

The choice of qualitative and quantitative psychology essay



This chapter presents a detailed justification of the research approach used to answer the research questions and achieve the aim and objectives outlined in chapter one. The chapter begins with an overview of social research design. Section xxx discusses the research paradigm as the theoretical research approach. Section xxx discusses the research methodology. Section xxx discusses the methods adopted in this research for data collection. The chapter outlines the sampling techniques, piloting study and analysis techniques. The chapter also illustrates the research validity, reliability, triangulation, ethical consideration and generalizability of the study.

Research Design:

Research is defined as an in-depth study of a particular issue or phenomenon which the researcher investigates to solve problems related to that issue/phenomenon (Marshall, 1997; Brewerton and Millward, 2001; Wilkinson and Birmingham, 2003; Creswell, 2007; Bryman and Bell, 2007). In the social sciences, various researchers present the research overview – the theoretical and practical approaches in different ways. The differences in presentation can be clearly identified between the models of Sarantakos (1998); Crotty (2005) and Saunders et al., (2007). These authors agree that social research can be thought of in terms of the theoretical and practical approaches. However, the terminology adopted varies between. For instance, they use different terminology which can be confusing for other researchers. This section explains three different research designs in order to choose the appropriate research design for the study.

Sarantakos (1998) identified three levels of research (see Figure xxx). The first level includes the researcher's theoretical approach which combines the epistemology and theoretical perspective, which Sarantakos calls the research paradigm. The second and third levels represent the practical approach which contains the research methodology and methods respectively.

Figure xxx: Sarantakos' social research design, adopted from Sarantakos (1998)

Crotty (2005) named four different research levels for the social research (see Figure xxxx). The first two stages comprise the theoretical approach which contains the research epistemology and theoretical perspective. The following two stages comprise the practical approach – the research methodology and methods. Based on Crotty (2005), the four levels are interdependent, as the choice of the research epistemology is followed by the choice of theoretical perspective, the choice of study methodology and the choice of specific methods of data collection and analysis. The last two stages methodology and methods of Crotty and Saratakos' model are very similar. However, in terms of theoretical approaches, Crotty outlines two levels – epistemology and theoretical perspective are merged into one level – the research paradigm in Sarantakos' model. Figure xxx presents Crotty (2005) research design.

Figure xxx: Crotty social research design, adopted from Crotty (2005)

Saunders et al., (2007) offer a different model for social research design

which they call the "research onion". According to this model, there are six
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levels in social science research. The research levels are philosophies (e. g. interpretivism); approaches (contain either inductive or deductive); strategies (the research methodology); choices (types of research methods); time horizons (cross-sectional or longitudinal) and techniques and procedures (which includes data collection and analysis techniques). In this model, the theoretical approach contains research philosophies and approaches (inductive and deductive). Meanwhile, the practical approach contains the strategies as a methodology and the other three levels contain the research methods. The methods include both data collection methods and data analysis methods. Figure xxx presents the research onion according to Saunders et al., (2007: 132)

Figure xxx: Research onion, Saunders et al., (2007: 132)

The three research designs have considerable overlaps in their consideration into the theoretical and practical approaches. This research focuses on Sarantakos model, since it reflects more appropriately the research design adopted in this study. The following sections discuss in details this research design.

The Research Paradigm:

As mentioned early in Sarantakos research design, the first level reflects the theoretical approach and is named the reseach paradigm (Sarantakos, 1998). The paradigm is a particular theme that is used to test and understand social phenomena (Gephart, 1999; Denzin and Lincoln, 2005).

Guba and Lincoln (1994) classified social science research into two models; a subjectivist qualitative (constructivist) model and an objectivist quantitative

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(positivism and post-positivism) model. Guba (1990) explained that there is a third relativist paradigm called pragmatism which combines the subjectivist qualitative model and objectivist quantitative model and it's a paradigm on its own. Later, several authors (e. g. Reichardt and Rallis, 1994; Tashakkori and Teddlie, 1998; Johnson and Onwuegbuzie, 2004; Pansiri, 2005; Creswell and Clark, 2007) agreed that the paradigm which mixes qualitative and quantitative approaches is pragmatism. Table xxx compares positivism, post-positivism, constructivism with pragmatism.

