further analysis could be performed in AMOS. The first section of the questionnaire concerned demographic information. The study first looks into the frequencies and percentages of the responses, using simple descriptive statistics in SPSS. Descriptive statistics were used in the present study to summarise the data set quantitatively and to test the data test, whether it represents the population that is thought to be represented. It helps to describe and explain the characteristics of the sample that is being studied and also helps to compare with the sampling frame.

4.10.1 Descriptive Analysis

Aside from carrying out a descriptive analysis of demographic profiles, further analysis was conducted on every variable used in this study. This was performed by observing the mean score and standard deviation for each item in the survey. This would permit a better understanding of the data, which would not be obtainable using multivariate analysis. Response representativeness indicates how the sample drawn for the questionnaire research compares with its representation of the population of interest (Fincham, 2008). As discussed in population and sampling (4.3.4), the study used purposive sampling to select the *zakat* payers and potential *zakat* payers in Kwara State. The study minimises the sampling error by targeting *zakat* payers and potential *zakat* payers. Hence government offices, schools, and private companies were chosen as places to gather the data.

4.11 Factor Analysis

Factor analysis is a common statistical method used to discover a small set of unobserved variables (also called latent variables or factors), which can account for the covariance among a larger set of observed variables (also called manifest variables) (Albright, 2008). It is an interdependent technique to define the underlying structure among the variables in the analysis (Hair *et al.,* 2010). The goal of factor analysis is to provide observed correlations among variables by recognising a smaller number of shared factors that account for the observed correlations (Norusis, 2005). Mainly, it enabled the researcher to summarising the information contained in a large number of variables into a smaller number of factors were eventually to achieve data parsimony (Zikmund, 2003). The need for factor analysis is very important to this study to check the appropriateness of the items for each construct.

Factor analysis was used to clarify the dimensions of the concept that have been operationally defined, which indicate the appropriate items for each dimension (Sekaran, 2003). The present study used both the exploratory and confirmatory factor analysis. Since the present study adopts items from prior studies along with the newly developed items based on the previous conceptual paper, it is very important to confirm if the items are suitable as well as their dimension in the present study. However, the study of human behaviour is not new in literature. The constructs like attitude, norms, and perceived behavioural control have been inflexibly established. The dimension decomposed into the area of zakat institution is perceived to be at the embryonic stage. Therefore, to confirm whether all adopted and newly developed measurements in this study measure what they were supposed to measure, EFA and CFA were executed based on their categories of variables since both of them are useful to examine the internal reliability of a measure (Agan, 2005; Lin *et al.,* 2005).

Usually, EFA has been used to explore the likely fundamental factor structure of a set of observed variables without any substantive constraints on the data (Albright, 2008). On the one hand, CFA is theory-driven. The major distinction between both forms of factor analysis has been described by Pallant (2005) as exploratory factor analysis is often used in the early stages of research to gather information (explore) about the interrelationships among a set of variables. Confirmatory factor analysis, on the other hand, is a more complex and sophisticated set of techniques used later in the research process to test (confirm) specific hypotheses or theories concerning the structure underlying a set of variables. Therefore, CFA was used to confirm the result of the EFA.

4.11.1 Exploratory Factor Analysis (EFA)

Exploratory factor analysis (EFA) is used to reduce the number of items by removing cross-loaded items. This was done with the aid of SPSS by assessing inter-items correlations using Bartlett's test of sphericity as well as the Kaiser-Meyer-Olkin (KMO) index. As noted above, EFA, which was performed using SPSS to trim down the number of items in the factors, and at the same time detached the cross-loaded items. However, before EFA could be performed, it is necessary to inspect the appropriateness of the data at hand. There are two major assumptions to be considered in determining whether a specific data is suitable for factor analysis: sample size (overall sample size should be at least 150+ and there should be a ratio of at least five cases for each variable), and strength of the relationship among the variables (or items) (some correlation r= 3 or greater) (Pallant, 2005; Hair *et al.*, 2010).

As shown in Table 4.2, other conditions required specifications to be met. These include the normality and linearity test assessment, sample size, item to item correlations, Bartlett's test of sphericity as well the KMO index. As always, there were debates among various scholars on these requirements. Thus, there is a need to draw the line to have a clear idea of the cut-off points for this study. Based on several inputs, Akmal (2011) has come up with a table for the cut-off points and their relevant literature.

