CONSUMER ADOPTION OF PRO-POOR INNOVATIONS IN THE BOTTOM OF THE PYRAMID

A THESIS SUBMITTED TO THE UNIVERSITY OF KENT

IN THE SUBJECT OF MARKETING FOR THE DEGREE

OF DOCTOR OF PHILOSOPHY

By

Md Rajibul Hasan

January 2016

Abstract

In the context of the developing world the marginalised and poor have gained new significance and are a focus for marketers owing to C.K. Prahalad's (2005) seminal work on the Bottom of the Pyramid (BOP) market. To lessen and improve the lives of the poor, pro-poor innovations are necessary for this market. However, when pro-poor innovations are developed for the BOP market, it is important to understand that the BOP exhibits different characteristics from the middle and high income consumer market because of different constraints faced by BOP consumers in their day to day life. Pro-poor innovations must, therefore, be developed that are tailored for this market and its unique surroundings (e.g., economic constraints, unreliable electricity etc.), to overcome these constraints. There are examples in the BOP market, where very useful pro-poor innovations (e.g., pure drinking water) with clear social benefits were unsuccessful in this market. Therefore, it is important to understand the complex array of antecedents to pro-poor innovation adoption in the BOP context so that practitioners and policy makers can maximise their chances of success in this large and socially important market.

To understand the antecedents of innovation adoption, a range of theoretical models were developed (e.g., Value based Adoption Model, Consumer Acceptance of Technology model) but these have typically been validated within western, developed contexts. However, there is little research, which has investigated pro-poor innovation adoption in the BOP context. This research seeks to understand consumers' pro-poor innovation adoption in the BOP context through:

1) empirically comparing seven innovation adoption models,

2) conceptually and empirically formulating an integrated pro-poor innovation adoption model, and

3) validating the newly developed model for the BOP.

This research investigated these three objectives by conducting two studies. Study 1 was carried out to empirically compare the validity of seven consumer based innovation adoption models in the BOP. Following the procedure of Venkatesh et al. (2003), the empirical results of this comparison were coupled with theory in the area to conceptualise and develop a new model of innovation adoption for the BOP, coined here as the Integrated Theory of Pro-poor Innovation Adoption (ITPIA). Later, Study 2 was conducted to validate the newly developed ITPIA model in the BOP market. Consequently, this research contributes significantly to our understanding of the antecedents to consumer innovation adoption in this market through integrating elements of seven well-established consumer based innovation adoption models. The ITPIA model explains innovation adoption better than these existing seven models, which were mainly developed to explain innovation adoption by wealthier consumers in western contexts. This thesis also contributes by taking account of consumer heterogeneity such as urban and rural BOP area and different age groups.

Although it may be common to assume that the BOP market want cheap products to suit their needs, the ITPIA model developed here shows that successful pro-poor innovations should address more than the lack of money of the BOP segment. It appears from this research that BOP consumers are not just rationally motivated. This research contributes by showing that BOP consumers don't just look for functional, utilitarian benefits but are more likely to adopt a new product if it provides some degree of affective and hedonic gratifications. Interestingly, whereas consumer innovation adoption related research (Venkatesh et al., 2012) in developed country contexts suggests that intention is the strongest predictor of usage behaviour, this research contributes by providing the fact that

supporting environment, which reduces external and internal constraints related to adoption of pro-poor innovations, is the strongest determinant of intention and usage behaviour of BOP consumers. Therefore, this research provides valuable theoretical and practical guidance about key antecedents, which influence the consumer adoption of pro-poor innovations in the BOP context, and this is of relevance to academics and policy makers with an interest in these markets.

Paper published during the PhD

Refereed Conference Proceeding

Hasan, M.R., Lowe, B., Petrovici, D. (2015). Empirical comparisons of key innovation adoption models in the context of the Bottom of the Pyramid (BOP), *Academy of Marketing Conference 2015, 7-9*July, University of Limerick, Ireland.

Working Paper

Hasan, M.R., Lowe, B., Petrovici, D. (2015). *An empirical comparison of key innovation adoption models in the context of the Bottom of the Pyramid (BOP).* Working paper.Cape Town: the University of Cape Town and the University of Essex.

Declaration

This work has not been submitted for a degree or diploma in any other university. A conference paper has been published by the author from this work during the PhD.

Contents

List of Figures

List of Tables

List of Abbreviations

BDT	Bangladesh Taka
BOP	Bottom of the Pyramid
CAT	Consumer Acceptance of Technology model
CBOP	Contextualised innovation adoption model for the BOP.
CB-SEM	Covariance-Based Structural Equation Modelling
CFA	Confirmatory Factor Analysis
CMB	Common Method Bias
DOI	Diffusion of Innovations
ICT	Information and Communications Technology
ITPIA	Integrated Theory of Pro-poor Innovation Adoption model
MTMM	Modified Multitrait–Multimethod approach
PBC	Perceived Behaviour Control
PEU	Perceived Ease of Use
PLS	Partial Least Squares
PU	Perceived Usefulness
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TR	Technology Readiness
TRA	Theory of Reasoned Action
UISC	Union Information and Service Centre
USD	United States Dollars
VAM	Value-based Adoption Model
VIF	Variance Inflation Factor

Chapter 1: Introduction

1.1 Introduction

Almost two-thirds of the world's population live on less than USD 5 or less per day (Rangan et al., 2011). This segment of consumers has become known as the Bottom of the Pyramid (BOP). This market is characterised as low literate, in poor health, with limited access to media, striving to meet basic needs and geographically isolated (Prahalad, 2010). Moreover, the BOP, a largely untapped market for Multi-National Corporations (MNCs) and large local firms, represents substantial assets (USD 9 trillion, which is the equal value of the top 20 global firms), aggregate spending power (USD 1.7 trillion, roughly Germany's annual Gross Domestic Product) and potential to grow (Hammond and Prahalad, 2004; London and Hart, 2004). This market is growing rapidly due to increasing development and growth in countries like Mexico, Bolivia, Bangladesh and Ivory Coast (Payaud, 2014).

In the current decade, the world GDP growth may advance more than the past three decades because the BRIC countries and other fast-growing emerging economies have more weight in contributing to the world economic growth (O'Neill, 2013). Hoskisson et al. (2000) identified 64 emerging economies and 51 of these countries were classed as developing countries. The growth rates of these developing countries are typically between 5% and 10% per year (CIA, 2013). Therefore, businesses around the world are increasing their engagement in the BOP market. Multinational companies have been pioneers in this market as well as large local companies, which have been very innovative in meeting the needs of BOP consumers (Hammond et al., 2007).

There is a popular belief that BOP consumers do not adopt an innovation readily (Prahalad, 2010). Prahalad (2010) refutes this apparent misconception positing that the BOP market is indeed very eager to adopt innovations. For instance, BOP consumers are readily adopting wireless devices like mobile phones, PC kiosks, and mobile banking. Moreover, the BOP is dramatically different from the middle and high income consumer market because of unreliable electricity, infrastructural challenges, political instability, economic constraints (e.g., low GDP, high inflation) and a low literacy rate (Rogers, 2003; Nwanko, 2000; Johnson et al., 2007; Eifert et al., 2005). Innovations must, therefore, be developed that are tailored for this market and its unique surroundings.

However, some innovations may have more developmental impact for improving the life of the poor than other products. Ramani et al. (2012, p.678) identified these innovations as pro-poor innovations and define these as "those that cater to the essential needs of the poor such as healthcare, housing, food, water, and sanitation or enhance productivity and income generation capacity." For example, fairness cream or cigarettes do not serve the essential needs of the poor. Also, fairness cream or cigarettes can be considered as a typical consumer innovation and do not possess the attributes of a pro-poor innovation. This is because products such as fairness cream or cigarettes don't have a developmental impact on poor consumers, unlike other innovations such as mobile banking, which can improve consumer wellbeing by allowing them access to services previously inaccessible. For instance, the recent implementation of mobile banking in developing countries has replaced traditional payment systems and reduced the cost of transferring money from one place to another place. It also contributes to economic empowerment and leads to a clear improvement of the livelihoods and well-being of BOP consumers. Typical innovations are less likely to be appropriate for the BOP market because they are less able to allocate personal disposable income to such purchases. Therefore, this research investigates

adoption of pro-poor innovations, which can contribute by improving the life of BOP consumers.

In addition, increasingly economically able segments of BOP customers have needs, which are not well served within many categories, although this is changing as organisations are realising their economic potential. This raises some interesting questions about how organisations can begin to satisfy BOP consumer essential needs more readily, and develop pro-poor innovations which will be accepted in this marketplace. Whilst a good deal of literature offers insight about innovation acceptance in developed economies in Europe, Japan, the United States, and the United Kingdom (e.g Shih and Venkatesh, 2004; Plouffe, Vandenbosch, and Hulland, 2001), research on the developing context is much more sparse within the marketing literature, presumably because of the less recognised economic importance of such markets in the past. However, in light of changing economic circumstances, questions regarding satisfying consumer needs and creating product offerings for the BOP market are becoming more important. Studies of innovation adoption in developing countries are not new. Innovation related research in developing countries was a consistent theme during the 1960s and formed the bedrock of marketing understanding through the development of seminal theories such as the diffusion of innovation by Rogers (1962). However, the majority of these studies (Rahim, 1961; Deautchmann and Borda, 1962) were conducted using agricultural innovations and typically included non-consumer contexts. More recently, interest in this area of innovation adoption among emerging economy consumers has intensified with important works on a range of different technologies (e.g., Mobile Ticketing Service, Broadband) in the developing country context (e.g., Kapoor et al., 2015; and Dwivedi et al., 2007). However, very little research has empirically considered BOP consumer (low-income consumers) as

a unit of analysis to investigate innovation adoption in the BOP market and even less research has examined the adoption of pro-poor innovations.

On the other hand, current research in the area of innovation adoption has yielded many competing models each with different sets of adoption determinants; yet it is still unclear how this research applies to the BOP consumer context. Some exceptions include work in the area of innovation adoption by Nakata and Weidner (2012), who developed a contextualised model for the BOP but it has not been empirically tested.

Several scholars acknowledge the significance of understanding what factors facilitate consumers' adoption of innovations and suggest that unless there is a stronger understanding of what influences consumers to use innovations, there is a greater possibility that such innovations will not be utilised (Griffin, 2006; Wang, 1998). In order for consumers to effectively and successfully adopt pro-poor innovations in the BOP, understanding the antecedents of innovation adoption is important.

This thesis proposes to begin filling this gap by providing a better understanding of factors likely to contribute to consumers' adoption of pro-poor innovations in the BOP. Specifically, it addresses the following research question.

What are the key antecedents to pro-poor innovation adoption for BOP consumers?

By understanding what factors are the key antecedents to pro-poor innovation adoption for BOP consumers, this research contributes to the domain of innovation adoption. There has been little research in understanding the adoption process of pro-poor innovations in the BOP, although there are significant opportunities for MNCs and large local companies in this market.

In addition, research related to innovation adoption has resulted in numerous theoretical models, with roots in information systems, sociology, and psychology (e.g., Davis et al., 1989; Taylor and Todd 1995; Venkatesh and Davis 2000). Some widely used established innovation adoption models (e.g., Technology Acceptance Model (TAM), Theory of Planned Behaviour (TPB) and others) have their own limitations. For example, innovation researchers sometimes tend to pick their favoured models and pay little attention to the contributions from other models. There have been very few studies, which have paid attention to empirically-based comparisons of innovation adoption models. Given the plethora of innovation adoption research in developed contexts, this research seeks to utilise this understanding by empirically comparing key innovation adoption models from the literature, conceptually and empirically formulating an integrated pro-poor innovation adoption model, and validating the newly developed model for the BOP context. Furthermore, professionals and academics still know little about which key factors influence pro-poor innovation adoption in the BOP. Failure to recognise the key factors by MNCs or large local companies can result in wasted investments and product adoption failure. Therefore, this research provides valuable theoretical and practical guidance about key factors, which affect consumer adoption of pro-poor innovations in the BOP context.

Furthermore, Rangan, Chu, and Petkoski (2011, p.114) argue, "The 4 billion people at the base of the pyramid whose output represents one-third of the world's economy are not a monolith." Therefore, Rangan et al. (2011) emphasise the importance of segmenting the BOP. There is almost no empirical research about innovation adoption considering BOP segments such as urban and rural consumers. Academics and professionals will benefit from this research by understanding pro-poor innovation adoption based on different geographic segments (urban and rural BOP).

In light of the research question, it is important to identify the research objectives based on the research question mentioned above.

The objectives of this research are to:

1) Empirically compare the validity of key consumer-based innovation adoption models for BOP consumers,

2) Conceptually and empirically develop an integrated pro-poor innovation adoption model for the BOP based upon existing and well-established innovation models, and

3) Empirically validate the newly developed model in the BOP market.

This research addresses these three objectives by conducting two studies with BOP consumers in a country often associated with the BOP (Bangladesh). Study 1 was carried out to address objective 1 and 2, and the main purpose of the first study was to empirically compare the validity of key consumer-based innovation adoption models for the BOP as well as conceptually and empirically develop an integrated pro-poor innovation adoption model for the BOP. Later, Study 2 was conducted to achieve objective 3 of this research. The main purpose of this second study was to empirically validate the newly developed model in the BOP market. A diagrammatic summary of the data collection procedure is outlined in Figure 1.1.

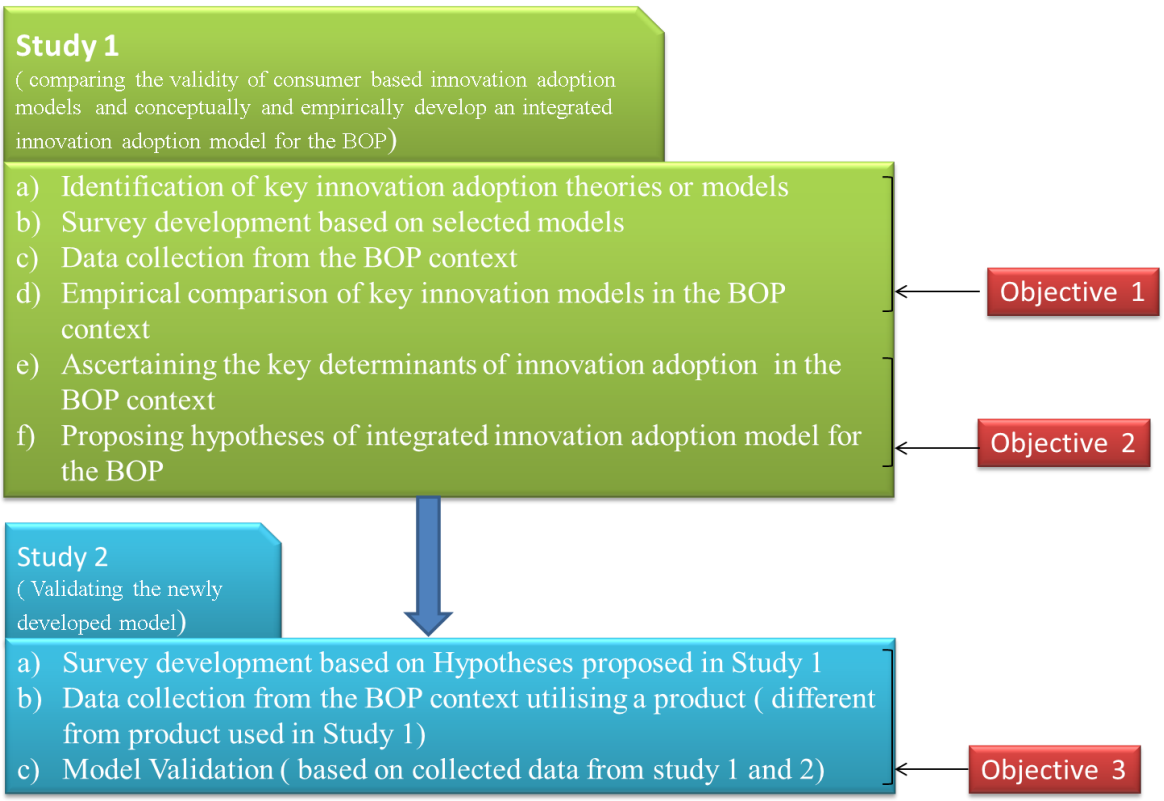


Figure 1.1 How the Outcomes of the Objectives are Achieved

Figure 1.1 demonstrates that the first step of study 1 was to identify the consumer related key innovation adoption models or theories. Later, surveys were developed based on the key identified models and data was collected from the BOP context using this survey. The next stage was to empirically compare the key innovation adoption models in the BOP context. Later, the key determinants of innovation adoption models were identified, and hypotheses of a new integrated pro-poor innovation adoption model for the BOP were proposed utilising empirical findings and theories from previous literature. Figure 1.1 also represents that the second study is dependent on the first study. The survey of the second study was developed based on the hypotheses proposed (see Figure 1.1) at the last stage of study 1. Later, data from the second study was collected from the BOP context using a different product. Finally, the newly developed models were validated by utilising collected data from study 1 and 2.

After representing how the objectives of this research were achieved, it is appropriate to discuss the contributions of this research.

1.2 Research Contributions

This research contributes to the innovation adoption and international marketing literature by-

1) Providing a better understanding of which innovation models or theories explain innovation adoption in the BOP context.
2) Identifying the key antecedents influencing adoption of pro-poor innovations in the BOP context.
3) Developing and empirically validating an integrated pro-poor innovation adoption model for the BOP based upon existing and well-established innovation adoption models.
4) Examining the moderating effect of geographical segments (urban and rural) and age on relationships in the integrated model.

The structure and an overview of the thesis will now be described.

1.3 Structure and Overview of the Thesis

Chapter 2 reviews the literature on the BOP, outlining its economic and social importance and pertinent issues in the field. It then reviews the research literature on BOP consumers and segmentation. Next, it defines the concept of innovation and pro-poor innovation from the consumer perspective to outline the scope of the thesis and reviews the research literature on innovation adoption, highlighting significant research issues.

Chapter 3 justifies the philosophical approach, research design, and ethical considerations. Firstly, it discusses the justification of the philosophical approach of this thesis. Next, this

chapter describes the research design based around Figure 1.1 and justifies the data collection method used and the choice of Bangladesh as the research context. Finally, ethical considerations for this research are discussed at the end of this chapter.

Chapter 4 explains the criteria used for identifying key consumer based innovation adoption models. It also presents a formal methodology for study 1 and the set of procedures through which the survey instrument was developed and administered.

Chapter 5 presents the analysis of study 1, and elaborates the findings from the empirical comparison of the seven identified innovation adoption models and links the results of the analyses to prior literature. Hypotheses are then developed to form a new Integrated Theory of Pro-poor Innovation Adoption (ITPIA) model. This newly developed model is then preliminarily tested using the data collected from study 1 and compared with the seven identified models.

Chapter 6 presents the methodology for study 2, which follows further testing of the ITPIA model, on a different sample and a different pro-poor innovation.

Chapter 7 validates the ITPIA model which has been preliminarily tested in chapter 5. It tests the reliability and validity of the constructs, and formally tests the hypotheses developed in Chapter 5 using the data of study 1 and 2.

Chapter 8 discusses the key findings from the research and highlights the theoretical contributions and managerial implications of this research. Later, the limitations of this study are assessed and future research opportunities are discussed.

1.4 Ethical Considerations

Throughout the conduct of this research, the ethical guidelines of Bell and Bryman (2007) were broadly followed to ensure the research was conducted ethically. Moreover, the

procedures of this research were approved by Kent Business School's ethics committee. Further details about the ethical conduct of this research are provided in Section 3.4 of Chapter 3.

Chapter 2: Consumer Adoption of Innovations and the Bottom of the Pyramid Market

2.1. Introduction

In the previous chapter, the research problem was introduced and direction was set for how this would be investigated. Chapter 2 begins by explaining the BOP market as well as the social and economic importance of this market. It then proceeds by describing BOP consumers and segmentation of the BOP market, outlining the definition of innovation and pro-poor innovation, and explaining innovation adoption in developing countries. It ends by explaining the literature related to consumer adoption of innovation.

According to Dougherty (1990), a comprehensive understanding of the market contributes significantly to the commercial success of innovation. As this study is focusing on the BOP market, it is also important to consider the literature regarding the BOP market and it's economic and social importance.

2.2. BOP Market and Economic and Social Importance of the BOP

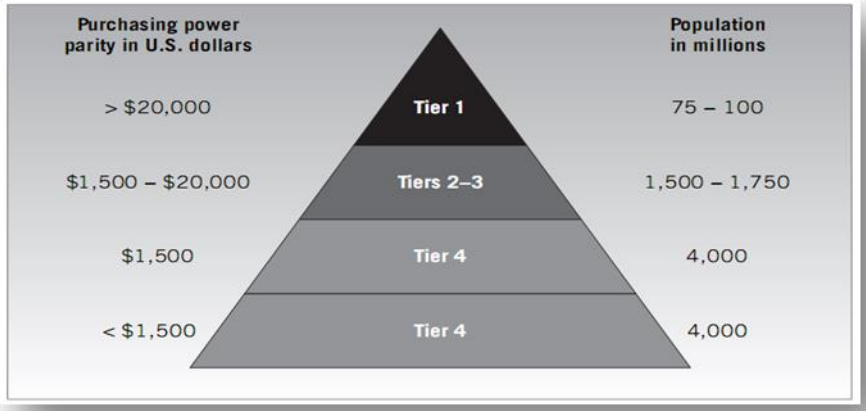
The majority of the world's population with lower income levels (living on USD 5 or less per day) live in Asia, Africa, Eastern Europe and Latin America, and this segment of consumers represents the BOP market. Hammond et al. (2007) and Prahalad (2014) state that this market consists of about four billion people worldwide. The main argument for targeting the BOP market is that it has a substantially aggregated purchasing power. The BOP market comprises of USD 5 trillion household income per annum, which represents the BOP as a potentially significant global market (Hammond et al., 2007). The income level and the number of people in the BOP varies worldwide from country to country. For instance, Asia (including The Middle East) has the largest BOP market of 2.86 billion

consumers with an income of USD 3.47 trillion. It is also the case that 60 % of this BOP market is concentrated in India and China. Eastern Europe has 254 million consumers with an income of USD 458 billion. Latin America consists of 360 million consumers with an income of USD 509 billion. Africa has a slightly small BOP market of 486 million consumers with an income of USD 429 billion (Hammond et al., 2007). Therefore, market size and income also differ from country to country. Similarly, needs of BOP consumers differ and diverge by country and culture (World Economic Forum, 2009; Subrahmanyan and Tomas Gomez-Arias, 2008).

Although there are divergent needs among BOP consumers in different countries and cultures, the distribution of wealth and income generating capacity of the world can be captured in the form of an economic pyramid as illustrated in Figure 2.1 (Prahalad, 2014). This pyramid can be divided into four socio-economic segments, and these segments are based on per capita income for purchasing power parity (PPP). PPP represents a measure of estimating the price of a basket of identically traded goods and services among diverse countries and it provides a standardised comparison of real prices. Thus, PPP is a more useful measure for comparability to segment the world into different income levels (London and Hart, 2010).

Different researchers have proposed various PPP lines, which have generated some confusion regarding PPP. London and Hart (2010) suggested that PPP values usually range from USD 1 to USD 4 per day and USD 1500 to USD 3000 per annum, which offers a broad range of variation within the BOP. Hammond et al. (2007), together with International Finance Corporation (IFC) and the World Resources Institute (WRI), conducted research in 110 developing countries to build an understanding of the purchasing power parity and population size of the BOP (London and Hart, 2010).

Hammond et al. (2007) utilised USD 3260 PPP in 2005 as the per capita annual income threshold to define the BOP segment.



Source: Hart and Prahalad (2002).

Figure 2.1 The Economic Pyramid Segments

Although targeting the BOP is economically important, marketing to the BOP has often been criticised for ethical reasons. Karnani (2007) argues that poor people may be wrongly exploited by companies targeting the BOP market. For example, marketing of certain products (e.g., skin "whitening" cream, or tobacco) with adverse effects can lead to the unethical inclusion of BOP consumers. However, there are several important social reasons for developing the professionalism of marketing within this context. For instance, the central idea for the BOP approach is that the majority of people are not included into the global market economy and they have no access to basic products and services like pure drinking water, banking and sanitation. However, there is an extensive demand for these essential goods and services in the BOP, but these needs are often not being met. When companies are targeting the BOP market, they are not only providing the basic services or products to this segment but also creating jobs and businesses in the BOP area. Another important perspective is that targeting BOP markets can enhance income and growth in

such markets (London and Hart, 2004). For instance, microfinance services pioneered by Grameen Bank in Bangladesh have been very successful in enabling lower income consumers to tap their entrepreneurial acumen setting up their own businesses. As a consequence of micro level enterprise, facilitated through the provision of microfinance, jobs and incomes have also increased (Wright, 1999). Thus, microfinance has become a very popular and common tool to transfer the responsibility of poverty alleviation and economic growth from the state to the individual (Jebarajakirthy and Lobo, 2015; Wright, 1999).

Also, lessening poverty and improving the quality of life for millions of people are sophisticated development challenges that require a multidisciplinary effort (Sen, 1999; Kotler and Lee, 2009). Although the marketing discipline cannot alone meet such a challenge, it certainly has a significant role in the creation of such solutions (Drucker, 1958). Drucker (1958) argues that marketing to subsistence consumers is the best way to develop corporate profit and emerging economies concurrently. Marketing can work as a driver of economic development, particularly it contributes by looking at the values and wants of individuals, as well as by encouraging people to act responsibly (Drucker, 1958). Kotler and Lee (2009) also argue that applying strategic marketing principles to social causes is a proven methodology for solving social problems such as helping people to eat healthier food, stop smoking, avoid sexual diseases, and change other behaviours. Similarly, Hammond et al. (2007) argue that engaging subsistence consumers in the formal economy can be a critical part of any inclusive growth strategy as well as wealth generation. Dawar and Chattopadhyay (2000), and Mahajan et al. (2000) also agree with this conjecture by stating that success with detached, dispersed, and subsistence consumers can only be lucrative if MNCs reform their business models, services, and products to significantly improve value and reduce cost. Moreover, redesigning business models,

products and services to create value for the BOP and to ensure affordable prices for the BOP might also be regarded as ethical marketing (Witkowski, 2005). Witkowski (2005, p. 20) argues that ethical marketing refers to "designing products that are specifically suited to the needs of low-income consumers." This means better alignment of prices with the capability of subsistence consumers to pay as well as creating value for those consumers. Hence, marketers in the BOP area need to be aware that their conduct in the BOP has social, economic, and environmental consequences for local consumers. Witkowski (2005) also emphasises that the principal of "do not harm" must be considered seriously. Therefore, ethical marketing to the BOP has the potential to alleviate poverty, and improve the quality of life of millions of subsistence consumers.

Given the social and economic significance of the BOP approach, it is appropriate to understand what is known about BOP consumers and the various segments to ensure successful innovation adoption for this market (Nidumolu et al., 2009). Therefore, BOP consumers and segmentation within this market will be discussed next.

2.3 BOP Consumers and Segmentation

BOP consumers are exposed to different macro-environmental constraints, and these constraints influence their day to day life (Banerjee and Duflo, 2007; Ersado, 2006; Viswanathan and Sridharan, 2012). Typical constraints include economic (e.g., low income, low gross domestic product, high inflation), political (e.g., poor governance, political instability, weak legal system, and corruption) and infrastructural challenges (e.g., weak distribution channels, lack of consistent electricity, and unreliable transport). These macro environmental constraints lead to uncertainty and lack of control over many aspects of a BOP consumers' day to day life (Viswanathan, 2007; Subrahmanyan and Tomas Gomez-Arias, 2008). For instance, daily challenges that BOP consumers face include lack

of electricity, clean water, sanitation services, basic health care and inadequate or no access to formal financial services (Ramani et al., 2012; Hammond et al., 2007; Anderson and Billou, 2007; Viswanathan and Sridharan, 2012). Political instability causes economic failures, which lead to daily challenges for the BOP. Infrastructure constraints like lack of reliable electricity and transportation are an established truth in the BOP market (Fay and Morrison, 2006; Anderson and Billou, 2007; Austin, 1990). One important characteristic of BOP consumers is that they spend a large portion of their income on essential needs such as food and clothing (Viswanathan, 2007).

The apparent interdependency among BOP consumers is another important characteristic of the BOP market, and it leads to strong social relationships. Therefore, group influences and word of mouth play a significant role in the BOP market (Viswanathan 2007). Noticeably, it is crucial to understanding that besides the severe material and psychological deprivation, BOP consumers also have limited literacy and numeric skills (Viswanathan et al., 2008). Consequently, they may perceive the use of any new products as being complicated, which in turn can deter them from using these products (Ramani et al., 2012).

On the other hand, the BOP market is often treated as a homogeneous group by many companies, who often appear to expect all BOP consumers to accept generic products (Ramani et al., 2012). Rather, a BOP market is heterogeneous in nature. The one-size-fits-all approach is an obstacle to widespread adoption of innovation in the BOP context (Ramani et al., 2012). Therefore, Rangan et al. (2011) emphasise segmenting the BOP market because of variation in income levels and needs. Consequently, Rangan, Chu, and Petkoski (2011) segmented the BOP into three segments: low income, subsistence and extreme poverty. About 1.4 billion people live on USD 3 to USD 5 a day (represents the low-income segment) and while still considered the poor are generating significant

discretionary income. In the mid-range, 1.6 billion people live on USD 1 to USD 3 a day (representing the subsistence segment) and are spending largely on essential products or services. Moreover, 1 billion people live in extreme poverty earning under USD 1 per day and often find it difficult to meet basic needs.

Furthermore, differences among age groups exist in the BOP market. De Silva, Ratnadiwakara, and Zainudeen (2009) found in a study that younger BOP consumers are more likely to adopt mobile phones than older BOP consumers. Although at a lower level of significance (90%), Zainudeen and Ratnadiwakara (2011) also found that age is a significant predictor of the usage behaviour of BOP consumers. Morris and Venkatesh (2000) and Venkatesh and Morris (2000) also revealed that age differences exist when adopting innovations.

Differences between urban and rural also exist in the BOP market. According to Hammond et al. (2007, p.14), "Rural areas dominate most BOP markets in Africa and Asia; Urban areas dominate most in Eastern Europe and Latin America and the Caribbean." Therefore, the composition of the BOP market based on urban and rural segments varies from country to country. According to Ireland (2008), the urban BOP market is different from the rural BOP market because of its density of wealth, homogeneity, and modernity. Therefore, purchasing behaviour of BOP can vary based on urban and rural segments. For instance, the urban BOP can shop in shopping malls or even supermarkets located in formal areas (Melchiorre, 2003). Ireland (2008) mentioned that urban BOP consumers can plan their purchase because of being salaried and they can look for the best possible prices by using different retailers. On the other hand, rural BOP consumers shop daily and generally in a similar location (Ireland, 2008). Hammond et al. (2007) and Ramani et al. (2012) also mentioned that Information and Communications Technology (ICT) spending and phone ownership are significantly lower among rural BOP consumers comparing to urban BOP

consumers as the rural BOP have less knowledge about the benefits of IT services. Therefore, it can be understood that consumer behaviour and innovation adoption varies based on urban and rural BOP segments. In this study, urban and rural differences in the context of innovation adoption will be considered.

In addition, as this thesis seeks to understand the key antecedents influencing pro-poor innovation adoption in the BOP context, it is important to understand what is meant by an innovation and a *pro-poor* innovation in order to move forward with the literature. Therefore, a consumer based definition of innovation and pro-poor innovation are discussed next.

2.4 Innovation and Pro-poor Innovation

Innovation can be defined as "a new idea, method or device". Rogers (1983, p.11) defines "innovation is an idea, practice, or object that is perceived as new by an individual or other unit of adoption." It seems that innovation is identified as the *perceived newness* of an idea, object or practice by Rogers (1983). Danneels and Kleinschmidt (2001, p. 362) mention "…customers themselves are the only proper informants regarding how new they perceive a new product to be, and in what ways it is new to them…" For instance, any new product made for the BOP can be considered as an innovation with respect to BOP consumers although the product (i.e., mobile phone) may be previously diffused within higher income segments (Ramani et al.,2012). However, an innovation must be more than just *new*. This is the perspective taken by Lowe and Alpert (2015); an innovation is something that is perceived to be new but also superior to what currently exists.

As discussed earlier, the central idea behind marketing to the BOP is that businesses can alleviate poverty by ensuring access to innovations for the BOP (Prahalad, 2005). However, some innovations have a greater development impact on consumers improving

the life of the poor (e.g., alleviate poverty). For example, the long-term effects of using shampoo in mini sachets (designed specifically for poor) will not be the same as the long-term effects of clean drinking water because clean drinking water is more essential than mini sachets in order to improve the life of poor consumers. By looking at the developmental aspects of innovations, Ramani et al. (2012) in line with Mendoza and Thelen (2008) defined these kinds of innovations as pro-poor innovations and argued that pro-poor innovation is characterised as those innovations that satisfy the essential needs of the poor such as food, water, healthcare, housing, and sanitation, or enhance productivity and income generation capacities. Pro-poor innovations consider the poor as consumers or producers. Mendoza and Thelen (2008) also emphasise that the delivery system of pro-poor innovations must ensure accessibility to the targeted BOP consumers along with positive reputational or financial returns to suppliers in order for them to be sustainable.

For instance, the recent widespread use of pro-poor innovations (e.g., Cai et al., 2007; Dubey and Malik, 2013) such as wireless devices, PC kiosks, mobile banking have improved the lives of the poor through the creation of jobs and business opportunities (Mendoza and Thelen, 2008; Chikweche et al., 2012). Another example is that the recent implementation of mobile banking in developing countries has replaced traditional payment systems, which seem to have been superseded before they have become widespread. Mobile banking reduces the cost of transferring money from one location to another location and contributes to economic empowerment (Berger and Nakata, 2013) and thus provides a relative advantage in terms of access costs and benefits to customers, which can lead to a clear improvement in livelihood and well-being.

To sum up, pro-poor innovations provide 1) accessibility to BOP consumers, 2) developmental impact, and 3) financial viability in the BOP context (Mendoza and Thelen, 2008). In the case of ensuring accessibility to BOP consumers, pro-poor innovations may

seek to penetrate into the BOP market even though these innovations may not reach most of the poor. For instance, mobile banking service delivered in South Africa by WIZZIT showed evidence that BOP consumers are being reached (Ivatury and Pickens, 2006). To ensure developmental impact, pro-poor innovations satisfy essential needs as well as contribute to economic empowerment. For example, poor consumers may be able to use mobile banking services as well as may be able to participate on the supply side related to mobile banking business. To achieve financial viability, pro-poor innovations seek to bring positive reputational or financial returns to suppliers for them to be sustainable. Mendoza and Thelen (2008) define financial viability as achieving break or profitability, and a competitive rate of return. For example, NGOs may pass on all savings and profits to expand their scope of services. However, profit-making businesses may be interested in attaining profitability, when they are serving the BOP market.

It is also important to understand innovation adoption research in the context of developing countries, and this will help us to gain a better understanding regarding how this research is different from previous research.

2.5 Innovation Adoption Research in Developing Countries

The studies of innovation adoption in developing countries are not new. Studies can be traced back to the 1960s, where researchers such as Rahim (1961); Deautchmann and Borda (1962) began to try to understand diffusion studies in rural villages. Studies were based around agricultural development, so it was natural to pursue the topic of diffusion of farm innovations (Rogers, 1983). Technology was assumed to be at the heart of development in developing countries during the 1960s; therefore, government officials and development planners of developing countries were interested in micro level investigations of the diffusion of innovations among villagers (Rogers, 1983).

Rahim (1961) and Deutschmann and Borda (1962) suggested that the pattern of diffusion and adoption among villages in developing countries such as Bangladesh and Colombia was similar to the diffusion and adoption process in developed countries. Typically these studies were conducted among farmers in villages to understand adoption behaviour by using products such as agricultural practices (e.g., Rahim, 1961), and new farm ideas (e.g., Deutschmann and Borda, 1962). The diffusion process, and the theories and models used in these research, appeared to be cross-culturally valid in the developing country settings (Rogers, 2003). From 1960 to 1981, the number of diffusion studies in developing country settings increased from 71 to 912 (Rogers, 2003). So far, previous research related to health care (Bertrand, 2004), nutrition (Thurber and Fahey, 2009), family planning innovations (e.g., Agha and Williams, 2015; Colleran and Mace, 2015), agricultural innovations (e.g., Maertens and Barrett, 2013), development initiatives (e.g., Pick et al. 2014; Kumar and Best 2007) and information technologies (e.g., Rana et al. 2015; Kaushik and Singh, 2004) was mainly conducted in the developing countries. For instance, Bertrand (2004) utilised Diffusion of Innovation (DOI) model to understand the adoption of preventive innovation. Thurber and Fahey (2009) also utilised DOI to understand the adoption of Moringa oleifera, which is used for nutritional supplement. Maertens and Barrett (2013) investigated the role of social networks in the adoption of agricultural innovations. Also, Pick et al. (2014) utilised DOI and TAM model to understand the adoption of developmental initiatives such as telecenters in India. Rana et al. (2015) also utilised an integrated IS success model to understand the adoption of information technologies such as e- government system in India.

Noticeably, farmers or villagers were used as the unit of analysis in the majority of these studies in developing country settings, and the primary focus was on agricultural innovations (Rogers, 1983). However, farmers or villagers do not necessarily represent

BOP consumers. Therefore, not many of these previous studies are applicable in the BOP context outside of agriculture (Ramani et al., 2012) because BOP consumers (based on low income) represent not only poor consumers from rural areas but also poor consumers from urban areas. For the last decade, some researchers (e.g., Kapoor, Dwivedi, and Williams, 2015_a) have also conducted some insightful innovation adoption research in developing countries. For example, Kapoor et al. (2015_b) investigated three sets of innovation attributes to understand adoption behaviour of the interbank mobile payment service in India. Kapoor et al. (2015_a) also utilised the TAM model to understand adoption behaviour of mobile ticketing service in India. Another recent research by Rana, and Dwivedi (2015) utilised social cognitive theory to understand the adoption of an electronic government system in India. Alalwan et al. (2015) and Dwivedi et al. (2007) also have conducted research to understand broadband and internet banking adoption in developing countries such as Bangladesh and Jordan.

However, the majority of this previous research did not consider BOP consumers as a unit of analysis. Even an innovation designed with good intention will not be effectively utilised if there are inappropriate people in mind (Khavul and Bruton, 2013). As BOP consumers are different from middle and high income consumers because of various constraints (e.g., low literacy, lack of electricity) in their daily life, innovation adoption studies must consider the unique surroundings of this BOP market. For instance, BOP consumers may want fuel efficient stoves. However, in the majority of cases they may not want to sacrifice current cooking methods, reliability, performance, or convenience for a further degree of fuel efficiency. BOP consumers seem to prefer cooking stoves, which they have constructed themselves from local materials (Khavul and Bruton, 2013). Such choices by BOP consumers emphasise the importance of through knowledge of the BOP market when conducting innovation adoption studies. Therefore, George, McGahan, and

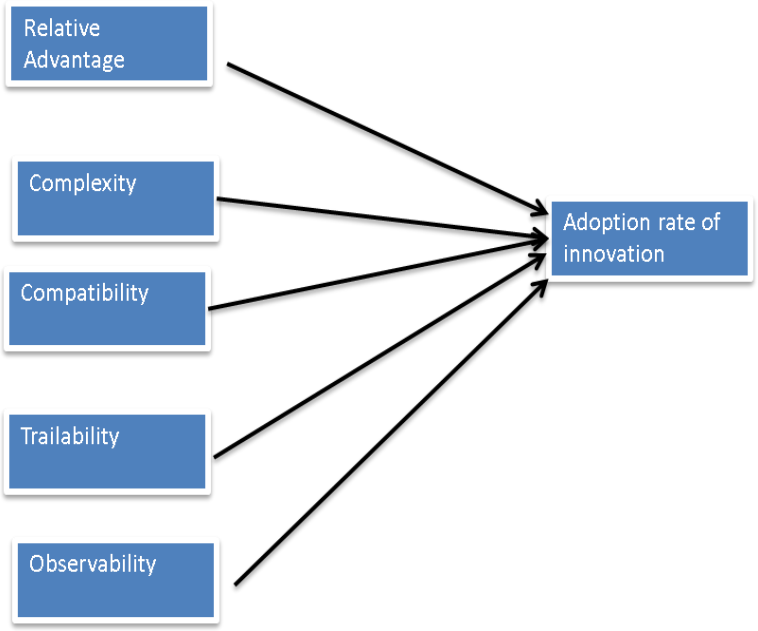
Prabhu (2012) emphasise that the BOP offers opportunities for expanding the previous literature on the adoption of innovations in this resource-constrained context.

Given the opportunities for extending previous literature, very little research has examined consumer adoption of innovations in the BOP, in particular of pro-poor innovations. However, there is a wealth of literature on consumer innovation adoption, and this has typically been conducted in wealthier high-income countries. This literature is now reviewed to see what insights can be gained.

2.6 Consumer Adoption of Innovation

Innovation adoption research has considered how and why consumers adopt an innovation. Within this broad area of innovation adoption research, there have been several streams of research. One stream of research has concentrated on *consumers'* adoption of product innovations (e.g., Cui and Chan, 2009; Dwivedi, Lal, and Williams, 2009) and other streams have concentrated on adoption of innovation in the *organizational* context (e.g., Leonard-Barton and Deschamps, 1988) and *task-technology fit,* which refers to the linkage between individual performance and information systems (e.g., Goodhue, 1995; Goodhue and Thompson, 1995). Research that focuses on consumer adoption of innovations is limited compared to the attention given to research focused on organisational contexts (Rogers, 2003; Lowe and Alpert, 2015). However, widespread accessibility of information and communication technologies have led to an increase in interest about consumer innovation adoption (Hall and Khan, 2003; Baron, Patterson and Harris, 2006; Brown, Venkatesh and Bala, 2006) and this area is beginning to mature as meta-analyses (e.g., Arts, Frambach, and Bijmolt, 2011) have begun to emerge in the area. In this research, literature related to consumers' adoptions of innovation were included.

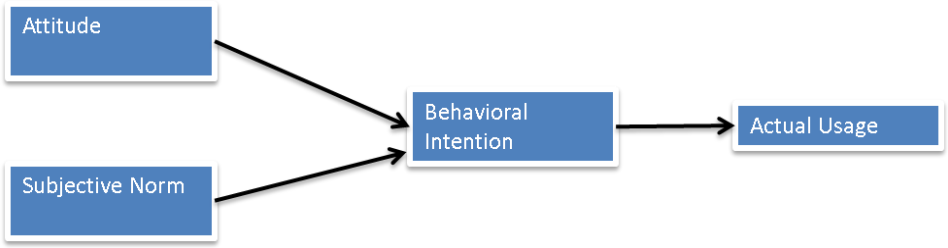
One of the seminal works on consumers' innovation adoption stems from the work of Rogers (1962) on the DOI. Moreover, the DOI is arguably the most widely recognised academic work on innovation adoption, and it has been implemented across consumer and organisational domains. Rogers (1962) acknowledged the key characteristics of innovations that affect innovation adoption decisions of consumers. The DOI proposes that innovation adoption is a function of key product innovation characteristics, including a product's relative advantage, complexity, compatibility, trialability, and observability (see Figure 2.2). According to Rogers (1962), relative advantage refers to the extent to which potential adopters perceive an innovation as being superior to existing alternatives. Compatibility refers to the extent to which prospective adopters perceives an innovation as being consistent with existing needs, values, and experiences or being consistent with their social and cultural norms (Rogers, 1983). Complexity is defined as the extent to which an innovation is perceived as difficult to understand or use (Rogers, 1983). Trialability refers to the degree to which an innovation can be tested on a limited basis (Rogers, 1983) and Observability is the extent to which an innovation's advantages or features can be imagined, witnessed, or explained to others (Rogers, 1983). A number of DOI related studies were conducted to find out attributes of innovations which were significantly related to adoption. For example, Rahman et al. (2013) and Joo et al. (2014) found that only relative advantage and complexity are significantly related to adoption and Jung et al. (2012) found that only relative advantage, compatibility and trailability are significantly related to adoption. Wu and Wu (2005) found that relative advantage, trialability and observability are significantly related to adoption behaviour. It appears that different studies found inconsistent results related to antecedents of the DOI.



Source: Rogers (1962).

Figure 2.2 Diffusion of Innovation (DOI) Model

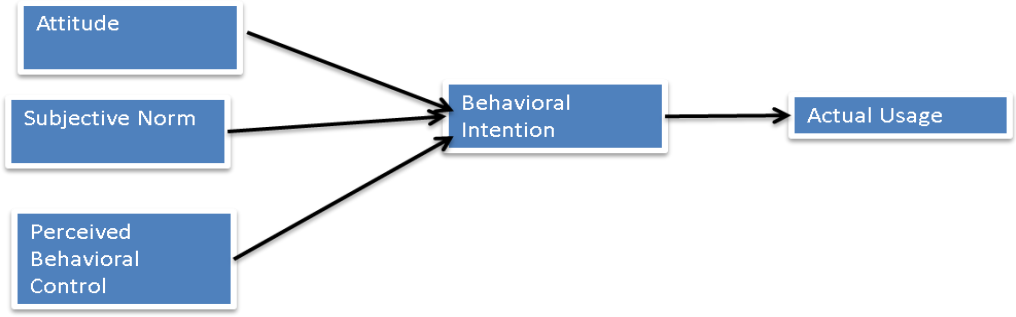
Social psychology theories, such as the Theory of Reasoned Action (TRA), and the Theory of Planned Behaviour (TPB) have been utilised to understand innovation adoption as they were developed to explain behavioural intention. The TRA suggests that consumers' behaviour is determined by their intentions, which are in turn determined by their attitudes towards the action and subjective norms (see Figure 2.3). Subjective norms are "the person's perception that most people who are important to him think he should or should not perform the behaviour in question." (Fishbein and Ajzen 1975, p. 302) and attitudes towards the behaviour refer to "an individual's positive or negative feelings (evaluative affect) about performing the target behaviour" (Fishbein and Ajzen 1975, p.216).



Source: Fishbein and Ajzen (1975).

Figure 2.3 Theory of Reasoned Action (TRA)

The TPB was later developed from TRA (see Figure 2.4) by including the construct of Perceived Behaviour Control (PBC) to study situations where a consumer lacks control or the essential resources to perform a goal behaviour (Ajzen, 1991). Perceived behavioural control can be defined as "the perceived ease or difficulty of performing the behaviour" (Ajzen 1991, p. 188). A number of TRA and TPB related studies were conducted to find out constructs of the TRA and TPB that were significantly related to adoption behaviour. Chau and Hu (2001) and Davis et al. (1989) found that only attitude and perceived behavioural control significantly influence behavioural intention. Yi et al. (2006) found that subjective norm and perceived behavioural control significantly influences behavioural intention. Also, Lowe et al. (2014) found that only attitude and subjective norm significantly influences the behavioural intention. Although these studies by Chau and Hu (2001), Davis et al. (1989), Yi et al. (2006) and Lowe et al. (2014) found different results regarding the antecedents of TRA and TPB influencing behavioural intention, Prugsamatz et al. (2010) found that these three antecedents significantly influence behavioural intention. A meta-analytic review by Armitage and Conner (2001) suggests that subjective norm is usually a weak predictor of intention. Based on this, it appears that previous studies have found inconsistent results in relation to the antecedents of the TRA and the TPB.

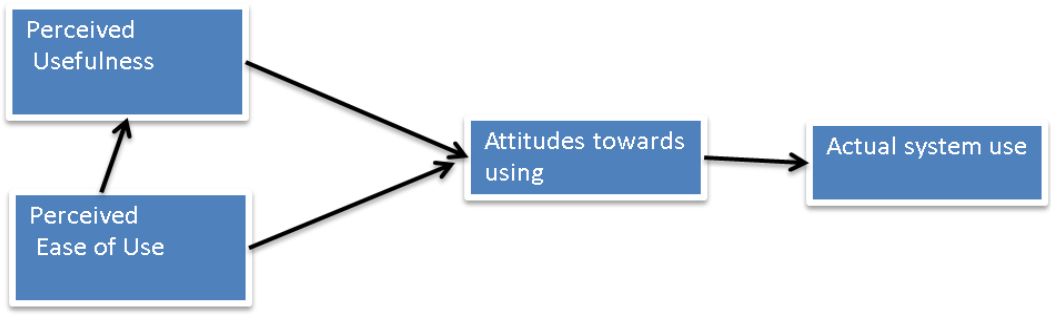


Source: Ajzen (1991).

Figure 2.4 Theory of Planned Behaviour (TPB)

The TAM is another well-cited model used to understand consumer adoption of innovation (Davis, 1989). Davis first examined the key elements of adoption of innovation in an organisational context. However, the TAM was later implemented in the consumer domain in a range of different settings, including the use of the internet for online shopping (Kim and Forsythe, 2007), the adoption of self-service technologies (Bobbit and Dabholkar, 2001), mobile commerce (Yang, 2005), and handheld internet devices (Bruner and Kumar, 2005). Its application to consumer behaviour can be justified based on its roots in social psychology. Specifically, the Theory of Reasoned Action (TRA; Fishbein and Ajzen, 1975) was used as a guiding framework for developing the TAM. The main contribution of the TAM was in parsimoniously recognising the key antecedents to attitudes and intentions towards using technology. Specifically, the TAM predicts that an individual's adoption of an innovation is a function of perceived ease of use (PEU) and perceived usefulness (PU) (see Figure 2.5). PEU is "The degree to which a person believes that using a particular system would be free of effort"(Davis 1989, p.320) and PU is "The degree to which a person believes that using a particular system would enhance his or her job performance"(Davis 1989, p.320).

Additionally, the TAM has received significant acceptance in the literature (more than 22597 citations of Davis 1989 in the Google Scholar as of 03/02/2015). The TAM has been used extensively to understand consumer innovation adoption. Chau and Hu (2001) and Yang (2005) found that only perceived usefulness significantly influences adoption behaviour and Vijayasarathy (2004) found that both perceived ease of use and perceived usefulness influences adoption behaviour. King and He (2006) conducted a meta-analysis and found that the relationship between perceived usefulness and behavioural intention is consistent and the relationship between perceived ease of use and behavioural intention can vary from study to study. Based on these previous studies, it appears that the influence of perceived usefulness on behavioural intention is the most consistent, whereas the influence of perceived ease of use on intention is less consistent. Perhaps this is because the influence of perceived ease of use on attitude and intentions is mediated by perceived usefulness.



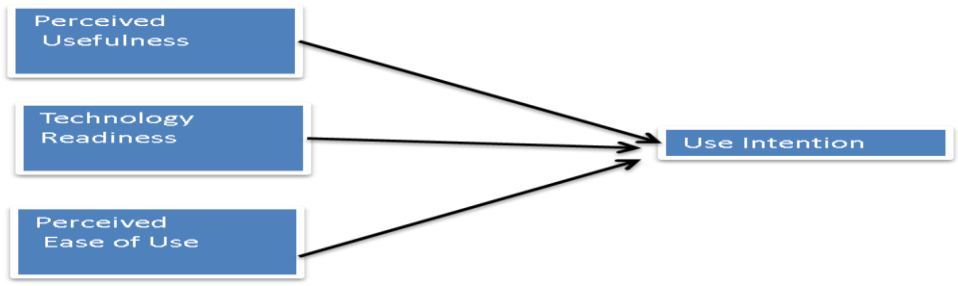
Source: Davis (1993).

Figure 2.5 Technology Acceptance Model (TAM)

Next a growing body of researchers, who focused on extending the model with several new constructs, proposed some other augmented models focusing on consumers' adoption of innovation because different factors may be relevant in a typical consumer context. For instance, Lin et al. (2007) proposed the TRAM, where Technology Readiness (TR) is integrated into TAM model is used to understand the consumer adoption (see Figure 2.6).

Technology readiness refers to the propensity of people to adopt and use new technologies for achieving goals in their home or work life (Parasuraman, 2000).

Moreover, the TAM model was developed to predict the adoption behaviour of innovations in an organisational context. People in an organisational context may need to adopt an innovation involuntarily. However, consumers may be freer to choose among available alternatives. Therefore, the technology readiness construct suggested by Parasuraman (2000) was integrated with the TAM to develop the TRAM model. Lin and Hsieh (2006) studied the influence of technology readiness on consumers' adoption of self-service technologies and found that technology readiness significantly influences adoption behaviour. Lin et al. (2007) also investigated consumer adoption of e-services systems and found that technology readiness significantly influences adoption behaviour. On the other hand, Liljander et al. (2006) investigated consumer adoption of the internet or mobile check-in provided by a European airline and found that technology readiness has little impact on adoption behaviour. It appears that there is disagreement in the literature in respect of the impact of technology readiness on adoption behaviour.

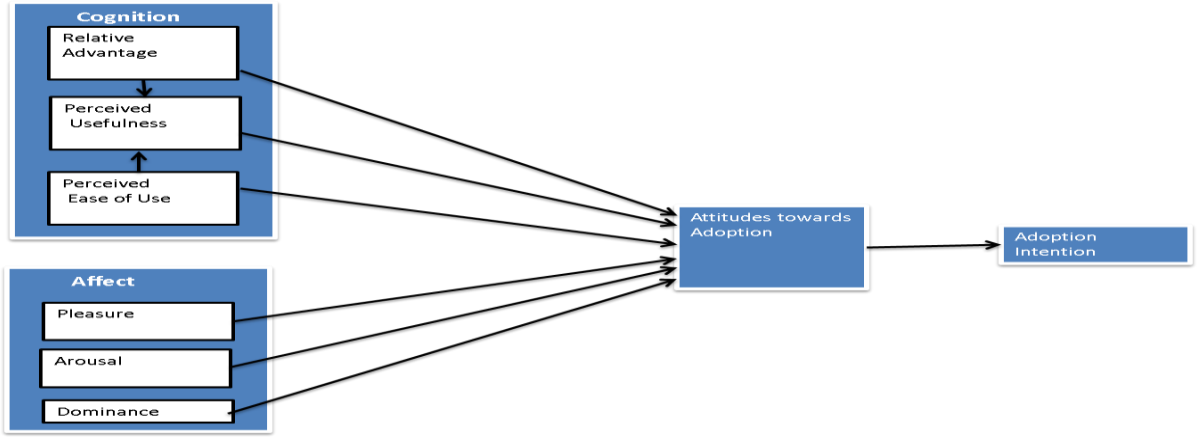


Source: Lin and Sher (2007).

Figure 2.6 Technology Readiness and Acceptance Model (TRAM)

On the other hand, previous innovation adoption-related research has mostly focused on the role of cognition and takes less account of affect. Therefore, Kulviwat et al. (2007) addressed this inadequacy to understand technology adoption and developed the CAT

model. The CAT model (Kulviwat et al., 2007), integrates Pleasure, Arousal, and Dominance (PAD) with the TAM to account for consumers' affective reactions to innovation adoption. The key constructs of the CAT model are perceived usefulness, relative advantage, perceived ease of use, pleasure, arousal and dominance (see Figure 2.7). The new constructs pleasure, arousal, and dominance account for consumers' affective reactions. Pleasure refers to "the degree to which a person experiences an enjoyable reaction to some stimulus" (Kulviwat et al., 2007, p. 1062), Arousal is "a combination of mental alertness and physical activity which a person feels in response to some stimulus" (Kulviwat et al., 2007, p. 1062), and Dominance is "the extent to which the individual feels in control of, or controlled by, a stimulus"(Kulviwat et al., 2007, p. 1062). Kulviwat et al. (2007) and Ferreira et al. (2014) found that relative advantage, perceived usefulness, pleasure, and arousal of the CAT model are significantly related to adoption behaviour. Although Kulviwat et al. (2007) and Ferreira et al. (2014) did not find dominance significantly related to adoption behaviour, Nasco et al. (2008) investigated to clarify the role of dominance in innovation adoption by revealing the significant interaction dominance has with social influence within the CAT model.



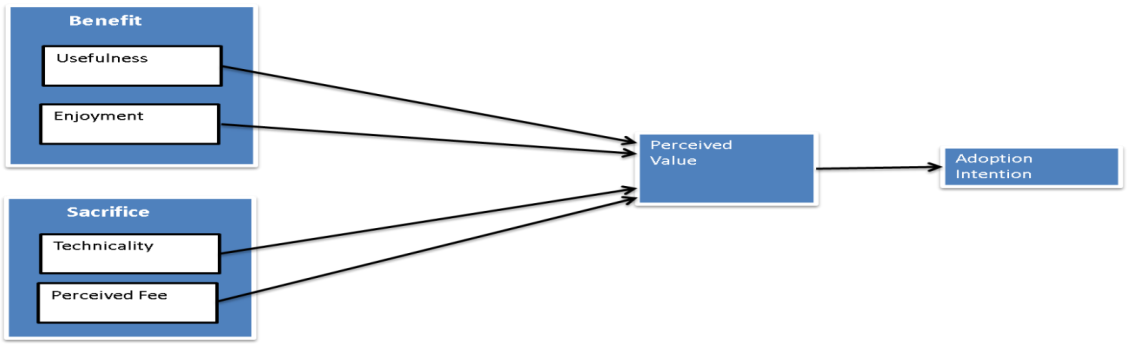
Source: Kulviwat, Burner II, Nasco, and Clark (2007).