Table xxx; Compares different positivism, post-positivism, constructivism with pragmatism (Tashakkori and Teddlie, 1998: 23)

Paradigm	Positivism	Post-positivism	Pragmatism	Constructivism
Methods	Quantitative	Primarily Quantitative	Quantitative + Qualitative	Qualitative
Logic	Deductive	Primarily deductive	Deductive + Inductive	Inductive
Epistemology	Objective point of view. Knower and Known are dualism	Modified dualism. Findings probably objectively "true"	Both objective and subjective point of view	Subjective point of view. Knower and Known are inseparable.
Axiology	Inquiry is value-free	Inquiry involves values, but they may be controlled	Values play a large role in interpreting results	Inquiry is value-bound

Ontology Naïve realism Critical or transcendental realism Accept external reality. Choose explanations that best produce desired outcomes Relativism

Causal Linkages Real causes temporarily precedent or simultaneous with effects There are some lawful, reasonable relationships among social phenomena. These may be known imperfectly. Causes are identifiable in probabilistic sense that changes over time. There may be causal relationships, but we will never be able to pin them down All entities simultaneously shaping each other. It's impossible to distinguish causes from effects

Pragmatism:

Pragmatism is a term derived from the Greek word “pragma” meaning action, from which the words practice and practical come (James, 2000). Dewey (1920) explained that pragmatism philosophy discover the meaning of idea that needs to be checked consequently. Therefore, when researcher judges a phenomenon, they must follow its empirical and practical consequences and note its impact on the study population (Tashakkori and Teddlie, 1998). Moreover, Easterby et al., (2008) explained that, by using pragmatism, researchers have to study individual experiences very well in order to develop an understanding of a particular phenomenon.

Moreover, Krauss (2005) explained that the pragmatist paradigm focuses on qualitative versus quantitative data and that to answer research questions, researchers have to mix objective and subjective approaches. Tashakkori and Teddlie (1998) clarified that by using pragmatism, the research logic contains deductive and inductive approaches. Therefore, the pragmatism <https://assignbuster.com/the-choice-of-qualitative-and-quantitative-psychology-essay/>

philosophy rejects the use of particular research philosophies, such as positivism, post-positivism and constructivism. In addition, Tashakkori and Teddlie (1998) explained that pragmatism focuses on both the meaning and the truth of ideas. Truth is “ what works” at the time and it is not based on a dualism between whether reality is independent of the mind or within the mind. Therefore, when judging ideas, pragmatists consider their empirical and practical consequences.

Pragmatism is a research philosophy that eliminates the need of making a forced choice regarding the research epistemology between constructivism and positivism (including post-positivism). A pragmatic paradigm dismisses traditional assumptions about the nature of knowledge, truth and the nature of inquiry. Furthermore, for pragmatists, the research question is more important than the research method that is used (Johnson and Onwuegbuzie, 2004).

Creswell (2003) explained that the choice of the research paradigm (pragmatism) related mainly to the purpose and nature of the research questions. The pragmatism allowed the researchers to study different interested areas by employing different sources of evidence (methods) that are appropriate and explain the study findings in a positive manner (Tashakkori and Teddlie, 1998 and Creswell, 2003). Therefore, pragmatism is classified as one of the suitable research philosophies in social and management research that investigates beliefs and attitudes using mixed methodology that combines qualitative and quantitative approaches (Creswell, 2003).

Reichardt and Rallis (1994) explained that there is much debate about whether pragmatism is in fact a research philosophy because it holds the centre-ground between two well-established social research philosophies. Johnson and Onwuegbuzie (2004) and Robson (2005) confirmed that pragmatism is no longer a debatable philosophy but has achieved widespread use in social research. To achieve the aim of this research, pragmatism has been chosen as a research philosophy. The next part will discuss the mix between the qualitative and quantitative research approaches.