Table 4.2: EFA Requirement on Data Set

Condition	Requirement	Reference
Normality	Data should be normally distributed	Hair *et al.*, 2010; Pallant, 2005
Linearity No Multicollinearity	VIF < 10	Hair *et al.*, 2010
Sample size	> 100 cases At least five cases to each item	Hair *et al.*, 2010; Pallant, 2005; Tabachnik & Fidell, 2001
Inter-item Correlations	Majority should be ≥ 0.03 ≤ 0.7	Hair *et al.*, 2010; Pallant, 2005; Tabachnik & Fidell, 2001
Bartlett Test of Sphericity	Be significant (P < 0.05)	Hair *et al.*, 2010; Field, 2000; Pallant, 2005
Kaiser-Meyer-Olkin (KMO) Index	≥ 0.6	Pallant, 2005; Tabachnik & Fidell, 2001

Source: Adapted from Akmal (2011)

After having discussed EFA in detail, it is important to discuss Confirmatory factor analysis (CFA) because of its importance in structural equation modeling. CFA is a theory-testing model as opposed to exploratory factor analysis (EFA), which is the theory generating method. CFA uses a multivariate technique to confirm a pre-specified relationship (Hair *et al.*, 2010). In other words, CFA is the procedure used in SEM as a confirmatory method providing a comprehensive means for assessing and modifying the measurement model of a latent construct (Anwang, 2014). Hence, CFA is very crucial to structural equation modeling (SEM). Therefore, CFA is further discussed below.

4.11.2 Confirmatory Factor Analysis (CFA)

The previous discussion (4.9) pointed out that the present study utilised SPSS and SEM, Analysis of Moment Structures (AMOS) Version 22 in its data analysis processes. Structural Equation Modelling (SEM) is a second-generation multivariate analysis technique developed due to some restrictions in the Ordinary Least Squares (OLS), especially when dealing with latent constructs (Awang, 2014). The conceptual framework for this research has been constructed in the previous chapter (3.2), and to make the work easy, the researcher converted the theoretical framework to AMOS. Analysis of Moments Structure (AMOS) is a new software developed for SEM. The researcher employed AMOS graphics to model and analyse the interrelationships among latent constructs effectively, accurately, and efficiently. More importantly, the multiple equations of interrelationships in a model are computed simultaneously. Awang (2014) states that the reason why one should employ AMOS graphics is that researchers could convert their theoretical frameworks directly into AMOS graphics for analysis. He further stresses that using the AMOS graphic interface, the researcher can create path diagrams using drawing tools rather than writing equations or by typing commands. AMOS graphics can also be used in social science. Regarding this study, AMOS graphic is employed to determine the effect of respondents attitude, subjective norm, and behavioural control on their intention to pay *zakat* their *zakat* through *zakat* institutions.

This research tests the relationship and effect among the variables attitude, subjective norm, and behavioural control by modelling it into a theoretical framework based on DTPB. The constructs/variables are measured using a set of items in a questionnaire. According to Awang (2014), the ideal measurement should be in intervals from 1-10 so that the data are more independent and thus meet the requirement for parametric analysis. In addition, the researcher should develop at least four items to measure each latent construct. Regarding this study, the researcher used the interval of 1-5 for the questionnaire while one strongly disagrees and five is strongly agreed because the ideal scale in social science research is between 5 to 7. Also, for the measurement, to meet the above requirement, the researcher has developed five items for each latent construct (intention, religion, knowledge, family influence, media awareness, trust, transparency and zakat manager).

SEM is, in some ways, more sensitive to sample size than other multivariate approaches (Hair *et al.*, 2010). Based on the literature, this research used a sample of 314 respondents. Hair *et al.* (2010) suggest that the minimum sample size depending on the model complexity and basic measurement model characteristic. Since this research has more than seven latent constructs, a sample of 300 minimums is required as it will help to prevent sampling error. The sample size, like any other statistical method, provides a basis for the estimation of sampling error (Hair *et al.*, 2010). Table 4.3 presents the minimum sample requirement in SEM.

Table 4.3: Minimum Sample Requirement for SEM

No	Model Characteristics (Number of latent constructs and items)	Minimum Sample Required
1	Five or less latent constructs. Each latent construct has more than three items	100 sample
2	Seven or less latent constructs. Each construct has more than three items	150 sample
3	Seven or less latent constructs. Some constructs have less than three items (just identified model)	300 sample
4	More than seven latent constructs. Some constructs have less than three items (just identified model)	500 sample

Source: Adopted from (Awang, 2014).