Figure 2.7 Consumer Acceptance of Technology (CAT) Model

In an organisational setting, employees may use an innovation for work purposes, where the cost of compulsory adoption and usage may be beared by the organisation. However, adopters of an innovation may need to bear the cost of innovation in a consumer context and they may consider the value of innovation before they adopt it. Therefore, Kim et al. (2007) examined adoption of innovation from the value perspective and proposed the Value Based Adoption model (VAM). The VAM model was developed by integrating constructs like usefulness, enjoyment, technicality, perceived fee, and perceived value (see Figure 2.8). This definition of usefulness is identical with the definition of perceived usefulness from the TAM. Enjoyment refers to the degree to which using an innovation seems to be pleasant in its own right and it is separated from any performance consequences that may be predicted (Kim et al., 2007). Technicality is the extent to which an innovation "is perceived as being technically excellent in the process of providing services" (Kim et al., 2007, p.116). Perceived fee represents the internalisation of the selling price of the innovation (Kim et al., 2007) and perceived value is the consumer's perception of a technology based on the benefits and sacrifices required to use an innovation (Kim et al., 2007).

Kim et al. (2007) found that usefulness, enjoyment, technicality, and perceived fee have a significant impact on perceived value, and perceived value has a significant relationship with adoption behaviour. To investigate adoption of mobile-enabled wireless technology, Setterstrom et al. (2013) studied the influence of usefulness, enjoyment, technicality, and perceived fee on perceived value and the influence of perceived value on adoption behaviour. Setterstrom et al. (2013) found that only usefulness, enjoyment, and perceived fee (except technicality) significantly influenced perceived value. They also reported that perceived value significantly influenced adoption behaviour. Although Kim et al. (2007) found that technicality has a significant impact on perceived value, Setterstrom et al.

(2013) and Wang et al. (2013) found that technicality has no significant impact on perceived value. It appears that previous studies found inconsistent results in relation to the antecedents of the VAM.



Source: Kim, Chan, and Gupta (2007).

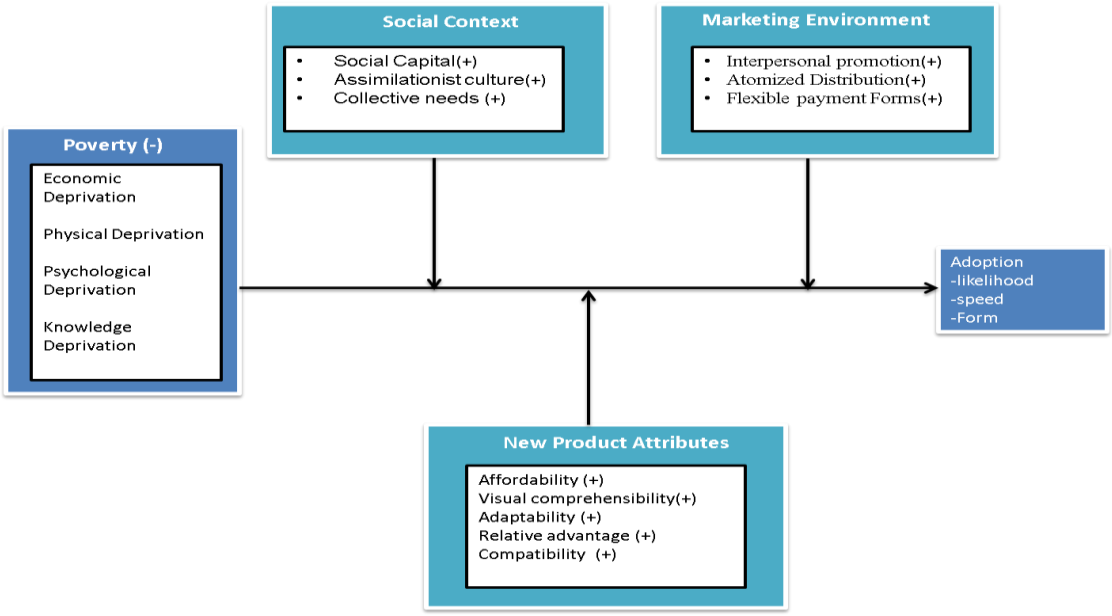
Figure 2.8 Value-based Adoption Model (VAM)

The majority of consumer innovation adoption models have generally been developed and tested in the context of developed countries, where market characteristics (e.g., income) are significantly different from the BOP markets. However, one might expect that because of these different characteristics other models of adoption behaviour would have been developed. Specifically, the BOP market differs to the context in which these other models have been studied because BOP consumers are surrounded by many constraints such as low literacy, lack of numeric skills and so on.

Taking into account the above mentioned differences and due to the increasing growth and importance of this market, Nakata and Weidner (2012) sought to develop a model of innovation adoption for BOP consumers and their unique context. This is known as the Contextualised innovation adoption model for the BOP (CBOP model). The CBOP model is derived from Rogers' (1962) theory of diffusion of innovations, and integrated with Amarta Sen's (1999) work on poverty alleviation. In the CBOP, Nakata and Weidner (2012) propose a range of contextual factors (such as poverty, affordability, adaptability,

visual comprehensibility, relative advantage, compatibility, collective needs, social capital, assimilationist culture, interpersonal promotions, atomised distribution, and flexible payment forms), which can influence adoption of innovations in the context of the BOP (see Figure 2.9). For the new constructs, poverty refers to the degree of economic, physical, psychosocial, and knowledge deprivations, which inhibit new product adoption (Nakata and Weidner, 2012) and affordability refers to the extent to which the price of a new product must be consistent with the lifestyle of limited cash flow or very restricted incomes, and credit access (Nakata and Weidner, 2012). Visual comprehensibility is the degree to which an innovation is intuitively comprehended by BOP consumers (who have limited numeracy and literacy skill) through its design and packaging (e.g., colours, shapes, photos, physical package size, and other elements of product package) (Hasan et al., 2016; Nakata and Weidner, 2012). Adaptability refers to the degree to which an innovation is usable for multiple purposes or is easily adaptable to the conditions of difficult and resource-poor environments (e.g., lack of electricity, lack of infrastructure) (Nakata and Weidner, 2012). Social capital can be referred to trust, norms, and networks that can increase the proficiency of society by facilitating coordinated actions (e.g., BOP consumers heavily rely on social networks for information and tangible aid, for learning from their neighbours what school to send their children to) (Nakata and Weidner, 2012). An assimilationist culture is a culture within which BOP consumers want to perform a behaviour because the product originates in a dominant culture, where a dominant culture attests to wealth, modernity, consumption and presents images of an idealised life of social acceptance and comfort. Some BOP consumers want to belong to this culture and want to embrace it even though they struggle to afford it (Nakata and Weidner, 2012). Collective needs are defined as the degree to which group needs (e.g., needs of family, friends, neighbours) predominate in the case of adopting a new product (Nakata and Weidner,

2012) and this seems to originate because of the collectivist nature of many consumers from BOP culture. In addition, interpersonal promotion is defined as the degree to which a new product is promoted through personal ties (Nakata and Weidner, 2012) and atomised distribution refers to channel arrangements that bring products as close to customers as possible (Nakata and Weidner, 2012). Finally, flexible payment forms refer to the degree to which methods of payment of a new product are consistent with a lifestyle of limited cash flow, very restricted incomes, and/or access to debt (e.g., payment in instalments) (Nakata and Weidner, 2012). Though insightful and developed specifically for the BOP context, the CBOP model has not been empirically tested and verified by data from BOP consumers.



Source: Nakata and Weidner (2012).

Figure 2.9 Contextualised Innovation Adoption Model for the BOP (CBOP)

Therefore, from the above literature review, it can be concluded that a wide range of models exist to explain why consumers adopt innovations. However, the majority of these have not been developed or tested on consumers in the BOP context (e.g., CAT, and VAM) and those that have been developed for the BOP (e.g., the CBOP) have not been

empirically tested. As a consequence, there is no clear guidance on what models work best in the BOP market. It is apparent that there is some degree of overlap between competing models (e.g., the TRA, the TPB), yet there are also a number of unique constructs within different models and these have been developed for different purposes. For example, the TAM is technology specific and the TPB aims to explain a broad range of volitional behaviour. Picking one favoured model can mean paying little attention to the contributions of other models. One approach to deal with this issue is to leverage the collective wisdom of multiple models by empirically comparing key models that are relevant to this context and by developing a unified pro-poor innovation adoption model for the BOP. Empirical model comparison approach has been used in prior research (e.g., Venkatesh et al., 2003) as a way to address this issue in research domain which might be regarded as mature and might be several competing models to explain behaviour. So far, there is almost no research which empirically compares several innovation adoption models in the BOP context.

2.7 Conclusion

This chapter has evaluated the knowledge gained from previous research. Therefore, this chapter proceeded by reviewing the BOP market, the economic and social importance of the BOP, and BOP consumers and segmentation related literature. It then explained the definition of innovation and pro-poor innovation and reviewed the literature related to innovation adoption in developing countries. Finally, existing consumer based innovation adoption literature was also reviewed to understand gaps in the literature. Particularly, the following issues were identified after reviewing the relevant literature:

i) There is very little research, which has studied consumer adoption of innovations in the BOP context, and there is even less research conducted to investigate the adoption of *pro-poor innovations*.

ii) The majority of the consumer based innovation adoption models have not been tested in the BOP context and those that have been proposed for the BOP context, have not been empirically tested.

iii) There has been almost no research which empirically compares the consumer based innovation adoption models in the BOP to understand which models work best in the BOP context.

Chapter 3 will discuss the justification of the philosophical approach, research design and ethical considerations within this research.

Chapter 3: Justification of the Philosophical Approach and the Research Design

3.1 Introduction

Chapter 2 reviewed the extant literature and identified the need for developing a new model of innovation adoption in the BOP context, concluding that while much has been written about innovation adoption and consumers in developed countries that which has been written about BOP consumers remains untested or tends to pick a favoured model without acknowledging the contribution from other models. Chapter 3 proceeds by developing a justification of the philosophical approach to examine the research problem. It then presents and summarises the two studies and justifies Bangladesh as the research context. Finally, it ends by discussing the ethical considerations within this research.

3.2 Justification of the Philosophical Approach

Carson et al. (2001) encourage marketing researchers to identify ontological and epistemological positions related to their research. Generally, ontological and epistemological positions are identified before utilising an appropriate methodology. The ontology represents "reality", which researchers investigate (Guba and Lincoln, 1994). The ontological position of a researcher stands that there is a reality (e.g., pro-poor innovation, BOP consumers), which can be apprehended. Next, epistemology distinguishes the relationship between the researcher and reality. Mainly, epistemology signifies a knowledge gathering process and implies developing new knowledge (Belaike, 2000). The epistemological position of positivist researchers is represented by objectivity, which means that the reality tends to be independent of researchers and that researchers may be capable of studying the object without influencing it or being influenced by it. Positivists use different strategies to reduce their influence on the research process. For example, the

researcher of this thesis believes that reality including BOP consumers and pro-poor innovations tend to be independent of the researcher and various statistical and procedural remedies can be used to reduce or eliminate common method or other biases (see Chapter 4). Therefore, when the researcher investigates reality like BOP consumers and pro-poor innovations, the research outcome might not depend on the subjectivity of the researcher; rather the research outcomes should be determined by objectivity. Positivists emphasise generalised results, which are ascertained from the linkage of cause and effect as well as the verification of hypotheses. Similarly, the results of this thesis also emerge from the linkage of implied cause and effect and the verification of hypotheses, and the results of which are then generalised for BOP consumers.

In addition, the methodology is the technique that researchers utilise to investigate reality. Thus, it represents how researchers gain knowledge regarding the world. Based on ontological and epistemological positions, researchers choose their methodological positions (Hughes and Sharrock, 1997). Therefore, empirical methods and mathematical as well as statistical analyses are utilised by positivists to investigate phenomena of interest (Benbasat et al., 1987). Positivists investigate their phenomena of interest by utilising surveys, laboratory experiments, and field experiments in their research projects (Weber, 2004). Positivists generally use quantitative methods. In this thesis, surveys were utilised for the two studies to investigate the research question (see section 3.3 for further elaboration) (Zikmund et al., 2014). Hypotheses are also proposed and tested (empirically) by the researcher of this thesis based on the methodological position of the positivism paradigm. As positivists are motivated to utilise reliability and validity as the goodness of fit or quality criteria, the researcher of this thesis also uses composite reliability, discriminant validity, and convergent validity to ensure the goodness of fit and appropriate quality standards.

In this thesis, concepts are operationalised in a way so that facts can be measured quantitatively and problems are deduced to the simplest possible elements (see Section 3.3.2) (Bond, 1993; Hughes, 1994; and Easterby-Smith et al., 2012). Thus, it can be said that this PhD research was conducted broadly within the positivism paradigm and is consistent with other similar studies in the area (e.g., Venkatesh et al., 2003; Viswanathan et al., 2010; Davis et al., 2008; De Silva, and Zainudeen, 2007; Sivapragasam et al., 2011).

Given that three objectives were identified in Chapter 1 (see Section 1.1) one issue was to utilise an appropriate research design to achieve these objectives. In an organisational context, Venkatesh et al. (2003) use a process that was suitable for the context of this thesis. Given numerous models of innovation adoption already exist and given the concept has been widely studied in various situations, their process was suitable to the study here.

3.3 Research Design

To reiterate, two studies were conducted in this research because of the nature of the research question and identified research objectives. The purpose of these studies is described briefly below

1) **Study 1:** The key purpose of the first study was to compare the validity of consumer-based innovation adoption models for BOP consumers, and conceptually and empirically develop an integrated pro-poor innovation adoption model for the BOP. A questionnaire was prepared with items validated from prior studies (or developed, if no such items existed) and adapted to the products and consumers being studied. After collecting data by using the first survey, models were compared and the impacts of the various antecedents were assessed and integrated with literature to develop new hypotheses related to innovation adoption in the BOP. (The details of the hypotheses that were formulated are in Chapter 5). The new

model was then tested using the data collected in study 1. This formed the basis for further model validation in study 2.

2) Study 2: The main purpose of this second study was to empirically validate the newly developed model in the BOP market with a new product and an independent sample of consumers. Therefore, items from the newly developed model emerging from the first study were utilised to develop the second survey.

3.3.1 Justification of Research Design

There has been very little prior research, which empirically compares competing innovation adoption models. For example, Venkatesh et al. (2003) utilised quantitative research methods to empirically compare eight models in an organisational context. Taylor and Todd (1995) also utilised a model comparison approach to empirically compare the TAM and two variations of the TPB and they assessed which model best facilitates understanding information technology usage. Mathieson (1991) empirically compared two models (TAM and TPB) that predict an individual's intention to use an Information System in a western university setting. Chau and Hu (2001) empirically compared the TAM, and the TPB in a professional healthcare setting. Similarly, Davis, Bagozzi and Warshaw (1989) empirically compared the ability of the TRA and TAM to predict and explain user acceptance and rejection of computer-based technology among MBA students.

Despite these innovation adoption model comparisons that explicitly compare various overlapping formulations, there are very few recent comparisons of existing innovation adoption models. From the consumer based innovation literature, some recent plausible innovation adoption models are identified (e.g., CAT Model, VAM Model, and Contextualised BOP Model). As a result, there is a need to empirically compare key innovation adoption models in the BOP context. One way to examine innovation adoption in a new context is to empirically compare key innovation adoption models as in

Venkatesh et al. (2003). Given that the BOP is a relatively new context for the study of innovation adoption, qualitative research approaches might be conducted to capture new constructs in this context. However, the developed country literature on innovation adoption is vast and recent studies have shown an increased interest in the area from a conceptual and qualitative perspective (e.g., Nakata and Weidner, 2012). Specifically, the research by Nakata and Weidner provides the first study which conceptualises consumer adoption of innovations within the BOP, and in doing so provides a useful platform to compare against our existing theoretical understanding. Consequently, following the same rationale as Venkatesh et al. (2003), the empirical comparison approach was deemed appropriate to fill this gap.

Despite its increasing importance to marketers, little research has been done examining consumer adoption of new products in the BOP. Recent work in the BOP area illustrates that the segment is lucrative, fast-growing, and under-researched by marketers. Therefore, this research will contribute to the literature on consumers innovation adoption by empirically comparing the key innovation adoption models from the literature, conceptually and empirically formulating an integrated pro-poor innovation adoption model, and validating the newly developed model for the BOP. It is also important to justify how this research design theoretically contributes to the literature and this is discussed next.

3.3.2 Inductive and Deductive Approaches of this Research Design and New Theory Development

It is useful to consider the term of "theory" before discussing the procedure for theoretical development. Hunt (1991) defines "theory" as a systematically associated set of statements that include some law-like generalisations that are empirically verifiable. Hunt (1991) also

argues that a theory increases scientific understanding by utilising a systematic framework able to predict and explain phenomena. Additionally, a theory is required to include a systematically related set of statements to increase the scientific understanding of phenomena. However, not all systematically related sets of statements are theoretical in nature. A theory also requires that at least some of the systematically associated set of statements should be in the pattern of law-like generalisations, which represents the basic pattern of generalised conditions (e.g., "If x happens, then y will happen"). Moreover, law-like generalisations also represent empirical content and exhibit nomic necessity (e.g., the occurrence of some phenomenon must be associated with some other phenomenon and to prevent any accidental generalisation from being considered a law, and are integrated into the body of scientific knowledge). In this research design, each key innovation adoption model represents a theory because each model satisfies the above-mentioned requirement of being a theory (Hunt, 1991). It is also argued by Hunt (1991, p. 50) "all theories are models because all theories purport to represent some aspects of real-world phenomena." For example, the key innovation adoption models represent a systematically related set of statements in the form of law-like generalisations, which are empirically testable, and these models are able to explain and predict specific innovation adoption related phenomena. How new theory within this thesis was developed from the existing theories or models through the inductive and deductive approach within this research design will be discussed next.

Figure 3.1 illustrates that study 1 of this research utilised the deductive approach, where all the systematic set of statements and law-like generalisations of these key innovations models were deduced to find the direct determinants of innovation adoption in the BOP context. Later, the inductive approach was used, where the empirical findings from the first study were utilised to propose the hypotheses of the integrated innovation adoption model.

Following this the researcher again utilised a deductive approach, where the researcher utilised the existing theories to propose the hypotheses of the integrated model and preliminarily tested the newly developed integrated model utilising data collected from study 1 and validated the newly developed model using the data collected from study 1 and 2.

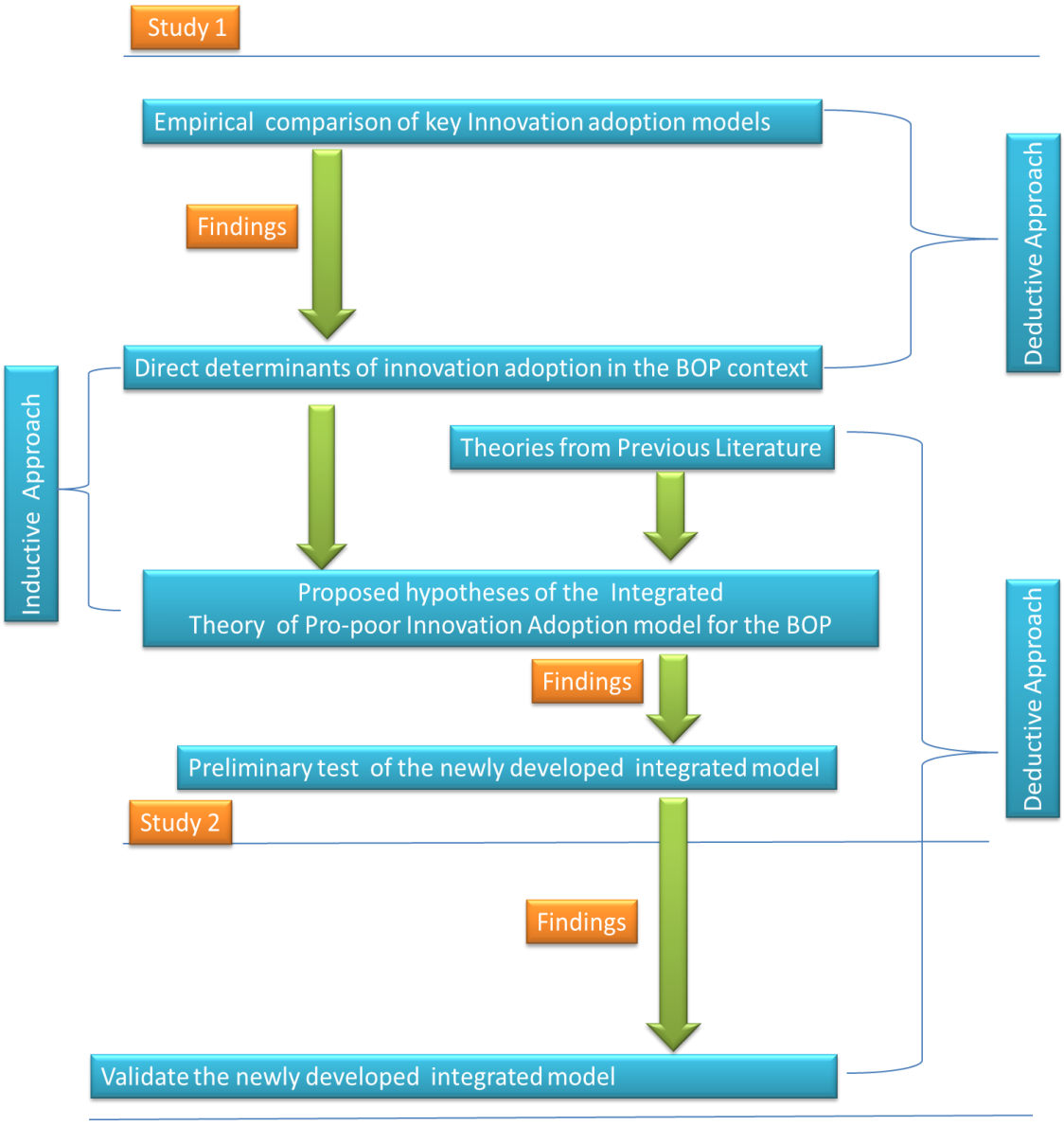


Figure 3.1 Inductive and Deductive Approach of Research Design and New Theory Development

From the above discussion, it can be seen that the research design of this thesis generated new theories from the existing models through empirical comparisons and theoretical justification. Therefore, the findings from this research design theoretically contribute to the innovation adoption and BOP literature by utilising both deductive and inductive approaches.

3.3.3 Bangladesh as a Research Context

Bangladesh was chosen as the research context for this study. One important reason why Bangladesh was chosen is that it has large segments of BOP consumers. For instance, 31.5% of the population of Bangladesh were under the national poverty line during 2010 (World Bank website, 2013). Another reason for choosing Bangladesh is that it has primarily concentrated on infrastructure innovations and innovations useful for social development. For example, Bangladesh has allocated USD 1.75 million for science and technology under the budget for 2012-2013 (Market Line Report, 2013), and some innovations like sanitary latrines, mobile banking, and community information centres are diffusing in the BOP of Bangladesh. As this research is about innovation adoption, observing a country like Bangladesh is very relevant. Furthermore, numerous other research (e.g., Dwivedi et al., 2007; Ahmed et al., 2012) has used Bangladesh as a research context to study innovation adoption. It is often mentioned as a country, where BOP research is conducted (e.g., De Silva et al., 2011). Also, the researcher is familiar with Bangladesh as well as fluent in Bangla, which is the national language of Bangladesh, and this will facilitate the research process.

3.4 Ethical Considerations

Ethical consideration considers the questions regarding how the researcher formulates the research topic clearly, designs our study and gets access to collect, process and store data,

and present research findings in a responsible and moral way. Bell and Bryman (2007) proposed some guidelines to consider in the case of conducting any research project. In this thesis, the researcher used the guidelines suggested by Bell and Bryman as a guide. For example, it was vital to inform participants about the nature of the research and to gain cooperation through respecting informed consent, privacy and confidentiality. In the case of designing the questionnaires, it was essential to ensure this did not create stress or discomfort for the respondents. It was also vital to ensure that participants had the right to withdraw from the study at any time. The anonymity of respondents' personal data was maintained in this research and this was mentioned to respondents through an informed consent form on the first page of the survey (see Appendix 4.2). The procedures in this research were approved by Kent Business School's ethics committee (see Appendix 3.1).

3.5 Conclusion

Chapter 3 explained the justification of the philosophical approach, research design, and ethical considerations. It further elaborated on the research design by including the discussion related to the justification of research design, inductive and deductive approaches and the research context. Chapter 4 proceeds by representing a formal methodology for study 1 and discusses the survey's development and administration procedure.

Chapter 4: Methodology (Study 1)

4.1 Introduction

Chapter 3 explained the philosophical approach of the thesis, ethical considerations, and the research design. It was also justified why the research design was appropriate to investigate the research question. Chapter 4 extends chapter 3 by providing a formal methodology for study 1 and the set of procedures through which the survey instrument was developed and administered.

A key part of the research for study 1 is developing the survey instrument. In particular, the purpose of this study was to develop an instrument to allow us to compare the validity of consumer based innovation adoption models in the context of the BOP in order to conceptually and empirically develop an integrated innovation adoption model for the BOP (for further testing in chapter 7). Chapter 4 discusses the criteria used for identifying key models and how the key models were identified based on these criteria. This chapter proceeds by outlining product selection for the survey, and describing the development of measures. It then discusses how relevant survey biases were controlled, including common method bias and the back-translation technique to ensure culturally valid scales, and the decentering approach to eliminate the dominance of source language. The chapter outlines the process used to pretest aspects of the instrument and pilot test the final instrument. It concludes by explaining the survey administration procedures including sampling considerations, and field work procedures.

4.2 Survey Development

Given this study sought to use existing models of adoption, one issue was identifying the models for comparison. While a number of consumer adoption models exist in the literature, for practical purposes (i.e., survey length, respondent fatigue, model validity,

and usage in the scholarly community) only key models could be included in this research. Therefore, a number of separate criteria were used to assist with model selection and these criteria will be discussed in the following section.

4.2.1 Criteria Used for Identifying Key Models

Four criteria were used to identify relevant models and these criteria are: relevance to the consumer context, number of citations, relevance to the BOP, and similarity among constructs used in these key theoretical models. These criteria will now be explained briefly.

1) **Relevance to the Consumer Context:** Models were chosen based on their relevance to the consumer. This included literature search and investigation of the items of the constructs to ascertain whether or not the model has been used previously with a consumer sample.
2) **Number of Citations:** Models with higher citation counts based on total citations from Google Scholar were given higher priority than those with lower citation counts. Citations within the first three years of publication were used to take account of more recent publications.
3) **Relevance to the BOP:** Models were chosen based on the relevance of the model to the BOP context. This included literature search and investigation of the items of the constructs to ascertain whether or not the model is relevant to the BOP context.
4) **Similarity among Constructs:** The key models were selected based on a low level of similarity and overlap between constructs. Therefore, models were chosen based on the use of constructs distinct from others identified.

This led to a selection of models including:

1) The Theory of Reasoned Action (TRA, Fishbein and Ajzen 1975),
2) The Theory of Planned Behaviour (TPB, Ajzen 1991),
3) The Technology Acceptance Model (TAM, Davis 1989),
4) The Diffusion of Innovations (DOI, Rogers 1962),
5) The Consumer Acceptance of Technology Model (CAT, Kulviwat et al. 2007),
6) The Value-based Adoption Model (VAM, Kim et al. 2007),
7) The Contextualised Innovation Adoption Model for the BOP (CBOP Model, Nakata and Weidner 2012).

In addition, "Four criteria used" does not ensure that all four criteria were met to select a model. Rather, the selected models were justified based on some of these criteria (i.e., not all selected models were highly cited as it was also important to include recent models; not all selected models are highly relevant to the BOP context as there was only one model very relevant to the BOP context). The reasons for choosing these seven models are explained in Section 4.2.2.

4.2.2 Seven Identified Consumer Based Innovation Adoption Models

The Theory of Reasoned Action. The TRA was identified as one of the key models for a variety of reasons. First it is a well-accepted model of volitional behaviour, which is highly cited in the literature (more than 30227 citations of Fishbein and Ajzen 1975 in Google Scholar as of 03/02/2015). Though it is not about innovation adoption per se, because it is a general model that attempts to explain intentional behaviour, it has been used in consumer innovation studies (e.g., Prugsamatz et al., 2010).

***The Theory of Planned Behaviour*.** The TPB (which is an extension of the TRA through incorporating perceived behavioural control) is also a well-accepted model in the literature (more than 30507 citations of Ajzen, 1991 in Google Scholar as of 03/02/2015). Like the TRA, the TPB seeks to explain an individual's intentional behaviour. Though it is also not about innovation adoption, specifically, it has been used to understand the consumer innovation adoption phenomenon (e.g., Lowe et al., 2014).

The Technology Acceptance Model. The TAM is one of the seminal works used to explain why individuals adopt new technologies and so is particularly relevant to understanding innovation adoption behaviour. It has been widely used in the literature (more than 22597 citations of Davis 1989 in Google Scholar as of 03/02/2015). The TAM has been implemented in the consumer domain in several different contexts, including the use of the internet for online shopping (Kim and Forsythe, 2007), the adoption of self-service technologies (Bobbit and Dabholkar, 2001), and the adoption of social media in higher education learning environment (Lowe et al., 2013). Therefore, the TAM model is also expected to be suitable model for further testing.

The Diffusion of Innovations.The DOI is another seminal work on consumer adoption of innovation (more than 62330 citations of Rogers 2003 in Google Scholar as of 03/02/2015). The constructs of the DOI had a lower level of similarity to the constructs of other models (e.g., TRA, TPB, TAM). The DOI has been used to study the adoption of electronic payment systems (Plouffe et al., 2001), personal workstations (Moore and Benbasat, 1996), and agricultural innovations (Kivlin, 1960). The DOI was also used in the rural areas of developing countries (Sin et al., 2009; Rahim, 1961). Therefore, the DOI is also expected to be suitable for further testing.

The Consumer Acceptance of Technology Model. The CAT model has been identified as a key model primarily because of its relevance to the consumer context and its relevance to consumer innovation adoption. It has incorporated some new constructs (e.g., pleasure, arousal, dominance), which do not overlap significantly with other models. Though it has fewer citations than the TPB, TRA ,TAM, and DOI (143 citations of Kulviwat, Burner II, Nasco, and Clark 2007 in Google Scholar as of 03/02/2015), it is more recent. The CAT is also expected to explain the behaviour of BOP consumers because of its relevance to the consumer context.

The Value-based Adoption Model. Like the CAT model, the VAM model has been identified as one of the key models because of its nature of focusing on consumer's adoption of innovation from the value perspective. It has incorporated some new constructs (e.g., enjoyment, technicality, perceived fee), which do not overlap significantly with other models. It also has fewer citations than the TPB, TRA, TAM, and DOI (more than 630 citations of Kim et al., 2007 in Google Scholar as of 03/02/2015) but it is more recent. The selection of recent models ensures that recent important theoretical perspectives are also captured. The VAM is also expected to explain innovation adoption by BOP consumers from the value perspective.

The Contextualised Innovation Adoption Model for the BOP. The CBOP model has been identified as a key model primarily because of its relevance to the BOP context. The CBOP was generated based on the BOP by Nakata and Weidner (2012) and was developed based around the unique aspects of this segment. In principle, being the most relevant and sophisticated model for this context, the CBOP should perform best empirically, although it has not been empirically tested. The CBOP has fewer citations than the other models due to its recency. However, it has relatively high (32 in Google Scholar as of 03/02/2015) first three-year citation counts comparable to the other identified models. This model also

incorporates some new constructs, which are very relevant to the BOP context and which do not overlap significantly with other models.

Other unselected models:

Venkatesh et al. (2003) developed an integrated model, called the Unified Theory of Acceptance and Use of Technology (UTAUT), which was mainly developed to explain adoption behaviour in an organisational context. Later, Venkatesh et al. (2012) developed UTAUT 2, another integrated model, this time for the consumer context by extending the UTAUT model. However, the model comparison process works best by including original innovation adoption models with their own unique constructs (e.g., TAM, TPB, and DOI). If other models derived from these original models are used within the model comparison process (e.g., UTAUT and UTAUT 2), this would not capture any new information. The purpose here was to capture a wide range of models covering a diverse range of plausible constructs which were also suitable to the context being studied, and which were also relatively unique. See section 4.2.1 for further discussion of the model selection process.

The next step in survey design is to identify a product category that is consistent with these seven identified models and the context of this study. The following section discusses the rationale for selecting a product category.

4.2.3 Selection of Product Category

In this research, pro-poor innovations were considered as the appropriate product category for testing. A range of pro-poor innovations used by BOP consumers of Bangladesh was considered for this research. For example, more than 70 % of BOP consumers live in rural areas of Bangladesh, and it is difficult to ensure access to formal financial services in this area because of poor infrastructure (bKash Website, 2013). However, these BOP consumers are in need of such financial services because of the necessity of receiving

funds from family and friends in distant locations or accessing financial tools to improve their economic conditions. Less than 15% of BOP consumers in Bangladesh are connected to formal banking, but more than 50% of them use mobile devices (bKash website, 2013). Based on the potential of this market, mobile banking and other electronic services were introduced in Bangladesh to provide a wide range of financial and commercial services through the use of mobile devices and these products increase the productivity and income generation capability of BOP consumers. Therefore, the strong market penetration, future potential, and high impact for BOP consumer welfare, justify the choice of mobile banking as an appropriate product category to investigate determinants of innovation adoption in Bangladesh.

One such innovation is known as bKash, which is a mobile banking product to facilitate monetary transactions. It provides services like cash deposits, cash withdrawals, and payment services through the use of a mobile phone. Therefore, bKash mobile banking, which provides 24-hour banking services to BOP consumers through mobile phones, was selected for this study and it was consistent with previous research (e.g., Kulviwat et al., 2007; Kim et al., 2007).

Additionally, it can be seen from Table 4.1 that the TAM has been used for electronic mail and file editor systems, the DOI was for electronic payment systems, the TRA and the TPB for calculators and word processors, the CAT for PDAs, and the VAM for mobile internet in previous research. The CBOP was proposed based on a case study approach utilising real-life examples related to laptops, ATM machines and other technologies. Therefore, prior research used similar types of products to study consumer reactions towards innovations indicating the suitability of bKash to this study.

Table 4.1 Examples of Products and their Characteristics from Prior Research.

Model	Studies	Products used	Newness of technology studied
TAM	Davis (1989)	Two technologies like electronic mail system and file editor system	Participants had an average of six months experience with the two technologies.
DOI	Plouffe et al. (2001); Moore and Benbasat (1996)	An electric payment system using smart card; Personal WorkStation (PWS)	Survey administered after ten months of using smart card; PWS was available to participants during the study.
TRA and TPB	Mathieson (1991); Davis et al. (1989)	a spreadsheet and calculator; word processor	Some familiarities with the technologies as each participant had to choose a technology to perform a task; participants were new to the word processor technology.
CAT	Kulviwat et al. (2007)	Personal Digital Assistant (PDAs)	The technology was relatively new and prototype model at the time of study.
VAM	Kim et al. (2007)	Mobile internet	Participants had only limited experience with this technology. Most of the respondents had only trial experience, which is 1 to 4 times in total.
CBOP	Nakata and Weidner (2012)	Different technological products such as Laptop, ATM, e-coupal (a network of computers to provide real-time global commodity price), etc.	Different types of product newness (i.e., new products in different markets) as it was a case study approach

To be consistent with previous research (e.g., Kim et al., 2007), all responses were taken from consumers who had used the technology less than five times to ensure i) that the pro-poor innovation was still relatively new to the respondents of the study, and ii) that they had some experience of using it. In addition, respondents were also requested not to participate in the survey if they had not heard about the technology before, to act as a screen for ineligible responses.

Similar to the approach of Venkatesh et al. (2003), this research involved developing measures based around the constructs identified from the key models. The procedure for measurement development will be described next.

4.2.1 Measurement Development

Seven point Likert scales were used for the majority of constructs (see questionnaire in Appendix-4.2) because seven-point Likert scales capture greater variation in responses than the five-point Likert scales. Also, visual stimuli (i.e., pictographic symbols demonstrating level of agreement or various type rectangle boxes) for Likert-type scales (e.g., Martini and Page, 1996) were used in the questionnaire (see Appendix 4.2). However, five-point Likert scales were also used only for pleasure, arousal, and dominance constructs to keep consistency with the pictographic symbols used in the questionnaire (see Appendix 4.2). Respondents were asked to rate their responses to Likert scale items along a continuum from strongly disagree to strongly agree, or, for the semantic differentials negative to positive, consistent with Chisnall (2001). Some screening questions were asked to ensure the eligibility criteria of the respondents. For example, respondents were asked whether they heard about bKash mobile banking before. Another screening question was to ensure that respondents used the bKash mobile banking less than five times. Therefore, someone who did not use the bKash mobile banking before but had heard about it was also included in the sample in addition to other users (who used bKash less than five times). The income of the respondents was also checked to ensure that their income was less than USD 5 dollar per day. The questionnaire of Study 1 also included one open-ended question (optional) to capture open-ended comments of BOP respondents and to ensure any other views and perceptions they had were captured.

Since this study empirically compares seven models of innovation adoption, previous literature was first reviewed to identify relevant measurement items (except for some of the new constructs for the CBOP, where new items needed to be developed). Therefore, items validated in previous research were adapted for use here and new measures were

developed in the case of some constructs for the CBOP. The list of these items and their sources are provided in Table 4.2.

Items to Measure Poverty:

Poverty was the only formative construct of this study. Four items were used to measure poverty. These were income deficit, the number of family members, the level of education, and status of employment of BOP consumers (Khan, Murray, and Barnes, 2002). The income deficit was calculated by deducting a USD 5 threshold from an individual's income and this USD 5 threshold suggested by Rangan et al. (2012). Individual monthly income was calculated by dividing the monthly household income by the number of family members. To calculate the income threshold for Bangladesh, the researcher used the PPP exchange rate of the World Bank (2008), which was 25.49 BDT (Bangladesh Taka). Therefore, 3823.50 BDT (USD 5 X 30 days X 25.49 BDT=3823.50 BDT) was deducted from the individual monthly income to calculate the income deficit. The equation for the income deficit is provided below:

Income deficit = Individual monthly income- Poverty threshold in PPP

Note: Poverty threshold= 3823.50 BDT

Besides the income deficit of each BOP consumer, items related to education levels of each participant, the number of family members of each BOP consumer, and their employment status were used to measure poverty in this research. These items are listed as demographic questions in the questionnaire of study 1 (see Appendix 4.2).

Table 4.2 Items from Previous Research

Constructs	Items	References
Usage	1) How frequently do you use bKash mobile banking?	Cheung, Chang and Lai (2000); Zolait (2009)
	2) I use the bKash mobile banking for a variety of applications (Cash In, Cash Out, Money Transfer).	
	3) I have used bKash mobile banking before.	
Adoption Intention	1) Given the opportunity, I will use bKash mobile banking services.	Schierz, Schilke and Wirtz (2010)
	2) I am likely to use bKash mobile banking services in the near future.	
	3)I am willing to use bKash mobile banking services in the near future.	
	4) I intend to use bKash mobile banking services when the opportunity arises.	
Perceived Usefulness	1) bKash is a useful mode of payment.	Schierz, Schilke and Wirtz (2010)
	2) Using bKash makes the handling of payments easier.	
	3) bKash allow for a faster usage of mobile applications (e.g., Money Transfer, Cash In, Cash Out).	
	4) By using bKash, my choices as a consumer are improved (e.g., flexibility, speed).	
Ease of use	1) It is easy to become skilful at using bKash.	Schierz, Schilke and Wirtz (2010)
	2) The interaction with bKash is clear and understandable.	
	3) It is easy to perform the steps required to use bKash.	
	4) It is easy to interact with bKash.	
Subjective norm	1) People, who are important to me, would recommend using bKash.	Schierz, Schilke and Wirtz (2010)
	2)People, who are important to me, would find using bKash beneficial.	
	3)People, who are important to me, would find using bKash a good idea.	
Perceived Behaviour Control	1)I would be able to use bKash.	(Taylor and Todd, 1995)
	2)Using bKash is entirely within my control.	
	3) I have the resources and the knowledge and the ability to make use of bKash.	
Relative Advantage	1)bKash offer advantages that are not offered by competing products.	Cooper and Kleinschmidt (1987)
	2) bKash is, in my eyes, superior to competing products.	
	3) bKash solves a problem that I cannot solve with competing products.	
Complexity	1) Working with bKash is complicated, it is difficult to understand what is going on.	Cheung, Chang and Lai (2000)
	2)Using bKash involves too much time doing mechanical operations.i.e., data input, understanding menu .	
	3) It takes too long to learn how to use bKash to make it worth the effort.	
	4) In general, bKash is very complex to use.	
Compatibility	1)Using bKash fits well with my lifestyle.	Schierz, Schilke and Wirtz (2010)
	2)Using bKash fits well with the way I like to purchase products and services.	
	3)I would appreciate using bKash instead of alternative modes of payment (e.g., credit card, cash).	
Trialabilty	1) Before deciding on whether or not to use bKash, I want to be	Zolait (2009)

	able to use it on a trial basis.	
	2) Before deciding on whether or not to use bKash, I want to be able to properly try it out.	
	3) I want to be permitted to use bKash, on a trial basis for some time long enough to see what it can do.	
Observability	1)I would have no difficulty telling others about the results of using bKash.	Meuter, Bitner , Ostrom and Brown (2005)
	2)I believe I could communicate to others the outcomes of using bKash.	
	3)The results of using bKash are apparent to me.	
Pleasure	1. Happy/Unhappy	Kulviwat et al. (2007)
	2. Pleased/Annoyed	
	3. Satisfied/Unsatisfied	
	4. Contented/Melancholic	
	5. Hopeful/Despairing	
	6. Relaxed/Bored	
Arousal	1. Stimulated/Relaxed	Kulviwat et al. (2007)
	2. Excited/Calm	
	3. Frenzied/Sluggish	
	4. Jittery/Dull	
	5. Wide-awake/Sleepy	
	6. Aroused/Unaroused	
Dominance	1. In Control/Cared For	Kulviwat et al. (2007)
	2. Controlling/Controlled	
	3. Dominant/Submissive	
	4. Influential/Influenced	
	5. Autonomous/Guided	
	6. Important/Awed	
Enjoyment	1) I have fun interacting with bKash.	Agarwal and Karahanna (2000)
	2) Using bKash provides me with a lot of enjoyment.	
	3) I enjoy using bKash.	
	4)Using bKash bores me (reversed).	
Technicality	1) It is easy to use bKash.	DeLone and McLean (1992), Davis (1989)
	2) bKash can be connected instantly.	
	3)bKash takes a short time to respond.	
	4) It is easy to get bKash to do what I want it to do.	
	5) The system of bKash is reliable.	
Perceived Fee	1)The fee that I have to pay for the use of bKash is too high.	Voss, Parasuraman, Grewal(1998)
	2)The fee that I have to pay for the use of bKash is reasonable.	
	3)I am pleased with the fee that I have to pay for the use of bKash.	
Attitudes towards using bKAsh	Overall, please describe how you feel about bKash. For me, using bkash is:	Kulviwat et al. (2007)
	1) Bad-Good	
	2) Negative- Positive	
	3) Unfavourable- Favourable	
	4) Unpleasant- Pleasant	
Perceived Value	1) Compared to the fee I need to pay, the use of bKash offers value for money.	Sirdeshmukh, Singh, Sabol (2002)
	2)Compared to the effort I need to put in, the use of bKash is beneficial to me.	
	3)Compared to the time I need to spend, the use of bKash is worthwhile to me.	
	4)Overall, the use of bKash delivers me good value.	

4.2.4.1 Measurement Development Process for the CBOP Constructs:

The CBOP model proposed by Nakata and Weidner (2012) has not been empirically tested. Consequently, the constructs are new to the literature. However, they share similarities with existing constructs elsewhere. So, rather than creating completely new measures, the literature was searched for constructs with accompanying measures which overlapped in definition. These were then refined following scale development procedures from the literature. The "new" constructs include measures for affordability, visual comprehensibility, adaptability, assimilationist culture, collective needs, interpersonal promotion, social capital, atomised distribution, and flexible payment forms. To develop the items for these constructs, the scale development procedures of Hsu et al. (2004), Moore and Benbasat (1991), Cao et al. (2005), So et al. (2005), Wee and Quazi (2005), and Tsang and Tse (2005) were followed. This included i) assessing the content validity of constructs through expert evaluation, ii) pre-testing and pilot-testing, iii) testing internal consistency, and iv) testing construct validity through tests of convergent and discriminant validity. To develop new items, some items for the CBOP model were modified based on adapting existing and similar scales. The modification is based on extensive literature review and inter-rater agreement based on ambiguity, similarity and relevance (Francis et al., 2004).

The newly developed items of constructs and their sources are discussed in the following sections.

4.2.4.1.1 Affordability

To measure affordability, items from Lichtenstein, Bloch, and Black (1988) were adapted (alpha = 0.66). Nakata and Weidner (2012) defined affordability as the degree to which the price of a new product must be consistent with a lifestyle of limited cash flow or on very restricted incomes, and debt access. Literature search revealed that there was no existing

construct with the similar name. Lichtenstein, Bloch, and Black (1988) measured a consumer's stated tendency to make product purchase decisions that are heavily influenced by price. The items proposed by Lichtenstein, Bloch, and Black (1988) were closer to the situation of this research. Hence, the items developed by Lichtenstein, Bloch, and Black (1988) were believed to be reliable and representative of affordability in this research. Further justification of these items was provided through the content validity survey (see Section 4.2.4.1.10) to ensure the items were representing the affordability construct. The list of items for affordability and their sources are provided in Table 4.3.

Table 4.3 The List of items for Affordability and Sources

Items	References
I would use bKash because the service is affordable.	Lichtenstein, Bloch, and Black (1988).
I would buy the lowest price brand of mobile banking services that will suit my needs.	Lichtenstein, Bloch, and Black (1988).
When it comes to choosing bKash, I will rely heavily on price.	Lichtenstein, Bloch, and Black (1988).

4.2.4.1.2 Visual Comprehensibility

Visual comprehensibility was measured by adapting items (alpha = .94) from Unnava, Agarwal, and Haugtvedt (1996). Nakata and Weidner (2012) defined visual comprehensibility as the degree to which an innovation is intuitively comprehended by BOP consumers (who have limited numeracy and literacy skill) through its design and packaging (e.g., colours, shapes, photos, physical package size, and other elements of product package). Literature search revealed that there was no existing construct with a similar definition. Unnava, Agarwal, and Haugtvedt (1996) intended to measure the extent to which an advertisement has stimulated a person to form mental images of what was being described verbally in the ad copy. The items proposed by Unnava, Agarwal, and Haugtvedt (1996) were closer to the situation of our research. Therefore, these items

developed by Unnava, Agarwal, and Haugtvedt (1996) were believed to be reliable, and representative of visual comprehensibility. The justifications of these items were further substantiated through the face validity survey (see Section 4.2.4.1.10) to ensure the items adequately represented the visual comprehensibility construct. The list of items for visual comprehensibility and their sources are provided in Table 4.4.

Table 4.4 The List of Items for Visual Comprehensibility and Sources

Items	References
The colour, shapes, pictures, symbols (e.g., Pink coloured bird symbol to represent bKash) and other relevant elements of bKash help me to clarify how to use this service.	Unnava, Agarwal, and Haugtvedt (1996).
Using bKash, I find myself thinking of the colour, shapes, pictures, symbols (e.g., Pink coloured bird symbol to represent bKash) and other relevant elements of bKash.	Unnava, Agarwal, and Haugtvedt (1996).
I find it easy to remember any colour, shapes, pictures, symbols (e.g., Pink coloured bird symbol to represent bKash) and other relevant elements of bKash.	Unnava, Agarwal, and Haugtvedt (1996).
I find the colours, shapes, pictures and symbols of bKash (e.g., pink coloured bird to represent bKash) help me to understand how to use bKash more than any written text associated with it.	Unnava, Agarwal, and Haugtvedt (1996).

4.2.4.1.3 Adaptability

To measure adaptability, items (alpha = .79) were taken from Rijsdijk and Hultink (2009). Nakata and Weidner (2012) defined adaptability as the degree to which an innovation is usable for multiple purposes or is easily adaptable to the conditions of difficult and resource-poor environments (e.g., lack of electricity, lack of infrastructure etc.). Items from Rijsdijk and Hultink (2009) were adopted for this research because the adaptability construct proposed by them is closer to this research context. Rijsdijk and Hultink (2009, p. 26) defined adaptability as "a product's ability to improve the match between its functioning and its environment". Hence, these items developed by Rijsdijk and Hultink (2009) were believed to be reliable, and representative of adaptability. Further justification

of these items was provided through the content validity survey (see Section 4.2.4.1.10). The list of items for adaptability and their sources are provided in Table 4.5.

Table 4.5 The List of Items for Adaptability and Sources

Items	References
bKash is usable for multiple purposes (e.g., Money transfer, buying and selling products, recharging mobile balance, etc.)	Rijsdijk and Hultink (2009).
bKash is usable even when resources are lacking (e.g., even in remote villages, when electricity is not working, etc.).	Rijsdijk and Hultink (2009).
bKash has the ability to provide consistent services even when resources are lacking (e.g., even in remote villages, when electricity is not working, etc.)	Rijsdijk and Hultink (2009).
bKash mobile banking fulfills multiple functional needs.	Rijsdijk and Hultink (2009).

4.2.4.1.4 Assimilationist Culture

To measure assimilationist culture, items (alpha = .70) from Bandyopadhyay and Fraccastoro (2007) were adapted. Nakata and Weidner (2012) defined assimilationist culture as a culture within which BOP consumers want to perform a behaviour because the product originates in a dominant culture, where a dominant culture attests to wealth, modernity, and consumption, presents images of an idealised life of social acceptance and comfort. Bandyopadhyay, and Fraccastoro (2007) defined social influence as the social pressure felt by a consumer to perform a specific behaviour. BOP consumers also feel pressure by the dominant culture to perform a behaviour, the items proposed by Bandyopadhyay, and Fraccastoro (2007) to measure social influence were closer to the definition of Nakata and Weidner (2012). Therefore, these items were used in this study. The justifications of these items were provided through the content validity survey (see Section 4.2.4.1.10). The list of items for assimilationist culture and their sources are provided in Table 4.6.

Table 4.6 The List of Items for Assimilationist Culture and Sources

Items	References
Affluent people who are important to me would support the idea of using bKash.	Bandyopadhyay and Fraccastoro (2007).
I think that those wealthy or modern people who are important to me would want me to use bKash.	Bandyopadhyay and Fraccastoro (2007).
Affluent or modern people whose opinions I value would prefer me to use bKash.	Bandyopadhyay and Fraccastoro (2007).

4.2.4.1.5 Collective Needs

Collective needs were measured by adapting items (alpha = .71) from Bearden and Etzel (1982). Nakata and Weidner (2012) defined collective needs as the degree to which group needs (e.g., needs of family, friends, neighbours) predominate in the case of adopting a new product. Bearden and Etzel (1982) mentioned that "utilitarian reference group influence" is based on compliance with others. They mentioned that an individual performs a behaviour because he/she thinks that significant others can mediate rewards or punishments, because the individual's behaviour is known or visible to others, or because the individual is motivated to realise a reward or avoid punishment. The items proposed by Bearden and Etzel (1982) to measure utilitarian reference group influences were closer to the definition of Nakata and Weidner (2012). Hence, these items developed by Bearden and Etzel (1982) were thought to be reliable and representative of collective needs. The justifications of these items were further substantiated through the content validity survey (see Section 4.2.4.1.10). The list of items for collective needs and their sources are provided in Table 4.7.

Table 4.7 The List of Items for Collective Needs and Sources

Items	References
To satisfy the expectation of people in my working place, my decision to use bKash is influenced by their preferences.	Bearden and Etzel (1982).
My decision to use bKash is influenced by the preferences of people with whom I have social interaction.	Bearden and Etzel (1982).
My decision to use bKash is influenced by the preferences of family members.	Bearden and Etzel (1982).
My decision to use bKash is influenced by the desire of others.	Bearden and Etzel (1982).

4.2.4.1.6 Interpersonal Promotion

Items (composite reliability = .93) from Parry, Kawakami and Kishiya (2012) were adapted to measure interpersonal promotion. Nakata and Weidner (2012) defined interpersonal promotion as the degree to which a new product is promoted through personal ties. Parry, Kawakami and Kishiya (2012, p.958) defined Personal Word-of-Mouth as "the degree to which respondents receive solicited and unsolicited advice and recommendations from friends, family, and other people around them". BOP consumers also adopt an innovation based on advice or suggestions from friends, family and other people around them; the items proposed by Parry, Kawakami and Kishiya (2012) to measure Personal Word-of-Mouth were closer to the definition of Nakata and Weidner (2012). Hereafter, the items developed by Parry, Kawakami and Kishiya (2012) were believed to be reliable and representative of interpersonal promotion. In addition, these items were justified through the content validity survey (see Section 4.2.4.1.10). The list of items for Interpersonal promotion and their sources are provided in Table 4.8.

Table 4.8 The List of Items for Interpersonal Promotion and Sources

Items	References
I often hear good things about bKash from the people around me, including friends, family and people in my working place.	Parry, Kawakami and Kishiya (2012).
When I look at mobile banking service providers, people around me often recommend bKash for me to use.	Parry, Kawakami and Kishiya (2012).
In the past people around me have often recommended bKash for me to use.	Parry, Kawakami and Kishiya (2012).

4.2.4.1.7 Social Capital

To measure social capital, items (composite reliability = .90) from Chiu, Hsu, and Wang (2006) were adapted. Nakata and Weidner (2012) defined social capital as trust, norms, and networks that can increase the proficiency of society by facilitating coordinated actions (i.e., BOP consumers heavily rely on social networks for information and tangible aid, and for learning from their neighbours what school to send their children to). Chiu, Hsu, and Wang (2006, p.1877) defined social interaction ties as "the strength of the relationships, and the amount of time spent, and communication frequency among members of virtual communities". The items from Chiu, Hsu, and Wang (2006) were closer to the definition of Nakata and Weidner (2012).Therefore, these items developed by Chiu, Hsu, and Wang (2006) were believed to be reliable and representative of social capital, and wordings were selected based on the terms related to our research. The justifications of these items were further substantiated through the content validity survey (see Section 4.2.4.1.10). The list of items for Social Capital and their sources are provided in Table 4.9.

Table 4.9 The List of Items for Social Capital and Sources

Items	References
I maintain close social relationships with some members in my community.	Chiu, Hsu, and Wang (2006).
I spend a lot of time interacting with some members in my community.	Chiu, Hsu, and Wang (2006).
I know some members in my community on a personal level.	Chiu, Hsu, and Wang (2006).
I have frequent communication with some members in my community.	Chiu, Hsu, and Wang (2006).

4.2.4.1.8 Atomised Distribution

Items (alpha = .86) from Ganesh, Arnold, and Reynolds (2000) were adapted to measure atomised distribution. Nakata and Weidner (2012) defined atomised distribution as channel arrangements that bring products as close to customers as possible. Ganesh, Arnold, and Reynolds (2000) intended to measure the extent to which a customer expresses satisfaction with the aspects of a service provider that are related to convenience of the provider location relative to customer's home, work, and route in-between. The items proposed by Ganesh, Arnold, and Reynolds (2000) were closer to the definition of Nakata and Weidner (2012). Hence, these items developed by Ganesh, Arnold, and Reynolds (2000) were believed to be reliable and representative of atomised distribution, as well as wordings were chosen based on the terms related to this research. The justifications of these items were provided through the content validity survey (see Section 4.2.4.1.10). The list of items for atomised distribution and their sources are provided in Table 4.10.

Table 4.10 The List of Items for Atomised Distribution and Sources

Items	References
I am satisfied with the distance of the bKash agent's shop is to my home.	Ganesh, Arnold, and Reynolds (2000).
I am satisfied with the distance of the bKash agent's shop is to where I work.	Ganesh, Arnold, and Reynolds (2000).
The bKash agent's shop is convenient as it is on route to my place of work.	Ganesh, Arnold, and Reynolds (2000).

4.2.4.1.9 Flexible Payment Forms

To measure flexible payment forms, items (alpha = .84) from Shockley and Allen (2007) were adapted. Nakata and Weidner (2012) defined flexible payment forms as the degree to which methods of payment of a new product are consistent with a lifestyle of limited cash flow, very restricted incomes, and/or access to debt (e.g., payment in instalments). Shockley and Allen (2007) defined flexible work arrangement as ''alternative work options that allow work to be accomplished outside of the traditional temporal and/or

spatial boundaries of a standard workday''. No other better alternatives were available in the existing literature and the items proposed by Shockley and Allen (2007) were closer to the situation of this research. Hence, these items developed by Shockley and Allen (2007) were thought to be reliable and representative of flexible payment forms, and the wordings were chosen based on the terms related to this research. The justifications of these items were further substantiated through the content validity survey (see Section 4.2.4.1.10). The list of items for flexible payment forms and their sources are provided in Table 4.11.