The Choice of Qualitative and Quantitative Research Approach:

Discussions have been held by series of researchers in connection with the difference between quantitative and qualitative approaches, including Brewer and Hunter (1989), Silverman (2000), Brewerton and Milward (2001), Holliday (2002), Thomas (2003), Corbetta (2003) and Cooper and Schindler (2005). While quantitative researchers base their accounts on figures and numerical information, according to Gelo et al., (2008), qualitative researchers rely on non-numerical data, for instance words, narrative and feelings. Maanen et al., (1982: 32) introduced a verbal picture to help readers understand the difference between both research types as follows:

Quality is the essential character or nature of something; quantity is the amount. Quality is the what; quantity the how much. Qualitative refers to the meaning, the definition or analogy or model or metaphor characterizing something, while quantitative assumes the meaning and refers to a measure of it.

Furthermore, Bryman (1996) and Cooper and Schindler (2005) noted that quantitative and qualitative approaches are both valid and researchers can use either. Clarke and Dawson (2000) and Gray (2009) suggested that according to the nature of the research, researchers can mix different approaches, as it hard in deciding the better or more useful approach. Miller and Brewer (2003) confirmed that using a mixed method approach decreases the weaknesses and limitations of the research. Table xxx compare quantitative, qualitative and mixed methods procedures (Creswell, 2003: 19).

Table xx: Comparison between quantitative and qualitative research (Source: Creswell, 2003: 19)

	Tend to or Typically Qualitative Approaches	Quantitative Approaches	Mixed Methods Approaches
Use these philosophical assumptions	Constructivist/Advocacy /Participatory knowledge claim	Post-positivist knowledge claim	Pragmatist knowledge claim
Employ these strategies of inquiry	Phenomenology, grounded theory, ethnography, case study, and narrative	Surveys and experiments	Sequential, concurrent, and transformative

Employ these methods Open-ended questions, emerging approaches, text or image data Closed-ended questions, predetermined approaches, numeric data Both open-and closed-ended questions, both emerging and predetermined approaches, and both quantitative and qualitative data and analysis

Use these practices of research as the researcher – Position himself or herself and collects participant meanings.

- Focuses on a single concept or phenomenon
- Bring personal values into the study
- Studies the context or setting of participants.
- Validates the accuracy of findings
- Makes interpretations of data
- Creates an agenda for change or reform
- Collaborates with the participants – Tests or verifies theories or explanation
- Identifies variables to study
- Relates variables in questions or hypotheses
- Uses standard of validity and reliability
- Observes and measures information numerically
- Use unbiased approaches

- Employs statistical procedures – Collects both quantitative and qualitative data
- Develops a rationale for mixing
- Integrates the data at different stages of inquiry
- Presents visual pictures of the procedures in the study.
- Employs the practices of both qualitative and quantitative research.

Additionally, there are different ways to implement quantitative and qualitative approaches in one study. Johnson and Onwuegbuzie (2004) summarized these in Figure xx. This study combines qualitative and quantitative approaches in a sequential and equal way. The study starts with a qualitative approach through the analysis of mobile payment players' (banks and mobile operators) documents and websites. This will then be followed by a quantitative approach using a questionnaire survey of potential consumers of mobile payment services.

Time order decision

Concurrent Sequential

Paradigm emphasis decision Equal Status

QUAL + QUAN QUAL â†' QUAN

QUAN â†' QUAL

Dominant Status

QUAL + quan

QUAN + qual QUAL + quan

qual + QUAN

QUAN + qual

quan + QUAL

Figure xxx: Mixed methods approach design matrix (the design used in this study is shown in bold).

Note. “qual” stands for qualitative, “quan” stands for quantitative, “+” stands for concurrent, “+” stands for sequential, capital letters denote high priority or weight, and lower case letters denote lower priority or weight.

Source: Johnson and Onwuegbuzie, 2004: 22. Notation based on Morse, 1991.

The Research Methodology:

Crotty (2005: 3) identified the research methodology research process as:

the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes.

Furthermore, Crotty (2005) made a clarification of research methodology as a strategy built on it, the data collection methods, and linking between the use of research methods and research outcomes. In addition, Crotty (2005)

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explained that there are different kinds of research methodology, and researchers should select the most suitable for their research topic.

The research methods for this study:

Having reviewed series of literatures, several factors led to the choice of methods used for this research.