Having met the required sample size, and assured there are no missing data, the study validated the measurement model before carrying out a structural model using factor analysis. Exploratory factor analysis and confirmatory factor analysis were applied to validate the measurement model. While EFA has been discussed in the previous sub-topic, the confirmatory factor analysis procedure is discussed in detail here. SEM has a measurement model linking a set of observed variables to a usually smaller set of latent variables, and a structural model linking the latent variables through a series of recursive and non-recursive relationships (Albright, 2008). CFA corresponds to the measurement model of SEM and as such, is estimated using SEM software. The present study used AMOS 22 for CFA after carried out the EFA. The CFA helps in evaluating the unidimensionality and validity of the constructs. Since this research employed SEM, the data was validated through confirmatory factor analysis (CFA) procedures.

CFA is hired to test whether the measures of a construct are reliable with the researcher's understanding of the nature of that construct (Anwang, 2014). It involves two stages of analysis, which are purification of items and assessment of the measurement models. In the purification process, the maximum likelihood estimation (MLE) method was used. This was supported by Min & Mentzer (2004) in which this method is seen to increase parameters estimated to minimise a specific fit function. Any item that did not fit the measurement model because of low factor loading was deleted from the model. The researcher ensured that the measurement model was free from redundancy. This was identified through modification indices (MI), and any high MI was deleted. The process continued until the model was considered fit. Items were also deleted based on other indicators such as the standardised residuals, path estimates (construct to the indicator) as well as error term sign. Nevertheless, prior to the deletion of items, previous review or theoretical assessment was taken into account. As highlighted by Hair *et al.*, (2010), this is crucial since it may influence the validity and reliability of the study. Table 4.3 offers some indicators on model diagnostics in the CFA.

Table 4.4: Model Diagnostics in CFA

Model Diagnostic	Requirement	Reference
Modification Index	≥ 4 ≥ 10	Hair *et al.*, 2010; Fassinger, 1987
Standardised Residuals	<2.5 - no problem >4.0 – possible problem	Hair *et al.*, 2010
Path Estimates (construct to the indicator)	≥ 0.5; ideally ≥ 0.7; and be Significant	Hair *et al.*, 2010
Squared Multiple Correlations or Reliability	≥ 0.3	Hair *et al.*, 2010
Error Terms Standardised Coefficients Positive terms	≤ 1.0	Hair *et al.*, 2006 Min & Mentzer, 2004

Source:Adapted from Akmal (2011)

The current study used a pooled CFA procedure to run the measurement model. However, the model has many latent constructs, and it is challenging to use pooled CFA for all at a time. Therefore, they were first grouped into three based on their dependent variables, and CFA was run for each variable. The validity was attained when the fitness indexes for the construct attained the required level. To know how well the model, fit, the researcher followed some measures based on the literature on goodness-of-fit. These are discussed below.

4.12 Measurement Index

The measurement model is the portion of the model that connects latent variables with their measures. Before the structural model is performed, a fit measurement model is needed. Measurement model fit means the capacity of a model to reproduce the data (Kenny, 2015). This precise study validates the measurement model before carrying out the structural model using confirmatory factor analysis. Hence, the measurement indexes used in the study are discussed below.

4.12.1 Goodness- of- Fit

The goodness-of-fit is the measure demonstrating how well a specified model reproduces the covariance matrix among the indicator variables (Hair *et al.,* 2010). It is noted by Mulaik (1987) that “a goodness-of-fit test evaluates the model in terms of the fixed parameters used to specify the model and acceptance or rejection of the model in terms of the over-identifying conditions in the model”. Like R2 in multiple regression, fit indices are meant to quantify something similar to variance accounted for, rather than to test a null hypothesis (Hu & Bentler, 1999). Usually, these types of measurement of model fitness can be assembled into three: Absolute, Incremental, and Parsimony Fit Index. According to Hair *et al.,* (2010), the absolute fit index is used to evaluate the overall goodness-of-fit for the measurement model. Nonetheless, this does not identify whether the model is preferred or inadequate. Hair *et al.,* (2010) complemented that the incremental fit index could be applied as an indicator to determine the goodness-of-fit of the actual model to a null model. Lastly, the parsimony fit index could be considered as the appliance of parameters or coefficient of the hypothesised model. It was perceived that the lesser the estimated parameters used in the model are, the greater the parsimonious the model is (Hair *et al.,* 2010).