Table 4.11 The List of Items for Flexible Payment Forms and Sources

Items	References
I have the flexibility to pay the charge of bKash in instalments.	Shockley and Allen (2007).
I have the freedom to pay the charge of bKash, wherever is best for me.	Shockley and Allen (2007).
I am not able to pay the charge of bKash in instalments.	Shockley and Allen (2007).

Later, the newly developed items (see Section 4.2.4.1.1 to 4.2.4.1.9) were corroborated by experts through a content validity study, which is discussed next.

4.2.4.1.10 Content Validity

Content validity was assessed using a quantitative approach consistent with Hardesty and Bearden (2004). This involved the development of a questionnaire based on the possible measures identified from the literature, which was subsequently evaluated by experts in the field of marketing. The questionnaire included the items (see Table 4.3 to 4.11) and experts were asked to rate each item based on whether it was "clearly representative'', or ''somewhat representative'', or ''not representative". This approach is consistent with that followed by Zaichkowsky (1985). The expert judges included seven academics who had published in the area of consumer behaviour or BOP context and three PhD students who were conducting their PhDs in the area of consumer behaviour (e.g., Cohen, 1967; Puri,

1996; Wang and Mowen, 1997). Items were retained for the main questionnaire if at least 60-80% of experts rated the items as at least "somewhat representative" (Lichtenstein et al., 1990; Zaichkowsky, 1985, 1994; Saxe and Weitz, 1982 and Manning et al., 1995). Because as a minimum 60% of experts rated these items as at least "somewhat representative", all items were retained for the final questionnaire (please see Appendix 4.1 for a summary of the findings of this expert evaluation survey).

In addition, common method bias (CMB) is one of the key sources of measurement error. CMB has been highlighted as a key concern in studies using single source data (Podsakoff et al., 2003; Lindell and Brandt, 2000; Bagozzi and Yi, 1990; Bagozzi, Yi, and Phillips, 1991; Kline, Sulsky, and Rever-Moriyama, 2000; Lindell and Whitney, 2001). Podsakoff et al. (2003) suggest CMB can be minimised through procedural measures and estimated using statistical procedures. Procedures for minimising CMB are now discussed.

4.2.4.2 Procedures for Minimising Common Method Bias

Within the procedural remedies offered by Podsakoff et al. (2003), it is important to identify what the measures of the dependent and the independent variable have in common and eliminate or minimise it through the design of the study. Podsakoff et al. (2003) also argue that the connection between dependent and independent variables may come from the respondents, contextual cues existing within the questionnaire itself or in the measurement environment, and /or the particular format and wording of the questions.

In this research, CMB was minimised during the design of the questionnaire, and choosing the respondents for the study. The researcher chooses the format of the questionnaire very carefully to minimise CMB. For example, different visual stimuli (see questionnaire in Appendix 4.2) were also used in the format of the questionnaire to minimise CMB. Moreover, CMB can be reduced by careful construction of items (e.g., avoiding ambiguous

and unfamiliar term). This is of particular importance because many of the questions were initially designed in a very different context to that here. Consequently, the careful pre-testing of the questionnaire based on comments from the sample and other locals was instrumental in developing the questionnaire. For the purpose of pre-testing the questionnaire (see details Section 4.2.5), a focus group of fifteen BOP consumers, and representatives from local authorities (e.g., local school teacher, chairman, and district commissioner) evaluated the survey questionnaires, and commented on question ambiguity and unfamiliar terms. For instance, one Bengali word "শ্রেয়" (Good) was replaced by similar word "ভাল" (Good） because "শ্রেয়" (Good) was an unfamiliar term for BOP respondents to understand, and they both have similar meaning in Bengali.

Additionally, the researcher utilised a cover story (see questionnaire in Appendix 4.2) to make it appear that the measurement of independent variables was not associated with the measurement of the dependent variable. For example, the respondents were informed that the survey was not conducted for the purpose of bKash mobile banking rather it was conducted for the purpose of the PhD programme of the researcher. Moreover, respondents were assured that there were no right and wrong answers, and they should provide honest answers. This approach made the respondents less likely to provide socially desirable responses. The researcher also utilised three sets of questionnaires to counterbalance the order of questions and reduce the biases related to priming effects (e.g., respondents may imply a causal relationship among the variables presented in the questionnaire) and item context induced mood effects in this research (e.g., a single queston or a set of questions can induce a mood for responding to the remainder of the questionnaire).

In addition, Podsakoff et al. (2003) suggest that when any formative construct is included in a study, the researcher must be more aware than normal in designing their research

because procedural controls become the most effective ways to minimise CMB. There are some statistical controls, which try to partial out the effects of CMB. However, unfortunately, these statistical controls are not able to partial out the effects of CMB, when the model contains formative constructs (Podsakoff et al., 2003) as is the case here. In the case of formative constructs, this is true because measurement error resides at the construct level rather than the item level (Bollen and Lennox, 1991). Consequently, these statistical control procedures do not enter into the equation, where the relationship between the construct and formative measures is estimated. However, some statistical tests suggested by Podsakoff et al. (2003) were utilised to test the existence of CMB (e.g., see Section 5.5 in Analysis chapter for details).

After minimising CMB through the above procedures, the back translation technique and decentring approach was utilised to identify translation errors and ensure the conveyed meaning was consistent. The next section will describe the back translation technique and decentring approach.

4.2.4.3 Back Translation Technique and Decentering Approach

Prior research in an international context has recommended the back translation technique (Maneesriwongul and Dixon, 2004; Brislin, 1980). This is because translating questionnaires from one language to another language might be incapable of achieving full meaning. For example, a single word of a language may have two expressions in another language. In this research, the questionnaires were translated into the Bengali language (see Appendix 4.3) to facilitate data collection in the local setting. Therefore, the researcher used the back-translation technique to ensure translation equivalence (Harkness et al., 2003). In this research, one translator (a native Bengali speaker, who had been living in the United Kingdom for 7 years and is familiar with the conceptual and functional meaning of words in English) translated from the source language (English) into a target

language (Bengali). Later, another translator (a native Bengali speaker, who studied a Masters in the English language) translated the target language (Bengali) text back into the source language (English). This back translation technique helped the researcher to identify possible translation errors. However, one disadvantage of the back-translation technique is that the structure and terms of the source language dominate the questionnaire. The researcher also used the 'decentering' approach (Triandis, 1972; Werner and Campbell, 1970), where the source and target questionnaire are modified through successive repetition of translation and retranslation to eliminate the dominance of the source language. This process helps to ensure that terminology is equally understood and equivalent in each language context. Although this decentering approach is time-consuming and tedious, it helped us to ensure the most accurate translation. In addition, some researchers (e.g., Van der Bijver and Poortinga, 1982) argue that respondents may respond differently across cultures for a variety of reasons, including the avoidance of extreme responses, humility and social desirability. Therefore, in line with Van der Bijver and Poortinga (1982), the researcher also used pictographic expression to facilitate respondents understanding, and this reduced the use of words and sentences that might be translated differently across culture. For example, different size rectangle boxes, like Figure 4.1, were used to represent different levels of agreement.

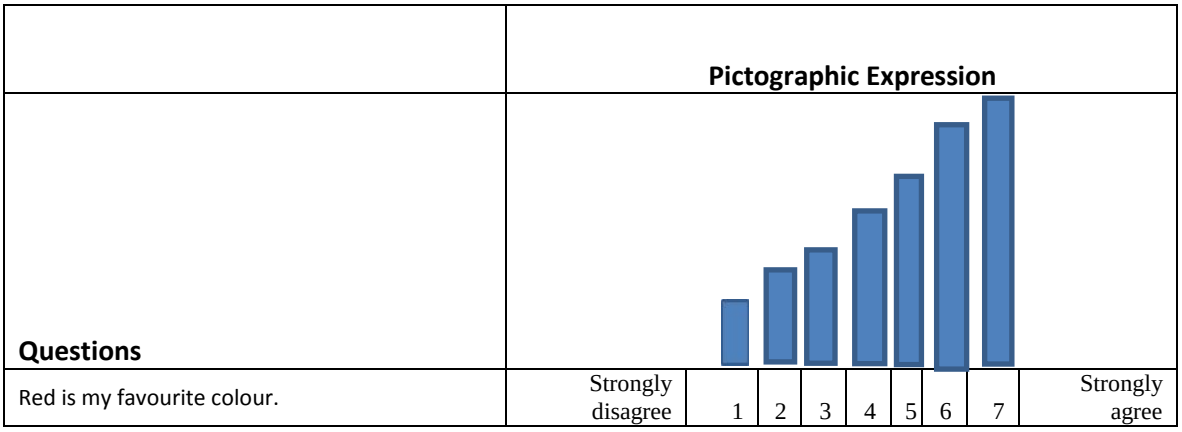


Figure 4.1 Pictographic Expression

Having derived the measures from previous research and developed new items for the new constructs, the survey was pre-tested.

4.2.5 Pre-test

The initial questionnaire was pre-tested for interpretability and to gain cooperation from local leaders. In total, 15 respondents (including nine BOP consumers, four local school teachers, a chairman and a district commissioner) were given the questionnaire and asked to complete it in the presence of the researcher. This was to gain cooperation among influential people in the area and to assist in creating a better-understood survey instrument. For the BOP consumers, the questionnaire was administered verbally in light of the low literacy level. The pre-testing reveals that some words were difficult to understand by BOP respondents. For example, one Bengali word "মানান সই হয়" (which means "fit" in English) was replaced by a similar word "মিলে যায়" because "মানান সই হয়" was difficult for BOP consumers to understand, and they both have similar meaning. After significant changes were made to ensure greater understanding and interpretability, the questionnaire was tested once again on BOP consumers and no further amendments were deemed necessary.

The administration of this survey including sampling considerations, field work administration, and pilot testing are discussed in the following section.

4.3 Survey Administration

As the literacy rate of the BOP is low, several issues were relevant during the administration of this survey. In addition, this was a difficult group to recruit and administer studies to, leading to restricted sample sizes and the need for careful administration procedures. Viswanathan, Hastak, and Gau (2009) pointed out several consideration when administering surveys such as reading and writing difficulties, careful administration by well-trained interviewers, and the use of realistic stimuli and tasks that respondents could relate to their life experiences were central here. Previously, some researchers (e.g., Viswanathan et al., 2010; Davis et al., 2008; De Silva and Zainudeen, 2007; Sivapragasam et al., 2011) used face to face surveys in the Bottom of the Pyramid market for empirical studies. Survey based empirical studies have also been implemented in Bangladesh by some researchers (e.g., Kafi and Hossain, 2011; Ahmed et al., 2011; Khanam et al., 2011; Ahmed et al., 2012; Hassan et al., 2002). The face to face survey was identified as the most effective data collection method for this research. Therefore, face to face surveys were conducted verbally (e.g., Davis et al., 2008), and visual stimuli (i.e., pictographic symbols demonstrating level of agreement or various type rectangle boxes) (e.g., Martini and Page, 1996) were used in the study (see questionnaire in Appendix 4.2) to facilitate understanding.

4.3.1 Sample Size and Sampling Method

Although the sample size may vary from study to study, one study recommended that at least a sample size of 200 can provide a sound basis for estimation (Hair et al., 2010). A sample size greater than 200 was ideal for this study and it was consistent with previous

studies in the BOP context (e.g., Ismail and Masinge, 2012). In this study, the researcher also utilised the PLS method of structural equation modelling (see Section 5.3 in Chapter 5). Chin and Newsted (1999) argued that PLS could be applied with a minimum sample size of 50, and Wold (1975) even "analysed 27 variables using two latent constructs with a data set consisting of ten cases " (Chin, Marcolin, and Newsted, 2003, p. 5). However, the sample size used in recent research is higher than earlier research (Hair, Sarstedt, Ringle and Mena, 2012). Approximately 331 BOP consumers with low-income levels (i.e., who earn less than USD 5 in a day) were approached for this survey and 320 BOP consumers responded to the questionnaire. The response rate was high because a face to face survey (conducted verbally with the support of visual stimuli) approach was new and interesting to BOP consumers and stimulated them to participate. As a result, BOP consumers were curious to participate in this survey. 9 responses were considered invalid due to the extent of missing data so the final sample size was 311. As this study investigated (see Section 5.8.4) the moderating effect of urban versus rural BOP consumers on the key antecedents of innovation adoption, both urban and rural consumers were sampled. In summary, 117 responses were collected from rural BOP consumers, and 194 responses were collected from urban BOP consumers.

This study used convenience non-probability sampling to select participants. Ideally, some type of probability sampling would have been conducted. However, convenience non-probability sampling was used because there was no reliable sample frame for the target population. This was consistent with other studies (e.g., Dinica and Motteau, 2012) in this research area due to pragmatic reasons. The respondents were approached in different tea stalls, market places, and shops of bKash agents in Bangladesh. They were also approached at different times in a day between 7 am to 6 pm and at different places in Dhaka (e.g., Badda, Sahajadpur, Bashtoli, Jhilpar and other places), in Comilla (e.g.,

Abdulipar, Aligamara, Badarpur, Bagmara and other places), and in Feni (e.g., Dagonbhuiyan) districts.

Additionally, the researcher used expert field workers to collect data more efficiently. This was because face to face interviews lasted up to 50 minutes and were very time consuming. The field work administration procedure is discussed in the following section.

4.3.2 Field Work Administration

The researcher recruited four experienced field workers to conduct the survey verbally. Two field workers were recruited from rural areas and two field workers were recruited from urban areas and this assisted with data collection because the field workers were familiar with these areas. Fieldwork administration followed the procedures suggested by McGivern (2006). Firstly, pilot tests were conducted to understand issues in identifying and approaching the target sample; the nature and duration of the interview, and the number of surveys that a field worker collected in one shift. Later, the researcher briefed the field workers in detail about the questionnaire and its contents. The researcher informed the field workers about the start and finish dates, minimum number of surveys expected in one shift, the need to input survey data on a daily basis, length of interview, ensuring fully completed questionnaires, and eligibility of the respondents to take part in the survey (e.g., USD 5 dollar threshold of income, use of the technology less than five times). The researcher also ensured that the questionnaire was coded correctly and that the data entry process was as efficient as possible. The researcher monitored the sample composition on an ongoing basis and checked to ensure the original sample specifications had been met, and data had been collected correctly. The researcher also used computer-based data checking (e.g., SPSS to ensure the eligibility criteria of the respondents had been met) on continuing basis to ensure the quality of data.

4.3.3 Pilot Test

A pilot study was conducted to check for understanding and interpretability of the questionnaire, and to check if respondents had any difficulties with completing the questionnaire. This process was useful and ultimately led to identifying the difficult questions for respondents and to making it easy for respondents to understand well. Furthermore, this pilot study helped to understand survey completion time and to assess the reliability and validity of the measures before conducting the main study.

The final questionnaire was initially pilot-tested on a small sample of consumers (n = 29). This pilot test was conducted in urban and rural areas of Bangladesh. The respondents were approached at different times of the day (between 7 am to 6 pm) and they were approached at different places in Dhaka (e.g., Rampura, Badda, Gazipur) and Comilla (e.g., Chilora, Nobabpur). The average time for survey completion was 40 minutes and no further adjustments to the survey were needed. All respondents reported the survey was easy to understand. Reliability and validity of the constructs were tested through the use of PLS by running a bootstrap of seven identified models using 500 resamples. Reliability of the constructs was tested using PLS and composite reliability of each construct was greater than the recommended threshold of 0.7 (Chin, 1998). The results of reliability testing are provided in Table 4.12.

Table 4.12 Reliability of the Constructs

Model	Construct Name	Composite Reliability
TRA and TPB	Attitude	0.757
	Perceived behavioural control	0.837
	Subjective norm	0.848
TAM	Attitude	0.748
	Perceived ease of use	0.714
	Perceived usefulness	0.842
DOI	Compatibility	0.844
	Complexity	0.861
	Observability	0.802
	Relative advantage	0.903
	Trialability	0.656
CAT	Arousal	0.826
	Attitude	0.745
	Dominance	0.863
	Perceived ease of use	0.659
	Intention	0.857
	Pleasure	0.871
	Relative advantage	0.925
	Perceived usefulness	0.829
VAM	Enjoyment	0.7919
	Perceived fee	0.7216
	Perceived value	0.8459
	Technicality	0.7902
	Perceived usefulness	0.8436
CBOP	Adaptability	0.868
	Affordability	0.755
	Assimilationist culture	0.917
	Atomised distribution	0.873
	Collective needs	0.941
	Compatibility	0.844
	Flexible payment	0.92
	Intention	0.858
	Interpersonal promotion	0.859
	Relative advantage	0.924
	Social capital	0.823
	Visual comprehensibility	0.888

In addition, discriminant validity of the constructs was tested. To test the discriminant validity of the reflective constructs, the correlation of each construct with each other

construct was assessed, and these correlations were compared with the AVE square roots for each construct (Lawry and Gaskin, 2014). Smart PLS measures AVE by computing the variance shared by each item of a construct. Therefore, discriminant validity of the measures is represented in the following tables (Table 4.13 to Table 4.18). The diagonal numbers of these tables represent the square roots of the AVE. The diagonal numbers are required to be greater than the off-diagonal numbers for the same row and column (not the AVE values itself) to show discriminant validity (Lawry and Gaskin, 2014). Strong discriminant validity for each construct was exhibited through this analysis.

Table 4.13 Discriminant Validity of the Constructs within the TRA and the TPB Model

Construct Name	Attitude	Perceived behavioural control	Subjective norm
Attitude	0.673		
Perceived behavioural control	0.437	0.798	
Subjective norm	0.284	0.079	0.807

Note: Diagonal number represent square roots of AVE

Table 4.14 Discriminant Validity of the Constructs within the TAM Model

Construct Name	Attitude	Perceived ease of use	Perceived usefulness
Attitude	0.666		
Perceived ease of use	0.489	0.658	
Perceived usefulness	0.412	0.43	0.757

Note: Diagonal number represent square roots of AVE

Table 4.15 Discriminant Validity of the Constructs within the DOI Model

Construct Name	Compatibility	Complexity	Intention	Observability	Relative advantage	Trialability
Compatibility	0.804					
Complexity	-0.404	0.823				
Intention	0.487	-0.357	0.775			
Observability	0.6	-0.335	0.526	0.762		
Relative advantage	0.174	-0.017	-0.043	0.057	0.872	
Trialability	0.39	-0.096	0.388	0.424	-0.262	0.671

Note: Diagonal number represent square roots of AVE

Table 4.16 Discriminant Validity of the Constructs within the CAT Model

Construct Name	Arousal	Attitude	Dominance	Perceived ease of use	Intention	Pleasure	Relative advantage	Perceived usefulness
Arousal	0.789							
Attitude	0.33	0.667						
Dominance	0.155	-0.177	0.826					
Perceived ease of use	0.341	0.511	-0.097	0.618				
Intention	0.54	0.744	-0.173	0.597	0.778			
Pleasure	0.713	0.442	0.216	0.394	0.649	0.752		
Relative advantage	0.417	-0.107	-0.03	-0.093	-0.032	0.205	0.896	
Perceived usefulness	0.285	0.382	0.063	0.491	0.451	0.413	0.047	0.744

Note: Diagonal number represent square roots of AVE

Table 4.17 Discriminant Validity of the Constructs within the VAM Model

Construct Name	Enjoyment	Intention	Perceived fee	Perceived value	Technicality	Perceived usefulness
Enjoyment	0.804					
Intention	0.675	0.777				
Perceived fee	0.483	0.325	0.99			
Perceived value	0.053	0.242	0.474	0.692		
Technicality	0.55	0.571	0.299	-0.052	0.664	
Perceived usefulness	0.492	0.443	0.048	-0.189	0.31	0.749

Note: Diagonal number represent square roots of AVE

Table 4.18 Discriminant Validity of the Constructs within the CBOP Model

Construct Name	Adaptability	Affordability	Assimilationist culture	Atomised distribution	Collective needs	Compatibility	Flexible payment	Intention	Interpersonal promotion	Relative advantage	Social capital	Visual comprehensibility
Adaptability	0.793											
Affordability	0.261	0.786										
Assimilationist culture	-0.019	0.571	0.887									
Atomised Distribution	0.317	0.121	-0.133	0.835								
Collective Needs	0.106	0.178	0.411	-0.471	0.894							
Compatibility	0.296	0.551	0.484	0.289	0.285	0.804						
Flexible Payment	0.26	0.171	0.37	0.13	0.241	0.209	0.923					
Interpersonal promotion	-0.132	0.314	0.489	-0.222	0.245	0.287	0.27	0.472	0.819			
Relative advantage	0.039	0.281	0.53	-0.114	0.427	0.231	0.253	-0.029	0.154	0.896		
Social Capital	-0.033	0.673	0.474	0.329	0.038	0.483	0.139	0.411	0.343	0.259	0.781	
Visual Comprehensibility	0.092	0.485	0.402	-0.071	0.068	0.346	-0.175	0.273	0.251	0.261	0.329	0.817

Note: Diagonal number represent square roots of AVE

After the initial questionnaire was pilot tested, no further amendments were necessary. Finally, the main study was administered.

4.4 Conclusion

Chapter 4 developed a method for study 1 to compare the validity of seven identified consumer based innovation adoption models. It described how the survey and the measures were developed, and how CMB of study 1 was minimised. Sampling administration procedures, as well as pre-testing and pilot testing, were also described. It also reported the results of the pilot test. Chapter 5 proceeds by analysing the data collected in study 1 to initiate the model comparison process, and assist in developing an integrated pro-poor innovation adoption model.

Chapter 5: Analysis and Findings (Study 1)

5. 1 Introduction

Chapter 5 discusses the analysis of the collected data from study 1. First it describes the respondents' profiles. Then, it describes the process of testing for reliability and validity of the measures. Next, it discusses the testing of CMB and the analysis strategy of study 1. It then describes the findings from the empirical comparison of the innovation adoption models and the results of the analysis. Finally, hypotheses of the integrated pro-poor innovation adoption model for the BOP market are proposed based on conceptual and empirical evidence, and these hypotheses are preliminarily tested using the data from study 1.

5. 2 Profile of Respondents

A summary of respondents' characteristics is provided in Table 5.1.

Table 5.1 Descriptive Statistics

Variable Definition	Survey Returns (%)
Area	Urban = 62.40%; Rural= 37.60%
Income Segments	Subsistence Consumers Segments = 64.60%; Low income Consumers Segments= 35.40%
Age (Years)	18-20 = 3.20%; 21-25 = 16.10%; 26-30 = 34.70%; 31-36 = 30.50%; 36-50=12.90%; > 50 = 2.60%
Education	Uneducated / Can only Sign/ No schooling = 25.70%; Play Group/ Nursery/ KG1/ KG2=3.90%; School Up to Class 4=6.8%; Class 5 /PSC = 16.40%; School up to class 7 = 5.80%; Class 8/ JSC = 6.80%; School up to class 10 = 1.30%; SSC/Dakhil = 12.50%;HSC/Alim= 15.80%;Diploma= 1.30%; Graduate/ Fazil= 2.90%; Masters= 1.00%
Gender	Male= 91.30%; Female= 8.70 %
Number of times bKash used	Never used = 1.30%; Once = 3.50%; Twice = 2.30%; Three to Four times = 92.90%

From Table 5.1, it can be seen that all responses of study 1 were collected from both urban and rural areas. 62.40% (n = 194) responses were collected from the urban area, and 37.60% (n = 117) responses were collected from the rural area. In addition, the BOP market can be divided into three segments based on the income of BOP consumers (see Section 2.3 in Chapter 2). All responses of study 1 were also collected from both the subsistence consumer segment (BOP consumers, who earn USD 1 - USD 3 per day) and the low income segment (BOP consumers, who earn USD 3 - USD 5 per day). The majority of respondents (64.60%, n = 201) were from the subsistence consumer segment and 35.40% (n = 110) respondents were from low-income segment.

Also, responses from different age groups were collected and it can be seen from Table 5.1 that the majority of the respondents belong to the age group of 26-30 and 31-36. However, other age groups also responded to this survey. In addition, respondents of study 1 had different levels of education. The majority of respondents had a lower level education and only a small percentage was educated to masters level. They still belong to the BOP market because this market is also defined based on income.

Also, responses from both males and females are also captured during study 1. In Bangladesh, it was hard to reach female respondents for cultural reasons. Therefore, most of the respondents were male (91.30%, n = 284), and 8.70% (n = 27) of respondents were female. However, the smaller number of responses from females can be analysed within PLS, which is suitable for smaller sample sizes (Chin et al., 2003; Chin and Newsted, 1999). Furthermore, the majority of respondents (93.00%, n = 289) used bKash three to four times. Only 1.30% (n = 4) of the respondents never used bKash, 3.50% (n = 11) of respondents' used bKash once, and 2.30% (n = 7) of respondents used bKash twice.

The characteristics of respondents are represented to provide a better understanding of how the sample reflects the socio-demographic characteristics of BOP consumers. In this research, Partial Least Squares (PLS) based Structural Equation Modelling (SEM) was utilised to analyse the data. The justification of using PLS based SEM is below.

5. 3 Justification of Using PLS- SEM

There are two forms of Structural Equation Modelling (SEM). One is covariance-based structural equation modelling (CB-SEM), and another one is least square based or component based structural equation modelling (PLS). CB-SEM should be used to test only well-established theories which were previously empirically validated and it is not reliable for exploratory types of analysis, which are more frequently used for theory building (Fornell and Bookstein, 1982; Chin and Todd, 1995). However, the CBOP model, included in this research for model comparison, has not previously been empirically validated, and our research conducts exploratory analyses to formulate a new theory. Therefore, the use of PLS is appropriate for this research (Fornell and Bookstein, 1982).

In addition, CB-SEM assumes that all indicators are reflective rather than formative in a model (Lowry and Gaskin, 2014). Therefore, this assumption may produce inappropriate results if the mixed model (which comprises of both formative and reflective indicators) is not correctly specified (Jarvis et al., 2003). On the other hand, when using PLS the researcher is not so concerned with the specification of such models and can easily estimate such models (Temme and Hildebrandt, 2007). As study 1 included poverty as a formative construct in addition to other reflective constructs, use of PLS was deemed appropriate for this research.

Now, it is important to test the models. The model testing procedure suggested by Lowry and Gaskin (2014) was followed in this research. As it is suggested by Lowry and Gaskin

(2014), the reliability and validity of constructs were tested before the empirical comparison of theories or models. The procedure and findings for testing the reliability and validity of constructs are explained in the following section.

5. 4 Testing Reliability and Validity of Constructs

The reliability and validity of reflective constructs were tested through the use of PLS by running a bootstrap of the seven models using 500 resamples. Therefore, a Confirmatory Factor Analysis (CFA) was conducted as part of the PLS run. Firstly, convergent validity was tested by identifying whether the items loaded with significant values on their respective theoretical constructs (Lowry and Gaskin, 2014). In this test, all reflective indicators of Table 5.2 are statistically significant at the 0.05 level. Later, t-values of the outer loadings of these indicators were examined, and these outer loadings were significant at the 0.05 level (Lowry and Gaskin, 2014). This means that items loaded correctly on their theoretical constructs. The results of the convergent validity tests are provided in Table 5.2.

After testing convergent validity, the reliability of the reflective constructs was tested. Reliability is defined as the degree to which a scale presents consistent and stable measures, and it is applicable only to reflective indicators (Lowry and Gaskin, 2014). Similar to Cronbach's Alpha, composite reliability score, which is computed by PLS, measure the internal consistency of reflective constructs (Lowry and Gaskin, 2014). In this research, each reflective construct presented a level of reliability greater than the recommended threshold of 0.70 (Chin, 1998). The results of testing reliability are provided in Table 5.3.

Table 5.2 t-Statistics for Convergent Validity of the Measures

Constructs	Items	TRA and TPB	TAM	VAM	DOI	CAT	CBOP
Attitude	AttitudebKash_1	13.108*	13.791*			14.028*	
	AttitudebKash_2	12.21*	13.587*			12.321*	
	AttitudebKash_3	9.361*	9.945*			9.132*	
	AttitudebKash_4	23.799*	23.765*			21.957*	
Intention	Intention_1	29.306*	25.044*	25.838*	24.968*	29.694*	26.968*
	Intention_2	9.563*	9.512*	9.955*	10.099*	9.957*	9.562*
	Intention_3	51.828*	50.912*	51.163*	55.847*	43.743*	47.332*
	Intention_4	27.235*	23.417*	28.808*	24.442*	32.732*	32.167*
Perceived Behavioural Control	Pervceived_behavioral_control_1	11.931*					
	Pervceived_behavioral_control_2	33.721*					
	Pervceived_behavioral_control_3	43.244*					
Subjective Norm	subjective_norm_1	29.399*					
	subjective_norm_2	57.632*					
	subjective_norm_3	35.781*					
Perceived Ease of use	Ease_of_use_1		22.517*			23.93*	
	Ease_of_use_2		40.339*			39.264*	
	Ease_of_use_3		32.712*			31.423*	
	Ease_of_use_4		10.309*			9.93*	
Perceived Usefulness	usefullness_1		18.85*			19.001*	
	usefullness_2		13.335*			13.545*	
	usefullness_3		14.045*			14.719*	
	usefullness_4		19.654*			20.952*	
Enjoyment	Enjoyment_1			50.793*			
	Enjoyment_2			120.793*			
	Enjoyment_3			70.475*			
	Enjoyment_4			14.059*			
Perceived Fee	Perceived_Fee_2			3.558*			
	Perceived_Fee_3			3.835*			
Perceived Value	Perceived_Value_1			3.01*			
	Perceived_Value_2			46.811*			
	Perceived_Value_3			40.429*			
	Perceived_Value_4			28.373*			
Technicality	Technicality_1			7.758*			
	Technicality_2			6.563*			
	Technicality_3			8.891*			
	Technicality_4			23.428*			
	Technicality_5			7.498*			
Compatibility	Compatibility_1				34.731*		36.616*
	Compatibility_2				39.244*		35.986*
	Compatibility_3				29.023*		27.71*
Complexity	Complexity_2				2.851*		
	Complexity_3				3.315*		
	Complexity_4				3.442*		
Observability	Obserability_1				4.822*		
	Obserability_2				11.111		
	Obserability_3				14.596*		
Relative advantage	Relative_Advantage_1				73.852*	68.719*	75.608*
	Relative_Advantage_2				130.805*	132.303*	122.662*
	Relative_Advantage_3				56.457*	55.191*	61.187*
Trialability	Trialibility_2				4.22*		
	Trialibility_3				6.018*		
Arousal	Arousal_1					104.153*	
	Arousal_2					76.229*	
	Arousal_3					112.027*	
	Arousal_4					31.712*	
	Arousal_5					73.791*	
	Arousal_6					61.116*	
Dominance	Dominance_1					7.859*	
	Dominance_2					4.637*	
	Dominance_3					8.238*	
	Dominance_4					7.941*	
	Dominance_6					5.819*	

Table 5.2 t-Statistics for Convergent Validity of the Measures (Continued)

Constructs	Items	TRA and TPB	TAM	VAM	DOI	CAT	CBOP
Pleasure	Pleasure_1					60.603*	
	Pleasure_2					94.376*	
	Pleasure_3					82.93*	
	Pleasure_4					43.702*	
	Pleasure_5					50.576*	
	Pleasure_6					47.865*	
Adaptability	Adaptibility_1						6.356*
	Adaptibility_2						3.627*
	Adaptibility_3						5.614*
	Adaptibility_4						7.83*
Affordability	Affordibility_1						21.779*
	Affordibility_2						8.252*
Assimilationist culture	Assimilationist_Culture_1						32.438*
	Assimilationist_Culture_2						107.799*
	Assimilationist_Culture_3						77.759*
Atomised Distribution	Automized_Distribution_1						14.114*
	Automized_Distribution_2						14.492*
	Automized_Distribution_3						20.947*
Collective Needs	Collective_Needs_1						80.383*
	Collective_Needs_2						96.484*
	Collective_Needs_3						19.492*
	Collective_Needs_4						48.357*
Flexible Payment	Flexibile_Payment_1						6.359*
	Flexibile_Payment_2						22.242*
	Flexibile_Payment_3						3.127*
Interpersonal promotion	Interpersonal_Promotion_1						33.241*
	Interpersonal_Promotion_2						36.722*
	Interpersonal_Promotion_3						35.803*
Social Capital	Social_capital_1						31.654*
	Social_capital_3						43.387*
	Social_capital_4						46.329*
Visual Comprehensibility	Visual_Comprehensibility_1						31.381*
	Visual_Comprehensibility_2						34.633*
	Visual_Comprehensibility_3						72.316*
	Visual_Comprehensibility_4						57.857*

Note: 1. *p<0.05

Then, to test the discriminant validity of reflective constructs, the correlation of each construct with each other construct was assessed, and these correlations were compared with the AVE square roots for each construct (Lowry and Gaskin, 2014). Smart PLS measures AVE by computing the variance shared by each item of a construct. Therefore, discriminant validity of the measures is represented in the following tables (Table 5.4 to Table 5.8). The diagonal numbers of these tables represent the square roots of the AVE.

The diagonal numbers are required to be greater than the off-diagonal numbers for the same row and column (not the AVE values itself) to provide evidence of discriminant validity (Lowry and Gaskin, 2014). Strong discriminant validity for each construct was illustrated through this analysis.

Table 5.3 Reliability of the Measures

Constructs	TRA and TPB	TAM	DOI	VAM	CAT	CBOP
Attitude	0.826	0.826			0.826	
Intention	0.888	0.888	0.888	0.888	0.887	0.887
Perceived behavioural control	0.857					
Subjective norm	0.918					
Ease of use		0.863			0.863	
Usefulness		0.828		0.828		
Compatibility			0.888			0.888
Complexity			0.893			
Observability			0.763			
Relative advantage			0.951		0.951	0.951
Trialability			0.804			
Enjoyment				0.806		
Perceived fee				0.984		
Perceived value				0.824		
Technicality				0.793		
Arousal					0.956	
Dominance					0.724	
Pleasure					0.952	
Usefulness					0.828	
Adaptability						0.793
Affordability						0.828
Assimilationist culture						0.942
Atomised distribution						0.901
Collective needs						0.936
Flexible payment						0.749
Interpersonal promotion						0.902
Social capital						0.91
Visual comprehensibility						0.942

Table 5.4 Discriminant Validity of the Measures within the TRA and the TPB

	Attitude	Intention	Perceived behavioural control	Subjective norm
Attitude	0.737			
Intention	0.489	0.816		
Perceived behavioural control	0.446	0.434	0.818	
Subjective norm	0.555	0.416	0.243	0.888

Note: Diagonal number represent square roots of AVE

Table 5.5 Discriminant Validity of the Measures within the TAM

	Attitude	Perceived ease of use	Intention	Perceived usefulness
Attitude	0.737			
Perceived ease of use	0.405	0.784		
Intention	0.489	0.377	0.816	
Perceived usefulness	0.406	0.456	0.402	0.739

Note: Diagonal number represent square roots of AVE

Table 5.6 Discriminant Validity of the Measures within the DOI

	Compatibility	Complexity	Intention	Observability	Relative advantage	Trialability
Compatibility	0.852					
Complexity	-0.045	0.859				
Intention	0.515	-0.05	0.816			
Observability	0.6	0.001	0.427	0.724		
Relative advantage	0.556	0.001	0.289	0.303	0.931	
Trialability	0.008	-0.073	0.14	0.1	-0.052	0.82

Note: Diagonal number represent square roots of AVE

Table 5.7 Discriminant Validity of the Measures within the VAM

	Enjoyment	Intention	Perceived fee	Perceived value	Technicality	Perceived usefulness
Enjoyment	0.858					
Intention	0.596	0.816				
Perceived fee	-0.019	0.057	0.985			
Perceived value	0.522	0.434	0.167	0.757		
Technicality	0.489	0.35	0.062	0.516	0.664	
Perceived usefulness	0.37	0.403	0.015	0.335	0.465	0.739

Note: Diagonal number represent square roots of AVE

Table 5.8 Discriminant Validity of the Measures within the CAT

	Arousal	Attitude	Dominance	Perceived ease of use	Intention	Pleasure	Relative advantage	Perceived usefulness
Arousal	0.885							
Attitude	0.494	0.737						
Dominance	0.768	0.432	0.795					
Perceived ease of use	0.383	0.405	0.378	0.784				
Intention	0.457	0.49	0.323	0.381	0.815			
Pleasure	0.851	0.479	0.725	0.358	0.484	0.877		
Relative advantage	0.658	0.416	0.571	0.327	0.293	0.562	0.931	
Perceived usefulness	0.354	0.406	0.418	0.456	0.405	0.335	0.41	0.739

Note: Diagonal number represent square roots of AVE

Table 5.9 Discriminant Validity of the Measures within the CBOP

	Adaptability	Affordability	Assimilationist culture	Atomised distribution	Collective needs	Compatibility	Flexible payment	Intention	Interpersonal promotion	Poverty	Relative advantage	Social capital	Visual comprehensibility
Adaptability	0.701												
Affordability	0.321	0.842											
Assimilationist culture	0.367	0.42	0.919										
Atomised distribution	0.345	0.214	0.21	0.867									
Collective needs	0.199	0.43	0.571	0.136	0.887								
Compatibility	0.306	0.363	0.46	0.314	0.503	0.852							
Flexible payment	0.218	0.323	0.331	0.279	0.534	0.557	0.782						
Intention	0.191	0.235	0.296	0.162	0.44	0.519	0.367	0.815					
Interpersonal promotion	0.359	0.441	0.656	0.268	0.548	0.545	0.35	0.348	0.868				
Poverty	0.242	0.372	0.383	0.346	0.564	0.641	0.807	0.368	0.473	---			
Relative advantage	0.386	0.429	0.647	0.206	0.41	0.556	0.356	0.293	0.595	0.418	0.931		
Social capital	0.344	0.405	0.541	0.303	0.411	0.522	0.514	0.307	0.563	0.542	0.514	0.878	
Visual comprehensibility	0.469	0.327	0.339	0.253	0.333	0.44	0.415	0.334	0.368	0.474	0.487	0.479	0.896

Note: Diagonal number represent square roots of AVE

Unlike reflective constructs, a formative construct is assumed to be defined as a function of its indicators (Bollen and Lennox, 1991; Fornell and Bookstein, 1982). Therefore, changes in the measures are hypothesised to cause changes in the formative construct. A key implication of this assumption is that a change in the latent construct is not necessarily coordinated to changes in all of its indicators. Even changes in one indicator can be adequate to predict a change in the latent construct. As mentioned before, the indicators used for the poverty construct are the deficit of individual income, the level of education, the number of family members, and the status of employment (see Section 4.2.4 in Chapter 4). Changes in any of the indicators will cause a change in the poverty construct, consistent with the above assumptions of a formative construct. Generally, the techniques used for reflective constructs are not applicable for this formative construct (Petter, Straub, and Rai, 2007; Straub, Boudreau, and Gefen, 2004). It is because formative indicators may move in diverse directions and can theoretically co-vary with other existing constructs. Therefore, the concepts of reliability and validity are not applicable in such cases.

Some statistical approaches are emerging to assess the construct validity of formative items. However, there is no single approach universally agreed way of validating formative measures (Petter, Straub, and Rai, 2007; Marakas, Johnson, and Clay, 2007). The modified multitrait–multimethod (MTMM) approach, which was utilised in the studies of Marakas, Johnson, and Clay (2007) and Loch, Straub, and Kamel (2003) was considered as a promising solution. In the modified MTMM approach, raw scores of each formative item were multiplied by its associated weight (obtained from PLS) to calculate a weighted score for each formative item. Then, a composite score for a formative construct was calculated. Based on these calculated scores, a correlation matrix (see Table 5.10) was created. To test convergent validity, the correlations between items of a formative construct were checked. According to Marakas, Johnson, and Clay (2007), items should be highly correlated with

other items of a construct to conclude that convergent validity is highly likely. To ensure convergent validity, one item was dropped (this item measured current working status) as this item was not highly correlated with other items and construct value (see Table 5.10).

Table 5.10 MTMM Analysis Table

	Current working status	Education	Deficit of individual income	Number of family members
Current working status				
Education	-.174**			
Deficit of individual income	.160**	.448**		
Number of family members	-0.057	.473**	.430**	
Poverty	.158**	.459**	1.000**	.435**

** Correlation is significant at the .05 level (2-tailed).

In addition, multicollinearity poses a greater problem for the validity of formative items. The researcher therefore used the approach suggested by Petter et al. (2007) to test formative validity. Petter et al. (2007) suggested that the Variance Inflation Factor (VIF) for factor analysis should be 10, but for more rigorous tests, they should be below 3.3. In our research, all the VIFs of items of poverty were below 3.3 (see Table 5.11) and this represents adequate construct validity for the formative indicators of poverty. If any indicator scored more than 10, then the researcher would drop it to ensure the validity of the formative items.

Table 5.11 Multicollinearity Test to Check Formative Validity

Name of constructs	Collinearity Statistics	
	Tolerance	VIF
Education	0.703	1.422
Deficit of individual income	0.738	1.355
Number of family members	0.717	1.395

As mentioned previously, CMB is a potential problem in behavioural studies (Podsakoff et al., 2003; Bagozzi and Yi, 1990; Bagozzi, Yi, and Phillips, 1991; Kline, Sulsky, and Rever-Moriyama, 2000; Lindell and Brandt, 2000; Lindell and Whitney, 2001). Therefore,

it becomes important to check for CMB after establishing the reliability and validity of constructs. The procedure of checking CMB is discussed in the following section.

5. 5 Test for CMB

To check for CMB, the researcher used two approaches. Firstly, an exploratory, unrotated factor analysis was conducted to assess dimensionality (see Appendix 5.1) using Harman's single-factor test. The aim of this analysis was to measure if a single factor emerges that explains the majority of the variance in the model. If, so, then it might suggest that CMB existed. The findings of this factor analysis generated 22 factors and the largest factor accounted for only 28.11% of the variance, which is less than 50%. This suggests that data collected for this study did not suffer from CMB (Lowery and Gaskin, 2014).

However, because of limitations with Harman's single-factor test, these results were corroborated by calculating the correlation matrix of the constructs in the questionnaire and assessing if any of the correlations were greater than 0.90 among the constructs. If any of these correlations is greater than 0.90, then CMB is likely to exist (Pavlou, Liang, and Xue, 2007). The correlations among these constructs were presented in the discriminant validity tables (non-diagonal elements of Table 5.4 to Table 5.9) and no such ones exist. Therefore, the evidence suggests that the likelihood of CMB is low for this study.

In addition, there are some other statistical procedures, which try to estimate the measures and constructs and they try to partial out the effects of method biases. Unfortunately, these statistical procedures are not able to partial out the effects of CMB, when the model contains a formative construct (Podsakoff et al., 2003). In the case of formative constructs, this is true because measurement error remains at the construct level instead of the item level (Bollen and Lennox, 1991). Consequently, these statistical control procedures do not enter into the equation, where the relationship between construct and formative measures is

estimated. Podsakoff et al. (2003) suggest that when any formative-indicator construct is included in a study, researchers should be more aware than normal in designing their study because procedural controls become the most effective ways to reduce CMB. As mentioned previously a formative construct like poverty is included in this study; therefore, several procedural remedies to control for CMB were ensured during the design of study 1 (see Section 4.2.4.2 in Chapter 4).

To sum up, the researcher has tested the reliability and validity of measures used in this study and also checked for CMB to minimise potential research biases. As one of the research objectives was to empirically compare the validity of key consumer-based innovation adoption models for BOP consumers, the model comparison analysis is undertaken next.

5. 6 Analysis Strategy of Study 1

As discussed in Section 3.3 of Chapter 3 this research follows the procedure of Venkatesh et al. (2003) to empirically compare existing innovation adoption models and formulate a new more refined model suitable to this context. To begin this process, the researcher will empirically compare the seven key models and will identify the key determinants of pro-poor innovations in the BOP context. This can be done in two ways. One way is to compare models based on the direct effects of the antecedents on behavioural intention, as done in Venkatesh et al. (2003). Another way is to compare the structural models taking account of the interrelationships between variables. Arguably, the second method is more appropriate as it accounts for mediating effects, which if not considered may obscure relationships between variables and lead to discarding antecedents that are important. Next, the researcher will formulate the Integrated Theory of Pro-poor Innovation Adoption (ITPIA) model based on these key identified determinants of pro-poor innovation adoption

in the BOP context. Finally, the proposed ITPIA model will be preliminarily tested to check the validity of this proposed model.

5. 7 Empirical Comparison of Seven Models

5.7.1 Model Comparison Approach

In previous research, some innovation adoption models were dominated by direct effects of antecedents, where it was assumed that each independent construct exerted an effect on adoption of the innovation directly (Compeau, Meister, and Higgins, 2007). These researchers assumed direct effects of the antecedents based on the principles of regression analysis (Pedhazur, 1997) which typically involves linear and direct effects. However, though statistically sensible, considering direct effects only may be less desirable theoretically. It is thus very important to understand the way in which antecedents might operate. Plouffe et al. (2001) emphasise the need to pursue richer models to aid in developing a richer theoretical understanding, as well as parsimonious models to aid in a prediction. According to Compeau, Meister, and Higgins (2007), if one's goal is to predict behaviour, then focusing on direct effects is acceptable. Compeau, Meister, and Higgins (2007) also suggest that, if one's goal is to use the finding to influence behaviour, then it is essential to understand the ways in which antecedents might operate. Following a combination of prior approaches, models were compared considering i) the direct effects of the antecedents, and ii) the indirect effects of the antecedents. The first procedure was to measure the direct effects of antecedents on intention to examine the prediction of intention, and this goal leads to the formulation of the integrated new model in the later stage. The second procedure was to compare the key models by looking into interrelationships among the antecedents of each model (e.g., the structural relationships among constructs), an approach suitable to PLS analysis, and this goal helped to

understand the ways in which antecedents might affect the dependent variable (e.g., their mediating relationships).

In this research, seven consumer based innovation adoption models were compared based on the following criteria: 1) percentage of the model's statistically significant parameters, 2) explained variance (Adjusted R^2) of the endogenous construct, 3) theoretical interpretation of the paths, and 4) model parsimony.

5.7.2 Model Comparison (Direct Effects of the Antecedents)

As our first goal is to predict behavioural intention, consistent with the procedure of Venkatesh et al. (2003), only the influence of direct antecedents to intention were modelled to compare. A bootstrapping method (500 times) was used that randomly selected sub-samples to test the PLS models. Table 5.12 represents the variance explained (Adjusted R^2), the beta coefficients, and the percentage of statistically significant parameters within each model.

Explained Variance (Adjusted R^2) of the Endogenous Constructs. Firstly, these seven models explained between 26.40% (the TRA model) and 40% (the VAM model) of the variance in BOP consumer's intentions to use pro-poor innovations. The TPB (32.20%) appears to be superior to the TRA (26.40%), the TAM (29.80%) and the DOI (29.10%) in explaining BOP consumers' intention to use pro-poor innovations. The CBOP (30.40%) has a higher R^2 than the other models. Therefore, it provides some promise for this model. However, the VAM (40%) appears to be superior to the CBOP model and the CAT model in explaining BOP consumer's intention to use pro-poor innovations and has the highest model fit. Next, models are compared based on the percentage of each model's statistically significant parameters.

Percentage of the Model's Statistically Significant Parameters. Noticeably, although the CBOP had one of the highest R^2 values, only 25% paths of its paths were statistically significant (the lowest of all models). In contrast, other models had a higher percentage of statistically significant paths, including the TRA (100%), the TPB (100%), the TAM (100%), and the DOI (60%). Although the VAM had the highest R^2, only 60% of the paths of the VAM were statistically significant, which is less than the percentage of statistically significant paths for the CAT (71%). Thus, it can be understood that the CAT model had the highest percentage (71%) of statistically significant paths.

Theoretical Interpretation of the Paths. Across the model investigated, the coefficient of attitude was positive and statistically significant in their respective models (TRA $ß=0.374$ and $p<0.05$, TPB $ß=0.252$ and $p<0.05$, TAM $ß=0.193$ and $p<0.05$, and CAT $ß=0.200$ and $p<0.05$). Also, the coefficient of subjective norm was positive and statistically significant in their respective models (TRA $ß=0.208$ and $p<0.05$, and TPB $ß=0.211$ and $p<0.05$). For the TPB, the coefficient of perceived behavioural control ($ß=0.270$ and $p<0.05$) was positive and statistically significant. Next, the coefficient of perceived usefulness appeared to be always positive and statistically significant in their respective models (TAM $ß=0.193$ and $p<0.05$, CAT $ß=0.218$ and $p<0.05$, and VAM $ß=0.205$ and $p<0.05$). For the TAM, the coefficient of perceived ease of use ($ß=0.147$ and $p<0.05$) was positive and statistically significant.

Also, the coefficient of compatibility was positive and statistically significant in both the DOI $ß=0.399$ and $p<0.05$ and the CBOP $ß=0.416$ and $p<0.05$ model. For the DOI, the coefficient of trialability ($ß=0.120$ and $p<0.05$) and observability ($ß=0.169$ and $p<0.05$) was positive and statistically significant. For the VAM, the coefficient of enjoyment ($ß=0.475$ and $p<0.05$) was positive and statistically significant. The coefficient of perceived value ($ß=0.136$ and $p<0.05$) was also positive and statistically significant. For the CAT, the coefficients of arousal ($ß=0.200$ and $p<0.05$) and pleasure ($ß=0.311$ and $p<0.05$) were positive and

statistically significant but the coefficient of dominance was negative and statistically significant. For the CBOP, the coefficients of collective needs (ß=0.251 and p<0.05) and visual comprehensibility (ß=0.142 and p<0.1) were also positive and statistically significant.

Table 5.12 Model Comparison (Direct effects)

Model	Independent Variables	Adjusted R^2	Beta	% of Statistically significant parameter
TRA	Attitude	26.40%	0.374**	100%
	Subjective Norm		0.208**	
TPB	Attitude	32.20%	0.252**	100%
	Perceived Behavioural Control		0.270**	
	Subjective Norm		0.211**	
TAM	Perceived Usefulness	29.80%	0.193**	100%
	Perceived Ease of Use		0.147**	
	Attitude		0.351**	
DOI	Relative Advantage	29.10%	0.022	60%
	Complexity		-0.023	
	Compatibility		0.399**	
	Trialability		0.120**	
	Observability		0.169**	
VAM	Enjoyment	40.00%	0.475**	60%
	Perceived Fee		0.043	
	Perceived Value		0.136**	
	Technicality		-0.051	
	Perceived Usefulness		0.205**	
CAT	Arousal	37.60%	0.200**	71%
	Attitude		0.256**	
	Dominance		-0.237**	
	Perceived Ease of Use		0.116	
	Pleasure		0.311**	
	Relative Advantage		-0.112	
	Perceived Usefulness		0.218**	
CBOP	Adaptability	30.40%	-0.006	25%
	Affordability		-0.015	
	Assimilationist Culture		-0.027	
	Atomised Distribution		0.006	
	Collective Needs		0.251**	
	Compatibility		0.416**	
	Relative advantage		-0.078	
	Social Capital		-0.017	
	Visual comprehensibility		0.142*	
	Flexible payment		0.098	
	Interpersonal promotion		0.05	
	Poverty		-0.153	

Note: 1. **p<0.05 2. *p<0.1

Across the models investigated, enjoyment (ß=0.475 and p<0.05) exhibited the strongest direct effects on behavioural intention. In addition, compatibility (ß=0.416 and p<0.05), subjective norms (ß=0.211 and p<0.05), collective needs (ß=0.251 and p<0.05) and perceived behavioural control (ß=0.270 and p<0.05), despite showing a slightly weaker direct effect on behavioural intention than enjoyment across their respective models, exhibited a stronger effect than that of perceived usefulness (ß=0.193 and p<0.05) and perceived value (ß=0.136 and p<0.05).

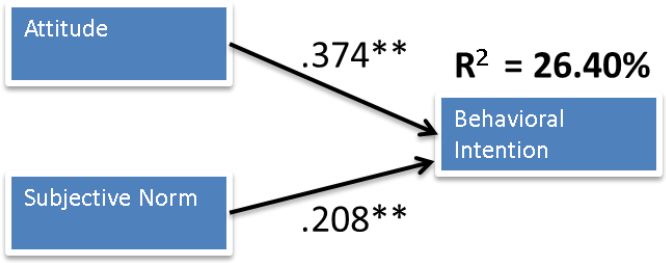
5.7.3 Model Comparison (Indirect Effects of the Antecedents)

As our second goal was to compare the key models by looking into the interrelationship among their antecedents, mediation and moderation effects were accounted for based on the structural relationships between constructs (e.g., mediation between perceived usefulness and perceived ease of use as in the TAM model). Table 5.13 represents the variance explained (Adjusted R^2), the beta coefficients, and the percentage of statistically significant parameters within each model.

5.7.4 Empirical Findings of Seven Models

To understand the usefulness of each model the findings (see Table 5.13) from the comparison process are discussed for each model.

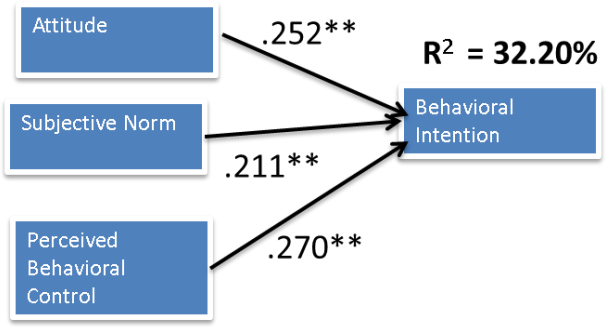
The Theory of Reasoned Action. For the TRA, subjective norm and attitude significantly influence intention (see Figure 5.1) and the TRA explains 26.40% of the variance in BOP consumers' intentions to use pro-poor innovations. The percentage of statistically significant parameters is 100% for the TRA.



Note: 1. **p<0.05 2. *p<0.1

Figure 5.1 Findings of the TRA

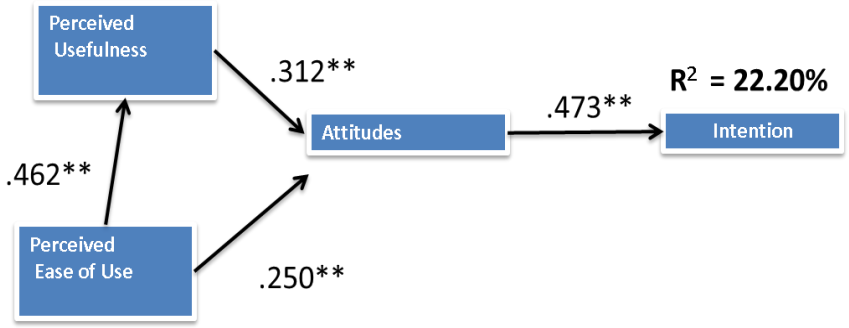
The Theory of Planned Behaviour. For the TPB, subjective norm, attitude and perceived behavioural control significantly influence intention (see Figure 5.2) and the TPB explained 32.20% of the variance in the BOP consumers' intentions to use pro-poor innovations. The percentage of statistically significant parameters is 100% for the TPB.



Note: 1. **p<0.05 2. *p<0.1

Figure 5.2 Findings of the TPB

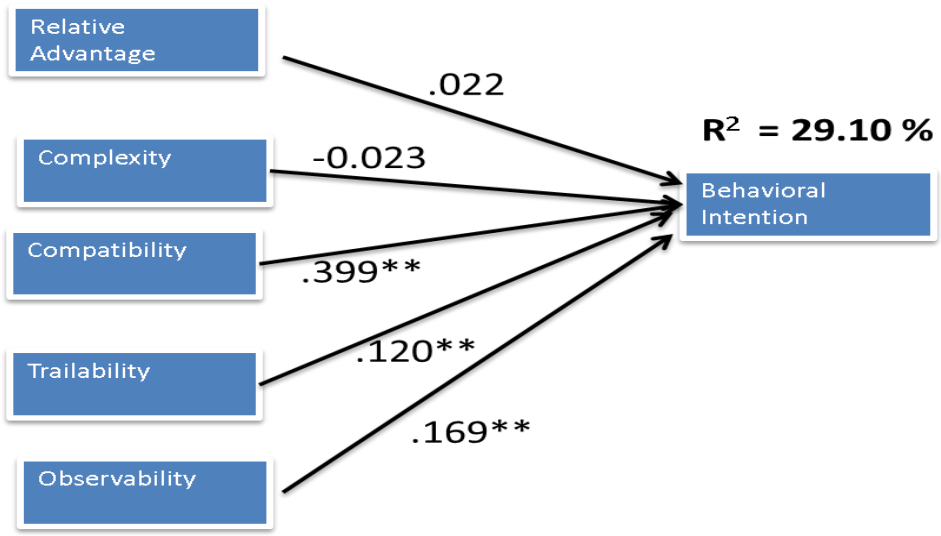
The Technology Acceptance Model. For the TAM, attitude significantly influences intention (see Figure 5.3). Also, perceived usefulness and perceived ease of use significantly influence attitude, and perceived ease of use significantly influences perceived usefulness. The TAM explains 22.20 % of the variance in BOP consumers' intentions to use pro-poor innovations. The percentage of statistically significant parameters is 100% for the TAM.