Triangulation methods have been proposed for this research and this will complement each other in order to yield a quality result. According to Tshakkori and Teddlie, (2003), triangulation is one way that involves a combination of data collection to get good results. Although the term “triangulation” has different meanings, it is associated with using combinations of methods with a strategy of convergent validity being common (Bryman 2004). Kholoud (2009) cites Johnson et al., (2007) who identified four types of triangulation: data triangulation, investigator triangulation, theory triangulation, and methodological triangulation. Kholoud further cites the same authors for defining ways in which quantitative and qualitative methods can be combined.

From research on technology acceptance perspective, technology acceptance has a dominant theoretical urge which is positivist in nature. The current research aim is to design a predictive viable model of behaviour intentions of users of technology services (in this case – mobile payment). This objective requires the means of a structured, well-defined framework, and definite measurements that could establish relationships between variables, such that inferences could be made from the research study

sample to a larger population. Most of these qualities can be addressed by quantitative research methods (Johnson et al., 2007).

The stimulus of this study is to test hypotheses which relates to the proposed conceptual framework model as well as different hypothesized relationships previously accepted in technology acceptance context. The conceptual drive of this research is deductive in nature. The research proposes to follow a confirmatory strategy of research that needs empirical analysis (a way of proving or disproving previously assumed hypotheses related to mobile payment acceptance).

Despite the fact that this study will be mainly quantitative, qualitative methods will be employed at the initial stages of the study. Structured observations will be employed allowing for in-depth assessment of mobile payment schemes in the country in order to determine those that could be researched.

Figure xxx shows the eleven main steps in a quantitative research process. To answer the research question, this study aim to follow the path in the order in which they appear as shown below. However, the steps at times might overlap during the course of the research.

Figure xxx: Process of Quantitative Research as outlined by Bryman & Bell (2007).

In this study, theories and literatures underpinning this study will be advanced to guide the research deductively.

Research Designs:

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The major reason of this research is in testing the hypotheses which could explain the variance in the dependent variables. Such analyses fit a correlation study design as described herein.

Correlation Designs:

Correlational design measures two or more variables with the eventuality of measuring the dependent variables. It does not manipulate one or more independent variables.

The major premise of this research was that if a statistical significant relationship was in existence between the independent and the dependent variables, there would be the possibility of predicting the dependent variable using information available in the other variable. Within quantitative methods, the investigation used correlation research design (see Figure xxx) to determine if there was an existence of some relationship between independent constructs and the dependent constructs of behaviour intention to use mobile payment.

Figure xxx: Illustration of the Research Designs according to Mugenda (2008, p. 65)

In this kind of scenario, the research study will apply reliability coefficients, multiple correlation coefficients, generalized linear regression model coefficients; and path model coefficients for different study assessments of the collected data. These will be discussed below:

a) Reliability analysis will be carried out using Cronbach's Alpha commonly called coefficient for Internal Consistency (IC) and inter-item correlation
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coefficient. According to De Vellis (1991), reliability is a measure of the degree to which a research instrument would yield the same results after repeated trials. Cronbach's Alpha provides information on the degree to which each item in the construct correlates with at least one other item of the construct. The analysis can estimate the proportion of true score variance that is captured by the indicators by comparing the sum of indicator variances with the variance of the sum scale. Cronbach's statistic was computed as follows:

$$\text{Cronbach} = \frac{s^2_{\text{true}}}{s^2_{\text{obs}}} = \frac{\text{number of items} \cdot s^2_{\text{true}}}{s^2_{\text{obs}}}$$

number of items $\rightarrow 1$

Where s^2 denotes the variance for the number of individual items; s^2_{obs} denotes the variance for the sum of all questions or items (which is esoteric and unique, and, therefore, uncorrelated across respondents), then the variance of the sum will be the same as the sum of variances of the individual questions/items. Therefore, coefficient alpha will be equal to zero. If all items are perfectly reliable and measure the same thing (true score), then coefficient alpha is equal to 1. In this investigation, the construct would demonstrate an acceptable level of reliability if the Cronbach's alpha was at least 0.6.

b) Multiple correlation coefficients (R^2), will be used to describe the extent to which a dependent variable was explained by a set of independent variables. The statistic was used to measure the predictive power of the model that has been estimated. The value of R^2 ranges from 0 to 1, and in this study, neither threshold nor the minimum value is pre-determined but instead the statistic

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only state the percentage variation in the dependent variables as explained by the independent variables.