The upper explanations of the three types of model fit measure illustrated that each measurement has a certain quality of fitness. Thus, there is a need for each classification to be satisfied. It was challenging to consider all three types of measures in assessing the model in this study. Although only particular indices were taken into account as the indicator of fitness in this current study, this decision is dependable on what has been pointed out by Hair *et al.,* (2010) & Wisner (2003). According to them, no single test of significance that can surely recognise a correct model given by the sample data in SEM. Some instances of fitness index used in this study include the chi-square/degree of freedom ratio, the Goodness-of-fit Index (GFI), the Bentler comparative fit index (CFI) and the parsimony ratio.

4.12.2 Chi-square/Degree of Freedom Ratio

The chi-square (X^2) test is the single statistical test of the difference between matrices in SEM (Hair *et al.,* 2010). The chi-square is used to test the hypothesis that the model is constant with the pattern of covariance among the observed variables. A small value of the chi-square statistics shows a good fit. Therefore, SEM researchers search for a relatively small X^2 value (and corresponding large p-value), representing no statistically significant difference between the two matrices, to support the idea that a suggested theory fits reality (Hair *et al.,* 2010). The most basic indicator hired in this measurement process is the chi-square (X2) index. However, chi-square is very sensitive to sample size (Hu & Bentler, 1999; Hair *et al.,* 2010; Awang, 2014).

This sensitivity of chi-square to sample size may make a weak relationship statistically significant if the sample is large enough. A statistically significant result indicates the model is not fit; thus, the p-value should be greater than 0.05 ($p > 0.05$) to make it fit. Therefore, X^2/df was suggested to correct the problem of sample size sensitivity (Abramson *et al.,* 2007; Byrne, 2001). The same situation goes to other indicators that have their pros and cons. Thus, the embracing of multiple indices of different types of measurements in signifying the appropriateness of fit for a given model was suggested (Hair *et al.,* 2010; Wisner, 2003). Table 4.4 encapsulates the different types of measures to be applied with their recommended indices. Hair *et al.,* (2010) further clarify the implication of sample size in chi-square thus although the X^2 test gives a test of statistical significance, these mathematical properties present trade-offs for the researcher, though more sample sizes are often required, just the upsurge in sample size itself will make it tougher for those models to achieve a statistically insignificant GOF. Furthermore, as more indicators are added to the model, because of either more constructs or better measurement of constructs, this will make it tougher in using chi-square to assess model fit. One could claim that if more variables are needed to represent reality, then they should reveal a better fit, not a worse fit, as long as they produce valid measures. Hence, in many ways, the mathematical properties of the X^2 GOF test reduce the fit of a model for things that should not be detrimental to its overall validity.

4.12.3 Goodness-of-fit Index (GFI) and Adjusted Goodness-of-fit Index (AGFI)

The good of fit index "is a measure of the relative amount of variances and covariance jointly accounted for by the model" (Joreskog & Sorbom, 1984). GFI was developed as an alternative to correct the chi-square sample size sensitivity. However, Hair *et al.,* (2010) claimed that although there is no N in the formula, it is still sensitive to sample size due to the N on sampling distribution. A model is considered to have a better fit when "it has a lower ratio computed as the noncentrality parameter divided by degrees of freedom" (Joreskog & Sorbom, 1984). The nearer the GFI is to 1.00, the better is the fit of the model to the data, and the GFI greater than 0.9 is count as good (Hair *et al.*, 2010). The adjusted goodness-of-fit statistics (AGFI) is based on a correction for the number of degrees of freedom in a less restricted model obtained by freeing more parameters. It does so by adjusting GFI by a ratio of the degrees of freedom used in a model to the total degrees of freedom available (Hair *et al.*, 2010). Usually, AGFI values are lower than GFI values in proportion to model complexity. GFI and AGFI are both less sensitive to sample size compared with chi-square.