Note: 1. **p<0.05 2. *p<0.1

Figure 5.3 Findings of the TAM

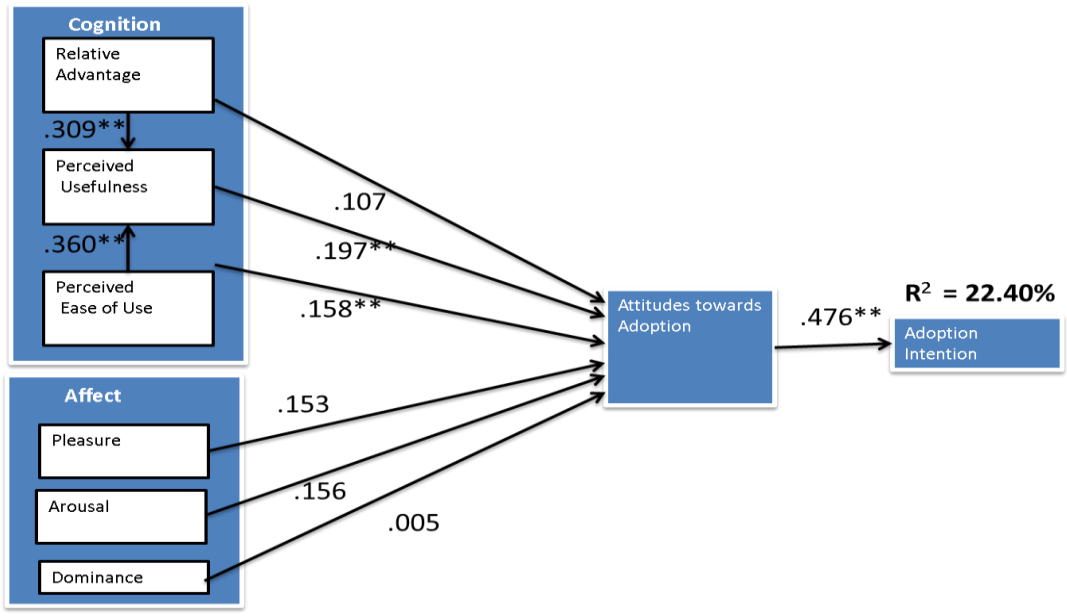
The Diffusion of Innovations. For the DOI, compatibility, trialability and observability significantly influence intention (see Figure 5.4) and the DOI explains 29.10% of the variance in BOP consumers' intentions to use pro-poor innovations. Relative advantage and complexity do not significantly influence BOP consumers' intentions to use pro-poor innovations (the details about these findings are provided in the discussion section see Section 5.7.4). The percentage of statistically significant parameters is 60% for the DOI.



Note: 1. **p<0.05 2. *p<0.1

Figure 5.4 Findings of the DOI

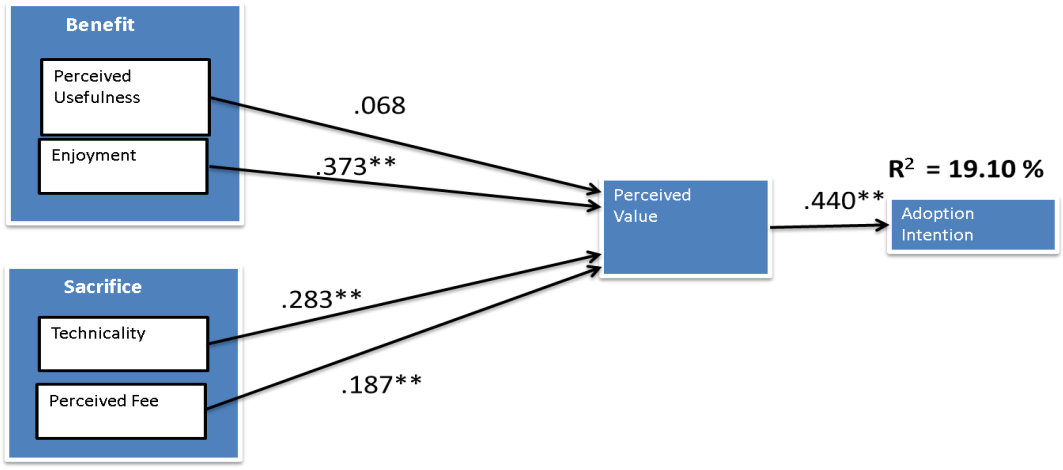
The Consumer Acceptance of Technology Model. For the CAT, attitude significantly influences intention (see Figure 5.5). Also, perceived usefulness and perceived ease of use significantly influence intention. Relative advantage and perceived ease of use significantly influence perceived usefulness. The CAT explains 22.40% of the variance in BOP consumers' intentions to use pro-poor innovations. The percentage of statistically significant parameters is 56% for the CAT.



Note: 1. **p<0.05 2. *p<0.1

Figure 5.5 Findings of the CAT

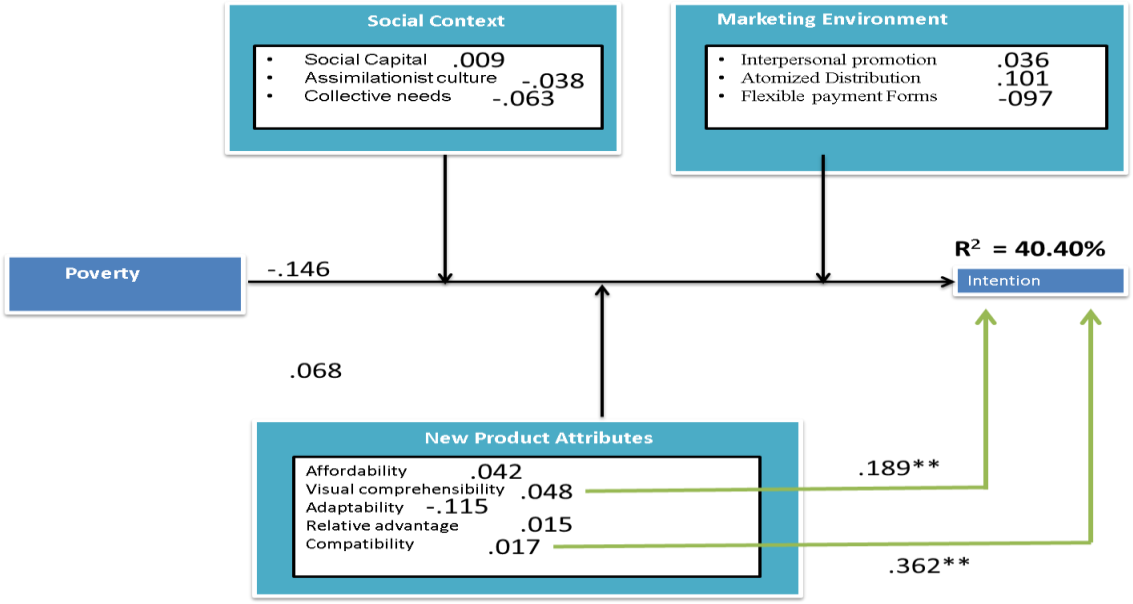
The Value-based Adoption Model. For the VAM, enjoyment, technicality, and perceived fee significantly influence perceived value (see Figure 5.6). Also, perceived value significantly influences intention. The VAM explains 19.10% of the variance in the BOP consumers' intentions to use pro-poor innovations. The percentage of statistically significant parameters is 80% for the VAM.



Note: 1. **p<0.05 2. *p<0.1

Figure 5.6 Findings of the VAM

The Contextualised Innovation Adoption Model for the BOP. For the CBOP, poverty does not significantly influence intention (see Figure 5.7). Consequently, other constructs (e.g., social capital, collective needs) of the CBOP do not significantly moderate the relationship between poverty and intention. However, compatibility and visual comprehensibility significantly influence intention. The CBOP explains 40.40% of the variance in BOP consumers' intentions to use pro-poor innovations. The percentage of statistically significant parameters is 9% for the CBOP.



Note: 1. **p<0.05 2. *p<0.1

Represents the coefficient of direct effect

Figure 5.7 Findings of the CBOP

Based on Table 5.13 and 5.14, the findings of model comparisons are described below based on the indirect effects of the antecedents.

Explained Variance (R^2) of the Endogenous Constructs. After considering the interrelationship among the antecedents of these key models, it was found that these models explained between 19.10% (VAM) and 40.40% (CBOP) of the variance in BOP consumer's intentions to use pro-poor innovations. The TPB (32.20%) appears to be superior to the TRA (26.40%), the TAM (22.20%) and the DOI (29.10%) in explaining BOP consumers' intention to use pro-poor innovations. Adjusted R^2 of the TAM decreased to 22.20% (Table 5.13) from 29.80% (Table 5.12) after including the mediation effects. The CBOP (40.40%) has a higher adjusted R^2 than other models which provides some promise for this model. However, the CAT (22.40%) appears to be superior to the VAM (19.10%) after considering the indirect effects of the antecedents. Adjusted R^2 of the VAM decreased to 19.40% (Table 5.13) from 40.00% (Table 5.12) after considering the indirect

effects of the antecedents. Adjusted R^2 of the CAT decreased to 22.40% (Table 5.13) from 37.60% (Table 5.12) after considering the mediating effects of the antecedents suggested by the CAT.

Percentage of the Model's Statistically Significant Parameters. Although the CBOP model had one of the highest R^2 values, only 9% of its paths were statistically significant (the lowest of all models). In contrast, other models had a higher percentage of statistically significant parameters, including the TRA (100%), the TPB (100%), the TAM (100%), the DOI (60%), the VAM (80%) and the CAT (56%). Moreover, only 56% paths of the CAT model became statistically significant, which is less than the percentage of statistically significant paths for the VAM (80%). Noticeably, the percentage of statistically significant paths increased to 80% (Table 5.13) from 60% (Table 5.12) after considering the mediating effects of the antecedents suggested by the VAM and the percentage of statistically significant paths decreased to 56% (Table 5.13) from 71% (Table 5.12) after considering the mediating effects of the antecedents suggested by the CAT. It appears that the VAM model had the highest percentage of statistically significant paths.

Theoretical Interpretation of the Paths. The coefficient of compatibility was positive and statistically significant in both the DOI ß=0.399 and p<0.05 and the CBOP ß=0.362 and p<0.05 model after including the indirect effects of antecedents. The coefficient of perceived usefulness on attitude appeared to be always positive and statistically significant in their respective models (TAM ß=0.312 and p<0.05, and CAT ß=0.197 and p<0.05). The coefficient of attitude on intention always appeared to be positive and statistically significant in their respective models (TRA ß=0.374 and p<0.05, TPB ß=0.252 and p<0.05, TAM ß=0.473 and p<0.05 and CAT ß=0.476 and p<0.05) even after considering the interrelationships among these antecedents (see Table 5.13).

Table 5.13 Model Comparison (Indirect Effects of the Antecedents)

Model	Independent Variables	Adjusted R^2	Beta	% of Statistically significant parameters
TRA	Attitude > Intention	26.40%	0.374**	100%
	Subjective norm > Intention		0.208**	
TPB	Attitude > Intention	32.20%	0.252**	100%
	Perceived behavioural control > Intention		0.270**	
	Subjective norm > Intention		0.211**	
TAM	Attitude > Intention	22.20%	0.473**	100%
	Perceived ease of use > Attitude		0.250**	
	Perceived ease of use > Perceived Usefulness		0.462**	
	Perceived usefulness > Attitude		0.312**	
DOI	Relative advantage > Intention	29.10%	0.022	60%
	Complexity > Intention		-0.023	
	Compatibility > Intention		0.399**	
	Trialability > Intention		0.120**	
	Observability > Intention		0.169**	
VAM	Enjoyment > Perceived value	19.10%	0.373**	80%
	Perceived fee > Perceived value		0.187**	
	Perceived value > Intention		0.440**	
	Technicality > Perceived value		0.283**	
	Perceived usefulness > Perceived value		0.068	
CAT	Arousal > Attitude	22.40%	0.156	56%
	Attitude > Intention		0.476**	
	Dominance > Attitude		0.005	
	Perceived ease of use > Attitude		0.158**	
	Perceived ease of use > Perceived usefulness		0.36**	
	Perceived usefulness > Attitude		0.197**	
	Pleasure > Attitude		0.153	
	Relative advantage > Attitude		0.107	
	Relative advantage > Perceived usefulness		0.309**	
CBOP	Adaptability > Intention	40.40%	0.026	9%
	Affordability > Intention		0.012	
	Assimilationist culture > Intention		0.031	
	Atomised distribution > Intention		0.065	
	Collective needs > Intention		0.095	
	Compatibility > Intention		0.362**	
	Flexible payment > Intention		0.136	
	Adaptability X Poverty > Intention		-0.115	
	Affordability X Poverty > Intention		0.042	
	Assimilationist culture X Poverty >Intention		-0.038	
	Atomised distribution X Poverty > Intention		0.101	
	Collective needs X Poverty > Intention		-0.063	
	Compatibility X Poverty >Intention		0.017	
	Flexible payment X Poverty > Intention		-0.097	
	Interpersonal promotion X Poverty > Intention		0.036	
	Relative advantage X Poverty > Intention		0.015	
	Social capital X Poverty > Intention		0.009	
	Visual comprehensibility X Poverty > Intention		0.048	
	Interpersonal promotion > Intention		0.138	
	Poverty > Intention		-0.146	
	Relative advantage > Intention		-0.058	
	Social capital > Intention		-0.024	
	Visual comprehensibility > Intention		0.189**	

Note: 1. **p<0.05 2. *p<0.1

Table 5.13 also summarises the effects of all the constructs examined. Across the model investigated, attitude (ß=0.476 and p<0.05) exhibited the strongest effect on behavioural intention. Perceived value (ß=0.440 and p<0.05) and compatibility (ß=0.399 and p<0.05), despite showing a slightly weaker direct effect than attitude (ß=0.476 and p<0.05) on intention across their respective models, exhibited a stronger effect than that of subjective norm (ß=0.211 and p<0.05) and perceived behavioural control (ß=0.270 and p<0.05). Relative advantage (ß=0.309 and p<0.05) exhibited a strong effect on perceived usefulness, and enjoyment (ß=0.373 and p<0.05) exhibited a strong effect on perceived value.

To further understand the interrelationships between variables in the model, mediation tests were conducted following the Preacher-Hayes procedure (Preacher and Hayes, 2008). This is useful as it allows multiple antecedents to be modelled simultaneously and also enables an understanding of the type of mediation (e.g., complementary mediation, indirect mediation). The findings of the Precher-Hayes test are shown in Table 5.14 and are explained next.

Table 5.14 Preacher-Hayes Test of Mediating Effects

Models	Independent Variables	Beta	Mediation type
TAM	Perceived ease of use> Perceived usefulness> Attitude> intention	0.2134**	Complementary mediation
VAM	Perceived usefulness> Perceived value> Intention	0.1216**	Complementary mediation
	Enjoyment>Perceived value> Intention	0.0986**	Complementary mediation
	Technicality>Perceived Value>Intention	0.1928**	Complementary mediation
	Perceived fee> Perceived Value> Intention	0.0974**	Indirect only mediation
CAT	Relative advantage>Perceived usefulness>Attitude> Intention	0.2539**	Indirect only mediation
	Perceived ease of use>Perceived usefulness>Attitude> Intention	0.2134**	Complementary mediation

Note: 1. **p<0.05 2. *p<0.1

From Table 5.14, it was found that there is a complementary mediation (ß=0.213 and p<0.05) between perceived ease of use, perceived usefulness, attitude and intention, and it is statistically significant for both the TAM and the CAT model. It means perceived ease of

use can directly influence the intention and/or can indirectly influence intention through perceived usefulness and attitude. For the VAM model, the effect of perceived usefulness (ß=0.122 and p<0.05), enjoyment (ß=0.099 and p<0.05), and technicality (ß=0.193 and p<0.05) on intention is mediated (complementary mediation) by perceived value. This means perceived usefulness, enjoyment and technicality can directly influence intention and/or can indirectly influence intention through perceived value. In addition, the effect of perceived fee (ß=0.097 and p<0.05) on intention is mediated (indirect mediation) by perceived value. This means perceived fee cannot directly influence intention but it can indirectly influence intention through perceived value. In the case of the CAT model, the effect of relative advantage (ß=0.254 and p<0.05) on intention is mediated (only indirect mediation) by perceived usefulness and attitude, and it means relative advantage cannot directly influence intention but it can indirectly influence intention through perceived usefulness and attitude.

5.7.5 Predicting Usage Behaviour

Respondents' usage behaviour was also measured in the survey based on recalled actual usage of the pro-poor innovation. Consequently, it was also important to understand how behavioural intention and perceived behavioural control (PBC) can influence usage behaviour (consistent with Venkatesh et al., 2012; Suryaningrum, 2012; Morris and Venkatesh, 2000; Venkatesh and Morris,2000; Taylor and Todd, 1995). Understanding the usage behaviour of BOP consumers will also help us to formulate the new integrated model in the later stage of this chapter. Table 5.15 shows that 26.30% of the variance is explained by intention and perceived behavioural control in predicting BOP consumer's use of pro-poor innovations.

Table 5.15 Predicting Self-Reported Usage Behaviour

Independent Variables	Adjusted R^2	Beta
Intention	26.30%	0.34**
Perceived behavioural control		0.27**

Note: 1. **p<0.05 2. *p<0.1

5.7.6 Empirical Comparison of Seven Models: Discussion

Based on the model comparison criteria identified in Section 5.7.1, this study showed that the VAM and the CAT models were the most useful in explaining BOP consumer's adoption intentions. This could be because the VAM and the CAT models captured hedonic and affective gratification related constructs. Prior research conducted in the BOP market of Sri Lanka found that excitement and happiness associated with microcredit have a strong influence on the intention of consumers in the BOP context (Jebarajakirthy and Lobo, 2015). Jebarajakirthy and Lobo (2015) also found that benefits or usefulness of microcredit had no significant influence on the intentions of obtaining microcredit because BOP consumers may be more concerned about constraints such as interest rates, service charges and collateral (Turvey and Kong, 2010; Li et al., 2011; Jose et al., 2012). This could be because of low literacy, limited income and other constraints as mentioned in Section 2.3. Thus, it could be understood that BOP consumers may be less concerned about the usefulness or benefits of a product but more concerned about the internal and external constraints related to a product. This study also found that the TPB explains adoption intention better than the TRA, the TAM, the DOI and the CBOP because the TPB includes perceived behavioural control to capture internal and external constraints related to adoption behaviour (see Table 5.12). It seems that capturing these constraints is an important aspect of understanding adoption behaviour in the BOP.

It is also important to note how individual constructs explained the variation in intention to adopt. Specifically, the strongest influence on intention was enjoyment. Prior research has investigated the influence of enjoyment on perceived value (Kim et al., 2007;

Setterstrom et al., 2013). However, none of these studies investigated the influence of enjoyment on intention and were not conducted in the BOP context. The findings of this investigation provide evidence that enjoyment also has the strongest influence on the intention of BOP consumers to use pro-poor innovations. Consumer research conducted by Smart Communication in the Philippines found that potential BOP consumers wanted to use their phone for both enjoyment and practical purposes (Anderson and Markides, 2007).

It was also found (see Table 5.13) that enjoyment exhibited stronger effects on perceived value than perceived fee. This means BOP consumers' perceived the value of any pro-poor innovation is more influenced by some degree of enjoyment than perceived fee, contrary to some views in the literature (e.g., Kim et al., 2007; Setterstrom et al., 2013). Although it may be common to assume that BOP consumers place great emphasis on perceived fee, this research indicates that BOP consumers also place great emphasis on enjoyment. Previous studies in the BOP area show that excitement and happiness have a strong influence on the intention of BOP consumers (Jebarajakirthy and Lobo, 2015). This research contributes by showing that BOP consumers' perceived value of any pro-poor innovation may be more influenced by enjoyment than technicality and perceived fee.

Like enjoyment, other hedonic and affective gratification related constructs such as pleasure, arousal and dominance were also significant to influence the intention of BOP consumers (Table 5.12). Previous research (Kulviwat et al., 2007; Ferreira, 2014) investigated the influence of pleasure, arousal, and dominance on attitude and found that only pleasure and arousal influence attitude. However, Nasco et al. (2008) found that dominance influences attitude when it is moderated by social influence. Contrary to previous research, this research found that pleasure, arousal, and dominance does not have any influence on attitude. Rather, this research contributes by showing that pleasure,

arousal, and dominance influence the intention of BOP consumers to use pro-poor innovations.

This research suggests that compatibility influences the adoption behaviour of BOP consumers to use pro-poor innovations. This finding is consistent with prior research (Jung et al., 2012) but contrary to some other views in the literature (Rahman et al., 2013; Joo et al., 2014; and Wu and Wu, 2005). However, none of these studies was conducted in the BOP context. Generally, BOP consumers try to spend money on products, which are consistent with their essential needs (Rangan et al., 2011) representing the compatibility of a product. Ramani et al. (2012) argue that pro-poor innovations need to be designed to cater to the essential needs of BOP consumers. Specifically, Stewart (1977) suggests that innovations designed for the BOP market should be compatible with income levels, resource availability, existing technologies and costs. This research contributes by showing that compatibility of a pro-poor innovation with the lifestyle of BOP consumers influences the intention to use pro-poor innovations.

Interestingly, it was also found (see Table 5.12) that relative advantage does not have a significant influence on intention. This finding is consistent with prior research (Alan and Worf, 1978) but contrary to some views in the literature (Rahman et al., 2013; Joo et al., 2014; Arts et al., 2011). However, the majority of these studies did not consider BOP consumers as the unit of analysis. Khavul and Bruton (2013) mention that relative advantage may not work for BOP consumers in the majority of cases. For example, BOP consumers may want fuel efficient stoves, however, in the majority of cases they may not want to sacrifice current cooking style, reliability, convenience for a further degree of fuel efficiency. On the other hand, from Table 5.13 and 5.14, it was found that relative advantage influences the perception of BOP consumers regarding the usefulness of a pro-poor innovation. Thus, this research contributes by suggesting the fact that relative

advantage may not directly influence the intention of BOP consumers but it influences the perception of usefulness.

This research suggests that observability influences the adoption behaviour of BOP consumers to use pro-poor innovations. This finding is consistent with prior studies (Wu and Wu, 2005) but contrary to some views in the literature (Jung et al., 2012; Rahman et al., 2013; Joo et al., 2014). Trialability also influences the adoption behaviour of BOP consumers and this is consistent with prior studies (Jung et al., 2012; Wu and Wu, 2005) but contrary to some studies (Rahman et al., 2013; Joo et al., 2014). However, complexity does not seem to influence adoption behaviour of BOP consumers and this is consistent to prior studies (Jung et al., 2012; Wu and Wu, 2005). But, this finding is different from Rahman et al. (2013) and Joo et al. (2014). This research contributes by showing that BOP consumers' adoption intention can be influenced by trialability and observability. In this study, the complexity did not have a significant influence on intention because bKash mobile banking may not be perceived by BOP consumers as complex to use. But, complexity may become significant for other type technologies (e.g., computer), which may be perceived as more complex to use by BOP consumers. Therefore, this research also includes another type of product in the later stage of this research (see Section 7.2) to enhance the generalisability of the findings.

In addition, perceived behavioural control (PBC), which represents internal and external constraints related to a product's adoption, seems to have a strong effect on intention (see Table 5.12). This finding is consistent with prior research (Chau and Hu, 2001; Yi et al., 2006) but contrary to the findings of Lowe et al. (2014). However, none of these studies was conducted in the BOP market. Generally, BOP consumers face several internal and external constraints like a low literacy rate, poor health, lack of infrastructure, political instability, and economic constraints in their daily life (Rogers, 2003; Prahalad, 2005;

Nwanko, 2000; Johnson et al., 2007; Eifert et al., 2005). Studies (Turvey and Kong, 2010; Li et al., 2011; Jose et al., 2012) in the BOP market have found that BOP consumers are more concerned about the constraints related to obtaining microcredit. Consistent with Nakata and Weidner (2012), this research also found that visual comprehensibility was an important determinant of adoption. Visual comprehensibility might enhance PBC for BOP consumers through the use of pictographic symbols in light of the BOP's low literacy rate. Even Jebarajakirthy and Lobo (2015) found that benefits or usefulness had no significant influence on the intention of BOP consumers because BOP consumers were more concerned about the constraints than the benefits of obtaining microcredit. This research also suggests that BOP consumers' intention to adopt a pro-poor innovation is more influenced by PBC compared to constructs such as perceived usefulness and perceived value.

Additionally, these BOP consumers seemed to be more collectivist in nature and more interdependent on each other because of a lack of traditional assets (e.g., on economic and political capital) and uncertainty produced by violent environments (e.g., food shortages and civil unrest) (Nakata and Weidner, 2012). As a result, adoption seemed to be more influenced by collective needs. In previous research (Evans, 2002; Krahn et al., 2009), collective actions were often emphasised to achieve developmental goals. In the BOP context, the collective needs originated from their cultural values (Nakata and Weidner, 2012). Consistent with Nakata and Weidner (2012), this research also found that collective needs influence the intention of BOP consumers to use pro-poor innovations.

This research (see Table 5.12) also suggests that perceived ease of use also influences the intention of BOP consumers. This finding is consistent with prior research (Vijayasarathy, 2004). However, King and Hu (2006) conducted a meta-analysis and found that the influence of perceived ease of use on intention can vary from study to study. Literate

persons may understand a new technology quickly and become familiar with its operations without going through training. Therefore, perceived ease of use is less important to literate persons as they can understand new technologies more quickly (Chau and Hu, 2001). However, a large portion of the BOP market, who are low-literate, may consider perceived ease of use an issue of particular importance. This research suggests that perceived ease of use significantly influences the intention of BOP consumers. In addition, perceived ease of use also influences the perception of usefulness of a pro-poor innovation and the attitudes of BOP consumers.

Based on the above discussion, it can be understood that study 1 served several purposes. First, it helped us to understand, which models and antecedents work best in the BOP context. However, it also helped us to understand the relationship between these antecedents in this unique context. Consequently, following the process of Venkatesh et al. (2003), it also helps us to formulate the new integrated model of pro-poor innovation adoption in the BOP for further testing in study 2, by using existing theory to integrate with the observed results.

5. 8 Formulation of the Integrated Theory of Pro-poor Innovation Adoption (ITPIA)

Based on the findings from study 1, the statistically significant constructs were included in the next stage of the process. Specifically, statistically significant constructs were grouped together based on their qualitative similarities. Also, constructs which have been validated extensively in prior research were included for further testing to ensure all relevant constructs were included in the next stage of the analysis. That is, the research took conservative approach to the identification of relevant constructs for further testing to avoid excluding constructs, which are important based on prior research. Grouping

constructs in this manner is consistent with the procedure followed by Venkatesh et al. (2003) and is useful for developing a more parsimonious model for further testing. Statistically significant constructs were grouped into four constructs: i) Supporting environment, ii) Perceived utility, iii) Social influence, and iv) Hedonic feelings (see Section 5.8.1 to 5.8.5). Later, it was theorised that these four constructs will play a significant role as key determinants of behavioural intention and usage behaviour. The labels used for each construct refer to the essence of the construct and are intended to be independent of any specific theoretical perception. In the following sections, these key constructs are described, the role of key moderators are specified (e.g., Age, and Urban or Rural Area), and the theoretical justification for the hypotheses of the proposed integrated model are provided. Figure 5.8 represents this proposed Integrated Theory of Pro-poor Innovation Adoption (ITPIA) model.

5.8. 1 Supporting Environment

The supporting environment is defined as the degree to which an individual believes that resource facilitating conditions and technology facilitating conditions exists to support the use of a pro-poor innovation. This definition captures concepts of three different constructs: perceived behavioural control, compatibility, and visual comprehensibility. Each of these constructs is operationalised to include aspects of the technological and/or BOP environment that are designed to remove barriers to using pro-poor innovations (see Table 5.16). Venkatesh et al. (2003) also acknowledged the theoretical overlap of compatibility and perceived behavioural control in the UTAUT. Also, the visual comprehensibility construct from the CBOP model incorporates items that represent the facilitating conditions for BOP consumers against the constraints like limited numeracy and literacy. The empirical evidence presented in Table 5.12 suggests that the relationships between each of the constructs (perceived behavioural control, compatibility, and visual

comprehensibility) and intention are similar. One study conducted by Jebarajakirthy and Lobo (2015) in the BOP market suggests that BOP consumers were more concern about the constraints than the benefits of using a product. Based on the above discussion, it is expected that the influence of supporting environment will have a positive influence on the intention of BOP consumers to adopt innovations.

H1a: A more supporting environment will have a significant positive influence on the intention of BOP consumers to use pro-poor innovations.

In an organisational context, the supporting environment can be hypothesised to directly influence actual usage (e.g., Venkatesh et al., 2003). This is because many aspects of the supporting environment within organisations, such as training and resources provided, will be freely available in an organisational context and fairly invariant across users. In contrast, the supporting environment that is available to each consumer can vary significantly across different technologies, places and so on. Specifically, the supporting environment can vary in the BOP context as BOP consumers face different internal and external constraints in their daily life. Consistent with previous research (e.g., Suryaningrum, 2012; Venkatesh et al., 2012; Ajzen, 1991), the supporting environment, which constitutes PBC, can also be modelled as a direct antecedent of usage. This means that the intention is not fully mediated by the supporting environment. Empirical evidence presented in Table 5.15 suggests the supporting environment also influences usage behaviour.

H1b: A more supporting environment will have a significant positive influence on the usage behaviour of BOP consumers to use pro-poor innovations.

5.8.2 Perceived Utility

Perceived utility is defined as a consumer's overall perception of a pro-poor innovation's benefit to them based on a consideration of its usefulness and the efforts or sacrifices needed to acquire and/ or use it. This definition captures concepts embodied by three constructs, including perceived usefulness (TAM, VAM), perceived value (VAM) and perceived ease of use (TAM). These three are operationalised to include an overall perception by consumers about the benefits or sacrifices that are needed to acquire and use it (see Table 5.17). The cost-benefit paradigm from behavioural decision theory (Beach and Mitchell, 1978; Johnson and Payne, 1985; Payne, 1982) explains that consumers' choices among different alternative decisions are based on cognitive trade-offs between the quality of a resulting decision and the required efforts. Based on this behavioural theory, the decision to adopt a pro-poor innovation is based on concepts such as perceived usefulness, perceived value and the required effort manifested by perceived ease of use. Garvin (1984) as well as Brucks and Zeithamal (1991) also emphasise that ease of use is part of product quality. Perceived utility therefore captures the essence of the "what's is in it for me". The empirical evidence presented in Tables 5.12 suggests that these three constructs (perceived usefulness, perceived value and perceived ease of use) were significant antecedents to predict intention. A good deal of research points to the consistency of the effects of similar constructs on innovation adoption research (e.g., Arts et al., 2011). Based on the above discussion, it is expected that the influence of perceived utility will have a significant positive influence on the intention of BOP consumers to adopt pro-poor innovations.

H2a: Higher levels of perceived utility will have a significant positive influence on the intention of BOP consumers to use pro-poor innovations.

As perceived utility represents the efforts or sacrifices required to get the benefits from the technology, effort expectancy also plays an important role in influencing adoption behaviour (Johnson and Payne, 1985). Prior research suggests that constructs related to effort expectancy will be stronger determinants of intention for older users of an innovation (Morris and Venkatesh, 2000). One study found that increased age is more associated with difficulty in understanding complex stimuli, and focusing on task-relevant information (Plude and Hoyer, 1985). Both of which may be necessary when using a pro-poor innovation. In addition, De Silva, Ratnadiwakara, and Zainudeen (2009) found in a study that younger BOP consumers are more likely to adopt mobile phones than older BOP consumers. This is because older BOP consumers may find it difficult to understand complex stimuli and focus on task-related information of an innovation in comparison to their younger counterparts. As efforts are a part of perceived utility of innovations, the influence of perceived utility on intention is expected to be stronger for older BOP consumers.

H2b: Influence of perceived utility on intention will be moderated by age, such that the affect will be stronger for older BOP consumers to use pro-poor innovations.

5.8.3 Social Influence

Social influence refers to the degree to which a consumer perceives that important others believe he or she should use the pro-poor innovation. Social influence as a direct determinant of behavioural intention is represented as subjective norm in the TRA, the TPB and collective needs in the CBOP Model. While these constructs have different labels (see Table 5.18), each construct covers the explicit or implicit notion that a consumer's behaviour is influenced by the way in which they believe others will view them as a result of having used the innovation. BOP consumers derive meaning mostly from "social relations, group identification, pursuit of group goals, and participation in a shared way of

life" (Burgess and Steenkamp, 2006, p. 343). The majority of BOP consumers belong to collectivist cultures which typically involves cultural values such as maintaining the status quo, tradition, security and obedience (Nakata and Weidner, 2012). Therefore, the BOP's group-oriented social setting is likely to influence adoption of innovations (Nakata and Weidner, 2012).

The current model comparison (Table 5.12) found that the constructs related to social influence affect intention in a similar way. Each of these social influence constructs was significant in the TPB, TRA and contextualised BOP model. The role of social and cultural impact on pro-poor innovation adoption decisions is intricate and subject to a variety of contingent impacts. French and Raven (1959) and Warshaw (1980) also emphasise that individuals tend to comply with other's expectations when the referent others have the ability to reward the desired behaviour or punish non-behaviour. De Silva et al. (2011) found that social influence has an impact on the adoption of mobile phones in the BOP and provided evidence that BOP consumers, who maintain social relationships with a larger share of their closest contacts using mobile phone are more likely to adopt mobile phones. This means that BOP consumers tend to get connected in groups, as a consequence of their collectivist cultural values. Therefore, the BOP's group oriented cultural and social settings can positively influence adoption of pro-poor innovation in this context.

H3: A greater level of social influence will have a significant positive influence on the intention of BOP consumers to use pro-poor innovations.

Table 5.16 Supporting Environment: Root constructs, Definitions, and Scales

Constructs	Definition	Items
Perceived behavioural control (Ajzen ,1991; Taylor and Todd 1995; Venkatesh, 2003)	Reflects perceptions of internal and external constraints on behaviour and encompasses self- efficacy, resource facilitating conditions, and technology facilitating conditions.	1) I would be able to use this technology. 2) Using this technology is entirely within my control. 3) I have the resources, the knowledge and the ability to make use of this technology.
Compatibility (Rogers, 2003; Nakata and Weidner, 2012)	The extent to which prospective adopters perceives an innovation as being consistent with existing needs, values, and experiences or being consistent with their social and cultural norms	1) Using this technology fits well with my lifestyle. 2) Using this technology fits well with the way I like to purchase products and services. 3) I would appreciate using this technology instead of alternative modes of payment (e.g., credit card, cash).
Visual comprehensibility (Nakata and Weidner, 2012)	The degree to which an innovation is consistent with the limited numeracy and literacy of BOP consumers through its design and packaging (e.g., colours, shapes, photos, physical package size, and other elements of product package).	1) The colour, shapes, pictures, symbols and other relevant elements of this technology help me to clarify how to use this service. 2) Using this technology, I find myself thinking of the colour, shapes, pictures, symbols and other relevant elements of this technology. 3) I find it easy to remember any colour, shapes, pictures, symbols and other relevant elements of this technology. 4) I find the colours, shapes, pictures and symbols of this technology help me to understand how to use this technology more than any written text associated with it.

Table 5.17 Perceived Utility: Root constructs, Definitions, and Scales

Constructs	Definition	Items
Perceived usefulness (Davis 1989; Davis et al., 1989)	The extent to which an individual believes that using a particular innovation would improve his or her performance.	1) This technology is a useful mode of payment. 2) Using this technology makes the handling of payments easier. 3) This technology allows for a faster usage of mobile applications (e.g., Money Transfer, Cash In, Cash Out). 4) By using this technology, my choices as a consumer are improved (e.g., flexibility, speed).
Perceived value (Kim et al., 2007)	Consumer's overall perception of an innovation based on its benefits and sacrifices needed to adopt and/or use it.	1) Compared to the fee I need to pay, the use of this technology offers value for money. 2) Compared to the effort I need to put in, the use of this technology is beneficial to me. 3) Compared to the time I need to spend, the use of this technology is worthwhile to me. 4) Overall, the use of this technology delivers me good value.
Perceived ease of use (Davis 1989; Davis et al., 1989)	The extent to which an individual believes that using an innovation would be free of effort.	1) It is easy to become skilful at using this technology. 2) Interacting with this technology is clear and understandable 3) It is easy to perform the steps required to use this technology. 4) It is easy to interact with this technology.

Table 5.18 Social influence: Root constructs, Definitions, and Scales

Constructs	Definition	Items
Subjective norm (Ajzen, 1991; Davis et al., 1989; Fishbein and Azjen, 1975; Mathieson, 1991; Taylor and Todd ,1995)	The person's perception that most people who are important to him/her think he/she should or should not perform the behaviour in question.	1) People who are important to me would recommend using this technology. 2) People who are important to me would find using this technology beneficial. 3) People who are important to me would find using this technology a good idea.
Collective needs (Nakata and Weidner, 2012)	Collective needs are defined as the degree to which group needs (e.g., needs of family, friends, neighbours) influences in case of adopting a new product.	1) To satisfy the expectation of people in my working place, my decision to use this technology is influenced by their preferences. 2) My decision to use this technology is influenced by the preferences of people with whom I have social interaction. 3) My decision to use this technology is influenced by the preferences of family members. 4) My decision to use this technology is influenced by the desire of others.

5.8.4 Hedonic Feelings

Hedonic feelings is defined as an individual's overall affective reaction to using a pro-poor innovation. Five constructs from the existing models align closely with this definition: attitude toward behaviour (TRA, TPB, TAM, and CAT), enjoyment (VAM), pleasure, arousal, and dominance (CAT). These five constructs have components associated with generalised feelings and affect. Venkatesh et al. (2003) acknowledged the similarities among these generalised feelings and affect related constructs. Table 5.19 presents the definitions and associated scale items for each construct. In examining these five constructs, it is evident that they all tap into an individual's feelings, liking, joy, pleasure and control associated with innovation use. The empirical evidence presented in Tables 5.12 suggests that these five constructs (attitude toward behaviour, enjoyment, pleasure, arousal, and dominance) were significant antecedents to predict intention. Previous research points to the importance of hedonic feelings in the consumer based innovation adoption context (e.g., Kim et al., 2008; Venkatesh et al., 2012; Brown et al., 2005; Childers et al., 2002). One consumer research found that BOP consumers also use mobile phones for enjoyment besides practical purposes (Anderson and Markides, 2007). Based

on the above discussion, it is expected that the influence of hedonic feelings will have a positive influence on the intention of BOP consumers to use pro-poor innovations.

H4a: More hedonic feelings will have a significant positive influence on the intention of BOP consumers.

Previous studies have found that education level is positively correlated with the attitude toward using an innovation (Gutek and Bikson, 1985; Igbaria and Parasuraman, 1989). Lucas (1978) also found that a less educated person holds more negative feelings towards using an innovation than a person with more education. Also, consumers living in rural areas tend to have lower levels of education than do those in urban and suburban areas (Hale, Cotten, Drentea, and Goldner, 2010). As consumers from urban and suburban areas tend to have more education, BOP consumers from the urban and suburban areas will show more positive feelings towards using an innovation compared to BOP consumers from rural areas. Based on the above discussion, it can be proposed that the influence of hedonic feeling towards using a pro-poor innovation will be moderated by area and the effect will be stronger for urban BOP consumers.

H4b: Influence of hedonic feelings on intention will be moderated by area such that affect will be stronger for urban BOP consumers to use pro-poor innovations.

5.8.5 Usage Behaviour

There is a substantial body of research in organisational behaviour (Venkatesh et al., 2000; Morris and Venkatesh, 2000; Venkatesh and Morris, 2000; Venkatesh and Speier, 1999), information systems (Taylor and Todd, 1995), and psychology (a meta-analysis of Sheppard et al., 1988) supporting intention as a predictor of usage behaviour. Consistent with these previous research, it is also expected that behavioural intention will have a significant positive influence on the usage of pro-poor innovations in the BOP context.

Interestingly, there are also numerous studies which show that intention does not always influence usage behaviour (Alexander et al., 2008; Limayem et al., 2001). However, empirical evidence presented in Table 5.15 suggests intention also influences usage behaviour of BOP consumers. Based on the above discussion, it can be proposed that intention will have a significant positive influence on usage of pro-poor innovations in the BOP context.

H5: Intention will have a significant positive influence on usage of pro-poor innovations.

Table 5.19 Hedonic Feelings: Root Constructs, Definitions, and Scales

Constructs	Definition	Items
Attitude toward Behaviour(Fishbein and Ajzen 1975, p.216)	"An individual's positive or negative feelings (evaluative affect) about performing the target behaviour".	Overall, please describe how you feel about this technology. For me, using this technology is: 1. Bad /Good 2. Negative / Positive 3. Unfavourable/ Favourable 4. Unpleasant/ Pleasant
Enjoyment (Kim et al., 2007)	Enjoyment refers to the degree to which using an innovation seems to be pleasant in its own right and it is separated from any performance consequences that may be predicted.	1) I have fun interacting with this technology. 2) Using this technology provides me with a lot of enjoyment. 3) I enjoy using this technology. 4) Using this technology bores me.
Pleasure (Kulviwat et al 2007, p . 1062)	"The degree to which a person experiences an enjoyable reaction to some stimulus".	Each pair of words below describes a feeling dimension related to this technology. 1. Happy/Unhappy 2.Pleased/Annoyed 3.Satisfied/Unsatisfied 4.Contented/Melancholic 5.Hopeful/Despairing 6. Relaxed/Bored
Arousal(Kulviwat et al 2007, p . 1062)	Defined as "a combination of mental alertness and physical activities which an individual feels in response to some stimulus".	Each pair of words below describes a feeling dimension related to this technology. 1. Stimulated/Relaxed 2.Excited/Calm 3. Frenzied/Sluggish 4.Jittery/Dull 5. Wide-awake/Sleepy 6.Aroused/Unaroused
Dominance (Kulviwat et al 2007, p . 1062)	Refers to "the extent to which the individual feels in control of, or controlled by, a stimulus".	Each pair of words below describes a feeling dimension related to this technology. 1. In Control/Cared For 2.Controlling/Controlled 3.Dominant/Submissive 4.Influential/Influenced 5.Autonomous/Guided 6.Important/Awed

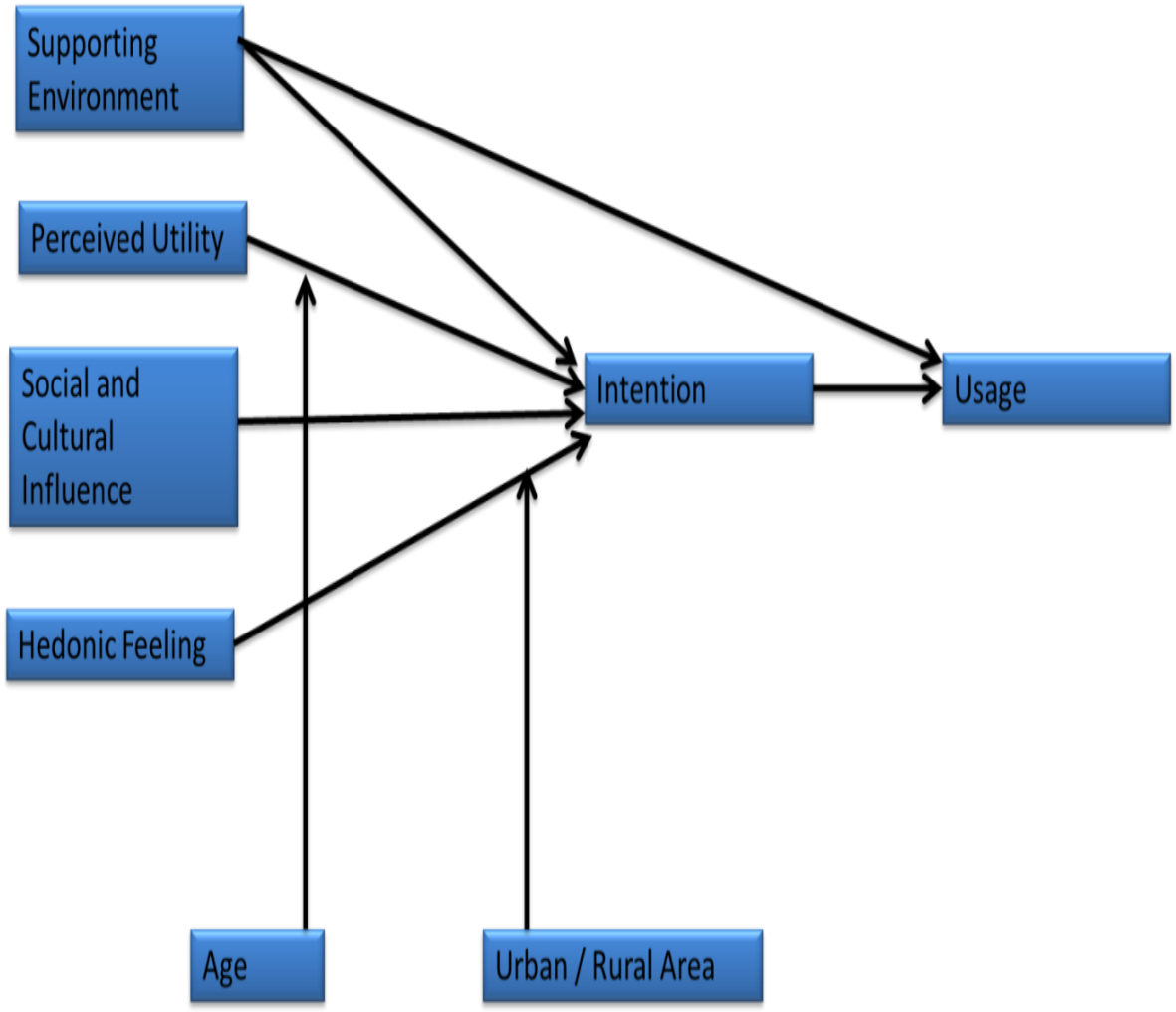


Figure 5.8 Proposed Integrated Theory of Pro-poor Innovation Adoption (ITPIA) Model (Adapted from the TAM, the TRA, the TPB, the DOI, the CAT, the VAM, and the CBOP)

5. 9 Preliminary Test of the ITPIA Model

Using the data collected from study 1, the newly proposed ITPIA is preliminarily tested. First, the reliability and validity of the reflective constructs are tested here and then the new model is tested and compared against the original models from where it was derived.

5.9.1 Testing Reliability and Validity of the Constructs of ITPIA:

Reliability and validity of the constructs were established through the use of PLS by running a bootstrap of this newly proposed ITPIA model using 500 resamples. Confirmatory Factor Analysis (CFA) was conducted as part of the PLS run. Firstly,

convergent validity was tested by identifying whether the items loaded on their respective theoretical constructs (Lowry and Gaskin, 2014). In this test, all reflective indicators of Table 5.20 are statistically significant at the 0.05 level. Later, t-values of the outer loadings of these indicators were examined. It was found that these outer loadings were also significant at the 0.05 level (Lowry and Gaskin, 2014). This means that items loaded correctly on their theoretical constructs. The results of convergent validity tests are provided in Table 5.20.

After testing convergent validity, the reliability of the constructs was tested using PLS and composite reliability of each construct was greater than the recommended threshold of 0.7 (Chin, 1998). The results of reliability testing are provided in Table 5.21.

As in Section 5.4, to test the discriminant validity of reflective constructs, the correlation of each construct with each other was measured, and these correlations were compared with the AVE square roots for each construct (Lowry and Gaskin, 2014). Smart PLS measures AVE by computing the variance shared by each item of a construct. Therefore, discriminant validity of the measures within the ITPIA model is presented in Table 5.22. The diagonal numbers of this table represent the square roots of the AVE. The diagonal numbers are required to be greater than the off-diagonal numbers for the same row and column (not the AVE values itself) to provide evidence of discriminant validity (Lowry and Gaskin, 2014). Strong discriminant validity for each construct was illustrated through this analysis.

Table 5.20 t-Statistics for Convergent Validity of the Measures within the ITPIA

Constructs	Items	t Statistics
Hedonic Feelings	AttitudebKash_1	10.504**
	AttitudebKash_2	6.048**
	AttitudebKash_3	7.223**
	AttitudebKash_4	20.411**
	Arousal_1	55.215**
	Arousal_2	39.826**
	Arousal_3	47.385**
	Arousal_4	24.462**
	Arousal_5	38.046**
	Arousal_6	44.749**
	Dominance_1	27.619**
	Dominance_3	19.513**
	Dominance_4	13.747**
	Dominance_6	8.088**
	Enjoyment_1	25.84**
	Enjoyment_2	41.454**
	Enjoyment_3	24.774**
	Enjoyment_4	17.468**
	Pleasure_1	64.208**
	Pleasure_2	62.407**
	Pleasure_3	45.771**
	Pleasure_4	29.416**
	Pleasure_5	30.076**
	Pleasure_6	30.509**
Social influence	Collective_Needs_1	32.283**
	Collective_Needs_2	36.98**
	Collective_Needs_3	19.42**
	Collective_Needs_4	23.807**
	subjective_norm_1	21.192**
	subjective_norm_2	17.308**
	subjective_norm_3	16.525**
Supporting environment	Pervceived_behavioral_control_1	7.247**
	Pervceived_behavioral_control_2	12.042**
	Pervceived_behavioral_control_3	20.325**
	Visual_Comprehensibility_1	13.794**
	Visual_Comprehensibility_2	11.147**
	Visual_Comprehensibility_3	12.901**
	Visual_Comprehensibility_4	13.125**
	Compatibility_1	21.5**
	Compatibility_2	18.088**
	Compatibility_3	12.059**
Perceived utility	Ease_of_use_1	10.934**
	Ease_of_use_2	18.543**
	Ease_of_use_3	14.206**
	Ease_of_use_4	9.781**
	Perceived_Value_2	17.553**
	Perceived_Value_3	17.22**
	Perceived_Value_4	16.188**
	usefullness_1	9.215**
	usefullness_2	8.311**
	usefullness_3	10.202**
	usefullness_4	13.263**
Intention	Intention_1	27.953**
	Intention_2	9.36**
	Intention_3	42.194**
	Intention_4	30.698**

Note: 1. **p<0.05

Table 5.21 Reliability of the Measures within the ITPIA

Constructs Name	Composite Reliability
Hedonic feelings	0.952
Intention	0.887
Perceived utility	0.866
Social influence	0.915
Supporting environment	0.891

Table 5.22 Discriminant Validity of the Measures within the ITPIA

	Hedonic feelings	Intention	Perceived utility	Social influence	Supporting environment
Hedonic feelings	0.792				
Intention	0.552	0.815			
Perceived utility	0.618	0.488	0.748		
Social influence	0.719	0.491	0.494	0.78	
Supporting environment	0.7	0.532	0.722	0.557	0.726

Note: Diagonal number represent square roots of AVE

5.9.2 Preliminary Test of the ITPIA

First it is important to note that the adjusted R^2 value (41.30%) (see Table 5.23) marginally improves over the adjusted R^2 value of the VAM (40.00%), which was the best model within the analysis presented in Section 5.7. Though it only marginally improves over the VAM, it seems also to be a better model based on other criteria. Firstly, 87.50% of its paths are significant compared to the paths of the VAM (60%). So it represents a richer and more comprehensive model. From Table 5.23, it is found that a more supporting environment will have a significant positive influence on the intention of BOP consumers (ß=0.249, $p<0.05$), thus supporting H1a. Also, higher perceived utility will have a significant positive influence on the intention of BOP consumers (ß=0.187, $p<0.05$), thus supporting H2a. The influence of perceived utility was moderated by age such that the effect will be greater for older BOP consumers (ß=0.168, $p<0.05$), thus supporting H2b. A higher social influence will have a significant positive influence on the intention of BOP consumers (ß=0.135, $p<0.05$), thus supporting H3. Also, higher hedonic feelings will have a significant positive influence on the intention of BOP consumers (ß=0.225, $p<0.05$), thus

supporting H4a. The effect of hedonic feelings on intention of BOP consumers will be moderated by area such that effect will be stronger for BOP consumers in urban area (ß=0.236, p<0.05), thus supporting H4b. In predicting usage behaviour of pro-poor innovations (Table 5.24), behavioural intention (H5) and supporting environment (H1b) was significant. Also, 39% variance is explained by intention and supporting environment in predicting BOP consumers' use of pro-poor innovations (see Table 5.24). Thus, this preliminary testing of the ITPIA supported the proposed hypotheses. Besides being a parsimonious model, the ITPIA (Adjusted R^2 = 41.30%, 87.50% significant paths) appears to explain intention to adopt better than the other seven models in the BOP context (listed in Table 5.12).

Table 5.23 Preliminary Test of the Measures within the ITPIA

Dependent Variable: Intention			
	Adjusted R^2	**Beta**	**% of Significant paths**
Age	41.30%	0.112*	87.50%
Area		-0.019	
Hedonic feelings		0.225**	
Age X Perceived utility		0.168**	
Area X Hedonic feelings		0.236**	
Perceived utility		0.187**	
Social influence		0.135**	
Supporting environment		0.249**	

Note: 1. **p<0.05 2. *p<0.1

Table 5.24 Preliminary Test of the Measures within the ITPIA

Dependent Variable : Usage	**Adjusted R^2**	**Beta**
Intention	39.00%	0.159**
Supporting environment		0.529**

Note: 1. **p<0.05

5. 10 Conclusion

Chapter 5 analysed data from study 1 to compare the validity of seven identified consumer based innovation adoption models in the BOP context and discussed the findings by linking the findings with previous literature. Finally, hypotheses of the integrated pro-poor

innovation adoption model for the BOP were proposed and preliminarily tested by using the data collected from study 1. Chapter 6 proceeds by providing a methodology for study 2 and it allows us to validate the ITPIA model using a pro-poor innovation (a pro-poor innovation different from the product category used for study 1). It also describes the procedures through which survey instruments of study 2 were developed and administered.

Chapter 6: Methodology (Study 2)

6.1 Introduction

Chapter 5 discussed the analysis and the findings in relation to the empirical comparison of the seven innovation adoption models identified from the literature. This led to a better understanding of the antecedents that are important to BOP consumers and led to the development of a new model of innovation adoption for the BOP. The model was then preliminarily tested using the data collected from study 1, which provided confirmatory results for the new model.

Chapter 6 continues Phase 2 of the model development process by outlining a methodology to further validate the newly developed ITPIA model using a different pro-poor innovation and a different sample of consumers for generalisability. The chapter outlines the procedure through which the survey instrument was developed and administered. The procedure was similar to that developed in chapter 4 but differs in several distinct ways in light of the new model, the new product being tested and the sample. These are subsequently explained.

6.2 Procedure

As one of the objectives of this research was to validate the newly developed model, another survey was conducted using a different pro-poor innovation, and a different sample of consumers to ensure the generalisability of the ITPIA model. For this survey of study 2, only the measurements related to the ITPIA model were used to design the questionnaire. Some constructs from the questionnaire in study 1 were not included in study 2 because they were not significant in the initial analysis, and there was no other compelling reason to include them for further testing. As this study used constructs from study 1, no further translation was necessary. The pre-test (Section 6.3.4), pilot test (Section 6.4.3), and

subsequent roll out of the survey did not indicate any further major issues. The questionnaire was developed for a different product category (Section 6.3.1) and a different sample (Section 6.4.1) to study 1.

6.3 Survey Development

The survey took on a similar structure to study 1, although it was more concise. The same demographic characteristics were included, and a new procedure for testing the presence of CMB was used. Also, this survey was developed based around the constructs in the ITPIA model (Figure 5.8). However, a new product was selected for testing.

6.3.1 Selection of Product

Within the survey of study 2 subjects were exposed to a product, as in study 1, and were then asked to evaluate this product in relation to the constructs from the ITPIA model. The product used was different to that used in study 1 to enhance generalisability and validate the model on an independent product. Therefore, the first issue was to select a new and different pro-poor innovation.

A range of innovations within Bangladesh was again considered. These included portable clinics, mobile phones, mobile banking, Community Information Centre (an internet service providing project, which function as nodal points for communication, information exchange, citizen-centric services, learning, and entertainment), and Union Information and Service Centre. The Bangladesh Government's Union Information and Service Centre (UISC) is used for study 2 because this is a pro-poor innovation, which is consistent with the product selection criteria outlined in Section 4.2.3 (i.e., caters to the essential needs of BOP consumers, enhances productivity, and income generation capacity). UISCs (also known as Union Digital Centres) are ICT-equipped digital centres, which provide various types of information related to livelihood, private, and government services to the citizens

of Bangladesh. UISCs were initiated consecutively at the end of 2010 but have not diffused to all areas of Bangladesh. There are currently 4547 UISCs operating across Bangladesh in collaboration between the Government and local entrepreneurs (UISC a2i website, 2015). Usually, each UISC is run by two entrepreneurs (a male and a female) and is equipped with one or two computers, laptops, printers, digital cameras, photocopying machines, and multimedia projectors. However, entrepreneurs are also allowed to install extra facilities to support business growth. Additionally, providing government information and services ensures the sustainability of the centre. Some of the key services of UISC are: 1) Government form downloads, 2) birth and death registration, 3) online university admission, 4) online data entry, 5) online employment information, 6) email and internet browsing, 7) video conferencing, and 8) photocopying and scanning (UISC a2i website, 2015). These services have facilitated Bangladeshi citizens to cost effectively and easily access livelihood information and services that affect their daily lives. For instance, a farmer can get information related to fertiliser and pesticide usage, a victim of domestic abuse can get information related to legal resources, and a migrant worker can get information related to English language resources. These essential services provided by UISCs can increase the productivity and income generation capacity of BOP consumers. Thus, choosing UISC for study 2 was appropriate to satisfy the research objectives. Consistent with the procedure of study 1, survey participants then evaluated the UISC service in terms of the constructs within the ITPIA model.