Symbolically, the (R^2) statistic is defined as follows:

$$R^2 =$$

Where $observ_i$ is the measurement of random variable $observ$ on individual i . The $est. observ$ and $est. mean$ are the predicted measurements and mean values respectively. The mean of measurements for the n individuals is also factored into the calculation in equation 3. 1 in order to obtain R^2 .

A complete analysis of the entire model requires an examination of the goodness of fit using R^2 and adjusted R-squared. The goodness of fit measures how well the model parameter estimates is able to explain the variations in the dependent factor of the model and reproduce the sample covariance matrix. The adjusted R^2 equally measures the goodness of fit as does the R^2 , but instead, the former statistic takes into account the degrees of freedom (expressed as the number of observations and number of estimated coefficients) as stated in equation 3. 2. Thus,

$$\text{Adjusted } R^2 = 1$$

c) The Generalized Linear Regression model (GLM) coefficients are weighted coefficients that indicate the magnitude, direction and significance of the possible linear relationship between the independent and dependent variables. The technique measures both direct and indirect effects of the independent variables on dependent variable respectively. The technique

handles the moderating effects in the analysis of linear models. The GLM was
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appropriate because of its nature of handling fixed factors, covariates and the interaction effects. The model results, will allow a direct comparison of the variance explained from both estimation measures.

In the context of this study, it was hypothesized that three factors; performance expectancy, relevancy and social influence (culture) determine behaviour intentions. On the other hand, behaviour intentions together with facilitating conditions (technical support/training) determine usage. It was further postulated that the independent variables in the model were moderated by gender, age, experience and awareness, all of which required an appropriate modelling technique. Thus, the GLM that handled both direct and indirect effects were used in the form of the following equation (Eq. 3. 4).

$$Y = X \beta + (X * M) \hat{1}_j + U$$

Where Y is a matrix with multivariate measurements of the response or dependent variables

X is a matrix of the block of independent variables;

β is a matrix of parameters to be estimated;

U is the vector of the error terms.

d) The path model employs the path analysis statistical technique for decomposing correlations into different pieces for interpretation of effect. It allows one to compare the direct effects of variables in a complex system of relationships.

The path model measures direct effects or the possible inclination of the independent variables on the dependent variable in the network of variables. The path model only establishes linear relationships between variables and also indicates the predictive power of the model being evaluated. The mathematical relationships between the variables may be expressed as a set of linear equations, called the path model. According to Keeves, (1972) the fundamental principle of the path model that allows the linear equations to be estimated is:

$$r_{ij} = \sum_k p_{ik} p_{jk} + r_{ij}$$

Where i and j denote two variables in the network and the index k includes all variables from which paths lead directly to the dependent construct (j), r is the correlation coefficient and p is the path coefficient. Equation 3. 5 can be expanded by successive applications of the formula itself to r. In this case, the errors from behaviour intentions and facilitating conditions all point at usage behaviour. Expressed in expanded form can be read directly from the path diagram by using the following direct relationships in this study:

$$BIC = \hat{\beta}_{BIC-PEC} + \hat{\beta}_{BIC-REC} + \hat{\beta}_{BIC-SOC}$$

$$BUC = \hat{\beta}_{BUC-FOC} + \hat{\beta}_{BUC-BIC}$$

$$EBC = \hat{\beta}_{EBC-BUC}$$

Where BIC is Behavioural Intention, PEC is performance expectancy, REC is relevance, FOC is facilitating conditions, BUC is usage behaviour and EBC is expected benefits constructs respectively. In this study, a path coefficient

with a negative sign implies an inverse relationship between constructs
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whereas a coefficient with a positive sign implies that there is a direct relationship between two constructs.