4.12.4 Parsimonious Fit

Parsimony fit is designed to compare the models. Conceptually, parsimony fit is alike to the notion of adjusted R2; they relate model fit to model complexity (Hair *et al.*, 2010). The higher complex the model is, the better the data fit is. Parsimony fit measure is enhanced either by a better fit or by a simpler model (Hair *et al.,* 2010). In this case, a simpler model is one with fewer estimated parameter paths. The indices are not useful in assessing the fit of a single model; but are quite useful in comparing the fit of two models, one more complex than the other (Hair *et al.*, 2010). Thus, theoretically, parsimony indices are a good idea; they provide useful information in evaluating competing models. Table 4.5 shows the level of acceptance of the fitness index.

Table 4.5: Index Categories of Acceptance for Every Index

Name of Category	Name of Index	Level of Acceptance	Comments	Reference
1. Absolute Fit	Chisq	P > 0.05	Sensitive to sample size >200	Hair *et al.*, 2010; Awang, 2014
	RMSEA	RMSEA < 0.08	Range 0.03 to 0.1 is acceptable	Hair *et al.*, 2010; Hu & Bentler, 1999
	GFI	GFI > 0.90	GFI = 0.95 is a good fit	Hair *et al.*, 2010
2. Incremental Fit	AGFI	AGFI > 0.90	AGFI = 0.95 is a good fit	Chau & Hu, 2001
	CFI	CFI > 0.90	CFI = 0.95 is a good fit	Hair *et al.*, 2010; Hu & Bentler, 1999
	TLI	TLI > 0.90	TLI = 0.95 is a good fit	Hair *et al.*, 2010; Hu & Bentler, 1999
	NFI	NFI > 0.90	NFI = 0.95 is a good fit	Hair *et al.*, 2010
3.Parsimonious Fit	Chisq/df	Chi-square/ df < 5.0	The value should be less than 5.0	Hair *et al.*, 2010; Min& Mentzer, 2004

Source: Adapted from (Awang, 2014)

After the CFA process was completed, prior to the modelling of the structural model, the assessment of unidimensionality, validity, and reliability for measurement models were required. Also, normality assessment is necessary to ensure data are normally distributed. All these assessments are discussed below.

i- Unidimensionality

Unidimensionality is the characteristic of a set of indicators that has only one underlying trait or concept in common (Hair *et al.*, 2014). Unidimensionality assessment is necessary to recognise whether the items are significantly associated with an underlying construct as well as only associated with a specific latent variable (Anderson & Gerbing, 1982; O'Leary-Kelly & Vokurka, 1998). In the case of this study, the researcher first confirmed the unidimensionality of all latent constructs in the model. This requirement was achieved through the item-deletion process for low factor loading items. The new model was run, and the item-deletion process was repeated until the fitness indexes achieved the required level. This process of refining and testing for unidimensionality was conducted independently with each latent variable. Once each construct in the measurement model was deemed acceptable, the overall measurement model was then assessed, and each construct was examined in the presence of other constructs. The steps stated above were taken in the unidimensionality analysis for this present study.

ii- Validity

Validity is the ability of the instrument to measure what it is supposed to measure for a construct. Unfortunately, there is no one clear-cut indicator of a scale's validity. The validation of a scale involves the collection of empirical evidence concerning its use (Pallant, 2005). Three types of validity were employed on each measurement model of this study:

(a) Convergent validity: Convergent validity refers to the extent to which the measurement items converge into a theoretical construct (Jitpaiboon, 2005). It assesses the degree to which concepts should be associated theoretically are interrelated in reality (Trochim, 2016). As explained by Anderson and Gerbing (1982), convergent validity refers to the degree to which different methods used to measure the same construct produced a similar result. Furthermore, Hair *et al.,* (2010) stress that the items that are used as indicators for specific constructs should converge or share a high proportion of variance in common. This validity is achieved when all items in the measurement model are statistically significant. The evidence of convergent validity exists when the analysis of the path coefficients from latent constructs to their corresponding indicators shows a significant value ($p = 0.001$) (Awang, 2014). The convergent validity is also verified by computing the average variance extracted (AVE) for every construct. If the values of AVE in all constructs meet the required level (0.5 or higher), convergent validity is achieved (Awang, 2014). See the formula in Table 4.5 to calculate AVE.

(b) Construct validity: The critical aspect in the validity of measurement is basically stressed on the 'truth' of the measurement (Akmal, 2011). Construct validity is the extent to which a set of measured variables actually represent the latent theoretical construct they are designed to measure (Hair *et al.,* 2010). This validity is achieved when the fitness indexes for a construct achieved the required level. See Table 4.5 for the fitness indexes.