Table 6.1 List of Constructs and Items Used in Study 2

Constructs	Items
Supporting environment (Seven point Likert scales)	1) I would be able to use this technology.
	2) Using this technology is entirely within my control.
	3) I have the resources, the knowledge and the ability to make use of this technology.
	4) Using this technology fits well with my lifestyle.
	5) Using this technology fits well with the way I like to purchase products and services.
	6) I would appreciate using this technology instead of alternative modes of payment (e.g., credit card, cash).
	7) The colour, shapes, pictures, symbols and other relevant elements of this technology help me to clarify how to use this service.
	8) Using this technology, I find myself thinking of the colour, shapes, pictures, symbols and other relevant elements of this technology.
	9) I find it easy to remember any colour, shapes, pictures, symbols and other relevant elements of this technology.
	10) I find the colours, shapes, pictures and symbols of this technology help me to understand how to use this technology more than any written text associated with it.
Perceived utility (Seven point Likert scales)	1) This technology is a useful mode of payment.
	2) Using this technology makes the handling of payments easier.
	3) This technology allows for a faster usage of mobile applications (e.g., Money Transfer, Cash In, Cash Out).
	4) By using this technology, my choices as a consumer are improved (e.g., flexibility, speed).
	5) Compared to the fee I need to pay, the use of this technology offers value for money.
	6) Compared to the effort I need to put in, the use of this technology is beneficial to me.
	7) Compared to the time I need to spend, the use of this technology is worthwhile to me.
	8) Overall, the use of this technology delivers me good value.
	9) It is easy to become skilful at using this technology.
	10) Interacting with this technology is clear and understandable
	11) It is easy to perform the steps required to use this technology.
	12) It is easy to interact with this technology.
Social influence (Seven point Likert scales)	1) People who are important to me would recommend using this technology.
	2) People who are important to me would find using this technology beneficial.
	3) People who are important to me would find using this technology a good idea.
	4) To satisfy the expectation of people in my working place, my decision to use this technology is influenced by their preferences.
	5) My decision to use this technology is influenced by the preferences of people with whom I have social interaction.
	6) My decision to use this technology is influenced by the preferences of family members.
	7) My decision to use this technology is influenced by the desire of others.
Hedonic feelings (Seven point Likert scales and Semantic differentials)	1)Overall, please describe how you feel about this technology. For me, using this technology is: 1. Bad /Good 2. Negative / Positive 3. Unfavourable/ Favourable 4. Unpleasant/ Pleasant
	2) I have fun interacting with this technology.
	3) Using this technology provides me with a lot of enjoyment.
	4) I enjoy using this technology.
	5) Using this technology bores me.
	6) Each pair of words below describes a feeling dimension related to this technology. 1.Happy/Unhappy 2. Pleased/Annoyed 3. Satisfied/Unsatisfied 4. Contented/Melancholic 5. Hopeful/Despairing 6.Relaxed/Bored
	7)Each pair of words below describes a feeling dimension related to this technology. 1.Stimulated/Relaxed 2. Excited/Calm 3. Frenzied/Sluggish 4. Jittery/Dull 5. Wide-awake/Sleepy 6. Aroused/Unaroused
	8)Each pair of words below describes a feeling dimension related to this technology. 1. In Control/Cared For 2. Dominant/Submissive 3. Influential/Influenced 4. Important/Awed
Usage (Seven point Likert scales)	1)How frequently do you use this technology?
	2)I use the technology for variety of applications (Cash In, Cash Out, Money Transfer).
	3 I have used this technology before.
Adoption intention (Seven point Likert scales)	1) Given the opportunity, I will use this technology.
	2) I am likely to use this technology in the near future.
	3)I am willing to use this technology in the near future.
	4) I intend to use this technology when the opportunity arises.
Attitude towards Rice (Semantic differentials)	1) Overall, please describe how you feel about eating rice. For me, using this technology is: 1. Bad /Good 2. Negative / Positive 3. Unfavourable/ Favourable 4. Unpleasant/ Pleasant

6.3.2 Measurement

The same response formats (7-point Likert scales, 5-point Likert scale for pleasure, arousal, and dominance) from the questionnaire of study 1 were used for study 2 (see the final questionnaire in Appendix 6.1 and 6.2). Items use a variety of anchors, including Likert scales and semantic differentials consistent with study 1. The constructs and items used in the survey are summarised in Table 6.1.

Screening questions and demographic questions (see Questionnaire in Appendix 6.1) were also used and were the same as in study 1. The demographic variables were used for the purposes of segmenting responses and better understanding heterogeneity within the data. In study 2, attitude towards rice was included as a marker variable to assess the extent of CMB because there was no formative construct involved (see Section 5.5 for an explanation of why the marker variable technique was not used in study 1). The marker variable technique is described in more details in Section 6.3.3. The survey also included one open-ended question ("We welcome any other comments on the questionnaire") to capture any other comments from BOP respondents.

6.3.3 Procedures for Minimising CMB

Given CMB is a concern for survey research and single source data, the procedures of Podsakoff et al. (2003) were again followed, as in Study 1. CMB was minimised by careful construction of items, the format of the questionnaire, and by using a cover story (see Section 4.2.4.4 for further details). Unlike study 1, no formative construct was included in study 2 because the construct "poverty" was statistically insignificant (see Table 5.27 of chapter 5) and was no longer included in the ITPIA model. Consequently, further statistical procedures were used to estimate the extent of CMB. A marker variable, attitude towards consuming rice (based on a measure from Kulviwat et al. 2007), was used to test the extent that CMB exists in study 2. The marker variable was chosen as it is theoretically unrelated

to other items in the questionnaire. In this case, eating rice is a staple of almost all Bangladeshi segments of society and so it was felt that the attitude to eating rice would be favourable and consistent for all respondents. Attitude towards consuming rice could be defined as an individual's positive and negative feelings about consuming rice. Attitude towards rice was theoretically unrelated to at least one of the other constructs (variables), consistent with the suggestion of Lindell and Whitney (2001).

To assess the existence of CMB within the data the lowest positive correlation (r = .12; see Table 6.2) was chosen between the marker (Attitude towards Rice) and criterion variable (intention) as the best estimation of method variance (Lindell and Whitney, 2001), and the correlations between constructs in the model were adjusted based on this correlation to assess the existence of CMB. The correlations were adjusted based on the following formula.

$$\mathbf{rijm} = \frac{\mathbf{(rij - rm)}}{\mathbf{(1 - rm)}}$$

Here r_{ij} represents the correlation between construct i and construct j, r_m represents the method variance adjustment, and r_{ijm} represents the adjusted correlation. The results of this analysis were reported in Table 6.2 in a manner similar to Agustin and Singh (2005).

Table 6.2 Correlations and Descriptive Statistics

	CMB Marker (Attitude towards Rice)	Hedonic feelings	Intention	Perceived utility	Social influence	Supporting environment
CMB Marker (Attitude towards Rice)		-0.26**	0.00	-0.18**	-0.20**	0.03
Hedonic feelings	-0.12		0.25**	0.64**	0.17**	0.40**
Intention	0.12	0.34**		0.13**	0.06	0.33**
Perceived utility	-0.04	0.68**	0.23**		0.13**	0.38**
Social influence	-0.06	0.27**	0.17	0.23**		0.10**
Supporting environment	0.14	0.48**	0.41**	0.45**	0.21**	

Note: 1. **p<0.01

Note 2: Zero-order correlations are represented below the diagonal and correlations adjusted for CMB are represented above the diagonal. CMB= common method bias.

The statistical significance of the adjusted correlations is determined as follows (Lindell and Whitney, 2001):

$$t \propto/2, N-3 = \frac{rij}{\sqrt{1-r2ijm}/(N-3)}$$

Table 6.2 shows any significant correlations before the adjustment still remain significant, which means that method variance is unlikely to affect the substantive results of study 2 (Lindell and Whitney, 2001).

6.3.4 Pre-test

The initial questionnaire of study 2 was pre-tested for interpretability and to assist in gaining cooperation for data collection by local leaders, as in study 1. In total, 6 respondents, including three BOP consumers, two local school teachers, and one chairman of a village, were given the questionnaire and asked to complete it in the presence of the researcher. As the questions from study 1 were used again to design the questionnaire for study 2 and were the same as in study 1, these had been pre-tested earlier (see Section 4.3.3) and no further issues emerged. Therefore, these six respondents were happy with the understanding and interpretability of the questionnaire of study 2 and no further amendments were deemed necessary, providing further confidence in the applicability of the survey instrument.

Having developed the questionnaire, and pre-testing the questionnaire, it was then administered to the new sample. The administration of this survey including sampling considerations, pilot testing, and profile of respondents are described in Section 6.4.

6.4 Survey Administration

The survey administration procedure of this study was similar to study 1 (see Section 4.3 of chapter 4). Face to face interviews were again conducted verbally for this study and visual stimuli (i.e, pictographic symbols demonstrating levels of agreement or using different sized boxes) for the Likert-type scales were used in this study (see questionnaire in Appendix 6.1 and 6.2).

6.4.1 Sample Size and Sampling Method

The size of the questionnaire for study 2 was smaller than that of study 1 because of the reduced number of constructs within the ITPIA model. Additionally, Hair et al. (2010) recommend a sample size of at least 200 can provide a sound basis for estimation in most cases. In total, 209 BOP consumers with a low-income level (i.e., who earn less than USD 5 dollar in a day) were approached for this survey. Of these, 200 responded to the questionnaire. After all responses had been collected, two responses were considered invalid due to the extent of missing data so the final sample size was 198. Though this sample size was relatively small and it would have been preferable to obtain a higher number, the smaller sample size represents the difficulty of obtaining quality data using face to face interviews, which took up to 40 minutes in various parts of the country. Additionally, 109 of the responses were collected from urban BOP consumers and 89 responses were collected from rural BOP consumers. Similar to study 1, convenience non-probability sampling was also used for study 2. The respondents were approached in different tea stalls, marketplaces, and Union Information and Service Centres (UISCs) in Bangladesh and they were approached at different times (7 am to 6 pm) of the day. Also, they were approached at different places in Dhaka (e.g., Dokkhin Khan, Badda Hossain Market, Malibag, Demra and other places) and in Comilla (e.g., Debidwar, Bramonpara, and other places).

6.4.2 Field Work Administration

Unlike study 1, two field workers collected data instead of four field workers. One field worker was recruited from a rural area and another field worker was recruited from an urban area and this assisted data collection as field workers were familiar with those areas. The field workers had been trained as in study 1(see Section 4.3.2 for further details). An initial pilot test was conducted again to understand issues identifying and approaching the users of UISCs, the nature and duration of conducting the survey, and the number of surveys that a field worker could collect in one shift. The researcher instructed the field workers about the start and finish dates, minimum number of surveys expected in one shift, the need to input survey data on a daily basis, appropriate length of interviews, ensuring fully completed questionnaires, and eligibility (e.g., USD 5 threshold of income to identify BOP consumers, and using the technology less than five times) of the respondents to take part in the survey. The researcher also monitored the sample composition on an ongoing basis and checked to ensure the original sample specification had been met, and that data had been collected correctly.

6.4.3 Pilot-test

The final questionnaire of study 2 was initially pilot tested on a sample of BOP consumers (n = 49) to further confirm its structure and to assess the reliability and validity of the measures. The average time for survey completion was 35 minutes. Similar to study 1, reliability of the constructs was tested using PLS. PLS was again used to analyse the data of study 2 so that the findings could be compared with the findings of study 1. Composite reliability of each construct of the ITPIA model was above the recommended threshold of 0.7 (Chin, 1998) and the results of testing reliability are provided in Table 6.3.

Table 6.3 Reliability of the Measures within the ITPIA model (Pre-test of Study 2)

Construct Name	Composite Reliability
Hedonic feelings	0.945
Intention	0.729
Perceived utility	0.933
Social influence	0.840
Supporting environment	0.955

In addition, discriminant validity of the constructs within the ITPIA was assessed. To test the discriminant validity of the reflective constructs, the correlation of each construct with each other was measured, and these correlations were compared with the AVE square roots for each construct (Lowry and Gaskin, 2014). Smart PLS measures AVE by computing the variance shared by each item of a construct. Therefore, evidence of discriminant validity of the measures is shown in Table 6.4. The diagonal numbers of these tables represent the square roots of the AVE. The diagonal numbers are required to be greater than the off-diagonal numbers for the same row and column (not the AVE values itself) to provide evidence of discriminant validity (Lowry and Gaskin, 2014). Strong discriminant validity for each construct was illustrated through this analysis.

Table 6.4 Discriminant Validity of the Measures within the ITPIA model (Pre-test of Study 2)

Construct Name	Hedonic feelings	Intention	Perceived utility	Social influence	Supporting environment
Hedonic feelings	0.729				
Intention	0.583	0.612			
Perceived utility	0.725	0.457	0.859		
Social influence	0.645	0.531	0.427	0.658	
Supporting environment	0.665	0.458	0.724	0.614	0.853

Note: Diagonal number represent square roots of AVE

The characteristics of respondents of study 2 are going to be presented in Section 6.4.4 to provide a better understanding how the sample of study 2 reflects the socio-demographic characteristics of BOP consumers.

6.4.4 Profile of Respondents

From Table 6.5, it can be understood that all responses of study 2 were collected from both urban and rural areas. 55.10% (n = 109) responses were collected from an urban area and 44.90% (n = 89) responses were collected from a rural area. Responses from both male and female were also captured during the second study. 60.60% (n = 120) of responses were from males and 39.40% (n = 78) responses were from females. The number of responses from females is higher during Study 2 comparing to Study 1 because UISCs are also run by female entrepreneurs to ensure that female users can feel confident to come and use the service. Also, responses from different age groups were collected and it can be understood from Table 6.5 that the majority of respondents belong to the age group of 26-30 and 31-36. However, other age groups also responded to this survey. Also, the majority of respondents belonged to a lower level education and only a few respondents had HSC/Alim level education (2.50%, n = 5). Furthermore, most of the respondents (47.00 %, n = 93) used UISC three to four times. Only 1.50% (n = 3) of respondents never used UISC. 19.20% (n = 38) of respondents used UISC once and 32.30% (n = 64) of respondents used UISC twice.

A summary of respondents' characteristics is provided in Table 6.5.

Table 6.5 Descriptive Statistics

Variable Definition	Survey Returns (%)
Area	Urban = 55.10 %; Rural= 44.90 %
Age (Years)	18-20 = 4.50%; 21-25 = 11.60% ; 26-30 = 28.30%; 31-36 = 25.80%;36-50=26.30%; > 50 = 3.50%
Education	Uneducated / Can only Sign/ No schooling = 5.60%; School Up to Class 4=4.50%; Class 5 /PSC= 21.70%; School up to class 7= 11.60%; Class 8/ JSC = 20.70%; School up to class 10= 16.70%; SSC/Dakhil= 16.70%;HSC/Alim= 2.50%
Gender	Male= 60.60%; Female= 39.40 %
Number of times bKash used	Never used= 1.50 %; Once= 19.20%; Twice= 32.30%; Three to Four times= 47.00%

6.5 Conclusion

Chapter 6 developed a method for study 2 to validate the ITPIA model on a new product, different from study 1. It described the selection of the product, how the measures were developed, how CMB of study 2 was minimised, and how the questionnaire of study 2 was pre-tested. It also described how the survey of study 2 was administered, including sampling considerations, field work administration, and pilot testing. Finally, this chapter concludes by outlining the profile of respondents of study 2. Chapter 7 proceeds by validating the ITPIA model based on the data collected from study 1 and study 2.

.

Chapter 7: Validation of the Integrated Theory of Pro-poor Innovation Adoption (ITPIA)

7.1 Introduction

Chapter 7 validates the ITPIA model developed in chapter 5 on a new product. The chapter proceeds by testing the reliability and validity of the constructs in the model and then shows the degree to which the hypotheses of the ITPIA model are supported by the data from both study 1 and study 2. Finally, the discussion related to these findings is presented at the end of this chapter.

7.2 Analysis Procedure

Given study 2 sought to validate the newly developed ITPIA model using a different pro-poor innovation, one issue was to enhance the generalisability of the findings by testing the model using a new product and on a new sample. The new data set combined with the data from study 1 would also lead to a more robust model because more than one product would be represented. Therefore, both data collected from study 1 (related to bKash) and data collected from study 2 (related to UISC) were analysed to validate the newly developed ITPIA model.

7.3 Testing Reliability and Validity of the Constructs

The reliability and validity were tested through the use of PLS by running a bootstrap of the ITPIA model using 500 resamples. Therefore, Confirmatory Factor Analysis was conducted as part of the PLS run. Convergent validity was tested by identifying whether the items were loaded correctly on their respective theoretical constructs (Lowry and Gaskin, 2014). In this test, all reflective indicators of Table 7.1 are statistically significant at the 0.05 level. Later, t- values of the outer loadings of these indicators were examined, and it was found that these outer loadings were significant at the 0.05 level (see Table 7.1)

(Lowry and Gaskin, 2014). This means that items loaded correctly on their theoretical constructs. The results of the convergent validity tests are provided in Table 7.1.

Table 7.1 t-Statistics for Convergent Validity of the Measures within the ITPIA Model (Validation)

Constructs	Items	t Statistics
Social influence	Collective_Needs_1	6.254**
	Collective_Needs_2	6.254**
	Collective_Needs_3	13.031**
	Collective_Needs_4	5.351**
	subjective_norm_1	21.841**
	subjective_norm_2	15.585**
	subjective_norm_3	16.318**
Hedonic Feelings	AttitudebKash_4	19.422**
	Arousal_1	51.49**
	Arousal_2	36.657**
	Arousal_3	40.748**
	Arousal_4	9.316**
	Arousal_5	44.399**
	Arousal_6	45.398**
	Dominance_1	30.151**
	Dominance_3	20.893**
	Enjoyment_1	25.371**
	Enjoyment_2	41.84**
	Enjoyment_3	33.812**
	Enjoyment_4	22.563**
	Pleasure_1	63.985**
	Pleasure_2	73.76**
	Pleasure_3	41.388**
	Pleasure_4	31.261**
	Pleasure_5	32.291**
	Pleasure_6	32.637**
Supporting environment	Visual_Comprehensibility_1	13.694**
	Visual_Comprehensibility_2	11.547**
	Visual_Comprehensibility_3	13.725**
	Visual_Comprehensibility_4	12.201**
	Compatibility_1	25.415**
	Compatibility_2	26.335**
	Pervceived_behavioral_control_2	18.247**
	Pervceived_behavioral_control_3	15.432**
Perceived utility	Ease_of_use_2	18.865**
	Ease_of_use_3	15.957**
	Perceived_Value_2	20.365**
	Perceived_Value_3	19.86**
	Perceived_Value_4	18.892**
Intention	Intention_1	34.07**
	Intention_2	11.695**
	Intention_3	29.212**
	Intention_4	45.204**

Note: 1. **p<0.05

After establishing convergent validity, the reliability of the reflective constructs of the ITPIA model was tested and composite reliability of each construct was greater than the recommended threshold of 0.7 (Chin, 1998). The results of reliability testing are provided in Table 7.2.

Table 7.2 Reliability of the Measures within ITPIA (Validation)

Constructs Name	**Composite Reliability**
Hedonic feelings	0.950
Intention	0.868
Perceived utility	0.871
Social influence	0.843
Supporting environment	0.739

Subsequently, to test the discriminant validity of the reflective constructs, the correlation of each construct with each other was measured, and these correlations were compared with the AVE square roots for each construct. Smart PLS measures AVE by computing the variance shared by each item of a particular construct. Therefore, discriminant validity of the measures within the ITPIA model is presented in Table 7.3. The diagonal numbers of this table represent the square roots of the AVE. The diagonal numbers are required to be greater than the off-diagonal numbers for the same row and column (not the AVE values itself) to provide robust evidence of discriminant validity. Strong discriminant validity for each construct was presented through this analysis. The results are provided in Table 7.3.

Table 7.3 Discriminant Validity of the Measures within the ITPIA Model

	Hedonic feelings	Intention	Perceived utility	Social influence	Supporting environment
Hedonic feelings	0.746				
Intention	0.523	0.789			
Perceived utility	0.400	0.261	0.758		
Social influence	0.639	0.406	0.363	0.664	
Supporting environment	0.716	0.513	0.439	0.503	0.570

Note: Diagonal number represent square roots of AVE

7.4 Validation of the ITPIA Model

From Table 7.4, it was found that the supporting environment has an influence on the intention of BOP consumers to use UISC's services (ß = 0.319, p<0.05), thus supporting H1a. The influence of perceived utility has no influence on the intention of BOP consumers (0.04), thus not supporting H2a. However, the influence of perceived utility was moderated by age such that the effect will be greater for older BOP consumers (ß = 0.160, p<0.05), thus supporting H2b. Social influence has an influence on the intention of BOP consumers (ß = 0.100, p<0.05), thus supporting H3. The effect of hedonic feeling has an influence on the intention of BOP consumers (ß = 0.204, p<0.05), thus supporting H4a. The effect of hedonic feeling on intention of BOP consumers to use UISC's services will be moderated by area such that the effect will be stronger for urban area BOP consumers (ß = -0.212, p<0.05), thus supporting H4b. 35.90% of the variance in intention is explained by the supporting environments, perceived utility, social influence, and hedonic feeling in predicting BOP consumers' intention to use pro-poor innovation. In predicting usage of pro-poor innovation (Table 7.5), behavioural intention (ß = 0.16, p<0.05) (H5) and supporting environment (ß = 0.492, p<0.05) (H1b) were significant. Also, 33.40% of the variance is explained by intention and supporting environment in predicting BOP consumers' use of pro-poor innovations (see Table 7.5).

To assess the validity of the model, it was compared against model diagnostics from the TRA, TPB, TAM, DOI, CAT and VAM. These are shown in Appendix 7.1. It is important to note that the validated new model and data cannot be accurately compared with the results from study 1 because study 1 was conducted with a different sample and different product. It is fairer to compare it against nested models, which can be obtained from the new data. The CBOP model can no longer be used to compare because some constructs from this model were not included in the new questionnaire as these constructs were

insignificant during study 1. The newly developed model is largely supported because 1) it has an adjusted R^2 (35.90%) higher than the TRA (Adjusted R^2 = 23.70%), the TPB (Adjusted R^2 = 27.10%), the TAM (Adjusted R^2 = 21.20%), the DOI (Adjusted R^2 = 29.10%), the VAM (Adjusted R^2 = 32.10%), and the CAT (Adjusted R^2 = 28.10%) (see Appendix 7.1), and 2) the majority percentage of the paths within this model are statistically significant. Thus, the validation of the ITPIA model supported the proposed hypotheses except the direct effects of perceived utility on the intention (H2a). However, perceived utility was found to influence intention when moderated by age (H2b). The newly developed model using the UISC data supported the results from study 1 using the bKash data. Specifically, the newly developed ITPIA model provided a parsimonious explanation of adoption intention and improved over the other seven models (Adjusted R^2 =35.90%, 75% significant paths) (listed in Appendix 7.1).

Table 7.4 Validation of the ITPIA Model

Dependent Variable: Intention			
	Adjusted R^2	**Beta**	**% of Significant path**
Age	35.90%	0.088**	75%
Area		0.005	
Hedonic feelings		0.204**	
Age X Perceived utility		0.16**	
Area X Hedonic Feeling		-0.212**	
Perceived utility		0.04	
Social influence		0.1**	
Supporting environment		0.319**	

Note: 1. **p<0.05

Table 7.5 Validation of the ITPIA Model

Dependent Variable: Usage	**Adjusted R^2**	**Beta**
Intention	33.40%	0.16**
Supporting environment		0.492**

Note: 1. **p<0.05

7.5 Hypotheses of the ITPIA: Discussion

One of the major contributions of this thesis is in formulating the ITPIA model for pro-poor innovation adoption. By incorporating the combined explanatory power of the individual models and key moderating influences, the ITPIA takes important constructs from existing well-established theories and it discards less useful constructs *in this context.*

The ITPIA model is a parsimonious and useful model to understand innovation adoption in the BOP. Prior innovation adoption research (Venkatesh et al., 2012; Van der Heijden, 2004; Kim et al., 2007; Kulviwat et al., 2007) has investigated the phenomenon in the consumer context, where perceived utility and hedonic feelings are the main drivers of innovation adoption in the developed country context. In the case of consumer adoption of innovation in the BOP context, other antecedents come to the fore. The findings of the ITPIA model suggest that supporting environment is the strongest driver of innovation in the BOP context and it influences both intention and usage behaviour of BOP consumers.

Interestingly, it is found that supporting environment has a stronger influence on the usage behaviour than intention. This is contrary to prior research (e.g., Venkatesh et al., 2012) in the consumer context, where intention had a stronger influence on usage behaviour than supporting environment. As discussed in Section 5.7.6, BOP consumers seem to be more concerned about the constraints of adopting an innovation than the benefits of innovations, the influence of supporting environment on the intention and usage behaviour is very strong in the BOP context.

The ITPIA model also suggests that hedonic feeling has a significant influence on the intention of BOP consumers. This finding is consistent with prior research (Venkatesh et al., 2012; Van der Heijden, 2004) in the consumer context. Even Jebarajakirthy and Lobo (2015) found that the influence of hedonic feeling on intention was stronger in the BOP

context. In addition, Ireland (2008) emphasise the difference between urban and rural BOP consumers and argue that purchasing behaviour can vary based on urban and rural BOP markets. So far, there is no innovation adoption model, which considered the moderating effect of urban and rural area on the innovation adoption. The ITPIA model also contributes to the BOP literature by highlighting that the effect of hedonic feeling on intention is stronger for urban BOP consumers.

In addition, the importance of perceived utility is well accepted in the literature. Previous research (King and He, 2006; Agarwal and Prasad 1997; Davis et al. 1989; Thompson et al., 1991, 1994; Venkatesh et al., 2003) reported perceived utility as a strong significant predictor of intention. However, it may be different in the BOP context as Jebarajakirthy and Lobo (2015) argue that BOP consumers are more concerned about the constraints of adopting an innovation and are less concerned about the utility of an innovation. Similarly, this research suggests perceived utility may not have a direct influence on intention. The main effect of perceived utility cannot be interpreted accurately because of the existence of moderating effect of age. However, this research suggests that perceived utility influences intention when moderated by age and the effect is greater for older BOP consumers, consistent with some views in the literature (e.g., Morris and Ventaktesh, 2002).

The role of social influence has been debated in previous literature. Some researchers have argued for including social influence in models of adoption and use (e.g., Thompson et al., 1991; Taylor and Todd, 1995). On the other hand, some authors argued for not including social influence in technology adoption models (e.g., Davis et al., 1989). Previous research has suggested that social influence is significant in the organisational context, where technology adoption happens in mandatory settings (e.g., Hartwick and Barki, 1994; Venkatesh and Davis, 2000). However, social influence may not be a strong predictor of consumers' intention in the voluntary consumer setting. A meta-analytic review by

Armitage and Conner (2001) also suggests that social influence is usually a weak predictor of intention. This research suggests that social influence significantly effects the intention of BOP consumers but the effect of social influence is not very strong.

To sum-up, the ITPIA integrated not only the key determinants of seven identified consumer based innovation adoption models but also considered the moderating effects of age as well as urban and rural BOP. In this research, empirical support for the applicability of the ITPIA model in the BOP context was provided via two studies and this model incorporated relevant BOP related constructs. The variance explained in both behavioural intention (Adjusted R^2 = 41.30%, 35.90%) and usage (Adjusted R^2 = 39.00%, 33.40%) is considerably good.

7.6 Conclusion

Chapter 7 validated the ITPIA model based on the newly collected data and data from study 1 combined. Therefore, this chapter provided the empirical support for the applicability of the ITPIA model in the BOP context through two studies and discussed the findings by linking them with previous literature in the area of innovation adoption and consumer behaviour in the BOP. The validation results of the ITPIA model support the results of the preliminary test of the ITPIA model in chapter 5. In both cases, the ITPIA model, developed and validated in the BOP, appears to explain intention to adopt better than the other seven existing models.

Chapter 8: Contributions, Implications, and Conclusion

8.1 Introduction

Chapter 7 validated the ITPIA model by presenting the findings of study 2, where it was shown to exhibit better characteristics than other existing consumer innovation adoption models. This was based on data collection from two studies where the ITPIA model was developed and tested based on comparing existing models (Chapter 5) and where it was further validated using new data and a new product. Chapter 9 concludes the thesis by summarising the findings of studies, and encapsulating the main contributions. This chapter ends by discussing limitations of the two studies and suggesting fruitful areas for future research.

8.2 Study 1: Summary, and Speculations

The consumer innovation adoption research stream (e.g., Castaño et al., 2008; Hauser, Tellis, and Griffin, 2006; Alexander, Lynch, and Wang, 2008; Rogers, 2003; Wood and Moreau 2006) is beginning to mature as meta-analysis studies have began to emerge (e.g., Arts, Frambach, and Bijmolt, 2011). Although a wide range of models exist to explain consumer adoption of innovations, the majority of these models have not been tested on consumers in the BOP context. As discussed in Section 2.3, the BOP context is unique and requires new theoretical understanding to advance the burgeoning, yet underdeveloped literature on marketing within the BOP context (George et al., 2012).

A qualitative research method could be utilised to capture new constructs in this context. However, Nakata and Weidner (2012) proposed the CBOP model, which captures some new constructs relevant to the BOP context. Rather, given the number of competing models developed to understand innovation adoption, there is an opportunity to test the

validity of these models, comparing one against the other, without creating yet more new constructs for testing. Study 1 contributes to this research stream by providing a better understanding of i) which innovation adoption models best explain innovation adoption in the BOP, and ii) which antecedents are most important in influencing innovation adoption intentions for the BOP. The results of this study were then used in conjunction with existing theory to develop a new model of pro-poor innovation adoption for the BOP. In relation to research objective 1 and 2, the following were the main conclusions and contributions to come out of study 1.

8.2.1 Findings from Empirical Comparisons of Seven Consumer based Innovation Adoption Models in the BOP Context

The results obtained from the empirical comparison of key consumer based innovation adoption models indicates that the VAM and the CAT are better models at explaining adoption of pro-poor innovations in the BOP context compared to other widely used models (e.g., TAM, TPB, TRA, DOI, CBOP) as the VAM and the CAT capture hedonic and affective gratification related constructs such as enjoyment, pleasure, arousal, dominance, and attitude. Prior research (Venkatesh et al., 2012) has found that hedonic feelings become more important than usefulness in the consumer environment. This finding is also consistent with the research conducted in the BOP context (Jebarajkirthy and Lobo, 2015).

Although it is common to assume that BOP consumers place great emphasis on cost (and indeed concepts like perceived fee are important), this research indicates that successful pro-poor innovations should address more than a lack of money among the BOP segment. It is not just price, functionality, and utilitarian characteristics of a pro-poor innovation that are important but research shows BOP consumers highly value hedonic and affective gratification of new products, compatibility of the innovation with existing lifestyles,

internal and external constraints related to the adoption of a pro-poor innovation, and collective needs which influence their learning and intention to adopt.

8.2.2 Results of the Integrated Theory of Pro-poor Innovation Adoption (ITPIA)

The result of the model comparison test (Section 5.7) coupled with findings from the extant literature (Section 5.8) led to the development of the ITPIA model, following a similar process to that by Venkatesh et al. (2003). Data from study 1 was then used to trial the ITPIA model and compare it against existing models. In conclusion, the ITPIA model was better able to explain intention to adopt innovations within the BOP than the six existing models developed in other contexts (See section 2.6), and also the CBOP model, which was developed for the BOP context, but which has not yet been empirically tested. Theoretically, this study makes a contribution by developing the first integrated model of consumer innovation adoption in the BOP and testing its validity against other commonly used models. This model was also developed to take account of the moderating effect of age and urban/ rural BOP area. Study 2 coupled with the results of study 1 and theoretical developments of the model in Section 5.8 provide a robust test of the ITPIA model and its applicability to this segment of consumers. After testing, it was found that, i) supporting environment has an influence on behavioural intention and actual usage of BOP consumers, ii) the effect of perceived utility on the intention of BOP consumers to use pro-poor innovations is moderated by age such that the effect is greater for older BOP consumers, iii) the impact of hedonic feeling on the intention of BOP consumers to use pro-poor innovations is moderated by area such that the effect is stronger for urban BOP consumers, and iv) social influence has an impact on the intention of BOP consumers to use pro-poor innovations. The ITPIA model also suggests that behavioural intention and supporting environment influences the usage behaviour of pro-poor innovations. Based on the results obtained from the preliminary test of the ITPIA model, it appears to explain

intention better in the BOP context compared to the other key models (e.g., TAM, TPB, TRA, DOI, CAT, VAM and CBOP).

8.3 Study 2: Summary, and Speculations

The main purpose of study 2 was to validate the newly developed ITPIA model in the BOP market empirically. Study 2 contributes by validating the ITPIA model by using a different product (UISCs) to that used in study 1. Study 2 did this by developing and conducting a survey based on the proposed hypotheses of the ITPIA model. After analysis of the data, it was found that the ITPIA model was empirically supported and was a better model of innovation adoption in the BOP context. Consistent with the results obtained from study 1, it was found that i) the ITPIA model, a parsimonious model, is explaining better in the BOP context than other key models, and ii) the majority of the paths within this model were statistically significant.

8.4 Research Contributions

The present research set out to contribute to understanding the adoption of pro-poor innovations in the BOP context. In doing so, it makes the following contributions.

- **The Formulation of an Integrated Model of Pro-poor Innovation Adoption for BOP Consumers.** This thesis sets out to integrate the research and theory on consumer adoption of innovation into an integrated model that captures the crucial elements of seven consumers based innovation adoption models. So far, there has been no research that developed an integrated model for the BOP context by capturing the crucial elements of the seven identified models. This thesis formulated the ITPIA model, which appears to explain better in the BOP context compared to the seven identified models and this thesis provided empirical support for the applicability of the ITPIA model in the BOP context via two studies.

- **An Empirical Comparison of Consumer based Innovation Adoption Models in the BOP.** Despite some innovation adoption model comparisons from prior research (eg, Taylor and Todd, 1995; Mathieson, 1991; Chau and Hu, 2001; Davis, Bagozzi, and Warshaw, 1989; Venkatesh, Morris, Davis, and Davis, 2003; Plouffe, Hulland, and Vandenbosch, 2001), there are very few recent comparisons of existing innovation adoption models, and the literature on innovation adoption has moved on considerably, offering a range of plausible and validated innovation adoption models such as the CAT model (Kulviwat et al., 2007), the VAM model (Kim et al., 2007), and the Contextualised BOP model (Nakata and Weidner, 2012). However, there has been no research, which empirically compares innovation adoption models in the BOP context. This thesis contributes by providing the first empirical comparison of consumer based innovation adoption models in the BOP. The findings from study 1 and 2 of this thesis provide strong evidence that the CAT and the VAM model explains innovation adoption intention better than the TAM, the TRA, the TPB, the DOI, and the CBOP model.
- **Key Antecedents to Pro-poor Innovation Adoption.** Professionals and academics still know little about which key antecedents influence adoption of pro-poor innovations in the BOP context. This research contributes by illustrating the most important antecedents to innovation adoption for BOP consumers. BOP consumers don't just look for functional, utilitarian benefits but are more likely to adopt a new product if it provides some degree of affective and hedonic gratification related to the adoption of pro-poor innovations. There has been very little research that has considered the influence of hedonic and affective gratification on the behavioural intention of BOP consumers. This thesis also contributes by showing that compatibility

and collective needs have a stronger effect on intention compared to antecedents such as perceived usefulness and perceived value. The findings of the ITPIA model also suggest that supporting environment, which reduces the constraints related to the adoption of pro-poor innovations, is the strongest antecedent to influence both intention and usage behaviour of BOP consumers. While consumer adoption of innovations related research (Venkatesh et al., 2012) in developed country contexts suggests that intention is the strongest predictor of usage behaviour, this research contributes by showing that supporting environment is the strongest determinant of usage behaviour for BOP consumers.

- **Evidence of Consumer Heterogeneity.** There is almost no research, which considered the differences of urban and rural BOP in innovation adoption context. Ireland (2008) called for further research to consider the difference between urban and rural BOP. This thesis contributes by considering the differences of urban and rural BOP in innovation adoption context. This research provides evidence that the effect of hedonic feeling on the intention of BOP consumers to use the pro-poor innovations is moderated by area such that the effect is stronger for urban BOP consumers.
- **The First Empirical Test of the CBOP Model.** The CBOP, proposed by Nakata and Weidner (2012), has not been empirically validated. This thesis contributes by providing the first empirical test of the CBOP model in the BOP context. It was found that collective needs, compatibility and visual comprehensibility had a significant influence on the intention of BOP consumers to use pro-poor innovations. Although only 25% of the CBOP's paths were statistically significant, it still explained 30.40% variation of BOP consumers' intention to use pro-poor innovations.

- **The First Measures of Several BOP related Constructs.** The CBOP model proposed by Nakata and Weidner (2012) has not been empirically validated and many of the constructs such as affordability, visual comprehensibility, adaptability, assimilationist culture, collective needs, interpersonal promotion, social capital, atomised distribution, and flexible payment forms are new to the literature. Given there were no established scales for these constructs, this thesis contributes by developing the items for these constructs.

8.5 Managerial Implications

Although it may be common to assume that the BOP market wants cheap products to suit their needs, the ITPIA model developed here shows that successful pro-poor innovations should address more than the lack of money of the BOP segment (although constructs like perceived fee are important as one may expect). Even a very useful product with clear social benefits can be unsuccessful in the BOP context because it appears that BOP consumers are not just rationally motivated. For example, Procter and Gamble (P&G) developed a water purification system called PUR targeted to low-income consumers. This product had clear social benefits, supplying clean drinking water to households in places where the health risk of untreated drinking water was high, especially for children. However, P&G could not generate a competitive return, and it was a commercial failure (Simanis, 2012). Therefore, it is important to understand the complex array of antecedents of pro-poor innovation adoption in the BOP context so that practitioners and policymakers can maximise their chances of success in the BOP context. The results from this thesis suggest the following important insights for both researchers and practitioners:

- **Reducing the Internal and External Constraints of Using a Pro-poor Innovation.** Internal and external constraints play a significant role in the BOP context. Jebarajakirthy and Lobo (2015) argue that BOP consumers are more concerned about

the constraints related to obtaining microcredit than the benefits of microcredit. Therefore, practitioners can emphasise reducing the internal and external constraints of using a pro-poor innovation. For example, practitioners need to ensure visual comprehensibility of a pro-poor innovation through its design and packaging (e.g., colours, shapes, photos, physical package size, and other elements) to reduce constraints like limited numeracy and literacy. One example is that low-literate BOP consumers use the size of the physical package to infer value instead of interpreting the price per weight statement from the package (Viswanathan et al., 2005). Another example pointed out by Nakata and Weidner (2012), Prodem FFP, a Bolivian firm, developed an automated teller machine (ATM) that recognises fingerprints, making it simple and easy for BOP consumers to use it. It also translates text to speech and displays a colour-coded touch screen.

- **Emphasising on Affective and Hedonic Gratification, rather than Purely Utilitarian Aspects.** Practitioners can emphasise affective and hedonic gratification of using pro-poor innovations besides the functionality, price and utilitarian benefits to ensure successful adoption of pro-poor innovations. Research conducted by Smart Communication in the Philippines found that potential BOP consumers wanted to use their phones for both enjoyment and practical purposes (Anderson and Markides, 2007). Also, prior research conducted in the BOP market of Sri Lanka found that excitement and happiness associated with microcredit have a strong influence on the intention of obtaining microcredit, and the benefits of microcredit have no significant influence on the intention of obtaining microcredit in the BOP (Jebarajakirthy and Lobo, 2015).

- **Positioning a Pro-poor Innovation as Useful.** To position a pro-poor innovation as useful in the BOP context, practitioners also need to ensure the relative advantage and perceived ease of use of a pro-poor innovation. Perceived ease of use is an issue of particular importance as a large portion of BOP consumers are low-literate. This research also suggests that relative advantage does not influence behavioural intention directly, but it influences the perception of usefulness, which influences the behavioural intention of BOP consumers. Besides perceived ease of use, relative advantage is still important to position a product as useful in the BOP context. Interestingly, this thesis also suggests that BOP consumers don't just accept any product if the price is low, rather BOP consumers compare price with the benefits of a product to form their perception about the value of a product. Prahalad (2014) emphasises that BOP consumers tend to be extremely value conscious because BOP consumers always want to ensure that products they buy are reliable and value for money in light of their constrained and limited income. Therefore, practitioners need to ensure that the price of a pro-poor innovation is consistent with the usefulness of pro-poor innovations.
- **Ensuring the Compatibility of a Pro-poor Innovation**. This research suggests that ensuring the compatibility of pro-poor innovations will also ensure successful adoption of pro-poor innovations as BOP consumers are very concerned about the compatibility of a pro-poor innovation. Even if a pro-poor innovation is cheap and affordable for BOP consumers, they may not accept the pro-poor innovation because that product may seem unnecessary or incompatible with their needs. For instance, an African firm named KickStart was selling multiple products at low cost to rural farmers, including irrigation pumps, oil-seed presses, block-making presses and hay balers. Although Kickstart was selling all products at a low price, its irrigation pump accounted for 98

percent of its revenue (Simanis, 2009) because irrigation pumps seemed compatible with BOP consumers' essential needs. Therefore, practitioners also need to ensure the compatibility of a pro-poor innovation.

- **Focusing on Collective Needs.** Unlike developed country contexts, practitioners need to focus on collective needs of BOP consumers as they often belong to a collectivist culture and are more interdependent. This is because of uncertain environments and lack of traditional assets (Nakata and Weidner, 2012). In previous developmental studies (Evans, 2002; Krahn et al., 2009), collective actions were often emphasised to achieve developmental goals. Therefore, it is also important for policy makers to consider the collective needs of BOP consumers. For example, innovations improving family well-being are chosen over innovations enhancing individual well-being in South Africa (Ruth and Hsiung, 2007). Similarly, underprivileged families in Turkey share refrigerators to lower the ownership costs (Ustuner and Holt, 2007). In Venezuela, families adopt expensive subscription TV instead of choosing free broadcasts because BOP consumers like to share the cost among several families to buy an expensive single subscription (Ireland, 2008).

- **Understanding BOP Segments.** The ITPIA model captured the moderating affects of key BOP segments. Practitioners and governments can utilise the ITPIA model to ensure successful adoption of pro-poor innovations in the Bottom of Pyramid market. Practitioners should also emphasise more on perceived utility of a pro-poor innovation if they are targeting the pro-poor innovation to older BOP consumers. Managers need to emphasise more on the hedonic feelings if they are targeting their pro-poor innovations in the urban BOP area.

In light of the above discussion, firms need to rethink and redesign their new product offerings to the BOP to ensure successful adoption. However, this research has some limitations and there are some fruitful areas to conduct further research, which will be discussed in the next section.

8.6 Limitations and Future Research

Even though this thesis provided an understanding of the key antecedents of pro-poor innovation adoption in the BOP context, the research was limited in some ways. Though two studies confirmed the developed model and its validity, the data collected was cross-sectional in nature. Longitudinal data would have been more desirable to collect for methodological reasons but doing so was not practical given the constraints of the study and the consumers being surveyed. Though other studies have used longitudinal data (Venkatesh et al., 2003) this tends to be in an organisational context, where gaining cooperation over time is more attainable.

Secondly, the empirical comparison of seven models (study 1) is based on only one pro-poor innovation. It would have been ideal to have developed the model based on several innovations, but this was not possible for this research. Therefore, there is a possibility that findings reported in this research may be less generalisable to other product categories (e.g., food products, toiletries). However, though this may be the case the empirical support for the applicability of the ITPIA model has been provided via two different pro-poor innovations (e.g., bKash mobile banking and UISC) leading credence to the findings here. Therefore, incorporating more pro-poor innovations from different product categories in the future, research can establish more confidence in the findings of the ITPIA model.

Thirdly, the results would be more generalisable if the sample size used in study 1 (n = 311) and study 2 (n = 198) were both larger and data was collected across multiple sites in

Bangladesh. A larger sample size and a greater geographical representation of respondents would have led to estimates with greater provision and more generalisability. However, smaller sample sizes were used here due to the lengthy face to face interviews which were time and resource intensive.

Also, though Bangladesh is often cited as a typical BOP country, the development and validation of the model here would have benefited from further exploration in other BOP contexts (e.g., India, South Africa, Brazil). However, this study could be argued to be exploratory in nature given it is the first study of its kind to develop and test a model of innovation adoption in the BOP, and as such this initial exploration provides insight for future research to focus on, and a methodological map for future more extensive work in the area. Furthermore, though Bangladesh is unique, its culture shares similarities with other BOP cultures (e.g., it tends to be more collectivist).

This research may also be limited by the methodology used. Specifically, given the resulting model was based on existing consumer innovation adoption models, the ITPIA model may not consider constructs and concepts unique to this BOP context that other qualitative research may help to uncover. Consequently, though the ITPIA model was validated on two samples and two products, it may not be comprehensive as a model to explain innovation adoption. Multi-method studies need to be conducted to gain different perspectives on this topic and highlight new and unresearched issues. Specifically, qualitative methods such as case studies, ethnographic approaches and participant observation would be useful in identifying *new* constructs of importance for further empirical testing on larger samples.

PLS-SEM was used in each study to assess the models. It was particularly suitable for study 1 because it included one formative construct (e.g., Poverty) and it was an

exploratory type analysis (see section 5.3 for further discussion). CB-SEM could have been used for study 2, which did not include any formative constructs. However, PLS-SEM was used to maintain consistency with the results of the first study and facilitate comparison of the results across studies. This is consistent with the position taken by Venkatesh et al. (2003) in their model comparison and validation research. Also, it is appropriate for analysis because the sample size of study 2 was small (n=198) and PLS-SEM is particularly suitable for small sample sizes (Reinartz et al., 2009; Hair et al. 2010). Nonetheless PLS-SEM has its limitations, including i) unable to test general model fit (Lowry and Gaskin, 2014), ii) not reliable for model validation of well-established theories, it is more appropriate for exploratory type of analysis (Heir et al., 2010). Yet, it is also a commonly used and widely accepted technique within the research methods literature (Lowry and Gaskin, 2014; Hair et al., 2010) and is gaining acceptance rapidly (Hair et al., 2014).

One issue that may arise within this type of model comparison approach is the overlap of constructs which are similar. Prior research, for example, has identified perceived ease of use, and perceived usefulness as separate constructs (e.g., Davis, 1989; Kulviwat et al., 2007). However, perceived ease of use and perceived usefulness are included here as different constituents of a broader index for perceived utility. This is consistent with other approaches in the literature (Venkatesh et al., 2003) but also conceptually appropriate because perceived utility (see definition on page 115) represents not only the benefits of using a pro-poor innovation but also the sacrifices needed to use a pro-poor innovation.

Research in innovation has a long history in studying adoption by examining consumer innovativeness. Such constructs may or may not be appropriate for the BOP, but this research would have benefited from measuring a greater number of consumer

characteristics to help ascertain how innovation adoption varies by segments. Though some consumer characteristics were considered (e.g., urban or rural BOP consumers, age, gender) it was not appropriate to further lengthen the questionnaire as it was already lengthy and time consuming to administer. Further questioning would have made the study unfeasible.

Individual differences remain a ripe area for future research. So far BOP research has assumed this market as a homogeneous mass of consumers. Researchers have called for further research in this area (e.g., Rangan et al., 2011). Though some individual characteristics were measured in this research and found to moderate some relationships (e.g., hedonic feelings, perceived utility), more work could be done on considering individual characteristics that may moderate the results. Future work could look at the notion of consumer innovativeness and other key individual difference frameworks in the various BOP markets that exist.

The modelling approach here provides an aggregated view of the relationships in the model. Further research could take specific elements in the model to examine how and in what circumstances, they affect adoption. This is somewhat akin to research on social norms, which either focuses on norms in aggregated models of behaviour (e.g., the TPB) or research on norms and the mechanism through which these norms affect behaviour (e.g., Goldstein et al., 2008).

Another important direction for future research is to tie this mature stream of research into other established streams of work. For example, little research has addressed the link between consumer adoption and consumers usage outcomes. It is always assumed that usage of pro-poor innovations will result in a positive outcome. However, this remains to be tested.

This research provided a better understanding of antecedents and theoretical models that can help to ensure successful adoption of pro-poor innovations in the BOP context. It is expected that this research will motivate other scholars to investigate the above-mentioned questions in future research.

8.7 Conclusion

In summary, this thesis investigated the main research question by conducting two studies. Study 1 carried out to empirically compare the validity of seven consumer based innovation adoption models in the BOP as well as conceptually and empirically develop the ITPIA model for the BOP. Later, Study 2 was conducted to validate the newly developed ITPIA model in the BOP market.

Consequently, this research contributes significantly to the BOP literature by providing a new and empirically verified model, which integrates the crucial elements of seven existing consumer based innovation adoption models. The empirical comparison of seven consumer based innovation adoption models also contributes by providing a better understanding regarding which innovation models or key antecedents explain adoption better than other models or antecedents. This thesis also contributes by taking account of consumer heterogeneity such as urban and rural BOP area and different age groups. Therefore, this research provides valuable theoretical and practical guidance about key antecedents, which influence the consumer adoption of pro-poor innovations in the BOP context.

Bibliography

Adams, D. A., Nelson, R. R., and Todd, P. A. (1992). Perceived usefulness, ease of use, and usage of information technology: a replication. *MIS Quarterly*, 16(2), 227-247.

Afuah, A. (1998). *Innovation management: Strategies, implementation, and profits*. New York: Oxford University Press.

Agarwal, B. (1983). Diffusion of rural innovations: some analytical issues and the case of wood-burning stoves. *World Development, 11*(4), 359-376.

Agarwal, R. and Prasad, J. (1997). The Role of Innovation Characteristics and Perceived Voluntariness in the Acceptance of Information Technologies. *Decision Sciences*, 28(3), 557-582.

Agarwal, R., and Karahanna, E. (2000). Time flies when you're having fun: Cognitive absorption and beliefs about information technology usage. *MIS Quarterly*, 665-694.

Agha, S., and Williams, E. (2015). Does the antenatal care visit represent a missed opportunity for increasing contraceptive use in Pakistan? An analysis of household survey data from Sindh province. *Health policy and planning*, 1-7.

Ahmed, F., Siwar, C., Idris, N. A. H., and Mia, M. S. (2011). Role of Microcredit in Reducing Vulnerability of the Rural Women: Evidence from Panchgarh District of Bangladesh. *World Applied Sciences Journal, 15*(9), 1325-1333.

Ahmed, S. S., Rayhan, S. J., Islam, M. A., and Mahjabin, S. (2012). Problems and prospects of mobile banking in Bangladesh. *Journal of Information Engineering and Applications*, *1*(6), 16-34.

Ajzen, I. (1991). Theories of Cognitive Self-Regulation The theory of planned behavior. *Organizational Behavior and Human Decision Processes*, 50(2), 179-211.

Ajzen, I., (1985). *From Intention to Actions: A Theory of Planned Behavior*, in Kuhl, J and Bechmann, J (Eds.), Springer Series in Social Psychology, Berlin, Springer.

Alalwan, A. A., Dwivedi, Y. K., Rana, N. P., Lal, B., and Williams, M. D. (2015). Consumer adoption of Internet banking in Jordan: Examining the role of hedonic motivation, habit, self-efficacy and trust. *Journal of Financial Services Marketing*, *20*(2), 145-157.

Alexander, D. L., Lynch Jr, J. G., and Wang, Q. (2008). As time goes by: Do cold feet follow warm intentions for really new versus incrementally new products?. *Journal of Marketing Research*, *45*(3), 307-319.

Allan, G. S., and Wolf Jr, W. C. (1978). Relationships between perceived attributes of innovations and their subsequent adoption. *Peabody Journal of Education*, *55*(4), 332-336.

Anderson, J., and Billou, N. (2007). Serving the world's poor: innovation at the base of the economic pyramid. *Journal of Business Strategy*, 28(2), 14–21.

Anderson, J., and Markides, C. (2007). Strategic innovation at the base of the pyramid. *Sloan Management Review*, *49*(August), 83–88.

Andersson, L. M., and Bateman, T. S. (1997). Cynicism in the workplace: Some causes and effects. *Journal of Organizational Behavior*, 18(5), 449– 469.

Armitage, C. J., and Conner, M. (2001). Efficacy of the theory of planned behaviour: A meta-analytic review. *British Journal of Social Psychology*, *40*(4), 471-499.

Arts, J. W., Frambach, R. T., and Bijmolt, T. H. (2011). Generalizations on consumer innovation adoption: A meta-analysis on drivers of intention and behavior. *International Journal of Research in Marketing*, *28*(2), 134-144.

Aulakh, P. S., and Gencturk, E. F. (2000). International principal–agent relationships—control, governance and performance. *Industrial Marketing Management*, 29(6), 521–538.

Austin, J. (1990). *Managing in Developing Countries: Strategic Analysis and Operating Techniques*. New York :The Free Press.

Bagozzi, R. P., and Yi, Y. (1990). Assessing method variance in multitrait–multimethod matrices: The case of self-reported affect and perceptions at work. *Journal of Applied Psychology*, 75 (5), 547–560.

Bagozzi, R. P., Yi, Y., and Phillips, L. W. (1991). Assessing construct validity in organizational research. *Administrative Science Quarterly*, 36, 421–458.

Bandyopadhyay, K., and Fraccastoro, K. A. (2007). The effect of culture on user acceptance of information technology. *Communications of the Association for Information Systems*, *19*(1), 23.

Banerjee, A. V. and Duflo, E. (2007). The Economic Lives of the Poor. *Journal of Economic Perspectives* , 21(1), 141-167.

Bangladesh | Data (2013). World Bank Website [Online]. Available from: http://data.worldbank.org/country/bangladesh [Accessed 7/1/2013].

Bangladesh In-depth PEST insights (2013). [online]. Available from: Market Line at http://store.marketline.com/Product/country_analysis_report_bangladesh_pest_insights?productid=ML00003-006 [Accessed the 26th May 2013].

Baron, S., Patterson, A., and Harris, K. (2006). Beyond technology acceptance: understanding consumer practice. *International Journal of Service Industry Management*, *17*(2), 111-135.

Baumgartner, H., and Steenkamp, J. B. E. (2001). Response styles in marketing research: A cross-national investigation. *Journal of Marketing Research*, 38(2),143-156.

Beach, L. R., and Mitchell, T. R. (1978). A contingency model for the selection of decision strategies. *Academy of Management Review*, *3*(3), 439-449.

Bearden, W. O., and Etzel, M. J. (1982). Reference group influence on product and brand purchase decisions. *Journal of Consumer Research*, 9(2), 183-194.

Bearden, W. O., Netemeyer, R. G., and Teel, J. E. (1989). Measurement of consumer susceptibility to interpersonal influence. *Journal of Consumer Research*, 5(4), 473-481.

Bell, E., and Bryman, A. (2007). The ethics of management research: an exploratory content analysis. *British Journal of Management*, *18*(1), 63-77.

Bem, S. L. (1981). The BSRI and Gender Schema Theory: A Reply to Spence and Helmreich, *Psychological Review*, *88*(4), 369- 371.

Benbasat, I., Goldstein, D. and Mead, M. (1987). The case research strategy in studies of information systems. *MIS Quarterly*, September, *11*(3), 369-386.

Berger, E., and Nakata, C. (2013). Implementing Technologies for Financial Service Innovations in Base of the Pyramid Markets. *Journal of Product Innovation Management*, *30*(6), 1199–1211. doi:10.1111/jpim.12054

Bertrand, J. T. (2004). Diffusion of innovations and HIV/AIDS. *Journal of Health Communication*, *9*(S1), 113-121.

Bertz, F. (1997). *Managing technological innovation: Competitive advantage from change*. New York :McGraw-Hill.

Bhatia, R. (1990). Diffusion of renewable energy technologies in developing countries: a case study of biogas engines in India. *World Development*, *18*(4), 575-590.

Bidgoli, H. (2010). *The handbook of technology management: Supply chain management, marketing and advertising, and global management* (Vol. 2). Wiley.

Biggs, S. D. (1990). A multiple source of innovation model of agricultural research and technology promotion. *World Development*, *18*(11), 1481-1499.

Blaikie, N. (2000). *Designing Social Research*, Polity, Cambridge.

Bobbitt, L. M., and Dabholkar, P. A. (2001). Integrating attitudinal theories to understand and predict use of technology-based self-service: the internet as an illustration. *International Journal of Service Industry Management*, *12*(5), 423-450.

Bollen, K. A., and Lennox, R. (1991). Conventional wisdom on measure- ment: A structural equation perspective. *Psychological Bulletin*, 110, 305–314.

Bond, S. (1993). *Experimental research nursing: necessary but not sufficient*. In Kitson, A. (Ed.) Nursing, Art and Science, Chapman and Hall, London.