Survey Designs:

There are two types of surveys used when evaluating acceptance and use of technology as discussed in 3. 2. 1. These are longitudinal surveys and cross-sectional survey. Since mobile payment services being investigated are in their early years of introduction, the best survey method is a cross-sectional. By using cross-sectional survey, the study would be able to predict future usage.

i) Cross-sectional survey

The study proposes to use a survey approach to collect data that could be a representative of the real phenomena in the population from which the study sample will be drawn. The study will focus on the link between end-users' behaviour intentions to use mobile payment services. In IS/IT evaluation studies, cross-sectional survey methods are not new because they have been used by several authors, Gefen et al., (2002), Chau and Hu (2001), Venkatesh and Davis (2000) and Venkatesh and Morris (2000).

A cross-sectional survey design will be utilized to gather quantitative data to assess the relationships between the study variables. A cross-sectional study/research involves data collection that covers a one-off time period. Data collection of individual observations can occur at one point in time or may be over a period of days, weeks or months. In the case of the current study, the data collection aim to be for a period of three months. According

to Mugenda (2008), Mugenda and Mugenda (2003), this sort of survey helps to establish whether significant associations among variables exist. The additional value of this type of survey is that one can generate testable hypotheses, which the current study aims to do.

Cross-sectional designs have three distinctive features: there is no time dimension, only differences between groups are measured rather than changes over time; there is reliance on existing differences rather than change following any intervention and there is no allowance for differences to emerge over time; and grouping individuals in the sample is based on existing differences or according to a category or the independent variable to which they happened to belong rather than random allocation. The researcher was aware of the limitations of this type of investigation, but the research timeframe might not permit the use of a longitudinal study. When data is collected at more than one point in time and then later on, the study is considered longitudinal (Crestwell, 2003). Longitudinal studies are feasible when there is need to describe the pattern and direction of change and stability (De Vaus, 2001).

The objective of this study is to understand usage behaviour as a dependent variable that would predict the actual usage of the services in future. The current study will employ cross-sectional survey and college students will be used for this study. Behaviour intention is associated with self-predicted future usage of a new technology. Furthermore, measuring behaviour intention as a predictor of future usage behaviour is also important.

The researcher believes that the experience college students will gain in using mobile payment services would impact on their behavioural intentions if they intend to use the service in future. As reported in the conceptual framework section, behaviour intentions as a dependent variable measured in a cross-sectional study can help to identify future usage of mobile payment services. It is because of these reasons that the current study proposes to use a cross-sectional survey method which will be carried out over a period of three months.

STUDY POPULATION

Methods of Data Collection:

This section presents the final research level namely the research methods. Crotty (2005) defined research methods as the techniques used by researchers to collect and analyse the data required to answer the research questions. Moreover, according to Saunders et al., (2007), research methods are the various procedures used to collect data, such as questionnaire, observation and interviews, and to analyse it, e. g. statistical and non-statistical techniques, according to the nature of the research.

Since this study is basically quantitative in nature, questionnaires will be used. Furthermore, to determine the research reliability and validity, the researcher will use multiple sources of evidence.

The research method to be applied will be in accordance with the research objective. For this study, the practical objective will be to identify the main elements that influence consumer acceptance and use of mobile payment

services. This objective will be achieved by designing a comprehensive questionnaire to identify the main factors that impact on consumers' behavioural intentions towards the acceptance and use of mobile payment. In this regard, about 1000 questionnaires are proposed to be distributed to college students willing to participate in this research study.

Structured Interviews:

Researchers prepare themselves in advance by setting up a predetermined list of questions with limited option responses (closed questions). Usually structured interviews are associated with social surveys which aim to interview as wide range of respondents as possible to collect large volumes of data (Bernard, 2000; Denscombe, 2003). Saunders et al., (2007) classified the structured interview as a type of questionnaire which is administered face-to-face.

Questionnaire Survey:

Based on the proposed research model, the research questionnaire will be designed to identify the main constructs that impact consumer behavioural intentions towards the acceptance and use of mobile payment. Thus, a questionnaire survey method will be applied in this study.

Robson (2005) clarified the full benefits of using questionnaires in business research within a survey strategy. Fink (1995: 1) identified survey as:

A survey is a system for collecting information to describe, compare, or explain knowledge, attitudes, and behaviour. Survey involves setting

objectives for information collection, designing research, administering and scoring the instrument, analysing data, and reporting the resul