(c) Discriminant validity: In a simple definition, discriminant validity refers to the independence of the dimensions (Jitpaiboon, 2005). It assesses the degree to which a construct is genuinely distinct from other constructs. In this study, discriminant validity was conducted for both the dimension as well as the model. Two approaches were employed. In the first approach, the redundancy among all the items was checked. The above approach was used to test the discriminant validity of the model. However, there is a requirement to look into the discriminant validity test for the dimensions. This validity is achieved when the measurement model is free from redundant items. This analysis employed AMOS. It identified the pair of redundant items in the model in terms of high modification indices (MI). Any MI, which is greater than 15.0, is high (Awang, 2014). The researcher could delete one of the items and run the model or set the correlated measurement errors of redundant items as a “free parameter” and run the new measurement model. Another way this study checked the discriminant validity is the correlation between exogenous constructs. Correlation between constructs should be less than 0.85 among all the constructs (Awang, 2014) to achieve discriminant validity. In addition to the above, discriminant validity can also be achieved through the square root of AVE. Therefore, the present study employed all three methods: MI, the correlation between construct to test the discriminant validity, and the square root of AVE. In any high MI more than 15.0, the researcher deleted one of the redundant items. Furthermore, the study ensured there was no correlation higher than 0.85 among the constructs.

Table 4.6: Validity Requirement was achieved through the Following Processes

Type of Validity	**Process**
1. Convergent Validity:	AVE > 0.50 AVE = ∑K2/n Where K = factor loading of every item and n = number of items in a model
2. Construct Validity:	All fitness indexes for the models meet the required level
3. Discriminant Validity:	The redundant items are either deleted or constrained as “free parameter”. Also, the correlation between exogenous construct X1 and X2 is lower than 0.85

iii- Reliability

Reliability is the consistency of measurement (Bollen, 1989). It is the extent to which measurements are replicable if another person used the measurement on different occasions and under different conditions and still measured the same thing. Therefore, the reliability test used to test the internal consistency of the validity and reliability of the measured item is partially related and partially independent, where both are used for evaluating the quality of a measurement procedure (Jitpaiboon, 2005). Although reliability is very important, it is not sufficient. High reliability does not guarantee that a construct represents what it is supposed to represent (Hair *et al.*, 2010). For a test to be reliable, it also needs to be valid. Therefore, this study tests both the validity and reliability of the measurement and results, respectively.

Reliability measures the degree to which a set of indicators of a latent construct is internally consistent in their measurements (Hair *et al.*, 2010). The indicators of highly reliable constructs are highly interrelated, indicating that they all seem to measure the same thing (Hair *et al.*, 2010). Therefore, reliability is the extent of how reliable the measurement model is in measuring the intended latent construct. The most popular method to test internal consistency in social science is Cronbach's alpha. Ideally, the Cronbach's alpha coefficient of a scale should be above 0.7 (Pallant, 2005). In the case of this study, the internal reliability was tested with the aid of SPSS 23 using Cronbach's alpha. Only items with Cronbach's alpha greater than or equal to seven were accepted (> 0.7 is acceptable). Items less than seven were detected.

Composite reliability is also necessary to assess the internal consistency of the latent construct. Composite reliability (CR) and average variance extracted (AVE) were also suggested to be considered in the evaluation of convergent validity (Garver & Mentzer, 1999; Lin, 2007). However, the AMOS programme does not provide value for CR and AVE. Alternatively, a manual calculation can be applied (see Table 4.6 below). The assessments for reliability for a measurement model were made using the following criteria.

a) Internal reliability – This reliability is achieved if the Cronbach's alpha coefficient is greater than 0.7 in all the constructs (using SPSS).

b) Composite Reliability – The measure of reliability and internal consistency for a latent construct. A value of CR > 0.6 is required to achieve composite reliability for a construct (CR is calculated using the given formula in Table 4.7 below).

c) Average Variance Extracted – The average percentage of variation as explained by the measuring items for a construct. An AVE > 0.5 is required (AVE is calculated using the given formula in Table 4.7 below)

Table 4.7: Reliability Requirement was achieved through the Following Process

No	Type of Reliability	Process
1	Internal Reliability	Cronbach's alpha > 0.70: (use SPSS for reliability)
2	Composite Reliability	CR > 0.60: (using the formula) CR = (∑K)2/[(∑K)2+ (∑1 - K2)] Where K = factor loading of every item and n = number of items in a model
3	Average Variance Extracted	AVE > 0.50: (using the formula) AVE = ∑K2/n Where K = factor loading of every item and n = number of items in a model