Bracks, M., and Zeithaml, V. A. (1991). *Price and Brand Name as Indicators of Quality Dimensions*. Working Paper 91-130. Cambridge, MA: Marketing Science Institute.

Bradley, S. W., McMullen, J. S., Artz, K., and Simiyu, E. M. (2012). Capital is not enough: Innovation in developing economies. *Journal of Management Studies*, *49*(4), 684-717.

Brislin, R. W. (1980). Translation and content analysis of oral and written material. *Handbook of cross-cultural psychology*, *2*(2), 349-444.

Brown, S A., Venkatesh, V. and Bala, H. (2006). Household Technology Use: Integrating Household Life Cycle and the Model of Adoption of Technology in Households. *The Information Society*, 22 (4), 205–218.

Brown, S. A., and Venkatesh, V. (2005). A Model of Adoption of Technology in the Household: A Baseline Model Test and Extension Incorporating Household Life Cycle. *Management Information Systems Quarterly*, *29*(3), 4.

Brown, S. A., Venkatesh, V., and Goyal, S. (2014). Expectation confirmation in information systems research: a test of six competing models. *MIS Quarterly*, *38*(3), 729-756.

Bruner, G. C., and Kumar, A. (2005). Explaining consumer acceptance of handheld Internet devices. *Journal of Business Research*, *58*(5), 553-558.

Burrell, G. and Morgan, G. (1979). *Sociological Paradigms and Organisational Analysis*. London: Heinemann.

Cai, J., Yang, D., and Li, D. (2007). Designing the Right IT Services for the Bottom of the Pyramid. *Communications of the Association for Information Systems*, *19*(1), 22.

Campbell, D. T., and O'Connell, E. J. (1982). Methods as diluting trait relationships rather than adding irrelevant systematic variance. In D. Brinberg and L. Kidder (Eds.), Forms of validity in research (pp. 93–111). San Francisco: Jossey-Bass.

Cao, M., Zhang, Q., and Seydel, J. (2005). B2C e-commerce web site quality: an empirical examination. *Industrial Management & Data Systems*, *105*(5), 645-661.

Carson, D., Gilmore, A., Perry, C. and Gronhaug, K. (2001). *Qualitative Marketing Research*, Sage Publications, London.

Castaño, R., Sujan, M., Kacker, M., and Sujan, H. (2008). Managing consumer uncertainty in the adoption of new products: temporal distance and mental simulation. *Journal of Marketing Research*, *45*(3), 320-336.

Chau PYK and Hu PJ-H (2001). Information Technology Acceptance by Individual Professionals: A Model Comparison Approach. *Decision Sciences*, 32 (4), 699–719. Available at: http://doi.wiley.com/10.1111/j.1540-5915.2001.tb00978.x.

Cheung W, Chang MK and Lai VS (2000). Prediction of Internet and World Wide Web usage at work: a test of an extended Triandis model. *Decision Support Systems*, 30 (1), 83–100.

Chikweche, T., Stanton, J., and Fletcher, R. (2012). Family purchase decision making at the bottom of the pyramid. *Journal of Consumer Marketing*, *29*(3), 202-213.

Childers, T. L., Carr, C. L., Peck, J., and Carson, S. (2002). Hedonic and utilitarian motivations for online retail shopping behavior. *Journal of Retailing*, *77*(4), 511-535.

Chin, W. W. (1998). The partial least squares approach to structural equation modeling. *Modern Methods for Business Research*, *295*(2), 295-336.

Chin, W. W., and Todd, P. A. (1995). On the use, usefulness, and ease of use of structural equation modeling in MIS research: a note of caution. *MIS Quarterly*, 237-246.

Chin, W. W., Marcolin, B. L., and Newsted, P. R. (2003). A partial least squares latent variable modeling approach for measuring interaction effects: Results from a Monte Carlo simulation study and an electronic-mail emotion/adoption study.*Information systems research*, *14*(2), 189-217.

Chin,W.W.,and Newsted, P. R. (1999). Structural equation modelling analysis with small samples using partial least squares. In R. H. Hoyle (Ed.), *Statistical strategies for small sample research* , 307–341. Thousand Oaks, CA: Sage.

Chisnall, P. (2001). *Marketing Research*. (6th edition), McGraw-Hill, London.

Chiu, C. M., Hsu, M. H., and Wang, E. T. (2006). Understanding knowledge sharing in virtual communities: an integration of social capital and social cognitive theories. *Decision Support Systems*, *42*(3), 1872-1888.

CIA (2013). "The World Factbook" [online]. Available from: https://www.cia.gov/library/publications/the-world-factbook/ [Accessed 6/12/2013].

Cohen, J. B. (1967). An interpersonal orientation to the study of consumer behavior. *Journal of Marketing Research*, 270-278.

Colleran, H., and Mace, R. (2015). Social network-and community-level influences on contraceptive use: evidence from rural Poland. *Proceedings of the Royal Society of London B: Biological Sciences*, *282*(1807), 20150398.

Company Profile | bKash [Online]. Available from: http://bkash.com/about/company-profile [Accessed 5/12/2013].

Compeau, D. R., Meister, D. B., and Higgins, C. A. (2007). From Prediction to Explanation: Reconceptualizing and Extending the Perceived Characteristics of Innovating. *Journal of the Association for Information Systems*, *8*(8), 409.

Conway, J. M. (1998). Understanding method variance in multitrait-multirater performance appraisal matrices: Examples using general impressions and interpersonal affect as measured method factors. *Human Performance*, 11, 29–55.

Cooper, R. G., and Kleinschmidt, E. J. (1987). New products: What separates winners from losers? *Journal of Product Innovation Management*, 4, 169–184.

Cote, J. A., and Buckley, R. (1987). Estimating trait, method, and error variance: Generalizing across 70 construct validation studies. *Journal of Marketing Research*, 24, 315–318.

Craig, C. S., and Douglas, S. P. (2001). Conducting international marketing research in the twenty-first century. *International Marketing Review*, *18*(1), 80-90.

Cui, G., Bao, W., and Chan, T.S. (2009). Consumers' adoption of new technology products: the role of coping strategies. *Journal of Consumer Marketing*, 26(2), 110–120.

Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319-340.

Davis, F. D. (1993). User Acceptance of Information Technology: System Characteristics, User Perceptions and Behavioral Impacts. *International Journal of Man Machine Studies*, 38(3), 475-487.

Davis, F. D., Bagozzi, R. P., and Warshaw, P. R. (1989). User acceptance of computer technology: a comparison of two theoretical models. *Management Science*, *35*(8), 982-1003.

Davis, T. C., Wolf, M. S., Bass, P. F., Arnold, C. L., Huang, J., Kennen, E. M., and Blondin, J. (2008). Provider and patient intervention to improve weight loss: A pilot study in a public hospital clinic. *Patient Education and Counseling*, *72*(1), 56-62.

Dawar, N. and Chattopadhyay, A. (2000). Rethinking marketing programs for emerging markets. Working Paper Number 320, INSEAD, Fontainebleau, June.

De Silva, H., and Zainudeen, A. (2007, December). Teleuse on a Shoestring: Poverty reduction through telecom access at the 'Bottom of the Pyramid'. In*Centre for Poverty Analysis Annual Symposium on Poverty Research, Sri Lanka, Colombo*.

De Silva, H., Ratnadiwakara, D., and Zainudeen, A. (2011). Social Influence in Mobile Phone Adoption: Evidence from the Bottom of the Pyramid in Emerging Asia. *Information Technologies & International Development*, *7*(3), 1.

DeLone, W. H., and McLean, E. R. (1992). Information systems success: the quest for the dependent variable. *Information Systems Research*, *3*(1), 60-95.

Deutschmann, P. J., and Borda, O. F. (1962). Communication and adoption patterns in an Andean village. *Communication and adoption patterns in an Andean village.* San Jose, Costa Rica, Programa Interamericano de Informacion Popular, Report.

Dinica, I., and Motteau, D. (2012). The market of the bottom of the pyramid: Impact on the marketing-mix of companies.: A quantitative study of three African countries. Thesis. UMEA University.

Dougherty, D. (1990). Understanding new markets for new products. *Strategic management journal*, 59-78.

Drucker, P. F. (1958). Marketing and economic development. *Journal of Marketing*, 252-259.

Dubey, S. K., and Malik, R. K. (2013). Comparative Analysis of Rural Consumers' Preferences for Mobile Service Providers. *Amity Management Review*, *3*(1).

Durvasula, S., Lysonski, S., and Andrews, J. C. (1993). Cross-Cultural Generalizability of a Scale for Profiling Consumers' Decision-Making Styles.*Journal of Consumer Affairs*, *27*(1), 55-65.

Dwivedi, Y. K., Choudrie, J., and Brinkman, W. P. (2006). Development of a survey instrument to examine consumer adoption of broadband. *Industrial Management & Data Systems*, *106*(5), 700-718.

Dwivedi, Y. K., Khan, N., and Papazafeiropoulou, A. (2007). Consumer adoption and usage of broadband in Bangladesh. *Electronic Government, an International Journal*, *4*(3), 299-313.

Dwivedi, Y. K., Lal, B., and D. Williams, M. (2009). Managing consumer adoption of broadband: examining drivers and barriers. *Industrial Management & Data Systems*, 109, 357–369.

Easterby-Smith, M., Thorpe, R., & Jackson, P. R. (2012). *Management research*. Sage.

Eifert, B., Gelb, A. and Ramachandran, V. (2005). *Business Environment and Comparative Advantage in Africa: Evidence from the Investment Climate Data*. World Bank working paper series, The World Bank, Washington, DC, 195-233.

Ersado, L. (2006). *Income diversification in Zimbabwe: Welfare implications from urban and rural areas* (Vol. 3964). World Bank Publications.

Evans, P. (2002). Collective capabilities, culture, and Amartya Sen'sDevelopment as Freedom. *Studies in Comparative International Development*, *37*(2), 54-60.

Fay, M. and Morrison, M. (2006). *Infrastructure in Latin America Recent Developments and Key Challenges.* The World Bank, Washington, DC.

Feder, G., and Umali, D. L. (1993). The adoption of agricultural innovations: a review. *Technological Forecasting and Social Change*, *43*(3), 215-239.

Ferreira, J. B., da Rocha, A., and da Silva, J. F. (2014). Impacts of technology readiness on emotions and cognition in Brazil. *Journal of Business Research*, *67*(5), 865-873.

Fishbein, M., and Ajzen, I. (1975). *Belief, attitude, intention and behavior: An introduction to theory and research*.Reading, MA: Addison- Wesley.

Fliegel, F.C. and Kivlin, J.E. (1966). Attributes of innovations as factors in diffusion. *American Journal of Sociology,* 235-248.

Fornell, C., and Bookstein, F. L. (1982). Two structural equation models: LISREL and PLS applied to consumer exit-voice theory. *Journal of Marketing Research*, 19, 440-452.

Foster, C., and Heeks, R. (2013). Innovation and scaling of ICT for the bottom-of-the-pyramid. *Journal of Information Technology*, *28*(4), 296-315.

Francis, J. J., Eccles, M. P., Johnston, M., Walker, A., Grimshaw, J., Foy, R., ... and Bonetti, D. (2004). Constructing questionnaires based on the theory of planned behaviour. *A manual for health services researchers*, 2010, 2-12.

Frijda, N., and Jahoda, G. (1966). On the scope and methods of cross-cultural research. *International Journal of Psychology*, *1*(2), 109-127.

Ganesh, J., Arnold, M. J., and Reynolds, K. E. (2000). Understanding the customer base of service providers: an examination of the differences between switchers and stayers. *Journal of marketing*, *64*(3), 65-87.

Garvin, D. A. (1984). What does product quality really mean? *Sloan Management Review* 26 (Fall) 25-39.

George, G., McGahan, A. M., and Prabhu, J. (2012). Innovation for inclusive growth: Towards a theoretical framework and a research agenda. *Journal of Management Studies*, *49*(4), 661-683.

Goldman Sachs Global Economics Group (2007). BRICs and Beyond, available at http://www2.goldmansachs.com/ideas/brics/book/BRIC-Full.pdf [accessed 19 April 2013].

Goldstein, N. J., Cialdini, R. B., and Griskevicius, V. (2008). A room with a viewpoint: Using social norms to motivate environmental conservation in hotels. *Journal of Consumer Research, 35*(3), 472-482.

Goodhue, D. L. (1995).Understanding User Evaluations of Information Systems, *Management Science,* 41(12), 1827-1844.

Goodhue, D. L., and Thompson, R. L. (1995). Task- Technology Fit and Individual Performance. *MIS Quarterly,* 9(2). 213-236.

Greene, C. N., and Organ, D. W. (1973). An evaluation of causal models linking the received role with job satisfaction. *Administrative Science Quarterly*, 18, 95–103.

Griffin, R. W. (2006). *Principles of Management*. Cengage Learning.

Guba, E. G. (Ed.). (1990). *The paradigm dialog*. SAGE Publications, Incorporated.

Guba, E. G., and Lincoln, Y. S. (1994). Competing paradigms in qualitative research. *Handbook of Qualitative Research, 2*, 163-194.

Gutek, B. A., and Bikson, T. K. (1985). Differential experiences of men and women in computerized offices. *Sex Roles*, *13*(3-4), 123-136.

Hair, J. F., Black, W., Babin, B. Y. A., Anderson, R. E., and Tatham, R. L. RE (2010). *Multivariate Data Analysis. A Global Perspective*. Upper Saddle River, NJ: Prentice Hall.

Hair, J. F., Sarstedt, M., Ringle, C. M., and Mena, J. A. (2012). An assessment of the use of partial least squares structural equation modeling in marketing research. *Journal of the Academy of Marketing Science*, *40*(3), 414-433.

Hale, T. M., Cotten, S. R., Drentea, P., and Goldner, M. (2010). Rural–Urban Differences in General and Health-Related Internet Use. *American Behavioral Scientist*. *53*(9), 1304-1325.

Hall, B. H., and Khan, B. (2003). *Adoption of new technology* (No. w9730). National Bureau of Economic Research.

Hall, D. T., and Mansfield, R. (1975). Relationships of age and seniority with career variables of engineers and scientists. *Journal of Applied Psychology*, *60*(2), 201.

Hammond, A. L., and C. K. Prahalad (2004). Selling to the poor. *Foreign Policy*, 142 (May/June): 30–37.

Hammond, A.L., Krammer, W.J., Katz, R.S., Tran, J.T. and Walker, C. (2007). The Next 4 Billion. Market Size and Business Strategy at the Base of the Pyramid, World Resource Institute, International Finance Corporation.

Hardesty, D. M., and Bearden, W. O. (2004). The use of expert judges in scale development. *Journal of Business Research*, *57*(2), 98–107.

Harkness, J. A., Van de Vijver, F. J., and Mohler, P. P. (2003). *Cross-cultural survey methods* (Vol. 325). Hoboken: Wiley-Interscience.

Harrison, A. W., and Rainer Jr, R. K. (1992). The influence of individual differences on skill in end-user computing. *Journal of Management Information Systems*, 93-111.

Hart, S., and Prahalad, C. K. (2002). The Fortune at the Bottom of the Pyramid. *Strategy+ Business*, 26, 54-67.

Hartwick, J., and Barki, H. (1994). Explaining the role of user participation in information system use. *Management Science*, *40*(4), 440-465.

Hasan, M. R., Lowe, B. and Rahman, M. (2016) Visual Cues and Innovation Adoption among Consumers at the Bottom of the Pyramid, Forthcoming *Qualitative Market Research: An International Journal*, DOI: 10.1108/QMR-04-2015-0032.

Hassan, M. R., Kabir, A. L., Mahmud, A. M., Rahman, F., Hossain, M. A., Bennoor, K. S., and Rahman, M. M. (2002). Self-reported asthma symptoms in children and adults of Bangladesh: findings of the National Asthma Prevalence Study. *International Journal of Epidemiology*, *31*(2), 483-488.

Hauser, J., Tellis, G. J., and Griffin, A. (2006). Research on innovation: A review and agenda for marketing science. *Marketing Science*, *25*(6), 687-717.

Hoskisson, R.E., Eden, L., Lau, C.M. and Wright, M. (2000). Strategy in Emerging Economies. *The Academy of Management Journal*, Vol. 43, No. 3, 249-267.

Hsu, M. H., Chiu, C. M., and Ju, T. L. (2004). Determinants of continued use of the WWW: an integration of two theoretical models. *Industrial Management & Data Systems*, *104*(9), 766-775.

Hughes, J. (1994). *The philosophy of social research*. Essex, London.

Hughes, J. and Sharrock, W. (1997). *The Philosophy of Social Research*, 3rd edition, Longman.

Hunt, S. D. (1991). *Modern marketing theory: Critical issues in the philosophy of marketing science*. Cincinnati: South-Western Publishing Company.

Igbaria, M., and Parasuraman, S. (1989). A path analytic study of individual characteristics, computer anxiety and attitudes toward microcomputers. *Journal of Management*, *15*(3), 373-388.

Ireland J (2008). Lessons for successful BOP marketing from Caracas' slums. *Journal of Consumer Marketing*. 25 (7), 430–438. Available at: http://www.emeraldinsight.com/10.1108/07363760810915644 (accessed 18/03/13).

Ismail, T., and Masinge, K. (2012). Mobile banking: Innovation for the poor. *UNU-MERIT Working Papers ISSN*, (31), 1–49. Retrieved from http://137.215.9.22/handle/2263/21394

Ivatury, G., and Pickens, M. (2006). *Mobile phone banking and low-income customers: evidence from South Africa*. Consultative Group to Assist the Poor/The World Bank and United Nations Foundation.

Jarvis, C. B., MacKenzie, S. B., and Podsakoff, P. M. (2003). A critical review of construct indicators and measurement model misspecification in marketing and consumer research. *Journal of Consumer Research*, *30*(2), 199-218.

Jebarajakirthy, C., and Lobo, A. (2015). A study investigating attitudinal perceptions of microcredit services and their relevant drivers in bottom of pyramid market segments. *Journal of Retailing and Consumer Services*, *23*, 39-48.

Johnson, E. J., and Payne, J. W. (1985). Effort and accuracy in choice.*Management Science*, *31*(4), 395-414.

Johnson, S., Ostry, J. and Subramanian, A. (2007). *The prospects for sustained growth in Africa: benchmarking the constraints.* IMF Working Paper No. 07/52, IMF, Washington, DC.

Joo, Y. J., Lim, K. Y., and Lim, E. (2014). Investigating the structural relationship among perceived innovation attributes, intention to use and actual use of mobile

learning in an online university in South Korea. *Australasian Journal of Educational Technology*, *30*(4).

Jose, S., Rugimbana, R., and Gatfield, T. (2012). Consumer responses to CSR driven microfinance strategy of banks-an empirical investigation based on India. *International Journal of Business and Management*, *7*(21), p1.

Jung, J., Chan-Olmsted, S., Park, B., and Kim, Y. (2012). Factors affecting e-book reader awareness, interest, and intention to use. *new media & society*,*14*(2), 204-224.

Kafi, M. A., and Hossain, M. A. (2011). Formal Education and Socio-Economic Condition of Rural People in Bangladesh: A Comparative Study between Literate and Illiterate People on Raninagar Upazilla of Naogaon District. *Journal of Education and Practice*, *2*(11 & 12), 1-13.

Kapoor, K. K., Dwivedi, Y. K., and Williams, M. D. (2015a). Empirical Examination of the Role of Three Sets of Innovation Attributes for Determining Adoption of IRCTC Mobile Ticketing Service. *Information Systems Management*, *32*(2), 153-173.

Kapoor, K. K., Dwivedi, Y. K., and Williams, M. D. (2015b). Examining the role of three sets of innovation attributes for determining adoption of the interbank mobile payment service. *Information Systems Frontiers*, 1-18.

Karnani, A. G. (2007). *Fortune at the Bottom of the Pyramid: A mirage: How the private sector can help alleviate poverty*. Ross School of Business.

Kaushik, P. D., and Singh, N. (2004). Information technology and broad-based development: preliminary lessons from North India. *World Development*, *32*(4), 591-607.

Khan, S., Murray, R. P., and Barnes, G. E. (2002). A structural equation model of the effect of poverty and unemployment on alcohol abuse. *Addictive Behaviors, 27*(3), 405–23.

Khanam, M. A., Streatfield, P. K., Kabir, Z. N., Qiu, C., Cornelius, C., and Wahlin, Å. (2011). Prevalence and patterns of multimorbidity among elderly people in rural Bangladesh: a cross-sectional study. *Journal of Health, Population, and Nutrition*, *29*(4), 406.

Khavul, S., and Bruton, G. D. (2013). Harnessing Innovation for Change: Sustainability and Poverty in Developing Countries. *Journal of Management Studies*, *50*(2), 285–306.

Kim, G. S., Park, S. B., and Oh, J. (2008). An examination of factors influencing consumer adoption of short message service (SMS). *Psychology & Marketing*, *25*(8), 769-786.

Kim, H.W., Hock, C.C., and Sumeet, G. (2007). Value-based Adoption of Mobile Internet: An empirical investigation. *Decision Support Systems,* 43(1), 111–126.

Kim, J., and Forsythe, S. (2007). Hedonic usage of product virtualization technologies in online apparel shopping. *International Journal of Retail & Distribution Management*, *35*(6), 502-514.

King, W. R., and He, J. (2006). A meta-analysis of the technology acceptance model. *Information & Management*, *43*(6), 740-755.

Kirchmeyer, C. (2002). Change and Stability in Manager's Gender Roles. *Journal of Applied Psychology*, 87(5), 929-939.

Kivlin, J.E. (1960). *Characteristics of Farm Practices Associated with Rate of Adoption: A Thesis in Rural Sociology.* Ph.D Thesis. University Park, Pennsylvania State University.

Kline, T. J. B., Sulsky, L. M., and Rever-Moriyama, S. D. (2000). Common method variance and specification errors: A practical approach to detection. *The Journal of Psychology*, 134, 401–421.

Ko, E., Kim, E. Y., and Lee, E. K. (2009). Modeling consumer adoption of mobile shopping for fashion products in Korea. *Psychology & Marketing*, *26*(7), 669-687.

Kohli, A. K., and Zaltman, G. (1988). Measuring multiple buying influences.*Industrial Marketing Management*, *17*(3), 197-204.

Kotler, P., and Lee, N. R. (2009). *Up and out of poverty: The social marketing solution*. Pearson Prentice Hall.

Krahn, H., Harrison, T., Haan, M., and Johnston, W. (2009). Social capital and political engagement in Canada. *International Journal of Contemporary Sociology*, *46*(1), 51-76.

Kulviwat, Songpol, Gordon C Bruner Burner II, Suzanne A Nasco, and Terry Clark. (2007). Toward a Unified Theory of Consumer Acceptance. *Psychology & Marketing*, 24(12), 1059–1084.

Kumar, R., and Best, M. L. (2007). Social impact and diffusion of telecenter use: A study from the sustainable access in rural India project. *The Journal of Community Informatics*, *2*(3).

Kumar, S., and Phrommathed, P. (2005). *New product development: an empirical study of the effects of innovation strategy, organization learning and market conditions* (Vol. 191). Springer Verlag.

Kwong, S. W., and Park, J. (2008). Digital music services: consumer intention and adoption. *Service Industries Journal*, 28(10), 1463–1481.

Leonard-Barton, D., and Deschamps, I. (1988).Managerial Influence in the Implementation of New Technology. *Management Science*, 34(10), 1252-1265.

Levy, J. A. (1988). Intersections of Gender and Aging, *The Sociological Quarterly*, 29(4), 479-486.

Li, X., Gan, C., and Hu, B. (2011). Accessibility to microcredit by Chinese rural households. *Journal of Asian Economics*, *22*(3), 235-246.

Lichtenstein, D. R., Netemeyer, R. G., and Burton, S. (1990). Distinguishing coupon proneness from value consciousness: an acquisition-transaction utility theory perspective. *Journal of Marketing*, *54*(3), 54-67.

Liljander, V., Gillberg, F., Gummerus, J., and van Riel, A. (2006). Technology readiness and the evaluation and adoption of self-service technologies. *Journal of Retailing and Consumer Services*, *13*(3), 177-191.

Limayem, M., Hirt, S. G., and Chin, W. W. (2001). Intention does not always matter: the contingent role of habit on IT usage behavior. *ECIS 2001 Proceedings*, 56.

Lin, C. H., Shih, H. Y., and Sher, P. J. (2007). Integrating technology readiness into technology acceptance: The TRAM model. *Psychology & Marketing*, *24*(7), 641-657.

Lin, J. S. C., and Hsieh, P. L. (2011). Assessing the self-service technology encounters: development and validation of SSTQUAL scale. *Journal of Retailing*, *87*(2), 194-206.

Lindell, M. K., and Brandt, C. J. (2000). Climate quality and climate consensus as mediators of the relationship between organizational antecedents and outcomes. *Journal of Applied Psychology*, 85, 331–348.

Lindell, M. K., and Whitney, D. J. (2001). Accounting for common method variance in cross-sectional designs. *Journal of Applied Psychology*, 86, 114–121.

Loch, K. D., Straub, D. W., and Kamel, S. (2003). Diffusing the internet in the Arab world: the role of social norms and technological culturation. *IEEE Transactions on Engineering Management*, *50*(1), 45-63.

London, T., and S. L. Hart. (2004). Reinventing strategies for emerging markets: Beyond the transnational model. *Journal of International Business Studies* ,35: 350–70.

Lowe, B., and Alpert, F. (2015). Forecasting consumer perception of innovativeness, *Technovation*. In press, published online 6th March, 2015, doi: 10.1016/j.technovation.2015.02.001

Lowe, B., and Laffey, D. (2011). Is Twitter for the birds? Using Twitter to enhance student learning in a marketing course. *Journal of Marketing Education*, 33(2), 183-192.

Lowe, Ben, Steve Ward, Hume Winzar, Des Laffey, and William Collier (2013). The Use of Web 2.0 Technologies in Marketing Classes: Key Drivers of Student Acceptance, *Journal of Consumer Behaviour*, Vol. 12 (5), 412-422. DOI: 10.1002/cb.1444.

Lowe, B., Lynch, D., and Lowe, J. (2014). Reducing household water consumption: a social marketing approach. *Journal of Marketing Management*, (October 2014), 1–31.

Lowry, P. B., and Gaskin, J. (2014). Partial Least Squares (PLS) Structural Equation Modeling (SEM) for Building and Testing Behavioral Causal Theory: When to Choose It and How to Use It. *IEEE Transactions on Professional Communication*, 57(2), 123-146.

Lubinski, D., Tellegen, A. and Butcher, J. N, (1983). Masculinity, Femininity, and Androgyny Viewed and Assessed as Distinct Concepts. *Journal of Personality and Social Psychology* (44:2), 428-439.

Lucas Jr, H. C. (1978). Empirical evidence for a descriptive model of implementation. *MIS Quarterly*, 2(2), 27-42.

Lynott, P. P., and McCandless, N. J. (2000). The Impact of Age vs. Life Experiences on the Gender Role Attitudes of Women in Different Cohorts. *Journal of Women and Aging*, 12(2), 5-21.

Maertens, A., and Barrett, C. B. (2013). Measuring social networks' effects on agricultural technology adoption. *American Journal of Agricultural Economics*, *95*(2), 353-359.

Mahajan, V., Pratini de Moraes, M.V. and Wind, J. (2000).The invisible global market. *Marketing Management*, Winter, 31-5.

Maneesriwongul, W., and Dixon, J. K. (2004). Instrument translation process: a methods review. *Journal of Advanced Nursing*, *48*(2), 175-186.

Manning, K. C., Bearden, W. O., and Madden, T. J. (1995). Consumer innovativeness and the adoption process. *Journal of Consumer Psychology*, *4*(4), 329-345.

Mansfield, E. (1961). Technical change and the rate of imitation. *Econometrica: Journal of the Econometric Society*, 29(4), 741-766.

Marakas, G., Johnson, R., and Clay, P. F. (2007). The Evolving Nature of the Computer Self-Efficacy Construct: An Empirical Investigation of Measurement Construction, Validity, Reliability and Stability Over Time. *Journal of the Association for Information Systems*, *8*(1), 2.

Marcoulides, G. A., and Saunders, C. (2006). PLS: A silver bullet?.*Management Information Systems Quarterly*, *30*(2), 1.

Martini, T. S., and Page, S. (1996). Attributions and the stigma of illiteracy: Understanding help seeking in low literate adults. *Canadian Journal of Behavioural Science*, *28*(2), 121.

Mathieson, K. (1991). Predicting user intentions: comparing the technology acceptance model with the theory of planned behavior. *Information Systems Research*, *2*(3), 173-191.

McGivern, Y. (2006). *The practice of market and social research: an introduction*. Editorial Dunken.

Mehrabian, A., and Russell, J. A. (1974). *An approach to environmental psychology*. *Cambridge*, MA: MIT Press.

Melchiorre, P. (2003). *No todos pagamos igual*. Master's Thesis, IESA, Caracas, Venezuela.

Mendoza, R. U., and Thelen, N. (2008). Innovations to Make Markets More Inclusive for the Poor. *Development Policy Review*, *26*(4), 427–458.

Meuter, M. L. Mary Jo Bitner, Amy Ostrom, and Stephan W. Brown (2005). Choosing Among Alternative Service Delivery Modes: An Investigation of Customer Trial of Self-Service Technologies. *Journal of Marketing*, *69*(2), 61-83.

Millsap, R. E. (1990). A cautionary note on the detection of method variance in multitrait–multimethod data. *Journal of Applied Psychology*, 75, 350–353.

Moore, G. C., and Benbasat, I. (1991). Development of an instrument to measure the perceptions of adopting an information technology innovation. *Information Systems Research, 2*(3), 192-222.

Morris, M. G., and Venkatesh, V. (2000). Age Differences in Technology Adoption Decisions: Implications for a Changing Workforce . *Personnel Psychology* (53:2), 375-403.

Motowidlo, S. J. (1982). Sex role orientation and behavior in a work setting.*Journal of Personality and Social Psychology*, *42*(5), 935.

Mun, Y. Y., Jackson, J. D., Park, J. S., and Probst, J. C. (2006). Understanding information technology acceptance by individual professionals: Toward an integrative view. *Information & Management, 43*(3), 350-363.

Nahapiet, J., and Ghoshal, S. (1998). Social capital, intellectual capital, and the organizational advantage. *Academy of Management Review, 23*(2), 242-266.

Nakata, C., and Weidner, K. (2012). Enhancing New Product Adoption at the Base of the Pyramid: A Contextualized Model. *Journal of Product Innovation Management*, *29*(1), 21–32.

Nasco, S. A., Kulviwat, S., Kumar, A., Bruner, I. I., and Gordon, C. (2008). The CAT model: Extensions and moderators of dominance in technology acceptance. *Psychology & Marketing*, *25*(10), 987-1005.

Netemeyer, R. G., Boles, J. S., and McMurrian, R. (1996). Development and validation of work–family conflict and family–work conflict scales. *Journal of Applied Psychology*, *81*(4), 400.

Nidumolu, R., Prahalad, C. K., and Rangaswami, M. R. (2009). Why sustainability is now the key driver of innovation. *Harvard Business Review*, *87*(9), 56-64.

Nunnally, J. C., Bernstein, I. H., and Berge, J. M. T. (1967). *Psychometric Theory* (Vol. 226). New York: McGraw-Hill.

Nwanko, S. (2000). Assessing the marketing environment in sub-Saharan Africa: opportunities and threats analysis. *Marketing Planning and Intelligence*, Vol. 18 No. 3, 144-513.

Omar, O. E., and Owusu-Frimpong, N. (2007). Life Insurance in Nigeria: An Application of the Theory of Reasoned Action to Consumers' Attitudes and Purchase Intention. *The Service Industries Journal*, 27(7), 963–976.

O'Neill, J. (2013). *The BRIC road to growth*. London Publishing Partnership.

Parasuraman, A. (2000).Technology readiness index (TRI):A multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research*, 2, 307–320.

Parker, C. P. (1999). A test of alternative hierarchical models of psychological climate: Pcg, satisfaction, or common method variance? *Organizational Research Methods*, 2, 257–274.

Parry, M. E., Kawakami, T., and Kishiya, K. (2012). The Effect of Personal and Virtual Word-of-Mouth on Technology Acceptance. *Journal of Product Innovation Management*, *29*(6), 952-966.

Pavlou, P. A., Liang, H., and Xue, Y. (2007). Understanding and mitigating uncertainty in online exchange relationships: a principal-agent perspective. *MIS Quarterly*, *31*(1), 105-136.

Payaud, M. A. (2014). Marketing strategies at the bottom of the pyramid: Examples from Nestle, Danone, and Procter & Gamble. *Global Business and Organizational Excellence*, *33*(2), 51-63.

Payne, J. W. (1982). Contingent decision behavior. *Psychological Bulletin*, *92*(2), 382.

Petter, S., Straub, D., and Rai, A. (2007). Specifying formative constructs in information systems research. *MIS Quarterly*, *31*(4), 623-656.

Pick, J. B., Gollakota, K., and Singh, M. (2014). Technology for development: Understanding influences on use of rural telecenters in India. *Information Technology for Development*, *20*(4), 296-323.

Plouffe, C. R., Hulland, J. S., and Vandenbosch, M. (2001). Research Report: Richness Versus Parsimony in Modelling Technology Adoption Decisions—Understanding Merchant Adoption of a Smart Card-Based Payment System. *Information Systems Research*, 12 (2), 208-222.

Plude, D. J., and Hoyer, W. J. (1985). Attention and performance: Identifying and localizing age deficits. *Aging and human performance*, 47-99.

Podsakoff, P. M., MacKenzie, S. B., Lee, J. Y., and Podsakoff, N. P. (2003). Common method biases in behavioral research: a critical review of the literature and recommended remedies. *Journal of Applied Psychology*, *88*(5), 879.

Prahalad, C K (2005). *Fortune at the bottom of the pyramid: Eradicating poverty through profits*. Upper Saddle River, NJ: Wharton School Publishing.

Prahalad, C K (2010). *Fortune at the bottom of the pyramid: Eradicating poverty through profits*. Upper Saddle River, NJ: Wharton School Publishing.

Prahalad, C. K. (2012). Bottom of the Pyramid as a Source of Breakthrough Innovations. *Journal of Product Innovation Management*, *29*(1), 6-12.

Prahalad, C. K. (2014). *The Fortune at the Bottom of the Pyramid: Eradicating Poverty through profits*. Pearson Education.

Preacher, K. J., and Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods*, *40*(3), 879-891.

Prugsamatz, S., Lowe, B., and Alpert, F. (2010). Modelling consumer entertainment software choice: An exploratory examination of key attributes, and differences by gamer segment. *Journal of Consumer Behaviour*, *9*(5), 381-392.

Puri, R. (1996). Measuring and modifying consumer impulsiveness: A cost-benefit accessibility framework. *Journal of Consumer Psychology*, *5*(2), 87-113.

Rahim, S. A. (1961). The diffusion and adoption of agricultural practices: A study in a village in East Pakistan. *Comilla: East Pakistan Academy of Village Development*.

Rahman, M., Hasan, M. R., and Floyd, D. (2013). Brand Orientation as a Strategy That Influences the Adoption of Innovation in the Bottom of the Pyramid Market, *Strategic Change*, Vol. 22 No.3/4, pp. 225–239. doi:10.1002/jsc

Ramani, S. V., SadreGhazi, S., and Duysters, G. (2012). On the diffusion of toilets as bottom of the pyramid innovation: Lessons from sanitation entrepreneurs. *Technological Forecasting and Social Change*, *79*(4), 676–687.

Rana, N. P., and Dwivedi, Y. K. (2015). Citizen's adoption of an e-government system: Validating extended social cognitive theory (SCT). *Government Information Quarterly*, *32*(2), 172-181.

Rana, N. P., Dwivedi, Y. K., Williams, M. D., and Weerakkody, V. (2015). Investigating success of an e-government initiative: Validation of an integrated IS success model. *Information Systems Frontiers*, *17*(1), 127-142.

Rangan, V., Chu, M., and Petkoski, D. (2011). Segmenting the base of the pyramid. *Harvard Business Review*, (June).

Reinartz, W., Haenlein, M., and Henseler, J. (2009). An empirical comparison of the efficacy of covariance-based and variance-based SEM. *International Journal of research in Marketing*, *26*(4), 332-344.

Rijsdijk, S. A., and Hultink, E. J. (2009). How Today's Consumers Perceive Tomorrow's Smart Products. *Journal of Product Innovation Management*, *26*(1), 24-42.

Rogers, E. M.(2003). *Diffusion of innovations* (5th ed.). New York: Free Press.

Rogers, E.M. (1962). *Diffusion of innovations*. 1st edition. New York: Free Press.

Rogers, E.M. (1983). *Diffusion of innovations*. 3rd edition. New York; London: Free Press; Collier Macmillan.

Rogers, E.M. (1995). *Diffusion of innovations*. 4th edition. New York: Free Press.

Rogers, Everett M., and D. Lawrence Kincaid (1981), *Communication Networks: Toward a New Paradigm for Research*, New York, Free Press.

Roman, R. (2003). Diffusion of innovations as a theoretical framework for telecenters. *Information Technologies & International Development*, *1*(2), 53.

Roy, P. Fliegel, Frederick C. Sen, Lalit K. and Kivlin, Joseph E (1968). *Agricultural innovation among Indian farmers.* National Institute of Community Development.

Ruth, J. A., and Hsiung, R. O. (2007). A family systems interpretation of how subsistence consumers manage: The case of South Africa. *Advances in international management series*, *20*, 59-87.

Saunders, M., Lewis, P., and Thornhill, A. (2011). *Research methods for business students*. 5th edition. Harlow New York: Financial Times/Prentice Hall.University Press.

Saxe, R., and Weitz, B. A. (1982). The SOCO scale: a measure of the customer orientation of salespeople. *Journal of Marketing Research, 19*(3), 343-351.

Schaninger, C.M. and Danko, W.D. (1993). Alternative Household Life Cycle Models. *Journal of Consumer Research*. 19 (March).

Schierz, P.G., Schilke, O. and Wirtz, B.W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications*, 9 (3), 209–216.

Schmitt, N., Nason, D. J., Whitney, D. J., and Pulakos, E. D. (1995). The impact of method effects on structural parameters in validation research. *Journal of Management*, 21, 159–174.

Scott, N., Garforth, C., Jain, R., Mascarenhas, O., and McKemey, K. (2005). The economic impact of telecommunications on rural livelihoods and poverty reduction: a study of rural communities in India (Gujarat), Mozambique and Tanzania.

Scullen, S. E. (1999). Using confirmatory factor analysis of correlated uniquenesses to estimate method variance in multitrait–multimethod matrices. *Organizational Research Methods*, 2, 275–292.

Sen, A. (1999). *Development as freedom*. Oxford University Press.

Setterstrom, A. J., Pearson, J. M., and Orwig, R. A. (2013). Web-enabled wireless technology: an exploratory study of adoption and continued use intentions. *Behaviour & Information Technology*, *32*(11), 1139-1154.

Shih, C. F., and Venkatesh, A. (2004). Beyond adoption: development and application of a use-diffusion model. *Journal of Marketing*, *68*(1), 59-72.

Shockley, K. M., and Allen, T. D. (2007). When flexibility helps: Another look at the availability of flexible work arrangements and work–family conflict. *Journal of Vocational Behavior*, *71*(3), 479-493.

Simanis, E. (2009). At the base of the pyramid, when selling to poor consumers, companies need to begin by doing something basic: They need to create the market. *Wall Street Journal*, *26*.

Simanis, E. (2012). Reality Check at the Bottom of the Pyramid. *Harvard Business Review*, *90*(6), 6.

Sin Tan, K., Choy Chong, S., Lin, B., and Cyril Eze, U. (2009). Internet-based ICT adoption: evidence from Malaysian SMEs. *Industrial Management & Data Systems*, *109*(2), 224-244.

Sirdeshmukh, D., Singh, J., and Sabol, B. (2002). Consumer trust, value, and loyalty in relational exchanges. *Journal of Marketing*, *66*(1), 15-37.

Sivapragasam, N., Agüero, A., and De Silva, H. (2011). The potential of mobile remittances for the bottom of the pyramid: findings from emerging Asia. *Info*,13(3), 91-109.

Smith, J. R., Terry, D. J., Manstead, A. S., Louis, W. R., Kotterman, D., and Wolfs, J. (2008). The attitude–behavior Relationship in Consumer Conduct: The Role of Norms, Past Behavior, and Self-Identity. *The Journal of Social Psychology*, 148(3), 311–333.

So, W. M., Wong, T. D., and Sculli, D. (2005). Factors affecting intentions to purchase via the internet. *Industrial Management & Data Systems*, *105*(9), 1225-1244.

Stewart, F. (1977). Technology and underdevelopment. *Development Policy Review*, 10(1), 92-105.

Stone, G., Barnes, J. H., and Montgomery, C. (1995). Ecoscale: a scale for the measurement of environmentally responsible consumers. *Psychology & Marketing*, *12*(7), 595-612.

Straub, D., Boudreau, M. C., and Gefen, D. (2004). Validation guidelines for IS positivist research. *The Communications of the Association for Information Systems*, *13*(1), 63.

Straub, D., Limayem, M., and Karahanna-Evaristo, E. (1995). Measuring system usage: implications for IS theory testing. *Management Science*, *41*(8), 1328-1342.

Subrahmanyan, S., and Tomas Gomez-Arias, J. (2008). Integrated approach to understanding consumer behavior at bottom of pyramid. *Journal of Consumer Marketing*, *25*(7), 402-412.

Sullivan, J. L., Borgida, E., Jackson, M. S., Riedel, E., Oxendine, A., and Gangl, A. (2002). Social Capital and Community Electronic Networks For-Profit Versus For-Community Approaches. *American Behavioral Scientist*, *45*(5), 868-886.

Suryaningrum, D. H. (2012). Assessing individual performance on information technology adoption: A new model. *Global Journal of Business Research*, *6*(4), 111-125.

Sweeney, J. C., Soutar, G. N., and Johnson, L. W. (1997). Retail service quality and perceived value: a comparison of two models. *Journal of Retailing and Consumer Services*, *4*(1), 39-48.

Szajna, B. (1996). Empirical evaluation of the revised technology acceptance model. *Management Science*, *42*(1), 85-92.

Taylor, S., and Todd, P. A. (1995). Understanding information technology usage: A test of competing models. *Information Systems Research*, *6*(2), 144-176.

Temme, D., and Hildebrandt, L. (2007, May). Formative measurement models in covariance structure analysis: Specification and identification. In *Proceedings of the 36th EMAC Conference*.

Teo, T., and Noyes, J. (2011). An assessment of the influence of perceived enjoyment and attitude on the intention to use technology among pre-service teachers: A structural equation modeling approach. *Computers & Education*, *57*(2), 1645-1653.

Thompson, R. L., Higgins, C. A., and Howell, J. M. (1991). Personal computing: toward a conceptual model of utilization. *MIS Quarterly*, *15*(1), 125-143.

Thompson, R. L., Higgins, C. A., and Howell, J. M. (1994). Influence of experience on personal computer utilization: testing a conceptual model. *Journal of Management Information Systems*, *11*(1),167-187.

Thurber, M. D., and Fahey, J. W. (2009). Adoption of Moringa oleifera to combat under-nutrition viewed through the lens of the "Diffusion of Innovations" theory. *Ecology of Food and Nutrition*, *48*(3), 212-225.

Triandis, H. C. (1972). *The analysis of subjective culture.* John Wiley & Sons Inc., New York.

Tsai, W., and Ghoshal, S. (1998). Social capital and value creation: The role of intrafirm networks. *Academy of Management Journal*, *41*(4), 464-476.

Tsang, P. M., and Tse, S. (2005). A hedonic model for effective web marketing: an empirical examination. *Industrial Management & Data Systems*, *105*(8), 1039-1052.

Turvey, C. G., and Kong, R. (2010). Informal lending amongst friends and relatives: can microcredit compete in rural China?. *China Economic Review*,*21*(4), 544-556.

Twenge, J. M. (1997). Changes in Masculine and Feminine Traits Over Time: A Meta-Analysis. *Sex Roles*, *36*(5-6), 305-325.

UISC Blog - CONNECTING STAKEHOLDERS | Access to Information (a2i) Programme [Online]. Available from: http://www.a2i.pmo.gov.bd/content/uisc-blog-connecting-stakeholders [Accessed 3/14/2015].

Unnava, H. R., Agarwal, S., and Haugtvedt, C. P. (1996). Interactive effects of presentation modality and message-generated imagery on recall of advertising information. *Journal of Consumer Research*, 81-88.

Urabe, K., Child, J., and Kagono, T. (1988). *Innovation and management: International comparisons*. Walter de Gruyter.

Üstüner, T., and Holt, D. B. (2007). Dominated consumer acculturation: The social construction of poor migrant women's consumer identity projects in a Turkish squatter. *Journal of Consumer Research*, *34*(1), 41-56.

Valente, T. W., Watkins, S. C., Jato, M. N., Van Der Straten, A., and Tsitsol, L. P. M. (1997). Social network associations with contraceptive use among Cameroonian women in voluntary associations. *Social Science & Medicine*,*45*(5), 677-687.

Vallerand, R. J., and Blssonnette, R. (1992). Intrinsic, extrinsic, and amotivational styles as predictors of behavior: A prospective study. *Journal of Personality*,*60*(3), 599-620.

Van De Vijver, F. J., and Poortinga, Y. H. (1982). Cross-cultural generalization and universality. *Journal of Cross-Cultural Psychology*, *13*(4), 387-408.

Van de Vijver, F., and Leung, K. (1997). *Methods and data analysis of comparative research*. Allyn & Bacon.

Van der Boor, P., Oliveira, P., and Veloso, F. (2014). Users as innovators in developing countries: The global sources of innovation and diffusion in mobile banking services. *Research Policy*, *43*(9), 1594-1607.

Van der Heijden, H. (2004). User acceptance of hedonic information systems. *MIS Quarterly*, 695-704.

Venkatesh, V. (2000). Determinants of perceived ease of use: Integrating control, intrinsic motivation, and emotion into the technology acceptance model. *Information Systems Research*, *11*(4), 342-365.

Venkatesh, V., and Brown, S. A. (2001). A longitudinal investigation of personal computers in homes: Adoption determinants and emerging challenges. *MIS Quarterly*, *25*(1), 71-102.

Venkatesh, V., and Davis, F. D. (2000). A Theoretical Extension of the Technology Acceptance Model: Four Longitudinal Field Studies. *Management Science*, 45(2), 186-204.

Venkatesh, V., and Morris, M. G. (2000). Why Don't Men Ever Stop to Ask For Directions? Gender, Social Influence, and Their Role in Technology Acceptance and Usage Behavior. *MIS Quarterly*, 24 (1), 115-139.

Venkatesh, V., and Speier, C. (1999). Computer technology training in the workplace: A longitudinal investigation of the effect of mood. *Organizational Behavior and Human Decision Processes*, *79*(1), 1-28.

Venkatesh, V., Morris, M. G., Davis, G. B., and Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS Quarterly*, *27*(3),425-478.

Venkatesh, V., Thong, J. Y. L., and Xu, X. (2012). Consumer Acceptance and Use of Information Technology : Extending the Unified Theory. *MIS Quarterly*, *36*(1), 157–178.

Vijayasarathy, L. R. (2004). Predicting consumer intentions to use on-line shopping: the case for an augmented technology acceptance model. *Information & Management*, *41*(6), 747-762.

Viswanathan, M. (2007). Understanding product and market interactions in subsistence marketplaces: A study in South India. *Advances in International Management*, *20*, 21-57.

Viswanathan, M., and Sridharan, S. (2012). Product development for the BoP: insights on concept and prototype development from university-based student projects in India. *Journal of Product Innovation Management*, *29*(1), 52-69.

Viswanathan, M., Hastak, M., and Gau, R. (2009). Understanding and facilitating the usage of nutritional labels by low-literate consumers. *Journal of Public Policy & Marketing*, *28*(2), 135-145.

Viswanathan, M., Sridharan, S., and Ritchie, R. (2010). Understanding consumption and entrepreneurship in subsistence marketplaces. *Journal of Business Research*, *63*(6), 570-581.

Voss, G. B., Parasuraman, A., and Grewal, D. (1998). The roles of price, performance, and expectations in determining satisfaction in service exchanges. *Journal of Marketing*, 46-61.

Walczuch, R., Lemmink, J., and Streukens, S. (2007). The effect of service employees' technology readiness on technology acceptance. *Information & Management*, *44*(2), 206-215.

Wang, C. L., and Mowen, J. C. (1997). The separateness-connectedness self-schema: Scale development and application to message construction. *Psychology & Marketing*, *14*(2), 185-207.

Wang, S.Y. M. (I998). *Facilitating the application of the technology acceptance model: An experimental evaluation of alternative protocols for technology introduction.*Unpublished Ph.D.University of South Carolina. United States - South Carolina.

Wang, Y. S., Yeh, C. H., and Liao, Y. W. (2013). What drives purchase intention in the context of online content services? The moderating role of ethical self-efficacy for online piracy. *International Journal of Information Management*, *33*(1), 199-208.

Weber, R. (2004). The rhetoric of positivism versus interpretivism: A personal view. *MIS Quarterly*, 28 (1), iii-xii.

Wee, Y. S., and Quazi, H. A. (2005). Development and validation of critical factors of environmental management. *Industrial Management & Data Systems*, *105*(1), 96-114.

Werner, O., and Campbell, D. T. (1970). Translating, working through interpreters, and the problem of decentering. *A Handbook of Method in Cultural Anthropology*,*398*, 420.

Williams, L. J., and Anderson, S. E. (1994). An alternative approach to method effects by using latent-variable models: Applications in organizational behavior research. *Journal of Applied Psychology*, 79, 323–331.

Williams, L. J., and Brown, B. K. (1994). Method variance in organizational behavior and human resources research: Effects on correlations, path coefficients, and hypothesis testing. *Organizational Behavior and Human Decision Processes*, 57, 185–209.

Wilson, K. R., Wallin, J. S., and Reiser, C. (2003). Social stratification and the digital divide. *Social Science Computer Review*, *21*(2), 133-143.

Wind, Y., Mahajan, V., and Swire, D.J. (2013). Empirical of Comparison Portfolio Models Standardized. *Journal of Marketing*, 47 (2), 89–99.

Witkowski, T. H. (2005). Antiglobal challenges to marketing in developing countries: exploring the ideological divide. *Journal of Public Policy & Marketing*, *24*(1),7-23.

Wood, S. L., and Moreau, C. P. (2006). From fear to loathing? How emotion influences the evaluation and early use of innovations. *Journal of Marketing*, *70*(3), 44-57.

World Economic Forum (2009). The Next Billions : Unleashing Business Potential in Prepared in collaboration with The Boston Consulting Group, World economic forum. (January).

Wright, G. A. (1999). Examining the impact of microfinance services-increasing income or reducing poverty?. *Small Enterprise Development*, *10*(1), 38-47.

Wu, I. L., and Wu, K. W. (2005). A hybrid technology acceptance approach for exploring e-CRM adoption in organizations. *Behaviour & Information Technology*, *24*(4), 303-316.

Yang, K. C. (2005). Exploring factors affecting the adoption of mobile commerce in Singapore. *Telematics and Informatics*, *22*(3), 257-277.

Zaichkowsky, J. L. (1985). Measuring the involvement construct. *Journal of Consumer Research*, *12*(3), 341-352.

Zaichkowsky, J. L. (1994). The personal involvement inventory: Reduction, revision, and application to advertising. *Journal of Advertising*, *23*(4), 59-70.

Zainudeen, A., and Ratnadiwakara, D. (2011). Are the poor stuck in voice? Conditions for adoption of more-than-voice mobile services. *Information Technologies & International Development*, *7*(3), 45.

Zainudeen, A., Iqbal, T., and Samarajiva, R. (2010). Who's got the phone? Gender and the use of the telephone at the bottom of the pyramid. *New Media & Society*, *12*(4), 549-566.

Zikmund, W. G., and Babin, B. J. (2009). *Essentials of Marketing Research (Book Only)*. South-Western Pub.

Zikmund, William, Steve D'Alessandro, Hume Winzar, Ben Lowe and Barry Babin (2014), *Marketing Research: 3rd Asia Pacific Edition*, Melbourne: Cengage Learning. ISBN-978-0170236027.

Zolait, A. H. S. (2009). UIBR-an approach to innovations acceptance. *Journal of Internet banking and Commerce*, *14*(2), 1-17.

Appendix 3.1

KENT BUSINESS SCHOOL

ETHICAL APPROVAL FORM

This form must be completed for ALL research projects carried out within KBS whether u/g, p/g, PhD, or staff.

Section 1: Project and Researcher

Title of Project: Consumer Adoption of Innovations in the Bottom of the Pyramid (BOP)

Name of main researcher: Md Rajibul Hasan

Email Address: rajib.nsu.051@gmail.com; mrh25@kent.ac.uk

Status (staff/PhD/PG/UG): PhD

Contact Address: 425, South Goran, Dhaka- 1219, Bangladesh.

Phone: 0044-07412101211

1.1 Are others involved in the research, i.e. as part of the research team? If YES, please indicate what their role in the research will be and their affiliation if not KBS:

Name Role

1.2 Is this research sponsored by any organisation by either the provision of access to data or by funding in cash or in kind? No.

If YES you must complete Section 5

1.3 Will the research be carried out on the premises of another organisation, e.g., in a supermarket or railway station?

No.

If YES: please attach written permission from the organisation concerned to carry out the research on their premises

Section 2: For Student Projects

Module Name and Number: PhD in Marketing

Module Convenor or Supervisor: Dr. Ben Lowe and Dr. Dan Petrovici

Email Address of Convenor or Supervisor: B.Lowe@kent.ac.uk, D.A.Petrovici@kent.ac.uk .

Section 3: Purpose of Project: Aims and Objectives

This should include a brief outline (one or two paragraphs) of the project written in lay-person's language and assuming that the reader is not familiar with the area of the project. It should make clear what the outputs and benefits of the project are for the researcher (e.g., learning for a student; or contribution to knowledge for a PhD or member of staff) and for any clients or sponsors.

Please state if at any time the research will involve the use of affiliation to the University of Kent or Kent Business School.

Almost two-third of the world population, who live on less than $2 per day and the late economist C.K. Prahalad dubbed this world's low income population as the Bottom of the Pyramid (BOP). This BOP, an untapped market for Multi-National Corporations and Large local firms, represent the substantial assets ($9 trillion, which is the equivalent value of the top 20 global firms) and generate enormous earning ($1.7 trillion, roughly Germany's annual Gross Domestic product). Moreover, the BOP is dramatically different from the traditional market because of unreliable electricity and low literacy rate. Innovations must therefore be developed that are tailored for this market and its unique surroundings. Therefore, a deep understanding of the BOP is required to maximise adoption of innovation in the BOP market. It is very important to understand the key antecedents, which influences the BOP consumers to adopt an innovation. This thesis will seek to fill the gap by providing a better understanding of factors likely to contribute to consumers' acceptance of innovations in the BOP. Specifically, it will address this research question: what are the key antecedents to innovation acceptance for BOP consumers? This research will contribute to innovation literature by developing an integrated innovation adoption model for the bottom of the pyramid market. The findings of this research will contribute to the necessity for a wide understanding, supported by empirical facts, of the innovation adoption process in the BOP. Therefore, carrying out this study is very valuable and it is achievable through conceptual, empirical contributions.

Does the project involve the direct participation of people other than the researchers and supervisors?

Note: "direct participation" means that people are actively involved, e.g. by being interviewed or questioned. It would not generally include passive observation of, for example, people in a queue. Exceptions to this would be if there were to be some direct or indirect effect on those being observed, or if those being observed could be

individually identified in which case they become “data subjects” under the Data Protection Act (see question 6.4).

If you have answered NO and you answered NO to the question in Section 1 on whether the research was funded please go to Section 7.

If you have answered YES to this question please complete all the following sections.

Section 4: Conduct of Project: Research Methodology

This should specify the start date and duration of the project, who will be involved, and a brief description of the research methodology (e.g. survey method and sampling technique, interview type and technique, analysis techniques)

The start date of this project was on 15th September 2012. The duration of this project is about 3 to 4 years. For this research, two studies will be conducted. The purpose of the first study is to empirically compare the key identified consumer innovation adoption models in the BOP context and formulate a new integrated innovation adoption model for the BOP based on the key identified innovation adoption models. The purpose of second study is to validate the newly developed model. Bangladesh will be used as the research context for this research. In both studies, at least 200 BOP consumers will be used as a sample in this research. A convenient non-probability sampling will be used for this research. Face to face survey method will be used for this research and this face to face survey will be conducted verbally. A focus group of at least five local authorities will evaluate the survey questionnaires of these two studies so that the respondents can easily understand the questions asked by the researcher. Moreover, pilot studies will be conducted before the two main studies to identify unanticipated problem that might affect the feasibility of the main study. Potential problem like gain access to participants, and feedback suggesting the wrong questions are being asked will be taken in consideration in case of conducting this pilot study. Partial Least Square (PLS) method of Structural Equation Modelling (SEM) will be used in this study to analyse the collected data.

Section 5: Ethical Considerations

This section covers a range of ethical issues. If you answer YES to any of the questions you should a) provide details of the issue and how you intend to address it; and b) ensure the form is passed to the Director of Research for consideration by the Research Ethics Advisory Group.

5.1 Risk. Does the proposed research place any of the participants at risk of physical, psychological or emotional harm (including the potential to cause distress or embarrassment)?

No

N/A

5.2 Confidentiality. Does the proposed research raise issues relating to confidentiality, either during the collection of information or in the subsequent analysis thereof or dissemination of results?

No

N/A

5.3 Sponsorship. Is the project sponsored by an individual or organisation outside the University of Kent?

No.

If Yes:

5.31 Will the project require the signing of a confidentiality agreement with an external organisation? (If so this needs to be agreed by the University Research Office) No

N/A

5.32 Will the sponsor require seeing the data that you have collected or the report of your research findings?

No

(Please provide details)

N/A

5.33 Does the sponsor have to approve any reports/papers published as a result of the research before they allow publication of these reports?

No

N/A

5.34 Does the proposed research raise issues relating to impartiality (in the case of vested interests or funded research)?

No

N/A

5.4 Does the proposed research raise issues relating to culture, religion or gender?

No

N/A

5.5 Does the proposed research involve the use of inducements (payments or gifts) to participants?

No

N/A

5.6 Do you plan to provide participants with feedback on the findings of the research?

Yes

(please provide details of what feedback you propose to provide and how)

I may provide a statement of feedback to the participants based on their requests. However, the feedback will be general. No personal data will be provided with feedback. I will also make sure that the feedback is not going to harm or create discomfort for any respondent.

5.7 Are there any other ethical issues that you wish to draw to the attention of the Research Ethics Advisory Group?

No

N/A

Section 6: Consent

It is normally considered essential that all those who participate in research should do so voluntarily. For consent to be valid participants must be **informed** about the nature of the research; they must participate **voluntarily**; and they must be **competent** to understand the implications of their participation. At a minimum this section should address:

a. Details of how it is intended that informed consent be obtained from the participants. Copies of relevant documentation should be included, especially any explanatory material given to participants and the consent form.

It is important to notify participants about the topic and not to insist on them to participate in case of gaining access to the participants because they have a right to privacy which has to be respected in order not to cause harm. In case of formulating questions, care should be taken not to cause discomfort or stress. Moreover, a fully informed and freely given authority and possible dishonesty of participants needs to be considered. Therefore, it means that respondents need to voluntarily agree to participate and that they are provided the information about their participation right and the use of their personal data. In addition, any respondent has the right to withdraw from the process at any time. In case of using recording equipment, the respondents need to be informed about their right to the processing and storing of their personal data. Furthermore, it is essential to inform the respondents that their personal data will be treated with confidentiality. Moreover, anonymity should be maintained in case of personal data.

b. Procedures for gaining permission from participants who are unable to give informed consent.

Participants, who will not provide informed consent, will not be interviewed for this research.

c. If it is intended to conduct research without the informed consent of participants, a detailed justification should be given.

Participants, who will not provide informed consent, will not be interviewed for this research.

d. Give a brief account of how the Data Protection Act will be complied with. In broad terms the DPA covers the collection and storage of any information that can be traced to a particular individual. If this applies to your research you should see the University's Code of Practice at http://www.kent.ac.uk/data-protection/Forms/DPA.BOOKLET.pdf.

Please state if there are any other legal requirements of the research, e.g., licensing.

The eight data protection principles under DTA 1998 will be ensured in this research. Personal data collected will be processed fairly and lawfully. Personal data will be obtained only for specific and lawful purposes in this research. Moreover, personal data need to be accurate, and where necessary, need to ensure the updated data. Personal data will not be kept for longer than is necessary for this research purpose. This research will also ensure the right of

subjects under the data protection act 1998. During the personal data collection, I will also inform the participant about what I am collecting, why I am collecting, and what I will do with this information.

Section 7: Signatures

Principal researcher or student:

Supervisor (for u/g, p/g, PhD students):

Other researchers involved:

Director of Research (where proposal is considered by Research Ethics Advisory Group):

Date: 22/07/2013

Appendix 4.1

Face Validity

Expert Evaluation Survey

Research title: Consumer Adoption of Innovations within the Bottom of the Pyramid (BOP)

I am a PhD candidate in the Marketing Group at Kent Business School. My research seeks to investigate the key antecedents which influence technology adoption in the "Bottom of the Pyramid market (the BOP represents poor and low literate consumers, who live on less than $2 a day). The context of this research will be Bangladesh. At this stage I am seeking your views on whether the construct items that I have compiled from the literature are appropriate. Your views would help me to develop robust scales to measure the following latent constructs: Atomized Distribution, Affordability, Flexible Payment Forms, Interpersonal Promotion, Social Capital, Collective Needs, Assimilationist Culture, Adaptibility, and Visual Comprehensibility. The construct definitions are provided on the next page.

The questions will be developed with reference to a Bangladeshi company, bKash (http://www.bkash.com/), which provides mobile banking services (through mobile phones) to BOP consumers in Bangladesh. Consequently the following questions relate to bKash, although this is just the context here and questions might be adapted to other organisations in the future.

Having identified you as an expert in the domain of innovation and/or consumer behaviour, I would like to request that you provide some feedback on the measure development process through the following Expert Evaluation Survey. If you have any questions or additional comments please feel free to email me. Your detailed feedback would be highly valued by the research team.

Md Rajibul Hasan,
PhD Candidate,
Kent Business School,
University of Kent.
United Kingdom.
Email: mrh25@kent.ac.uk

Project Supervisors:

Dr Ben Lowe
Reader in Marketing
Kent Business School
University of Kent
Canterbury, Kent CT2 7PE
Email: B.Lowe@kent.ac.uk

Dr Dan Petrovici
Senior Lecturer
Kent Business School
University of Kent.
E-mail: D.A.Petrovici@kent.ac.uk[AA3]

Please indicate whether you are a PhD student or an academic (i.e., Lecturer or Professor)

- ○ Acedemic (i.e., Lecturer or Professor)
- ○ PhD Student

Block 2

Instructions:

Please read the definition (adapted from Nakata and Weidner, 2012) of each construct and each item below carefully, and evaluate the degree to which each item represents the construct definition by selecting either “not representative”, “somewhat representative” or “clearly representative”.

Construct Name : Atomized Distribution

Definition: Atomized distribution refers to channel arrangements that bring products as proximate to customers as possible and it may often through many small or individual distributors.

Do you think that the following items represent Atomized Distribution?

	Not representative	Some what representative	Clearly representative
The bKash agent’s shop is convenient as it is on route to my place of work.	○	○	○
I am satisfied with the distance of the bKash agent’s shop is to where I work.	○	○	○
I am satisfied with the distance of the bKash agent’s shop is to my home	○	○	○

Construct Name : Affordability

Definition: The degree to which price of a new product must be consistent with life style of limited cash flow or on very restricted incomes, and debt access.

Do you think that the following items represent Affordability ?

	Not representative	Some what representative	Clearly representative
When it comes to choose bKash, I would rely heavily on price.	○	○	○
I would use bKash because the service is affordable.	○	○	○
I would buy the lowest price brand of mobile banking services that will suit my needs.	○	○	○

Construct Name : Flexible payment Forms

Definition: The degree to which methods of payment of a new product is consistent with life style of limited cash flow or on very restricted incomes, and debt access (e.g. Payment in instalments)

Do you think that the following items represent Flexible payment Forms ?

	Not representative	Some what representative	Clearly representative
I have the freedom to pay the charge of bKash, wherever is best for me.	○	○	○
I am not able to pay the charge of bKash in instalments.	○	○	○
I have the flexibility to pay the charge of bKash in instalments.	○	○	○

Construct Name : Interpersonal promotion

Definition: Interpersonal promotion is defined as the degree to which a new product is promoted through personal ties.
Do you think that the following items represent Interpersonal promotion?

	Not representative	Some what representative	Clearly representative
In the past people around me have often recommended bKash for me to use.	○	○	○
I often hear good things about bKash from the people around me, including friends, family and people in my working place.	○	○	○

When I look at mobile banking service providers, people around me often recommend bKash for me to use.	○	○	○

Construct Name : Social Capital

Definition: Social capital can be defined as "trust, norms, and networks that can improve the efficiency of society by facilitating coordinated actions (e.g. BOP consumers heavily rely on social networks for information and tangible aid, for learning from their neighbours what school to send their children to)".

Do you think that the following items represent Social Capital?

	Not representative	Some what representative	Clearly representative
I spend a lot of time interacting with some members in my community.	○	○	○
I maintain close social relationships with some members in my community.	○	○	○
I have frequent communication with some members in my community.	○	○	○
I know some members in my community on a personal level.	○	○	○

Construct Name :Collective needs

Definition: Collective needs is defined as the degree to which group needs (e.g. needs of family, friends, neighbours) predominate in case of adopting a new product.

Do you think that the following items represent Collective needs ?

	Not representative	Some what representative	Clearly representative
My decision to use bKash is influenced by the desire of others.	○	○	○
My decision to use bKash is influenced by the preferences of family members.	○	○	○
My decision to use bKash is influenced by the preferences of people with whom I have social interaction.	○	○	○
To satisfy the expectation of people in my working place, my decision to use bKash is influenced by their preferences.	○	○	○

Construct Name : Assimilationist culture

Definition: BOP consumers often live in areas where they are exposed to and surrounded by a dominant culture and this dominant culture represents images of an idealised life of comfort and social acceptance as well as advocates modernity, wealth, and consumption. Assimilationist culture means the degree to which BOP consumers want to perform the behaviour because the product originates in the dominant culture.

Do you think that the following items represent Assimilationist culture?

	Not representative	Some what representative	Clearly representative
Affluent people who are important to me would support the idea of using bKash.	○	○	○
Affluent or modern people whose opinions I value would prefer me to use bKash.	○	○	○
I think that those wealthy or modern people who are important to me would want me to use bKash.	○	○	○

Construct Name : Adaptibility

Definition: BOP consumers live in difficult and resource poor environments (e.g. lack of electricity, lack of infrastructure). Adaptability is defined as the degree to which a new product is usable for multiple purposes or is easily adaptable to the conditions of difficult and resource poor environments (e.g. lack of electricity, lack of

infrastructure etc.).

Do you think that the following items represent Adaptibility?

	Not representative	Some what representative	Clearly representative
bKash is usable for multiple purposes (e.g. Money transfer, buying and selling products, recharging mobile balance etc.)	○	○	○
bKash is usable even when resources are lacking (e.g., even in remote villages, when electricity is not working etc.) .	○	○	○
bKash mobile banking fulfills multiple functional needs.	○	○	○
bKash has the ability to provide consistent services even when resources are lacking (e.g., even in remote villages, when electricity is not working etc.)	○	○	○

Construct Name : Visual Comprehensibility

Definition: The degree to which a new product is intuitively comprehended by BOP consumers (who have limited numeracy and literacy skill) through its design and packaging (e.g. colours, shapes, photos, physical package size, and other elements of product package).

Do you think that the following items represent Visual Comprehensibility ?

	Not representative	Some what representative	Clearly representative
I find it easy to remember any colour, shapes, pictures, symbols (e.g. Pink coloured bird symbol to represent bKash) and other relevant elements of bKash.	○	○	○
The colour, shapes, pictures, symbols (e.g. Pink coloured bird symbol to represent bKash) and other relevant elements of bKash help me to clarify how to use this service.	○	○	○
I find the colours, shapes, pictures and symbols of bKash (e.g., pink coloured bird to represent bKash) help me to understand how to use bKash more than any written text associated with it.	○	○	○
Using bKash I find myself thinking of the colour, shapes, pictures, symbols (e.g. Pink coloured bird symbol to represent bKash) and other relevant elements of bKash.	○	○	○

If you feel that any of the measures could be improved upon please feel free to write any comments about individual items or suggestions for improving individual items. Specifically, if you have any suggestions for references that might be looked at then please specify these below.

Thank you once again for your time and constructive feedback while completing this Expert Evaluation Survey. If you have any questions about this topic please let me know -mrh25@kent.ac.uk.

References:

Nakata, C., & Weidner, K. (2012). Enhancing New Product Adoption at the Base of the Pyramid: A Contextualized Model. Journal of Product Innovation Management, 29(1), 21–32. doi:10.1111/j.1540-5885.2011.00876.x

Findings of Expert Evaluation survey

Construct Name : Atomized Distribution Item: I am satisfied with the distance of the bKash agent's shop is to my home

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	3	30.0	30.0	30.0
	Clearly representative	7	70.0	70.0	100.0
	Total	10	100.0	100.0	

Construct Name: Atomized Distribution Item: I am satisfied with the distance of the bKash agent's shop is to where I work.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	3	30.0	30.0	30.0
	Clearly representative	7	70.0	70.0	100.0
	Total	10	100.0	100.0	

Construct Name: Atomized Distribution Item: The bKash agent's shop is convenient as it is on route to my place of work.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	2	20.0	20.0	20.0
	Clearly representative	8	80.0	80.0	100.0
	Total	10	100.0	100.0	

Construct Name: Affordability Item: I would use bKash because the service is affordable.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	3	30.0	30.0	30.0
	Clearly representative	7	70.0	70.0	100.0
	Total	10	100.0	100.0	

Construct Name: Affordability Item: I would buy the lowest price brand of mobile banking services that will suit my needs.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	1	10.0	10.0	10.0
	Some what representative	2	20.0	20.0	30.0
	Clearly representative	7	70.0	70.0	100.0
	Total	10	100.0	100.0	

Construct Name: Affordability Item: When it comes to choose bKash, I would rely heavily on price.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	1	10.0	10.0	10.0
	Some what representative	5	50.0	50.0	60.0
	Clearly representative	4	40.0	40.0	100.0
	Total	10	100.0	100.0	

Construct Name: Flexible payment Forms Item: I have the flexibility to pay the charge of bKash in instalments.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	3	30.0	30.0	30.0
	Clearly representative	7	70.0	70.0	100.0
	Total	10	100.0	100.0	

Construct Name: Flexible payment Forms Item: I have the freedom to pay the charge of bKash, wherever is best for me.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	1	10.0	10.0	10.0
	Some what representative	2	20.0	20.0	30.0
	Clearly representative	7	70.0	70.0	100.0
	Total	10	100.0	100.0	

Construct Name: Flexible payment Forms Item: I am not able to pay the charge of bKash in instalments.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	4	40.0	40.0	40.0
	Some what representative	2	20.0	20.0	60.0
	Clearly representative	4	40.0	40.0	100.0
	Total	10	100.0	100.0	

Construct Name: Interpersonal promotion Item: I often hear good things about bKash from the people around me, including friends, family and people in my working place.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	1	10.0	10.0	10.0
	Some what representative	1	10.0	10.0	20.0
	Clearly representative	8	80.0	80.0	100.0
	Total	10	100.0	100.0	

Construct Name: Interpersonal promotion Item: When I look at mobile banking service providers, people around me often recommend bKash for me to use.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	2	20.0	20.0	20.0
	Some what representative	2	20.0	20.0	40.0
	Clearly representative	6	60.0	60.0	100.0
	Total	10	100.0	100.0	

Construct Name: Interpersonal promotion Item: In the past people around me have often recommended bKash for me to use.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	2	20.0	20.0	20.0
	Some what representative	3	30.0	30.0	50.0
	Clearly representative	5	50.0	50.0	100.0
	Total	10	100.0	100.0	

Construct Name: Social Capital Item: I maintain close social relationships with some members in my community.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	3	30.0	30.0	30.0
	Clearly representative	7	70.0	70.0	100.0
	Total	10	100.0	100.0	

Construct Name: Social Capital Item: I spend a lot of time interacting with some members in my community.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	4	40.0	40.0	40.0
	Clearly representative	6	60.0	60.0	100.0
	Total	10	100.0	100.0	

Construct Name: Social Capital Item: I have frequent communication with some members in my community.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	6	60.0	60.0	60.0
	Clearly representative	4	40.0	40.0	100.0
	Total	10	100.0	100.0	

Construct Name: Collective needs Item: To satisfy the expectation of people in my working place, my decision to use bKash is influenced by their preferences.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	2	20.0	20.0	20.0
	Some what representative	4	40.0	40.0	60.0
	Clearly representative	4	40.0	40.0	100.0
	Total	10	100.0	100.0	

Construct Name: Collective needs Item: My decision to use bKash is influenced by the preferences of people with whom I have social interaction.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	4	40.0	40.0	40.0
	Clearly representative	6	60.0	60.0	100.0
	Total	10	100.0	100.0	

Construct Name: Collective needs Item: My decision to use bKash is influenced by the preferences of family members.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	1	10.0	10.0	10.0
	Clearly representative	9	90.0	90.0	100.0
	Total	10	100.0	100.0	

Construct Name: Collective needs Item: My decision to use bKash is influenced by the desire of others.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	5	50.0	50.0	50.0
	Clearly representative	5	50.0	50.0	100.0
	Total	10	100.0	100.0	

Construct Name: Assimilationist culture Item: Affluent people who are important to me would support the idea of using bKash.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	2	20.0	20.0	20.0
	Some what representative	5	50.0	50.0	70.0
	Clearly representative	3	30.0	30.0	100.0
	Total	10	100.0	100.0	

Construct Name : Assimilationist culture Item: I think that those wealthy or modern people who are important to me would want me to use bKash.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	2	20.0	20.0	20.0
	Some what representative	4	40.0	40.0	60.0
	Clearly representative	4	40.0	40.0	100.0
	Total	10	100.0	100.0	

Construct Name : Assimilationist culture Item: Affluent or modern people whose opinions I value would prefer me to use bKash.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	2	20.0	20.0	20.0
	Some what representative	5	50.0	50.0	70.0
	Clearly representative	3	30.0	30.0	100.0
	Total	10	100.0	100.0	

Construct Name : Adaptibility Item: bKash is usable for multiple purposes (e.g., Money transfer, buying and selling products, recharging mobile balance etc.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	2	20.0	20.0	20.0
	Clearly representative	8	80.0	80.0	100.0
	Total	10	100.0	100.0	

Construct Name : Adaptibility Item: bKash is usable even when resources are lacking (e.g., even in remote villages, when electricity is not working etc.) .

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	2	20.0	20.0	20.0
	Clearly representative	8	80.0	80.0	100.0
	Total	10	100.0	100.0	

Construct Name: Adaptibility Item: bKash has the ability to provide consistent services even when resources are lacking (e.g., even in remote villages, when electricity is not working etc.)

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	4	40.0	40.0	40.0
	Clearly representative	6	60.0	60.0	100.0
	Total	10	100.0	100.0	

Construct Name: Adaptibility Item: bKash mobile banking ful?lls multiple functional needs.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	5	50.0	50.0	50.0
	Clearly representative	5	50.0	50.0	100.0
	Total	10	100.0	100.0	

Construct Name: Visual Comprehensibility Item: The colour, shapes, pictures, symbols (e.g., Pink coloured bird symbol to represent bKash) and other relevant elements of bKash help me to clarify how to use this service.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	2	20.0	20.0	20.0
	Some what representative	2	20.0	20.0	40.0
	Clearly representative	6	60.0	60.0	100.0
	Total	10	100.0	100.0	

Construct Name: Visual Comprehensibility Item: Using bKash I find myself thinking of the colour, shapes, pictures, symbols (e.g., Pink coloured bird symbol to represent bKash) and other relevant elements of bKash.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	1	10.0	10.0	10.0
	Some what representative	6	60.0	60.0	70.0
	Clearly representative	3	30.0	30.0	100.0
	Total	10	100.0	100.0	

Construct Name: Visual Comprehensibility Item: I find it easy to remember any colour, shapes, pictures, symbols (e.g. Pink coloured bird symbol to represent bKash) and other relevant elements of bKash.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Some what representative	5	50.0	50.0	50.0
	Clearly representative	5	50.0	50.0	100.0
	Total	10	100.0	100.0	

Construct Name: Visual Comprehensibility Item: I find the colours, shapes, pictures and symbols of bKash (e.g., pink coloured bird to represent bKash) help me to understand how to use bKash more than any written text associated with it.

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Not representative	4	40.0	40.0	40.0
	Some what representative	1	10.0	10.0	50.0
	Clearly representative	5	50.0	50.0	100.0
	Total	10	100.0	100.0	

Appendix 4.2

Introduction:

Good Morning (Good Afternoon, Good Evening)

My name is……..and I will be interviewing you now. The interview should take about an hour.

Before we start, I need to explain a few points.

First, the purpose of conducting this survey is to learn about the factors that are important for consumers in Bangladesh, when adopting new products like bKash mobile Banking. As a user of bKash, your opinion is valuable. However, it is important to understand that this survey is not being conducted for bKash, it is part of my programme of study at the University of Kent in the United Kingdom.

Secondly, please be frank and honest with your answers. There is no right or wrong answer. The important thing is what you personally think.

Everything you say will be treated in complete confidence. No personal details identifying individuals will be made available publicly. You can stop the interview anytime. And you have a right to check everything that has been written down. When the surveys are finished, the results obtained may be displayed in aggregated form in publications but no personal details will be used and you will not be identified.

Are there any questions you'd like to ask me before we begin?

Please tick your answer ☑

* **Gender:** ☐ Male ☐ Female

* **Area:** ☐ Urban ☐ Rural

1**) Have you heard of bKash before?** 1) Yes 2) No

2) In total, How many times have you used bKash till now? 1. Never Used 2. Once 3. Twice 4.Three to four times 5.More than four times.

3**) How frequently do you use bKash?** 1. Never used 2. Once in every two months 3. Once in every month. 4. Few times in every month 5. Few times in every week 6. Several times in every day

4)What is your current working Status? 1. Working full time 2. Working part time 3. Retired 4. Homemaker 5. Unemployed

5)What is the highest level of education you completed? 1.Uneducated / Can only Sign/ No schooling 2.PlayGroup/ Nursery/ KG1/ KG2 3.School up to class 4 4. Class 5 /PSC 5.School up to class 7 6. Class 8/ JSC 7. School up to class 10 8.SSC/Dakhil 9.HSC/Alim 10. Diploma 11.Graduate/ Fazil 12.Masters

6) In a typical month approximately how much is your household monthly income? ☐

7) Number of Family members ☐

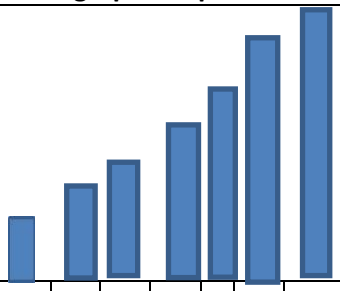
8)* **Age Group:** ☐ 18-20 ☐ 21-25 ☐ 26-30 ☐ 31-36 ☐ 36- 50 ☐ 5 0+

9) Please indicate your marital status:

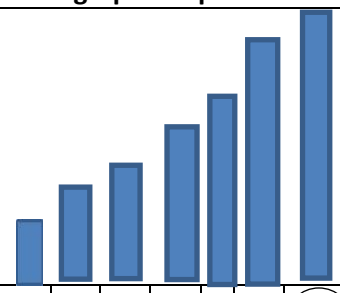
☐ Single ☐ Married ☐ Divorced ☐ Widowed

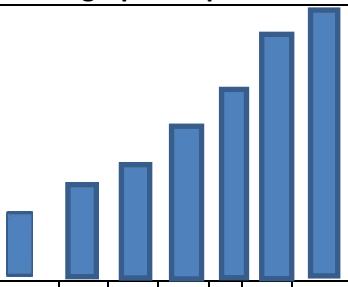
Example:

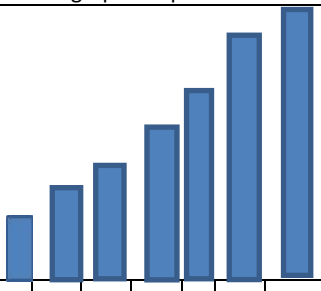
Many questions in this survey make use of 7- point answers; you are to circle the number that best describes your opinion. The level of agreement with these 7 point responses are represented with different sizes of rectangles. Therefore, small rectangles represent level of disagreement and big size rectangles represent level of agreement. For example, suppose the question asked you to rate "Red is my favourite colour "on such a scale. The 7 places should be interpreted as follows:

	Pictographic Expression							
Questions								
Red is my favourite colour.	strongly disagree	1	2	3	4	5	6	7	strongly agree

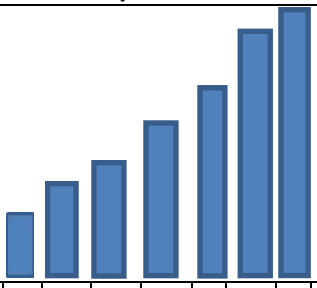
If you strongly agree with the following statement "Red is my favourite colour", then you would circle the number 7, as follows:

	Pictographic Expression							
Questions								
Red is my favourite colour.	strongly disagree	1	2	3	4	5	6	7	strongly agree

	Pictographic Expression								
Questions									
1) Overall, please describe how you feel about bKash. For me, using bkash is:	Bad	1	2	3	4	5	6	7	Good
	Negative	1	2	3	4	5	6	7	Positive
	Unfavourable	1	2	3	4	5	6	7	Favourable
	Unpleasant	1	2	3	4	5	6	7	Pleasant

	Pictographic Expression								
Questions									
2)I use bKash for variety of applications (Cash In, Cash Out, Money Transfer)	strongly disagree	1	2	3	4	5	6	7	strongly agree
3)Overall, I use bKash a lot	strongly disagree	1	2	3	4	5	6	7	strongly agree
4) Given the opportunity, I will use bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
5) I am likely to use bKash in the near future.	strongly disagree	1	2	3	4	5	6	7	strongly agree
6) I am willing to use bKash in the near future	strongly disagree	1	2	3	4	5	6	7	strongly agree
7) I intend to use bKash when the opportunity arises.	strongly disagree	1	2	3	4	5	6	7	strongly agree
8) bKash mobile is a useful mode of payment.	strongly disagree	1	2	3	4	5	6	7	strongly agree
9) Using bKash makes the handling of payments easier.	strongly disagree	1	2	3	4	5	6	7	strongly agree
10) bKash allows for a faster usage of mobile applications (e.g., Money Transfer, Cash In, Cash Out).	strongly disagree	1	2	3	4	5	6	7	strongly agree
11) By using bKash, my choices as a consumer are improved (e.g., flexibility, speed).	strongly disagree	1	2	3	4	5	6	7	strongly agree
12) It is easy to become skillful at using bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
13) Interacting with bKash is clear and understandable	strongly disagree	1	2	3	4	5	6	7	strongly agree
14) It is easy to perform the steps required to use bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
15) It is easy to interact with bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
16) People who are important to me would recommend using bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
17) People who are important to me would find using bKash beneficial.	strongly disagree	1	2	3	4	5	6	7	strongly agree
18) People who are important to me would find using bKash a good idea.	strongly disagree	1	2	3	4	5	6	7	strongly agree

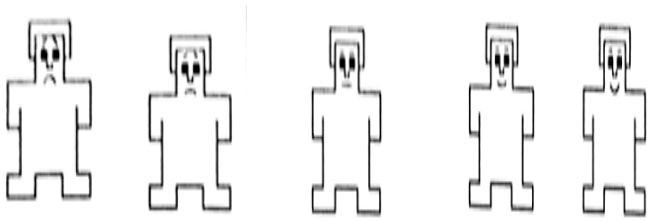
19) I would be able to use the bKash mobile banking.	strongly disagree	1	2	3	4	5	6	7	strongly agree
20) Using bKash is entirely within my control.	strongly disagree	1	2	3	4	5	6	7	strongly agree
21) I have the resources, the knowledge and the ability to make use of bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
22) bKash offers advantages that are not offered by competing products (e.g. Courier Service) .	strongly disagree	1	2	3	4	5	6	7	strongly agree
23) bKash is, in my eyes, superior to competing products (e.g., Courier Service) .	strongly disagree	1	2	3	4	5	6	7	strongly agree

	Pictographic Expression								
Questions									
24) bKash solves a problem that I cannot solve with competing products (e.g.,Courier Service) .	strongly disagree	1	2	3	4	5	6	7	strongly agree
25) Using bKash is complicated; it is difficult to understand what is going on.	strongly disagree	1	2	3	4	5	6	7	strongly agree
26) Using the bKash involves too much time doing mechanical operations (i.e., providing pin number, cash out, and understanding menu).	strongly disagree	1	2	3	4	5	6	7	strongly agree
27) It takes too long to learn how to use bKash to make it worth the effort.	strongly disagree	1	2	3	4	5	6	7	strongly agree
28) In general, bKash is very complex to use.	strongly disagree	1	2	3	4	5	6	7	strongly agree
29) Using bKash fits well with my lifestyle	strongly disagree	1	2	3	4	5	6	7	strongly agree
30) Using bKash fits well with the way I like to purchase products and services	strongly disagree	1	2	3	4	5	6	7	strongly agree
31) I would appreciate using bKash instead of alternative modes of payment (e.g., credit card, cash)	strongly disagree	1	2	3	4	5	6	7	strongly agree
32) Before deciding on whether or not to use bKash, I want to be able to use it on a trial basis.	strongly disagree	1	2	3	4	5	6	7	strongly agree
33) Before deciding on whether or not to use bKash, I want to be able to properly try it out.	strongly disagree	1	2	3	4	5	6	7	strongly agree
34) I want to be permitted to use bKash on a trial basis so I can see what it can do.	strongly disagree	1	2	3	4	5	6	7	strongly agree
35) I would have no difficulty telling others about the results of using the bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
36) I believe I could communicate to others the results of using the bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
37) The results of using the bKash are apparent to me.	strongly disagree	1	2	3	4	5	6	7	strongly agree
38) I have fun interacting with bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
39) Using bKash provides me with a lot of enjoyment	strongly disagree	1	2	3	4	5	6	7	strongly agree
40) I enjoy using bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
41) Using bKash bores me	strongly disagree	1	2	3	4	5	6	7	strongly agree
42) It is easy to use bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
43) bKash can be used instantly	strongly disagree	1	2	3	4	5	6	7	strongly agree

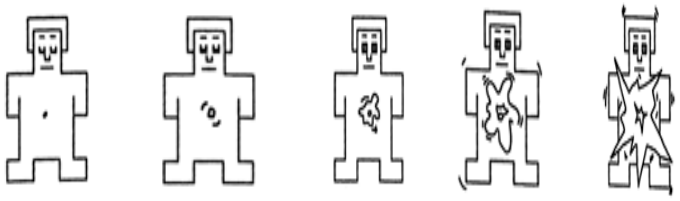
44) bKash takes a short time to respond	strongly disagree	1	2	3	4	5	6	7	strongly agree
45) It is easy to get bKash to do what I want it to do	strongly disagree	1	2	3	4	5	6	7	strongly agree
46) The system of bKash is reliable.	strongly disagree	1	2	3	4	5	6	7	strongly agree
47) The fee that I have to pay for the use of bKash is too high.	strongly disagree	1	2	3	4	5	6	7	strongly agree
48) The fee that I have to pay for the use of bKash is reasonable.	strongly disagree	1	2	3	4	5	6	7	strongly agree
49) I am pleased with the fee that I have to pay for the use of bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree

50) Each pair of words below describes a feeling. Some of the pairs might seem unusual, but you may generally feel more one way than the other. So, for each pair, put a check mark where you feel it is most appropriate. Please take your time – and remember we are just interested in your opinion.

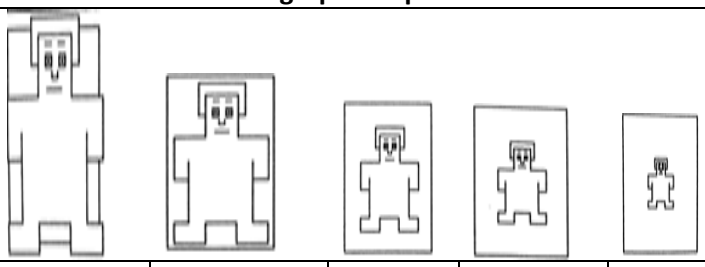
Please indicate how you feel about bKash mobile banking:

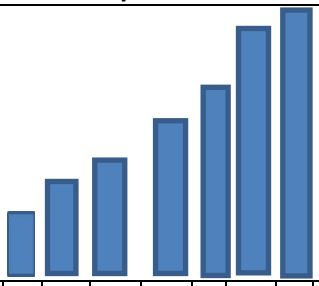
Pictographic Expression						
						
Very Unhappy	1	2	3	4	5	Very Happy
Very Annoyed	1	2	3	4	5	Very Pleased
Very Unsatisfied	1	2	3	4	5	Very Satisfied
Very Melancholic	1	2	3	4	5	Very Contented
Very Despairing	1	2	3	4	5	Very Hopeful
Very Bored	1	2	3	4	5	Very Relaxed

Again, please indicate how you feel about bKash mobile banking:

Pictographic Expression						
						
Very Relaxed	1	2	3	4	5	Very Stimulated
Very Calm	1	2	3	4	5	Very Excited
Very Sluggish	1	2	3	4	5	Very Frenzied
Very Dull	1	2	3	4	5	Very Jittery
Very Sleepy	1	2	3	4	5	Very Wide-awake
Very Unaroused	1	2	3	4	5	Very Aroused

Again, please indicate how you feel about bKash mobile banking:

Pictographic Expression						
						
Very Influential	1	2	3	4	5	Very Influenced
Very Controlling	1	2	3	4	5	Very Controlled
Very Dominant	1	2	3	4	5	Very Submissive
Very In Control	1	2	3	4	5	Very Cared For
Very Autonomous	1	2	3	4	5	Very Guided
Very Important	1	2	3	4	5	Very Awed

	Pictographic Expression								
Questions									
51)I would use bKash because the service is affordable.	strongly disagree	1	2	3	4	5	6	7	strongly agree
52)I would buy the lowest price brand of mobile banking services that will suit my needs.	strongly disagree	1	2	3	4	5	6	7	strongly agree
53)When it comes to choose bKash, I would rely heavily on price.	strongly disagree	1	2	3	4	5	6	7	strongly agree
54)The colour, shapes, pictures, symbols (e.g., Pink coloured bird symbol to represent bKash) and other relevant elements of bKash help me to clarify how to use this service.	strongly disagree	1	2	3	4	5	6	7	strongly agree
55)Using bKash I find myself thinking of the colour, shapes, pictures, symbols (e.g., Pink coloured bird symbol to represent bKash) and other relevant elements of bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
56)I find it easy to remember any colour, shapes, pictures, symbols (e.g., Pink coloured bird symbol to represent bKash) and other relevant elements of bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
57)I find the colours, shapes, pictures and symbols of bKash (e.g., pink coloured bird to represent bKash) help me to understand how to use bKash more than any written text associated with it.	strongly disagree	1	2	3	4	5	6	7	strongly agree
58)bKash is usable for multiple purposes (e.g., Money transfer, buying and selling products, recharging mobile balance etc.)	strongly disagree	1	2	3	4	5	6	7	strongly agree
59)bKash is usable even when resources are lacking (e.g., even in remote villages, when electricity is not working etc.) .	strongly disagree	1	2	3	4	5	6	7	strongly agree
60)bKash has the ability to provide consistent services even when resources are lacking (e.g., even in remote villages, when electricity is not working etc.)	strongly disagree	1	2	3	4	5	6	7	strongly agree
61)bKash fulfills multiple functional needs(e.g., Money transfer, buying and selling products, recharging mobile balance etc.).	strongly disagree	1	2	3	4	5	6	7	strongly agree
62)Affluent people who are important to me would support the idea of using bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
63)I think that those wealthy or modern people who are important to me would want me to use bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
64)Affluent or modern people whose opinions I value would prefer me to use bKash.	strongly disagree	1	2	3	4	5	6	7	strongly agree
65)To satisfy the expectation of people in my working place, my decision to use bKash is influenced by their preferences.	strongly disagree	1	2	3	4	5	6	7	strongly agree
66)My decision to use bKash is influenced by the preferences of people with whom I have social interaction.	strongly disagree	1	2	3	4	5	6	7	strongly agree
67)My decision to use bKash is influenced by the preferences of family members.	strongly disagree	1	2	3	4	5	6	7	strongly agree
68)My decision to use bKash is influenced by the desire of others.	strongly disagree	1	2	3	4	5	6	7	strongly agree
69)I often hear good things about bKash from the people around me, including friends, family and people in my working place.	strongly disagree	1	2	3	4	5	6	7	strongly agree
70)When I look at mobile banking service providers, people around me often recommend bKash for me to use.	strongly disagree	1	2	3	4	5	6	7	strongly agree

71)In the past people around me have often recommended bKash for me to use.	strongly disagree	1	2	3	4	5	6	7	strongly agree
72)I maintain close social relationships with some members in my community.	strongly disagree	1	2	3	4	5	6	7	strongly agree
73)I spend a lot of time interacting with some members in my community.	strongly disagree	1	2	3	4	5	6	7	strongly agree
74)I know some members in my community on a personal level.	strongly disagree	1	2	3	4	5	6	7	strongly agree
75)I have frequent communication with some members in my community.	strongly disagree	1	2	3	4	5	6	7	strongly agree
76) I am satisfied with the distance of the bKash agent's shop is to my home	strongly disagree	1	2	3	4	5	6	7	strongly agree
77)I am satisfied with the distance of the bKash agent's shop is to where I work.	strongly disagree	1	2	3	4	5	6	7	strongly agree
78) The bKash agent's shop is convenient as it is on route to my place of work.	strongly disagree	1	2	3	4	5	6	7	strongly agree
79)I have the flexibility to pay the charge of bKash in instalments.	strongly disagree	1	2	3	4	5	6	7	strongly agree
80)I have the freedom to pay the charge of bKash, wherever is best for me.	strongly disagree	1	2	3	4	5	6	7	strongly agree
81)I am not able to pay the charge of bKash in instalments.	strongly disagree	1	2	3	4	5	6	7	strongly agree
82) Compared to the fee I need to pay, the use of bKash offers value for money	strongly disagree	1	2	3	4	5	6	7	strongly agree
83) Compared to the effort I need to put in, the use of bKash is beneficial to me	strongly disagree	1	2	3	4	5	6	7	strongly agree
84) Compared to the time I need to spend, the use of bKash is worthwhile to me	strongly disagree	1	2	3	4	5	6	7	strongly agree
85) Overall, the use of bKash delivers me good value.	strongly disagree	1	2	3	4	5	6	7	strongly agree

We welcome any other comments on the questionnaire. Please feel free to write these comments in the space provided below:

……

……

……

……

……

……

That's the end of this survey. Thank you very much for your time and your patience. We really do appreciate it.

Appendix 4.3

ভূমিকা:

শুভ সকাল (শুভ বিকাল, শুভ সন্ধ্যা) ।

আমার নাম ..... এবং আমি এখন আপনার একটি ইন্টারভিউ নিব। ইন্টারভিউটি প্রায় এক ঘন্টার মত নিবে। শুরু করার আগে, আমি কিছু কথা বলতে চাই।

প্রথমত, এই জরিপ এর উদ্দেশ্য হচ্ছে যে সব মূখ্য কারনে বাংলাদেশ এর নিম্ন আয়ের ক্রেতারা বিকাশ মোবাইল ব্যাংকিং ব্যবহারের জন্য প্রভাবিত হয়, সেই সম্পর্কে জানা। আপনি যেহেতু বিকাশ মোবাইল ব্যাংকিং ব্যবহার করেন, সেহেতু আপনার মতামত মূল্যবান। তবে, এটা বোঝা গুরুত্বপূর্ণ যে, এই জরিপ বিকাশের জন্য পরিচালিত হচ্ছে না। বরং, এই গবেশনা হচ্ছে যুক্তরাজ্যে অবস্থিত কেন্ট বিশ্ববিদ্যালয়ে আমার লেখা পরার অংশ হিসেবে।

দ্বিতীয়ত, আপনার মতামতের কোন সঠিক বা ভুল উত্তর নেই। আপনার নিজস্ব সঠিক এবং স্পষ্টভাষী মতামত অত্যন্ত প্রশংসনীয়। আপনি ব্যক্তিগতভাবে কি চিন্তা করেন এটি হচ্ছে গুরুত্বপূর্ণ।

আপনি যা কিছু বলবেন তার সম্পূর্ণ গোপনীয়তা রক্ষা করা হবে। কোন ব্যক্তিগত বিবরণ যা কোন ব্যক্তিকে শনাক্ত করে এই রকম তথ্য প্রকাশ করা হবে না। আপনি এই ইন্টারভিউ এ অংশ গ্রহন যে কোন সময় বন্ধ করতে পারবেন। এবং আপনার এখান থেকে যা লেখা হবে তা যাচাই করার অধিকার আছে। জরিপ সমাপ্ত হলে, প্রাপ্ত প্রদত্ত ফলাফল সার সংক্ষেপ রুপে কোন প্রকাশনায় প্রকাশ করা হবে। কিন্তু আপনাকে বোঝায় এমন কোন ব্যক্তিগত তথ্য ব্যবহার করা হবে না।

ইন্টারভিউ শুরু করার আগে, আপনি কি আমাকে কোন প্রশ্ন জিজ্ঞাস করতে চান?

আপনার উত্তরে টিকচিহ্ন দিন ☑

লিঙ্গঃ ☐ পুরুষ ☐ মহিলা

অঞ্চলঃ ☐ শহর ☐ গ্রাম

১) আপনি কি আগে বিকাশ সম্পর্কে শুনেছেন? ১. হ্যাঁ ২. না

২) সর্বমোট, আপনি এখন পর্যন্ত কয়বার বিকাশ ব্যবহার করেছেন? ১. কখনও ব্যবহার করা হয় নাই ২. একবার ৩. দুই বার ৪. তিন থেকে চার বার ৫. চার বারের বেশি

৩)আপনি কত ঘন ঘন বিকাশ ব্যবহার করেন? ১. কখনও ব্যবহার করা হয় নাই ২. দুই মাসের মধ্যে একবার ৩. এক মাসের মধ্যে একবার. ৪. এক মাসের মধ্যে কয়েক বার ৫. এক সপ্তাহের মধ্যে কয়েক বার ৬. প্রতিদিন বেশ কয়েকবার

৪) আপনি বর্তমানে কি করেন? ১. পূর্ণ সময় কাজ করেন ২. খন্ড কালীন কাজ করেন ৩. অবসরপ্রাপ্ত ৪. গৃহ পরিচালনা করেন ৫. চাকরী বিহীন

৫) আপনার সর্বোচ্চ শিক্ষাগত যোগ্যতা কি? ১. অশিক্ষিত / একমাত্র দস্তখৎ করতে পারি/ বিদ্যালয়-শিক্ষা নেই ২.

নার্সারী/ কেজি-১/কেজি-২/প্লে-গ্রাউন্ড/প্রি-স্কুল ৩. চতুর্থ শ্রেণী পর্যন্ত ৪. পঞ্চম শ্রেণী পর্যন্ত/পি. এস. সি. ৫. সপ্তম

শ্রেণী পর্যন্ত ৬. অষ্টম শ্রেণী পর্যন্ত/জে. এস. সি. ৭.স্কুলে ক্লাস ১০ পর্যন্ত ৮ . এস. এস. সি. / দাখিল ৯.

এইচ. এস. সি / আলীম ১০. ডিপ্লোমা পর্যন্ত ১১. গ্র্যাজুয়েট/স্নাতক / ফাজিল ১২. মাস্টারস

৬) আপনার পরিবারের মাসিক আয় কত? ☐

৭) আপনার পরিবারের সদস্যদের সংখ্যা ☐

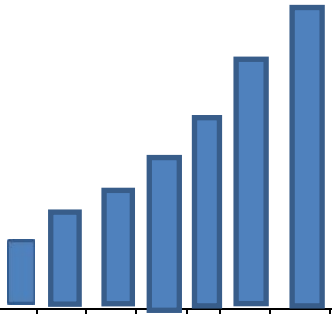
৮) বয়সঃ ☐ ১৮-২০ ☐ ২১-২৫ ☐ ২৬-৩০ ☐ ৩১-৩৬ ☐ ৩৬-৫০ ☐ ৫০ +

৯) আপনার বৈবাহিক অবস্থা কি? ☐ অবিবাহিত ☐ বিবাহিত ☐ তালাকপ্রাপ্ত ☐ বিধবা বা বিপত্নীক

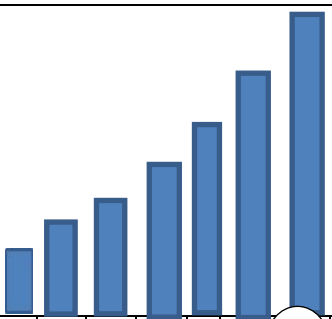
উদাহরণ:

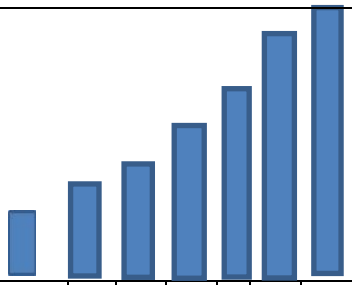
এই জরিপের অনেক প্রশ্নে ৭টি উত্তর ব্যবহার করা হয়েছে। আপনি আপনার মতামত বর্ণনা করেতে যে কোন একটি সংখ্যার চার পাশে গোল চিহ্ন দিন। বিভিন্ন আকারের আয়তক্ষেত্র এর দ্বারা ৭টি পর্যায়ের সম্মতি বোঝানো হইয়েছে। অতএব, যত বেশী ছোট আয়তক্ষেত্র তত বেশী অসমর্থন বোঝায় এবং যত বেশী বড় আয়তক্ষেত্র তত বেশী একমত বোঝায়।

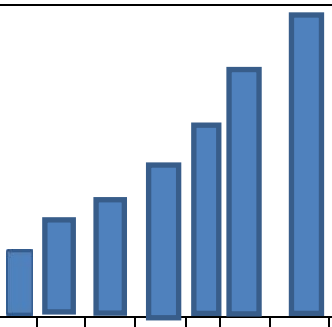
উদাহরণস্বরূপ, আপনাকে একটি প্রশ্ন "লাল হচ্ছে আমার প্রিয় রঙ।" জিজ্ঞাসা করা হল। ৭ টি পর্যায়ের সম্মতি নিম্নরূপ ব্যাখ্যা করা যায়:

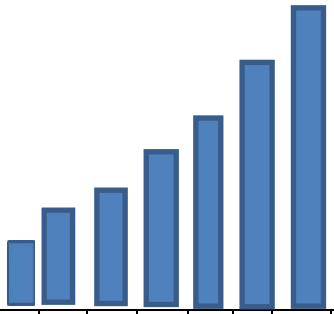
	ছবির মাধ্যমে মতামত							
প্রশ্ন								
লাল হচ্ছে আমার প্রিয় রঙ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

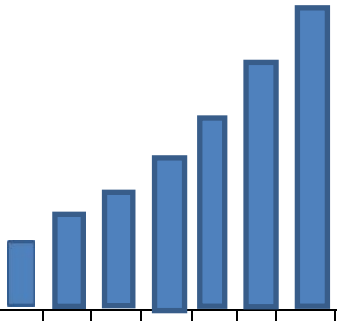
আপনি যদি নিচের বাক্য “লাল হচ্ছে আমার প্রিয় রঙ।" এর সঙ্গে দৃঢ়ভাবে একমত হন, তাহলে আপনি নিচের মত ৭ নম্বর সংখ্যাটির চার পাশে গোল চিহ্ন দিন।

	ছবির মাধ্যমে মতামত							
প্রশ্ন								
লাল হচ্ছে আমার প্রিয় রঙ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

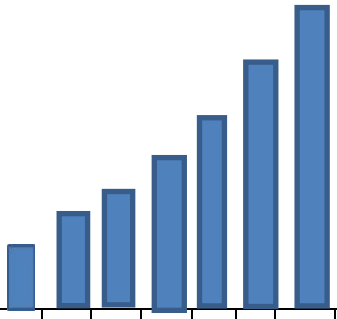
	ছবির মাধ্যমে মতামত							
প্রশ্ন								
১) সামগ্রিকভাবে, আপনি বিকাশ সম্পর্কে কি রকম বোধ করেন তা বর্ণনা করুন। বিকাশ ব্যবহার করা আমার জন্য:	খারাপ	১	২	৩	৪	৫	৬	৭	ভাল
	নেতিবাচক	১	২	৩	৪	৫	৬	৭	ইতিবাচক
	অসন্তোষজনক	১	২	৩	৪	৫	৬	৭	সুবিধাজনক
	কষ্টদায়ক	১	২	৩	৪	৫	৬	৭	আরামপ্রদ

	ছবির মাধ্যমে মতামত							
প্রশ্ন								
২) আমি বিকাশ বিভিন্ন কাজের (নগদ জমা, নগদ উত্তোলন, টাকা পাঠানোর) জন্য ব্যবহার করি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩) আমি আগে বিকাশ ব্যবহার করেছি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪) সুযোগ পেলে, আমি বিকাশ সেবা ব্যবহার করবো।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫) আমি সম্ভবত কিছু দিন পর বিকাশ ব্যবহার করব।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬) আমি কিছু দিন পর বিকাশ ব্যবহারের ইচ্ছা প্রকাশ করছি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭) সুযোগ পেলে, আমি বিকাশ ব্যবহার করব বলে মনে করছি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

	ছবির মাধ্যমে মতামত							
প্রশ্ন								
৮)বিকাশ হচ্ছে একটি দরকারী লেন দেনের মাধ্যম।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৯)বিকাশ ব্যবহার অর্থ লেন দেনের পরিচালনা সহজ করে তোলে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১০)বিকাশ মোবাইলের মাধ্যমে বিভিন্ন কাজ (যেমন নগদ জমা, নগদ উত্তোলন, টাকা পাঠানোর) দ্রুততর করে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১১) ব্যবহারকারী হিসেবে বিকাশ ব্যবহার করে আমার পছন্দগুলো (যেমন, সহজে ব্যবহার যোগ্যতা, গতি) উন্নত হয়েছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১২)বিকাশ ব্যবহারে দক্ষ বা পটু হওয়া সহজ হয়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৩)বিকাশ এর মাধ্যমে কাজ করা স্পষ্ট এবং বোঝা সহজ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৪)বিকাশ ব্যবহারের প্রয়োজনীয় ধাপগুলি (যেমনঃ টাকা জমা দেওয়া, টাকা পাঠানো, মেন্যু ব্যবহার, পিন নম্বর ব্যবহার) অনুসরণ করা সহজ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৫)বিকাশ এর মাধ্যমে কাজ করা সহজ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৬)আমার কাছে গুরুত্বপূর্ণ লোকজন আমাকে বিকাশ ব্যবহারের পরামর্শ দিয়েছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৭)আমার কাছে গুরুত্বপূর্ণ লোকজন বিকাশ ব্যবহার করে উপকৃত হবে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৮)আমার কাছে গুরুত্বপূর্ণ লোকজন বিকাশ ব্যবহার করা কে একটি ভাল ধারণা মনে করে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৯)আমি বিকাশ ব্যবহার করতে পারব।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২০)বিকাশ ব্যবহার সম্পূর্ণরূপে আমার সাধ্যের মধ্যে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২১) বিকাশ ব্যবহার করার জন্য আমার প্রয়োজনীয় ধারনা ও সামর্থ আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২২)বিকাশ থেকে সেইসব সুবিধা পাওয়া যায় যা প্রতিযোগী পণ্য (যেমন কুরিয়ার সার্ভিস)থেকে পাওয়া যায় না।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

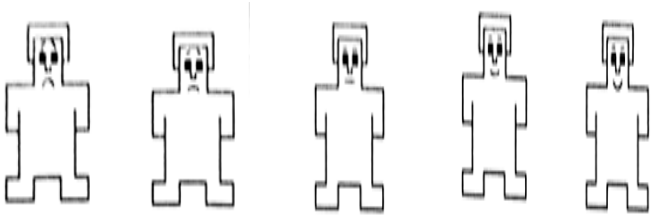
	ছবির মাধ্যমে মতামত							
প্রশ্ন								
২৩) আমার মতে, বিকাশ প্রতিদ্বন্দ্বী পণ্য (যেমন কুরিয়ার সার্ভিস) থেকে ভাল।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২৪) বিকাশ এমন সমস্যা সমাধান করে যা আমি প্রতিযোগী পণ্য (যেমন কুরিয়ার সার্ভিস) ব্যবহার করে সমাধান করতে পারি না।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২৫) বিকাশ এ কাজ করা জটিল, কি ঘটছে এটা বোঝা যায় না।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২৬) বিকাশ ব্যবহারে খুব বেশী সময় নিয়ে যান্ত্রিক কৌশল (যেমন, পিন নম্বর ব্যাবহার, ক্যাশ আউট, মেন্যু বোঝা)ব্যবহার করতে হয়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২৭) বিকাশ এর ব্যবহার করতে অনেক সময় লাগে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২৮) সাধারণভাবে বলা যায়, বিকাশ ব্যবহার করা খুব কঠিন।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২৯) বিকাশ ব্যবহার করাটা আমার জীবনধারার সঙ্গে ভালোভাবে মানানসই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩০) বিকাশ ব্যবহার করে আমি যে ভাবে পণ্য ও সেবা ক্রয় করতে চাই তার সঙ্গে ভালোভাবে মিলে যায়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩১) আমি অন্য পদ্ধতিতে অর্থ লেন দেন (যেমন, নগদ অর্থ) করার পরিবর্তে বিকাশ ব্যবহারের প্রশংসা করি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩২) বিকাশ ব্যবহার করব কি না তা সিদ্ধান্ত নেওয়ার আগে, আমি পরখ করে দেখতে চাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৩) বিকাশ ব্যবহার করব কি না তা সিদ্ধান্ত নেওয়ার আগে, আমি সামর্থ্য অনুযায়ী এটি ভালভাবে পরখ করে দেখতে চাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৪) বিকাশ কি করতে পারে তা দেখার জন্য আমি দীর্ঘ কিছু সময়ের জন্য পরখ করে দেখার সুবিধা পেতে চাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৫) আমার বিকাশ ব্যবহার করার সুবিধা সম্পর্কে অন্যদের বলতে কোন অসুবিধা নেই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৬) আমি বিশ্বাস করি যে আমি অন্যদের বিকাশ ব্যবহারের	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

সুবিধা জানাতে পারব।									

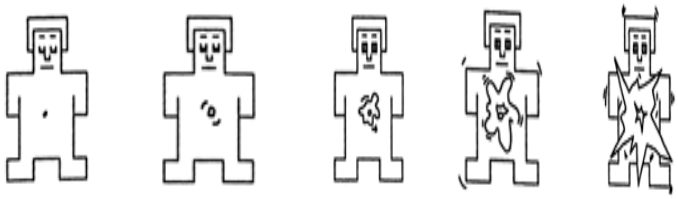
	ছবির মাধ্যমে মতামত							
প্রশ্ন								
৩৭) বিকাশ ব্যবহারের সুবিধা আমার কাছে সুস্পষ্ট।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৮) আমি বিকাশ এর মাধ্যমে কাজ করতে ভাল লাগে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৯) বিকাশ ব্যবহার আমাকে অনেক আনন্দ দেয়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪০) আমি বিকাশ ব্যবহার করে আনন্দ পাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪১) বিকাশ ব্যবহার আমাকে বিরক্ত করে ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪২) বিকাশ ব্যবহার করা সহজ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৩) বিকাশ এর মাধ্যমে তাড়াতাড়ি কাজ করা যায়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৪) বিকাশ মোবাইল ব্যাংকিং সেবা নিতে স্বল্প সময় লাগে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৫) আমি যা করতে চাই তা বিকাশ দ্বারা করতে সহজ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৬) বিকাশ এর পদ্ধতি নির্ভরযোগ্য।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৭) বিকাশ ব্যবহারের খরচ অনেক বেশী।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৮) বিকাশ ব্যবহারের জন্য যে খরচ দিতে হয় তা ঠিক আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৯) বিকাশ ব্যবহারের জন্য যে খরচ দিতে হয় তা সন্তুষ্টজনক।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

৫০) নীচের প্রত্যেক জোড়া শব্দসমুহ একটি অনুভূতির মাত্রা বর্ণনা করে। কিছু জোড়া শব্দ অস্বাভাবিক মনে হতে পারে, কিন্তু আপনি সাধারণত একটি হতে আরেকটি বেশী অনুভব করেন। সুতরাং, প্রতিটি জোড়ার জন্য, একটি টিক চিহ্ন দিন। উদাহরণ: আপনি বিকাশ সম্পর্কে কি রকম অনুভব করেন তা দেখানোর জন্য একটু সময় নিন আপনার অনুভূতির একটি বাস্তব বৈশিষ্ট্য বর্ণনা করতে।

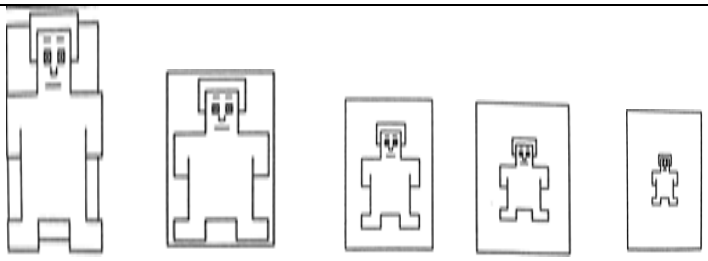
আপনি বিকাশ মোবাইল ব্যাংকিং সম্পর্কে কি রকম বোধ করেন:

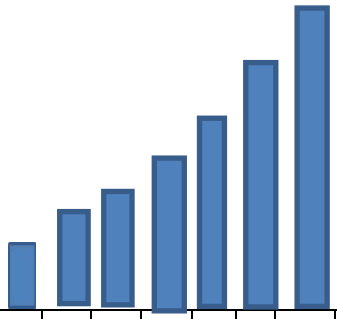
ছবির মাধ্যমে মতামত						
						
খুব অখুশি	১	২	৩	৪	৫	খুব খুশি
খুব বিরক্ত	১	২	৩	৪	৫	খুব আনন্দিত
খুব অসন্তুষ্ট	১	২	৩	৪	৫	খুব সন্তুষ্ট
খুব দু:খজনক	১	২	৩	৪	৫	খুব তৃপ্তি
খুব হতাশ	১	২	৩	৪	৫	খুব আশান্বিত
খুব একঘেঁয়েমি	১	২	৩	৪	৫	খুব আরাম

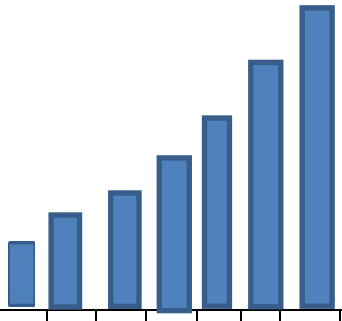
পুনরায়, আপনি বিকাশ মোবাইল ব্যাংকিং সম্পর্কে কি রকম বোধ করেন:

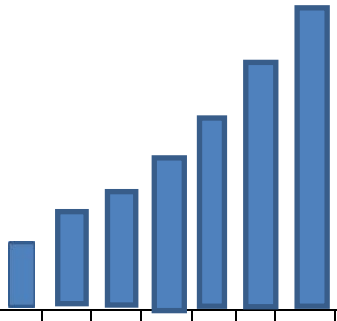
ছবির মাধ্যমে মতামত						
						
খুব হালকা	১	২	৩	৪	৫	খুব চাঙ্গা
খুব শান্ত	১	২	৩	৪	৫	খুব উত্তেজিত
খুব আলসেমি	১	২	৩	৪	৫	খুব চঞ্চল
খুব নীরস	১	২	৩	৪	৫	খুব ভীষণ ভীত
খুব ঘুমন্ত	১	২	৩	৪	৫	খুব জাগরিত
খুব কুঁড়ে (অলস)	১	২	৩	৪	৫	খুব চটপটে

পুনরায়, আপনি বিকাশ মোবাইল ব্যাংকিং সম্পর্কে কি রকম বোধ করেন:

ছবির মাধ্যমে মতামত						
						
খুব প্রভাবশালী	১	২	৩	৪	৫	খুব প্রভাবিত
খুব কর্তৃত্ব	১	২	৩	৪	৫	খুব নিয়ন্ত্রিত
খুব আধিপত্য বিস্তার	১	২	৩	৪	৫	খুব বিনয়ী
খুব নিয়ন্ত্রনে	১	২	৩	৪	৫	খুব যত্নশীল
খুব স্বাধীন	১	২	৩	৪	৫	খুব পরিচালিত
খুব গুরুত্বপূর্ণ	১	২	৩	৪	৫	খুব ভীত

	ছবির মাধ্যমে মতামত								
প্রশ্ন									
৫১) আমি বিকাশ সাশ্রয়ী মূল্যের হবার কারনে ব্যবহার করব।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫২) আমি আমার প্রয়োজন অনুযায়ী মোবাইল ব্যাংকিং সেবা প্রদানকারী প্রতিষ্ঠান গুলোর মধ্যে সর্বনিম্ন খরচের টি ব্যবহার করব।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৩) বিকাশ বেছে নেবার সময়, আমি দামের উপর খুব বেশী নির্ভর করব।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৪) বিকাশের সাথে সম্পর্কযুক্ত যেকোন রং, আকার, ছবি, চিহ্ন (যেমনঃ গোলাপি রঙের পাখি প্রতীক এর মাধ্যমে বিকাশ বোঝানো হয়) এবং অন্যান্য প্রাসঙ্গিক উপাদান বিকাশ এর ব্যবহার পদ্ধতি স্পষ্ট করে তুলে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

	ছবির মাধ্যমে মতামত							
প্রশ্ন								
৫৫)বিকাশ ব্যবহার এর সময় আমি বিকাশের সাথে সম্পর্কযুক্ত যেকোন রং, আকার, ছবি, চিহ্ন (যেমনঃ গোলাপি রঙের পাখি প্রতীক এর মাধ্যমে বিকাশ বোঝানো হয়) এবং অন্যান্য প্রাসঙ্গিক উপাদান চিন্তা করি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৬)আমি বিকাশের সাথে সম্পর্কযুক্ত যেকোন রং, আকার, ছবি, চিহ্ন (যেমনঃ গোলাপি রঙের পাখি প্রতীক এর মাধ্যমে বিকাশ বোঝানো হয়) এবং অন্যান্য প্রাসঙ্গিক উপাদান সহজে মনে করতে পারি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৭)আমি মনে করি বিকাশের সাথে সম্পর্কযুক্ত যেকোন লিখিত তথ্য থেকে রং, আকার, ছবি, চিহ্ন (যেমনঃ গোলাপি রঙের পাখি প্রতীক এর মাধ্যমে বিকাশ বোঝানো হয়) এবং অন্যান্য প্রাসঙ্গিক উপাদান আমার কাছে বিকাশ এর ব্যবহার পদ্ধতি স্পষ্ট তোলে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৮)বিকাশ একাধিক কাজের (যেমনঃ টাকা পাঠানো, পণ্য ক্রয়-বিক্রয়, উত্তোলন, জমা দেওয়া, মোবাইল ব্যাল্যান্স রিচার্জ)জন্য ব্যবহার করা যায়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৯)বিকাশ প্রয়োজনীয় সম্পদের (যেমনঃ প্রত্যন্ত গ্রামে যখন বিদ্যুৎ ঠিকমত থাকে না)অনুপস্থিতিতে ব্যবহার করা যায়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬০)বিকাশের প্রয়োজনীয় সম্পদের (যেমনঃ প্রত্যন্ত গ্রামে যখন বিদ্যুৎ ঠিকমত থাকে না)অনুপস্থিতিতে সেবা প্রদান করার ক্ষমতা আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬১)বিকাশ একাধিক প্রয়োজনীয় চাহিদা (যেমনঃ টাকা পাঠানো, পণ্য ক্রয়-বিক্রয়, উত্তোলন, জমা দেওয়া, মোবাইল ব্যাল্যান্স রিচার্জ) পূর্ণ করে। .	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬২)গণ্যমান্য ব্যক্তিদের যারা আমার কাছে প্রয়োজনীয় তারা বিকাশ ব্যবহার করার ব্যাপারে সমর্থন করবে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬৩)আমি মনে করি ধনী বা আধুনিক ব্যক্তি যারা আমার কাছে প্রয়োজনীয় তারা চান আমি বিকাশ সেবা ব্যবহার করি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬৪)আমি যেসব ধনী বা আধুনিক ব্যক্তিদের মতামত কে মূল্য দেই তারা আমার বিকাশ ব্যবহার করা কে পছন্দ করবেন।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

	ছবির মাধ্যমে মতামত							
প্রশ্ন								
৬৫) আমার বিকাশ ব্যবহারের সিদ্ধান্ত আমি যাদের সাথে কাজ করি তাদের পছন্দ দ্বারা প্রভাবিত।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬৬) বিকাশ ব্যবহারের সিদ্ধান্ত আমার যাদের সাথে সামাজিক যোগাযোগ আছে তাদের পছন্দ দ্বারা প্রভাবিত।.	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬৭) আমার বিকাশ ব্যবহারের সিদ্ধান্ত পরিবারের সদস্যদের পছন্দ দ্বারা প্রভাবিত।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬৮)আমার বিকাশ ব্যবহারের সিদ্ধান্ত অন্যদের প্রত্যাশা দ্বারা প্রভাবিত।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬৯) বন্ধু, পরিবার এবং সহকর্মীদের সহ আমার চারপাশের মানুষ থেকে আমি বিকাশ সম্পর্কে ভাল কিছু শুনতে পাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭০) আমি যখন মোবাইল ব্যাংকিং সেবা প্রদানকারীদের দিকে দেখি চারপাশের লোকজন বিকাশ ব্যবহারের কথা বলে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭১) পূর্বে আমার চারপাশের লোকজন এই ধরনের সেবার জন্য বিকাশ ব্যবহার করার পরামর্শ দিয়েছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭২) আমি আমার সমাজের মাঝে কিছু সদস্যদের সাথে ঘনিষ্ঠ সামাজিক সম্পর্ক বজায় রাখি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭৩) আমি আমার সমাজের মাঝে কিছু সদস্যদের সাথে মেলামেশায় অনেক সময় ব্যয় করি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭৪) আমি আমার সমাজের কিছু সদস্যদের ব্যক্তিগত পর্যায়ে চিনি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭৫) আমার সমাজের মধ্যে কিছু সদস্যদের সাথে ঘনিষ্ঠ যোগাযোগ আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭৬) আমার বাড়ি থেকে বিকাশ এজেন্টের দোকানের দূরত্ব নিয়ে আমি সন্তুষ্ট।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭৭) আমার কাজ করার জায়গা থেকে বিকাশ এজেন্টের দোকানের দূরত্ব নিয়ে আমি সন্তুষ্ট।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭৮) আমার কাজে যাবার পথে বিকাশ এজেন্টের দোকান থাকায় তা আমার জন্য সুবিধাজনক।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

৭৯) বিকাশ এর চার্জ আমি কিস্তিতে প্রদান করতে পারি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৮০) যে জায়গা আমার জন্য ভাল সেখান থেকে বিকাশ এর চার্জ পরিশোধের স্বাধীনতা আমার আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৮১) আমি বিকাশ এর চার্জ কিস্তিতে প্রদান করতে সক্ষম নই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৮২) আমাকে বিকাশের যে চার্জ দিতে হয় সেই তুলনায়, বিকাশ ব্যবহারের খরচটি ঠিক আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৮৩) বিকাশ বাবহারের জন্য আমাকে যে পরিশ্রম দিতে হয় তার তুলনায়, বিকাশ ব্যবহার করা সুবিধাজনক।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৮৪) বিকাশ বাবহারের জন্য আমাকে যে সময় দিতে হয় তার তুলনায়, বিকাশ ব্যবহার আমার জন্য ঠিক আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৮৫) সামগ্রিকভাবে, বিকাশ ব্যবহার করে আমি ভাল সেবা পাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

আপনার কোন মন্তব্য থাকলে আপনি নিচের প্রদত্ত স্থানে ব্যাখা করতে পারেন:

.....
.....
.....
.....
.....
.....

এই জরিপ এখানেই শেষ করছি। আপনার সময় এবং ধৈর্য্যের জন্য আপনাকে অনেক ধন্যবাদ। আমরা সত্যিই এর প্রশংসা করি।

Appendix 5.1

Findings of Reliability, Validity and Common Method Bias of Study 1

Common method bias- Findings of Harman's single factor test:

Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	29.797	28.111	28.111	29.797	28.111	28.111
2	6.209	5.858	33.968			
3	5.250	4.953	38.921			
4	4.800	4.528	43.449			
5	3.273	3.088	46.537			
6	3.077	2.903	49.440			
7	2.713	2.559	51.999			
8	2.532	2.388	54.388			
9	2.116	1.996	56.383			
10	1.909	1.801	58.185			
11	1.717	1.619	59.804			
12	1.651	1.558	61.362			
13	1.604	1.513	62.875			
14	1.444	1.363	64.237			
15	1.406	1.327	65.564			
16	1.336	1.261	66.824			
17	1.233	1.164	67.988			
18	1.205	1.137	69.125			
19	1.118	1.055	70.180			
20	1.110	1.047	71.227			
21	1.058	.998	72.225			
22	1.001	.944	73.169			
23	.972	.917	74.086			
24	.950	.897	74.983			
25	.917	.865	75.848			
26	.869	.820	76.668			
27	.857	.809	77.477			
28	.844	.796	78.273			
29	.834	.787	79.059			
30	.777	.733	79.792			
31	.766	.722	80.514			
32	.746	.704	81.218			
33	.696	.656	81.874			

34	.685	.646	82.521			
35	.646	.609	83.130			
36	.622	.587	83.717			
37	.607	.573	84.290			
38	.575	.542	84.832			
39	.571	.538	85.370			
40	.565	.533	85.904			
41	.558	.527	86.430			
42	.530	.500	86.930			
43	.497	.468	87.399			
44	.477	.450	87.849			
45	.475	.448	88.297			
46	.459	.433	88.730			
47	.447	.422	89.152			
48	.437	.412	89.565			
49	.421	.397	89.962			
50	.413	.389	90.351			
51	.400	.378	90.729			
52	.392	.370	91.099			
53	.371	.350	91.449			
54	.366	.345	91.794			
55	.352	.332	92.127			
56	.342	.323	92.449			
57	.332	.313	92.762			
58	.313	.295	93.057			
59	.309	.292	93.349			
60	.299	.282	93.631			
61	.289	.272	93.904			
62	.285	.269	94.172			
63	.280	.264	94.437			
64	.266	.251	94.688			
65	.264	.249	94.937			
66	.254	.240	95.177			
67	.248	.234	95.411			
68	.236	.222	95.633			
69	.230	.217	95.850			
70	.228	.215	96.065			
71	.211	.199	96.264			
72	.205	.194	96.458			
73	.200	.189	96.646			
74	.197	.186	96.833			
75	.189	.178	97.011			
76	.178	.167	97.178			

77	.176	.166	97.344			
78	.171	.161	97.505			
79	.161	.151	97.657			
80	.154	.145	97.802			
81	.151	.143	97.944			
82	.142	.134	98.079			
83	.141	.133	98.212			
84	.139	.131	98.342			
85	.125	.118	98.461			
86	.124	.117	98.578			
87	.119	.113	98.690			
88	.115	.108	98.798			
89	.112	.106	98.904			
90	.105	.099	99.003			
91	.099	.094	99.096			
92	.098	.093	99.189			
93	.093	.087	99.277			
94	.087	.082	99.359			
95	.083	.078	99.437			
96	.079	.075	99.512			
97	.073	.069	99.581			
98	.067	.063	99.644			
99	.065	.061	99.705			
100	.057	.053	99.758			
101	.056	.053	99.812			
102	.051	.048	99.860			
103	.046	.044	99.903			
104	.038	.036	99.940			
105	.036	.034	99.973			
106	.028	.027	100.000			

Extraction Method: Principal Component Analysis.

Appendix 6.1

Introduction:

Good Morning (Good Afternoon, Good Evening)

My name is……..and I will be interviewing you now. The interview should take about 30 minutes. Before we start, I need to explain a few points.

First, the purpose of conducting this survey is to learn about the factors that are important for consumers in Bangladesh, when adopting new products like Union information and Service Centres (UISC).As a user of UISC, your opinion is valuable. However, it is important to understand that this survey is not being conducted for UISC; it is part of my programme of study at the University of Kent in the United Kingdom. `

Secondly, please be frank and honest with your answers. There is no right or wrong answer. The important thing is what you personally think.

Everything you say will be treated in complete confidence. No personal details identifying individuals will be made available publicly. You can stop the interview anytime. And you have a right to check everything that has been written down. When the surveys are finished, the results obtained may be displayed in aggregated form in publications but no personal details will be used and you will not be identified.

Are there any questions you'd like to ask me before we begin?

Please tick your answer ☑

* **Gender:** ☐ Male ☐ Female

* **Area:** ☐ Urban ☐ Rural

1**) Have you heard of UISC before?** 1) Yes 2) No

2) In total, How many times have you used UISC till now? 1. Never Used 2. Once 3. Twice 4.Three to four times 5.More than four times.

3**) How frequently do you use UISC?** 1. Never used 2. Once in every two months 3. Once in every month. 4. Few times in every month 5. Few times in every week 6. Several times in every day

4)What is the highest level of education you completed? 1.Uneducated / Can only Sign/ No schooling 2.PlayGroup/ Nursery/ KG1/ KG2 3.School up to class 4 4. Class 5 /PSC 5.School up to class 7 6. Class 8/ JSC 7. School up to class 10 8.SSC/Dakhil 9.HSC/Alim 10. Diploma 11.Graduate/ Fazil 12.Masters

5) In a typical month approximately how much is your household monthly income? ☐

6) Number of Family members ☐

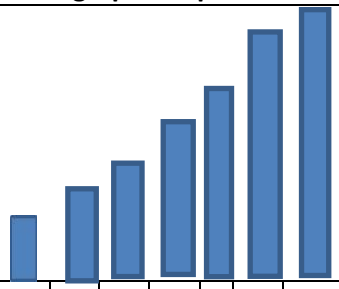
7)* **Age Group:** ☐ 18-20 ☐ 21-25 ☐ 26-30 ☐ 31-36 ☐ 36- 50 ☐ 5 0+

8) Please indicate your marital status:

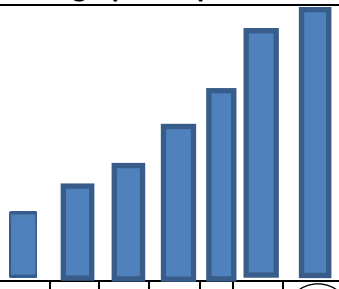
☐ Single ☐ Married ☐ Divorced ☐ Widowed

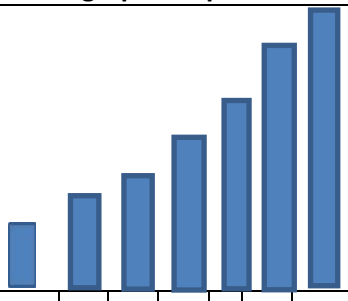
Example:

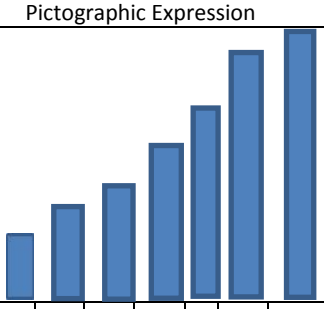
Many questions in this survey make use of 7- point answers; you are to circle the number that best describes your opinion. The level of agreement with these 7 point responses are represented with different sizes of rectangles. Therefore, small rectangles represent level of disagreement and big size rectangles represent level of agreement. For example, suppose the question asked you to rate "Red is my favourite colour "on such a scale. The 7 places should be interpreted as follows:

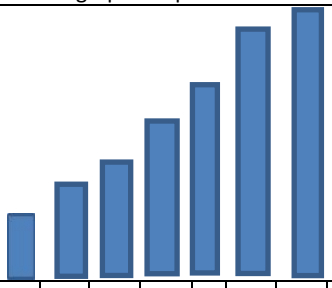
	Pictographic Expression							
Questions								
Red is my favourite colour.	strongly disagree	1	2	3	4	5	6	7 strongly agree

If you strongly agree with the following statement "Red is my favourite colour", then you would circle the number 7, as follows:

	Pictographic Expression							
Questions								
Red is my favourite colour.	strongly disagree	1	2	3	4	5	6	7 strongly agree

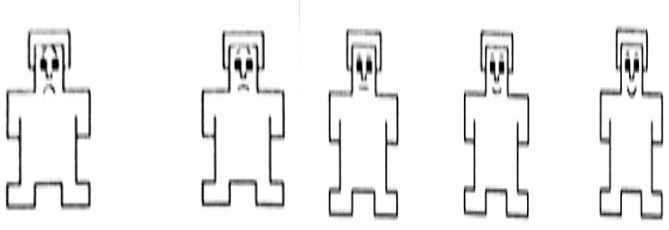
	Pictographic Expression								
Questions									
1) Overall, please describe how you feel about UISC. For me, using UISC is:	Bad	1	2	3	4	5	6	7	Good
	Negative	1	2	3	4	5	6	7	Positive
	Unfavourable	1	2	3	4	5	6	7	Favourable
	Unpleasant	1	2	3	4	5	6	7	Pleasant

	Pictographic Expression								
Questions									
2)I use UISC for variety of applications (e.g.,email, browsing, computer compose, telemedicine etc.)	strongly disagree	1	2	3	4	5	6	7	strongly agree
3)Overall, I use UISC a lot.	strongly disagree	1	2	3	4	5	6	7	strongly agree
4) Given the opportunity, I will use UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
5) I am likely to use UISC in the near future.	strongly disagree	1	2	3	4	5	6	7	strongly agree
6) I am willing to use UISC in the near future	strongly disagree	1	2	3	4	5	6	7	strongly agree
7) I intend to use UISC when the opportunity arises.	strongly disagree	1	2	3	4	5	6	7	strongly agree
8) UISC is a useful mode of IT services.	strongly disagree	1	2	3	4	5	6	7	strongly agree
9) Using UISC makes the handling of IT services easier.	strongly disagree	1	2	3	4	5	6	7	strongly agree
10) UISC allows for a faster usage of IT applications (e.g., Email, browsing, video calling, information service).	strongly disagree	1	2	3	4	5	6	7	strongly agree
11) By using UISC, my choices as a consumer are improved (e.g., flexibility, speed).	strongly disagree	1	2	3	4	5	6	7	strongly agree
12) It is easy to become skillful at using UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
13) Interacting with UISC is clear and understandable.	strongly disagree	1	2	3	4	5	6	7	strongly agree
14) It is easy to perform the steps (e.g., coming to UISC, informing the entrepreneur about your need, and getting the expected service accordingly) required to use UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
15) It is easy to interact with UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
16) People who are important to me would recommend using UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
17) People who are important to me would find using UISC beneficial.	strongly disagree	1	2	3	4	5	6	7	strongly agree

	Pictographic Expression							
Questions								
18) People who are important to me would find using UISC a good idea.	strongly disagree	1	2	3	4	5	6	7 strongly agree
19) I would be able to use the UISC.	strongly disagree	1	2	3	4	5	6	7 strongly agree
20) Using UISC is entirely within my control.	strongly disagree	1	2	3	4	5	6	7 strongly agree
21) I have the resources, the knowledge and the ability to make use of UISC.	strongly disagree	1	2	3	4	5	6	7 strongly agree
22) UISC offers advantages that are not offered by competing products (e.g., other local IT based service providers).	strongly disagree	1	2	3	4	5	6	7 strongly agree
23) UISC is, in my eyes, superior to competing products (e.g., other local IT based service providers) .	strongly disagree	1	2	3	4	5	6	7 strongly agree
24) UISC solves a problem that I cannot solve with competing products (e.g., other local IT based service providers).	strongly disagree	1	2	3	4	5	6	7 strongly agree
25) The fee that I have to pay for the use of UISC is too high.	strongly disagree	1	2	3	4	5	6	7 strongly agree
26) The fee that I have to pay for the use of UISC is reasonable.	strongly disagree	1	2	3	4	5	6	7 strongly agree
27) I am pleased with the fee that I have to pay for the use of UISC.	strongly disagree	1	2	3	4	5	6	7 strongly agree

28) Each pair of words below describes a feeling. Some of the pairs might seem unusual, but you may generally feel more one way than the other. So, for each pair, put a check mark where you feel it is most appropriate. Please take your time – and remember we are just interested in your opinion.

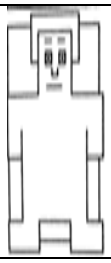
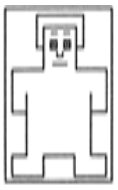
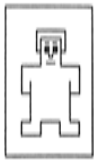
Please indicate how you feel about UISC:

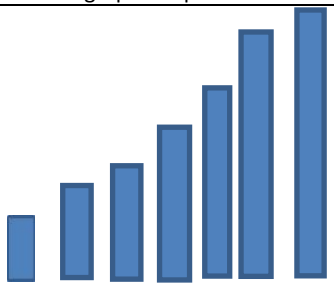
Pictographic Expression						
						
Very Unhappy	1	2	3	4	5	Very Happy
Very Annoyed	1	2	3	4	5	Very Pleased
Very Unsatisfied	1	2	3	4	5	Very Satisfied
Very Melancholic	1	2	3	4	5	Very Contented
Very Despairing	1	2	3	4	5	Very Hopeful
Very Bored	1	2	3	4	5	Very Relaxed

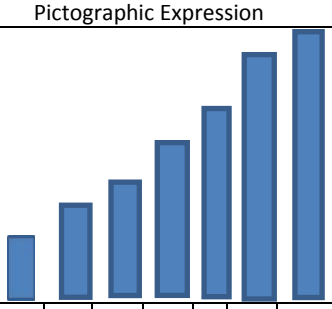
Again, please indicate how you feel about UISC:

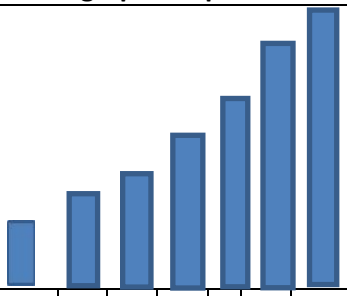
Pictographic Expression						
						
Very Relaxed	1	2	3	4	5	Very Stimulated
Very Calm	1	2	3	4	5	Very Excited
Very Sluggish	1	2	3	4	5	Very Frenzied
Very Dull	1	2	3	4	5	Very Jittery
Very Sleepy	1	2	3	4	5	Very Wide-awake
Very Unaroused	1	2	3	4	5	Very Aroused

Again, please indicate how you feel about UISC:

Pictographic Expression						
						
Very Influential	1	2	3	4	5	Very Influenced
Very Dominant	1	2	3	4	5	Very Submissive
Very In Control	1	2	3	4	5	Very Cared For
Very Important	1	2	3	4	5	Very Awed

	Pictographic Expression								
Questions									
29) Using UISC fits well with my lifestyle	strongly disagree	1	2	3	4	5	6	7	strongly agree
30) Using UISC fits well with the way I like to use products and services	strongly disagree	1	2	3	4	5	6	7	strongly agree
31) I would appreciate using UISC instead of alternative modes of services (e.g., Other local IT based service providers).	strongly disagree	1	2	3	4	5	6	7	strongly agree
32) Before deciding on whether or not to use UISC, I want to be able to use it on a trial basis.	strongly disagree	1	2	3	4	5	6	7	strongly agree
33) Before deciding on whether or not to use UISC, I want to be able to properly try it out.	strongly disagree	1	2	3	4	5	6	7	strongly agree
34) I want to be permitted to use UISC on a trial basis so I can see what it can do.	strongly disagree	1	2	3	4	5	6	7	strongly agree
35) I would have no difficulty telling others about the results of using the UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
36) I believe I could communicate to others the results of using the UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
37) The results of using the UISC are apparent to me.	strongly disagree	1	2	3	4	5	6	7	strongly agree
38) I have fun interacting with UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
39) Using UISC provides me with a lot of enjoyment.	strongly disagree	1	2	3	4	5	6	7	strongly agree
40) I enjoy using UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
41) Using UISC bores me	strongly disagree	1	2	3	4	5	6	7	strongly agree
42) It is easy to use UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
43) UISC can be used instantly.	strongly disagree	1	2	3	4	5	6	7	strongly agree
44) UISC takes a short time to respond.	strongly disagree	1	2	3	4	5	6	7	strongly agree
45) It is easy to get UISC to do what I want it to do	strongly disagree	1	2	3	4	5	6	7	strongly agree
46) The system of UISC is reliable.	strongly disagree	1	2	3	4	5	6	7	strongly agree
47)The colour, shapes, pictures, symbols (e.g., Logo of UISC, Bangladesh maps in the logo, and other pictures represent UISC) and other relevant elements of UISC help me to clarify how to use this service.	strongly disagree	1	2	3	4	5	6	7	strongly agree
48)Using UISC I find myself thinking of the colour, shapes, pictures, symbols (e.g., Logo of UISC, Bangladesh maps in the logo, and other pictures represent UISC) and other relevant elements of UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
49)I find it easy to remember any colour, shapes, pictures, symbols (e.g., Logo of UISC, Bangladesh maps in the logo,and other pictures represent UISC) and other relevant elements of UISC.	strongly disagree	1	2	3	4	5	6	7	strongly agree
50)I find the colours, shapes, pictures and symbols of UISC (e.g.,Logo of UISC, Bangladesh maps in the logo,and other pictures represent UISC) help me to understand how to use UISC more than any written	strongly disagree	1	2	3	4	5	6	7	strongly agree

text associated with it.									
51)To satisfy the expectation of people in my working place, my decision to use UISC is influenced by their preferences..	strongly disagree	1	2	3	4	5	6	7	strongly agree
	Pictographic Expression								
Questions									
52)My decision to use UISC is influenced by the preferences of people with whom I have social interaction.	strongly disagree	1	2	3	4	5	6	7	strongly agree
53)My decision to use UISC is influenced by the preferences of family members.	strongly disagree	1	2	3	4	5	6	7	strongly agree
54)My decision to use UISC is influenced by the desire of others.	strongly disagree	1	2	3	4	5	6	7	strongly agree
55) Compared to the fee I need to pay, the use of UISC offers value for money.	strongly disagree	1	2	3	4	5	6	7	strongly agree
56) Compared to the effort I need to put in, the use of UISC is beneficial to me.	strongly disagree	1	2	3	4	5	6	7	strongly agree
57) Compared to the time I need to spend, the use of UISC is worthwhile to me.	strongly disagree	1	2	3	4	5	6	7	strongly agree
58) Overall, the use of UISC delivers me good value.	strongly disagree	1	2	3	4	5	6	7	strongly agree
59) Using UISC is complicated; it is difficult to understand what is going on.	strongly disagree	1	2	3	4	5	6	7	strongly agree
60) Using the UISC involves too much time doing mechanical operations.	strongly disagree	1	2	3	4	5	6	7	strongly agree
61) It takes too long to learn how to use UISC to make it worth the effort.	strongly disagree	1	2	3	4	5	6	7	strongly agree
62) In general, UISC is very complex to use.	strongly disagree	1	2	3	4	5	6	7	strongly agree

	Pictographic Expression							
Questions								
63) Overall, please describe how you feel about eating rice. For me, eating rice is:	Bad	1	2	3	4	5	6	7	Good
	Negative	1	2	3	4	5	6	7	Positive
	Unfavourable	1	2	3	4	5	6	7	Favourable
	Unpleasant	1	2	3	4	5	6	7	Pleasant

We welcome any other comments on the questionnaire. Please feel free to write these comments in the space provided below:

……

……

……

That's the end of this survey. Thank you very much for your time and your patience. We really do appreciate it.

Appendix 6.2

ভূমিকা:

শুভ সকাল (শুভ বিকাল, শুভ সন্ধ্যা) ।

আমার নাম ..... এবং আমি এখন আপনার একটি ইন্টারভিউ নিব। ইন্টারভিউটি প্রায় ৩০ মিনিটের মত নিবে। শুরু করার আগে, আমি কিছু কথা বলতে চাই।

প্রথমত, এই জরিপ এর উদ্দেশ্য হচ্ছে যে সব মূখ্য কারনে বাংলাদেশ এর নিম্ন আয়ের ক্রেতারা ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি)ব্যবহারের জন্য প্রভাবিত হয়, সেই সম্পর্কে জানা। আপনি যেহেতু ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি)ব্যবহার করেন, সেহেতু আপনার মতামত মূল্যবান। তবে, এটা বোঝা গুরুত্বপূর্ণ যে, এই জরিপ ইউনিয়ন তথ্য ও সেবা কেন্দ্র এর জন্য পরিচালিত হচ্ছে না। বরং, এই গবেশনা হচ্ছে যুক্তরাজ্যে অবস্থিত কেন্ট বিশ্ববিদ্যালয়ে আমার লেখা পরার অংশ হিসেবে।

দ্বিতীয়ত, আপনার মতামতের কোন সঠিক বা ভুল উত্তর নেই। আপনার নিজস্ব সঠিক এবং স্পষ্টভাষী মতামত অত্যন্ত প্রশংসনীয়। আপনি ব্যক্তিগতভাবে কি চিন্তা করেন এটি হচ্ছে গুরুত্বপূর্ণ।

আপনি যা কিছু বলবেন তার সম্পূর্ণ গোপনীয়তা রক্ষা করা হবে। কোন ব্যক্তিগত বিবরণ যা কোন ব্যক্তিকে শনাক্ত করে এই রকম তথ্য প্রকাশ করা হবে না। আপনি এই ইন্টারভিউ এ অংশ গ্রহন যে কোন সময় বন্ধ করতে পারবেন। এবং আপনার এখান থেকে যা লেখা হবে তা যাচাই করার অধিকার আছে। জরিপ সমাপ্ত হলে, প্রাপ্ত প্রদত্ত ফলাফল সার সংক্ষেপ রুপে কোন প্রকাশনায় প্রকাশ করা হবে। কিন্তু আপনাকে বোঝায় এমন কোন ব্যক্তিগত তথ্য ব্যবহার করা হবে না।

ইন্টারভিউ শুরু করার আগে, আপনি কি আমাকে কোন প্রশ্ন জিজ্ঞাস করতে চান?

আপনার উত্তরে টিকচিহ্ন দিন ☑

লিঙ্গঃ ☐ পুরুষ ☐ মহিলা

অঞ্চলঃ ☐ শহর ☐ গ্রাম

১) আপনি কি আগে ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি)সম্পর্কে শুনেছেন? ১. হ্যাঁ ২. না

২) সর্বমোট, আপনি এখন পর্যন্ত কয়বার ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি)ব্যবহার করেছেন? ১. কখনও ব্যবহার করা হয় নাই ২. একবার ৩. দুই বার ৪. তিন থেকে চার বার ৫. চার বারের বেশি

৩)আপনি কত ঘন ঘন ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) ব্যবহার করেন? ১. কখনও ব্যবহার করা হয় নাই ২. দুই মাসের মধ্যে একবার ৩. এক মাসের মধ্যে একবার. ৪. এক মাসের মধ্যে কয়েক বার ৫. এক সপ্তাহের মধ্যে কয়েক বার ৬. প্রতিদিন বেশ কয়েকবার

৪) আপনার সর্বোচ্চ শিক্ষাগত যোগ্যতা কি? ১. অশিক্ষিত / একমাত্র দস্তখৎ করতে পারি/ বিদ্যালয়-শিক্ষা নেই ২.

নার্সারী/ কেজি-১/কেজি-২/প্লে-গ্রাউন্ড/প্রি-স্কুল ৩. চতুর্থ শ্রেণী পর্যন্ত ৪. পঞ্চম শ্রেণী পর্যন্ত/পি. এস. সি. ৫. সপ্তম

শ্রেণী পর্যন্ত ৬. অষ্টম শ্রেণী পর্যন্ত/জে. এস. সি. ৭.স্কুলে ক্লাস ১০ পর্যন্ত ৮ . এস. এস. সি. / দাখিল ৯.

এইচ. এস. সি / আলীম ১০. ডিপ্লোমা পর্যন্ত ১১. গ্র্যাজুয়েট/স্নাতক / ফাজিল ১২. মাস্টারস

৫) আপনার পরিবারের মাসিক আয় কত? ☐

৬) আপনার পরিবারের সদস্যদের সংখ্যা ☐

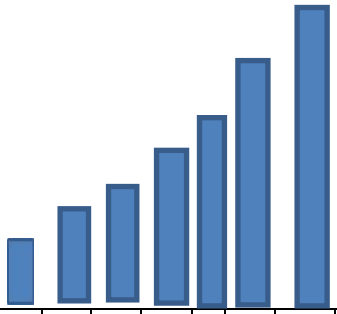
৭) বয়সঃ ☐ ১৮-২০ ☐ ২১-২৫ ☐ ২৬-৩০ ☐ ৩১-৩৬ ☐ ৩৬-৫০ ☐ ৫০ +

৮) আপনার বৈবাহিক অবস্থা কি? ☐ অবিবাহিত ☐ বিবাহিত ☐ তালাকপ্রাপ্ত ☐ বিধবা বা বিপত্নীক

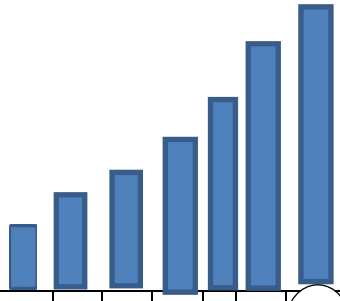
উদাহরণ:

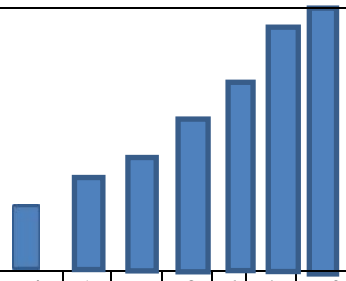
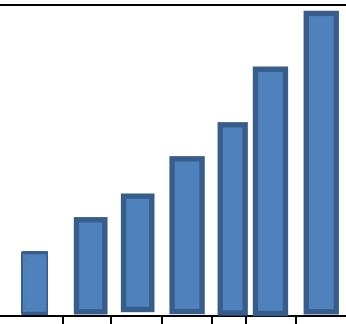
এই জরিপের অনেক প্রশ্নে ৭টি উত্তর ব্যবহার করা হয়েছে। আপনি আপনার মতামত বর্ণনা করেতে যে কোন একটি সংখ্যার চার পাশে গোল চিহ্ন দিন। বিভিন্ন আকারের আয়তক্ষেত্র এর দ্বারা ৭টি পর্যায়ের সম্মতি বোঝানো হইয়েছে। অতএব, যত বেশী ছোট আয়তক্ষেত্র তত বেশী অসমর্থন বোঝায় এবং যত বেশী বড় আয়তক্ষেত্র তত বেশী একমত বোঝায়।

উদাহরণস্বরূপ, আপনাকে একটি প্রশ্ন "লাল হচ্ছে আমার প্রিয় রঙ।" জিজ্ঞাসা করা হল। ৭ টি পর্যায়ের সম্মতি নিম্নরূপ ব্যাখ্যা করা যায়:

	ছবির মাধ্যমে মতামত							
প্রশ্ন								
লাল হচ্ছে আমার প্রিয় রঙ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

আপনি যদি নিচের বাক্য “লাল হচ্ছে আমার প্রিয় রঙ।" এর সঙ্গে দৃঢ়ভাবে একমত হন, তাহলে আপনি নিচের মত ৭ নম্বর সংখ্যাটির চার পাশে গোল চিহ্ন দিন।

	ছবির মাধ্যমে মতামত							
প্রশ্ন								
লাল হচ্ছে আমার প্রিয় রঙ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

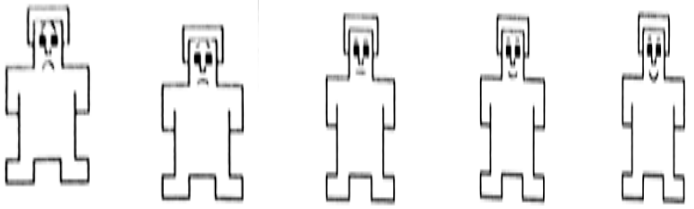
	ছবির মাধ্যমে মতামত								
প্রশ্ন									
১) সামগ্রিকভাবে, আপনি ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) সম্পর্কে কি রকম বোধ করেন তা বর্ণনা করুন। ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) ব্যবহার করা আমার জন্য:	খারাপ	১	২	৩	৪	৫	৬	৭	ভাল
	নেতিবাচক	১	২	৩	৪	৫	৬	৭	ইতিবাচক
	অসন্তোষজনক	১	২	৩	৪	৫	৬	৭	সুবিধাজনক
	কষ্টদায়ক	১	২	৩	৪	৫	৬	৭	আরামপ্রদ
	ছবির মাধ্যমে মতামত								
প্রশ্ন									
২) আমি ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) বিভিন্ন কাজের (যেমনঃ ইমেইল, ব্রাউজিং, কম্পিউটার কম্পোজ, টেলিমেডিসিন ইত্যাদি) জন্য ব্যবহার করি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩) আমি আগে ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) ব্যবহার করেছি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪) সুযোগ পেলে, আমি ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) সেবা ব্যবহার করবো।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫) আমি সম্ভবত কিছু দিন পর ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) ব্যবহার করব।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬) আমি কিছু দিন পর ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) ব্যবহারের ইচ্ছা প্রকাশ করছি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৭) সুযোগ পেলে, আমি ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) ব্যবহার করব বলে মনে করছি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৮) ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) হচ্ছে একটি দরকারী তথ্য প্রযুক্তির মাধ্যম।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৯) ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি) ব্যবহার তথ্য প্রযুক্তিগত সেবা সহজ করে তোলে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

১০) ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি)এর মাধ্যমে তথ্য প্রযুক্তি সেবা (যেমনঃ ইমেইল, ব্রাউজিং, কম্পিউটার কম্পোজ, টেলিমেডিসিন ইত্যাদি) দ্রুততর হয়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১১) ব্যবহারকারী হিসেবে ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করে আমার পছন্দগুলো (যেমন, সহজে ব্যবহার যোগ্যতা, গতি) উন্নত হয়েছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১২) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারে দক্ষ বা পটু হওয়া সহজ হয়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৩) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) এর মাধ্যমে কাজ করা স্পষ্ট এবং বোঝা সহজ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৪) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের প্রয়োজনীয় ধাপগুলি (যেমনঃ ইউনিয়ন তথ্য ও সেবা কেন্দ্র এ আসা, আপনার প্রয়োজন সম্পর্কে উদ্যোক্তাকে জানানো , এবং সেই অনুযায়ী প্রত্যাশিত সেবা পাওয়া) অনুসরণ করা সহজ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৫) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) এর মাধ্যমে তথ্য প্রযুক্তি সেবা নেয়া সহজ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৬)আমার কাছে গুরুত্বপূর্ণ লোকজন আমাকে ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের পরামর্শ দিয়েছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৭)আমার কাছে গুরুত্বপূর্ণ লোকজন ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি)ব্যবহার করে উপকৃত হবে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৮)আমার কাছে গুরুত্বপূর্ণ লোকজন ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করা কে একটি ভাল ধারণা মনে করে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
১৯)আমি ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি)ব্যবহার করতে পারব।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২০) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার সম্পূর্ণরূপে আমার সাধ্যের মধ্যে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২১) ইউনিয়ন তথ্য ও সেবা কেন্দ্র (ইউ আই এস সি)ব্যবহার করার জন্য আমার প্রয়োজনীয় ধারনা ও সামর্থ আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২২) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) থেকে সেইসব সুবিধা পাওয়া যায় যা প্রতিযোগী প্রতিষ্ঠান (যেমনঃ অন্যান্য স্থানীয় তথ্য প্রযুক্তি ভিত্তিক সেবা প্রদানকারী) থেকে পাওয়া যায় না।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২৩)আমার মতে, ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) প্রতিদ্বন্দ্বী প্রতিষ্ঠান (যেমন অন্যান্য স্থানীয় তথ্য প্রযুক্তি ভিত্তিক সেবা প্রদানকারী) থেকে ভাল।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২৪) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) এমন সমস্যা সমাধান করে যা আমি প্রতিযোগী প্রতিষ্ঠান (যেমন অন্যান্য স্থানীয় তথ্য প্রযুক্তি ভিত্তিক সেবা	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

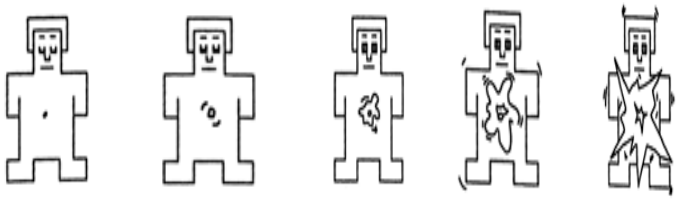
প্রদানকারী)ব্যবহার করে সমাধান করতে পারি না।									
২৫) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের খরচ অনেক বেশী।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২৬) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের জন্য যে খরচ দিতে হয় তা ঠিক আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
২৭) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের জন্য যে খরচ দিতে হয় তা সন্তুষ্টজনক।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

২৮)নীচের প্রত্যেক জোড়া শব্দসমুহ একটি অনুভূতির মাত্রা বর্ণনা করে। কিছু জোড়া শব্দ অস্বাভাবিক মনে হতে পারে, কিন্তু আপনি সাধারণত একটি হতে আরেকটি বেশী অনুভব করেন। সুতরাং, প্রতিটি জোড়ার জন্য, একটি টিক চিহ্ন দিন। উদাহরণ: আপনি ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) সম্পর্কে কি রকম অনুভব করেন তা দেখানোর জন্য একটু সময় নিন আপনার অনুভূতির একটি বাস্তব বৈশিষ্ট্য বর্ণনা করতে।

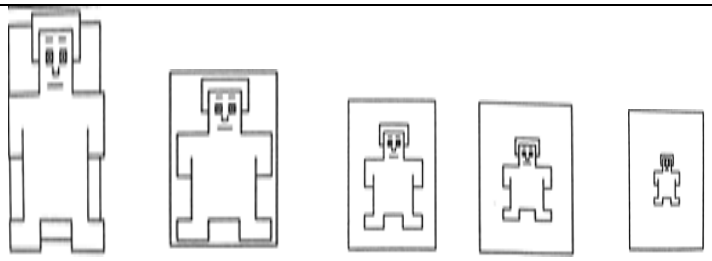
আপনি ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) সম্পর্কে কি রকম বোধ করেন:

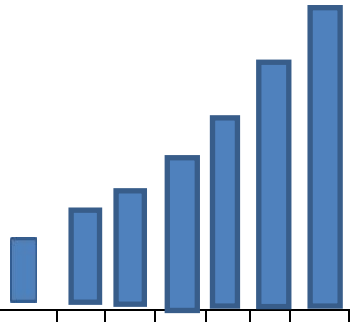
ছবির মাধ্যমে মতামত						
						
খুব অখুশি	১	২	৩	৪	৫	খুব খুশি
খুব বিরক্ত	১	২	৩	৪	৫	খুব আনন্দিত
খুব অসন্তুষ্ট	১	২	৩	৪	৫	খুব সন্তুষ্ট
খুব দু:খজনক	১	২	৩	৪	৫	খুব তৃপ্তি
খুব হতাশ	১	২	৩	৪	৫	খুব আশান্বিত
খুব একঘেঁয়েমি	১	২	৩	৪	৫	খুব আরাম

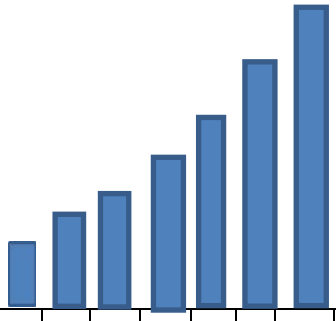
পুনরায়, আপনি ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) সম্পর্কে কি রকম বোধ করেন:

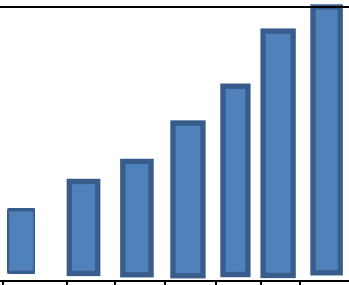
ছবির মাধ্যমে মতামত						
						
খুব হালকা	১	২	৩	৪	৫	খুব চাঙ্গা
খুব শান্ত	১	২	৩	৪	৫	খুব উত্তেজিত
খুব আলসেমি	১	২	৩	৪	৫	খুব চঞ্চল
খুব নীরস	১	২	৩	৪	৫	খুব ভীষণ ভীত
খুব ঘুমন্ত	১	২	৩	৪	৫	খুব জাগরিত
খুব কুঁড়ে(অলস)	১	২	৩	৪	৫	খুব চটপটে

পুনরায়, আপনি ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) সম্পর্কে কি রকম বোধ করেন:

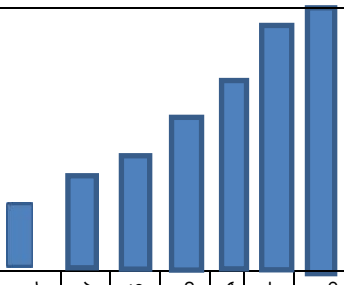
ছবির মাধ্যমে মতামত						
						
খুব প্রভাবশালী	১	২	৩	৪	৫	খুব প্রভাবিত
খুব আধিপত্য বিস্তার	১	২	৩	৪	৫	খুব বিনয়ী
খুব নিয়ন্ত্রনে	১	২	৩	৪	৫	খুব যত্নশীল
খুব গুরুত্বপূর্ণ	১	২	৩	৪	৫	খুব ভীত

	ছবির মাধ্যমে মতামত							
প্রশ্ন								
২৯) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করাটা আমার জীবনধারার সঙ্গে ভালোভাবে মানানসই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩০) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করে আমি যে ভাবে পণ্য ও সেবা ব্যবহার করতে চাই তার সঙ্গে ভালোভাবে মিলে যায়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩১)আমি অন্য পদ্ধতিতে তথ্য প্রযুক্তি ব্যবহার (যেমন, অন্যান্য স্থানীয় তথ্য প্রযুক্তি ভিত্তিক সেবা প্রদানকারী)করার পরিবর্তে ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের প্রশংসা করি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩২) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করব কি না তা সিদ্ধান্ত নেওয়ার আগে, আমি পরখ করে দেখতে চাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৩) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করব কি না তা সিদ্ধান্ত নেওয়ার আগে, আমি সামর্থ্য অনুযায়ী এটি ভালভাবে পরখ করে দেখতে চাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৪) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) কি করতে পারে তা দেখার জন্য আমি দীর্ঘ কিছু সময়ের জন্য পরখ করে দেখার সুবিধা পেতে চাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৫) আমার ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করার সুবিধা সম্পর্কে অন্যদের বলতে কোন অসুবিধা নেই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৬)আমি বিশ্বাস করি যে আমি অন্যদের ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের সুবিধা জানাতে পারব।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৭) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের সুবিধা আমার কাছে সুস্পষ্ট।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৮)আমি ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) এর মাধ্যমে সেবা নিতে ভাল লাগে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৩৯) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার আমাকে অনেক আনন্দ দেয়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

	ছবির মাধ্যমে মতামত							
প্রশ্ন								
৪০)আমি ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করে আনন্দ পাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪১) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার আমাকে বিরক্ত করে ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪২) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করা সহজ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৩) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) এর মাধ্যমে তাড়াতাড়ি কাজ করা যায়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৪)ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) সেবা নিতে স্বল্প সময় লাগে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৫)আমি যা করতে চাই তা ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) দ্বারা করতে সহজ।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৬) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) এর পদ্ধতি নির্ভরযোগ্য।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৭) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) সাথে সম্পর্কযুক্ত যেকোন রং, আকার, ছবি, চিহ্ন (যেমনঃ ইউআইএসসি এর লোগো, বাংলাদেশ মানচিত্র লোগো, এবং অন্যান্য ইউআইএসসি সংশ্লিষ্ট ছবি) এবং অন্যান্য প্রাসঙ্গিক উপাদান ইউনিয়ন তথ্য ও সেবা কেন্দ্র এর ব্যবহার পদ্ধতি স্পষ্ট করে তুলে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৮) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার এর সময় আমি ইউনিয়ন তথ্য ও সেবা কেন্দ্র এর সাথে সম্পর্কযুক্ত যেকোন রং, আকার, ছবি, চিহ্ন (যেমনঃ ইউআইএসসি এর লোগো, বাংলাদেশ মানচিত্র লোগো, এবং অন্যান্য ইউআইএসসি সংশ্লিষ্ট ছবি) এবং অন্যান্য প্রাসঙ্গিক উপাদান চিন্তা করি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৪৯)আমি ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি)এর সাথে সম্পর্কযুক্ত যেকোন রং, আকার, ছবি, চিহ্ন (যেমনঃ ইউআইএসসি এর লোগো, বাংলাদেশ মানচিত্র লোগো, এবং অন্যান্য ইউআইএসসি সংশ্লিষ্ট ছবি) এবং অন্যান্য প্রাসঙ্গিক উপাদান সহজে মনে করতে পারি।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

	ছবির মাধ্যমে মতামত								
প্রশ্ন									
৫০)আমি মনে করি ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার এর সাথে সম্পর্কযুক্ত যেকোন লিখিত তথ্য থেকে রং, আকার, ছবি, চিহ্ন (যেমনঃ ইউআইএসসি এর লোগো, বাংলাদেশ মানচিত্র লোগো, এবং অন্যান্য ইউআইএসসি সংশ্লিষ্ট ছবি) এবং অন্যান্য প্রাসঙ্গিক উপাদান আমার কাছে ইউনিয়ন তথ্য ও সেবা কেন্দ্র এর ব্যবহার পদ্ধতি স্পষ্ট করে তোলে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫১)আমার ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের সিদ্ধান্ত আমি যাদের সাথে কাজ করি তাদের পছন্দ দ্বারা প্রভাবিত।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫২) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের সিদ্ধান্ত আমার যাদের সাথে সামাজিক যোগাযোগ আছে তাদের পছন্দ দ্বারা প্রভাবিত।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৩)আমার ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি)ব্যবহারের সিদ্ধান্ত পরিবারের সদস্যদের পছন্দ দ্বারা প্রভাবিত।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৪)আমার ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি)ব্যবহারের সিদ্ধান্ত অন্যদের প্রত্যাশা দ্বারা প্রভাবিত।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৫) আমাকে ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি)ব্যবহারের যে চার্জ দিতে হয় সেই তুলনায়, ইউনিয়ন তথ্য ও সেবা কেন্দ্র ব্যবহারের খরচটি ঠিক আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৬) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের জন্য আমাকে যে পরিশ্রম দিতে হয় তার তুলনায়, ইউনিয়ন তথ্য ও সেবা কেন্দ্র ব্যবহার করা সুবিধাজনক।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৭) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারের জন্য আমাকে যে সময় দিতে হয় তার তুলনায়, ইউনিয়ন তথ্য ও সেবা কেন্দ্র ব্যবহার আমার জন্য ঠিক আছে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৮)সামগ্রিকভাবে, ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করে আমি ভাল সেবা পাই।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৫৯) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) এ কাজ করা জটিল, কি ঘটছে এটা বোঝা যায় না।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

৬০) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহারে খুব বেশী সময় নিয়ে যান্ত্রিক কৌশল(যেমন, ইন্টারনেট ব্যবহার)ব্যবহার করতে হয়।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬১) ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করতে অনেক সময় লাগে।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত
৬২)সাধারণভাবে বলা যায়, ইউনিয়ন তথ্য ও সেবা কেন্দ্র(ইউ আই এস সি) ব্যবহার করা খুব কঠিন।	দৃঢ়ভাবে অসমর্থন	১	২	৩	৪	৫	৬	৭	দৃঢ়ভাবে একমত

	ছবির মাধ্যমে মতামত								
প্রশ্ন									
৬৩)সামগ্রিকভাবে, ভাত খাওয়া সম্পর্কে আপনার ধারনা কেমন। ভাত খাওয়া আমার জন্য:	খারাপ	১	২	৩	৪	৫	৬	৭	ভাল
	নেতিবাচক	১	২	৩	৪	৫	৬	৭	ইতিবাচক
	অসন্তোষজনক	১	২	৩	৪	৫	৬	৭	সুবিধাজনক
	কষ্টদায়ক	১	২	৩	৪	৫	৬	৭	আরামপ্রদ

আপনার কোন মন্তব্য থাকলে আপনি নিচের প্রদত্ত স্থানে ব্যাখা করতে পারেন:

.....
.....
.....
.....

.....
.....

.....
.....

এই জরিপ এখানেই শেষ করছি। আপনার সময় এবং ধৈর্য্যের জন্য আপনাকে অনেক ধন্যবাদ। আমরা সত্যিই এর প্রশংসা করি।

Appendix 7.1

Six models were tested using the data collected from study 1 (related to bKash) and data collected from study 2 (related to UISC) to compare with the R^2 of the ITPIA model validation (where data of study 1 and 2 were used to validate the model).

Models	Independent Variables	Adjusted R^2	Beta	% of Significant path
TRA	Attitude -> Intention	23.70%	0.319**	100%
	Subjective Norm -> Intention		0.251**	
TPB	Attitude -> Intention	27.10%	0.236**	100%
	Perceived Behavioural Control -> Intention		0.204**	
	Subjective Norm -> Intention		0.249**	
TAM	Attitude -> Intention	21.20%	0.359**	100%
	Perceived Ease of use -> Intention		0.122**	
	Perceived Usefulness -> Intention		0.091**	
DOI	Compatibility -> Intention	29.10%	0.406**	80%
	Complexity -> Intention		-0.078**	
	Observability -> Intention		0.105**	
	Relative advantage -> Intention		0.024	
	Trailability -> Intention		0.164**	
VAM	Enjoyment -> Intention	32.10%	0.446**	60%
	Perceived Fee -> Intention		0.143**	
	Perceived Value -> Intention		0.039	
	Technicality -> Intention		0.048	
	Usefulness -> Intention		0.098**	
CAT	Arousal -> Intention	28.10%	0.092*	43%
	Attitude -> Intention		0.24**	
	Dominance -> Intention		-0.03	
	Perceived Ease of Use -> Intention		0.079	
	Perceived Usefulness -> Intention		0.076	
	Pleasure -> Intention		0.281**	
	Relative advantage -> Intention		-0.056	

Note: 1. **p<0.05