Source: Adapted from (Awang, 2014)

iv- Normality

Normality is the degree to which the distribution of the sample data corresponds to a normal distribution (Hair *et al.*, 2010). Normality for the whole data has been discussed in the data screening (4.9.1) above. After the fitness indexes have been achieved, before proceeding to the model, the structural model normality test was also conducted to assess the distribution for every variable in the dataset. This study used the final measurement model to test for normality and outliers. In this context, the normality test was conducted by looking at the value of skewness (the symmetry of distribution) and kurtosis (the clustering of scores toward the center of a distribution). According to Hair *et al.*, (2010) and Awang (2014), the recommended ranges for skewness values are from -1 to 1. As for the kurtosis, Coakes and Steed (2000) suggest the statistics ranges of -2 to 2 are to be considered.

Besides these suggestions, Hair *et al.*, (2010) further stress that ± 2.58 indicates rejecting the normality assumption at the 0.01 probability level, and ± 1.96 signifies a 0.05 error level. Therefore, the high value of skewness may lead the researcher to investigate outliers (Akmal, 2011). In this context, zero value indicates perfect normality in the data distribution. However, it is uncommon in social science for the result to be zero (Pallant, 2005). Pallant further stresses that the skewed scores do not necessarily signify a problem with the scale, particularly in social science, but rather mirror the underlying nature of the construct being measured. Indirectly, this argument implies skewed as a common problem in social science research (Akmal, 2011). However, the current study views this problem as a factor that may influence the results of the study. Thus, a related analysis was carried out to identify any extreme value of skewness.

4.13 Structural Model

To analyse, interpret, and present the result, the researcher picked a research method that was appropriate for the task. The researcher used structural equation modeling (SEM) to analyse the data. SPSS AMOS was the statistical software package to test the validity of the hypothesised models and illustrate the interrelationship between variables. SEM is an extension of the multivariate regression model. It even goes beyond regression models by providing coefficients that estimate the statistical significance and magnitude of the structural relationship between the theoretical constructs. The purpose of this study was to generate the extended model of factors that influence zakat payers' patronage of zakat institutions. To converge the paths and evaluate the overall goodness-of-fit, the study used Confirmatory Factor Analysis (CFA) and path analysis. As discussed earlier in 4.11.2, CFA was used to provide information on the interrelationship among all measured constructs (variables). To further the analysis, path analysis was used among the five main constructs for the structural model (intention, attitude, subjective norm, perceived behavioural control and adoption) to determine the regression weight among them.

4.13.1 Path Analysis

In the case of this study, for the path analysis, the path loading from exogenous to endogenous construct is verified, and also, the significance of every path coefficient is verified, i.e., for a path loading from X to Y. It is predicted that increases in Y of one unit cause an increase in X holding all other variables constant, especially the level of significance of the path coefficient. Furthermore, a negative path loading is the same as a negative regression coefficient. Therefore, a negative coefficient means that as X increases, Y is predicted to decrease. Generally, for the path to be statistical, the significance will generally not be influenced by whether the path is positive or negative. To determine whether a negative coefficient is statistically significantly different from zero, the researcher looked at the further output in the SEM program. For example, 0.3 will have the same p-value as -0.3.

4.14 Chapter Summary

This chapter explained in detail the research methods used in the study. It discussed important aspects of the methodology employed in the study, which comprises the research approach, research design, data collection, and data analysis process. The instrument used in this study is questionnaire and face-to-face interview to get more detail of the study. The interview occur among zakat payers, and zakat administrative for additional detail of the study. This study is based on positivism assumption. Therefore, it is quantitative research. Data gathered from this research instrument were computed for interpretation with the use of SPSS version 23 and analyzed with structural equation modeling (SEM) with the aid of AMOS software version 23. SPSS was mostly used for descriptive analysis and exploratory factor analysis while AMOS was employed in the confirmatory process and structural modeling. The crucial aspect of validity and reliability were not left out. This chapter detailed the process of running the tests. Since the study uses the structural model, the processes involved in CFA and path analysis were discussed in detail. Lastly, the following chapter (chapter six) continues to present the analysis of the present study, which is deliberately consistent with the methodology discussed in this chapter.