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A Study On Role of Contextual Factors in Influencing the Continuous Usage Intention of Mobile Payment Services in Kathmandu Valley using TCT Framework

by

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A THESIS

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The undersigned certify that they have read, and recommend to the Institute of Engineering for acceptance, a thesis entitled "A Study On Role of Contextual Factors in Influencing the Continuous Usage Intention of Mobile Payment Services in Kathmandu Valley using TCT Framework" submitted by Subha Devkota in partial fulfillment of the requirements for the degree of Master of Science in Engineering in Technology and Innovation Management.

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ABSTRACT

The main objective of this research study is to investigate the role of contextual factors like price benefit, trust, facilitating conditions and government regulations in influencing the continuous usage intention of Mobile Payment Services in Kathmandu Valley using Technology Continuance Theory (TCT) framework. Unlike previous studies that focused on adoption intention, this research study provides theoretical insights on the role played by contextual factors in influencing the continuation intention of Mobile Payment Services. A deductive research approach has been used, which is associated with developing a hypothesis, and coming up with a research design aimed at testing the hypothesis. Descriptive (cross-sectional) as well as exploratory research has been conducted for the fulfillment of the research objectives. Non-probability sampling approach i.e. purposive sampling was used, and participants who demonstrated previous experience with Mobile Payment Services were selected via an online survey using Google Forms. A total of 507 responses were obtained which was analyzed using Partial Least Square - Structural Equation Modelling (PLS-SEM) using Smart-PLS 4. The results thus obtained shows confirmation have a significant relationship with perceived usefulness and satisfaction. Similarly, the relationship of perceived usefulness with satisfaction, intention to continue, and attitude is observed to be significant. Perceived ease of use is found to significantly impact the perceived usefulness and attitude. In addition, attitude and trust demonstrates a significant relationship with intention to continue. However, it is observed that the relationship between satisfaction and attitude is not significant and factors such as satisfaction, price benefit, facilitating conditions and government regulations also exhibit no significant relationship with intention to continue. Upon further exploration it was noted that the continuous usage intention of Mobile Payment Services is significantly impacted by attitude, followed by perceived usefulness and trust. And finally, it was observed that the model explains 60.8% of the variation in intention to continue, which shows the explanatory power of the model to be moderate. Upon evaluating the outcomes obtained in context of Kathmandu Valley, it can be concluded that results given by contextual factors do indeed vary by context.

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LIST OF SYMBOLS

R^2	Coefficient of Determination
ρ_a	Composite Reliability Coefficient
f^2	Effect Size
β	Path Coefficient
σ	Standard Deviation

LIST OF EQUATIONS

LIST OF ABBREVIATIONS

AVE	Average Variance Extracted
ATT	Attitude
CFA	Confirmatory Factor Analysis
CIN	Intention to Continue
CMB	Common Method Bias
COG	Cognitive Model
CON	Confirmation
CV	Convergent Validity
DV	Discriminant Validity
ECM	Expectation Confirmation Model
FC	Facilitating Conditions
GR	Government Regulations
HTMT	Heterotrait-Monotrait Ratio of Correlation
IDT	Innovation and Diffusion Theory
INT	Intention to Continue
IS	Information Systems
MPS	Mobile Payment Services
NRB	Nepal Rastra Bank
PB	Price Benefit
PEU	Perceived Ease of Use
PLS-SEM	Partial Least Square - Structural Equation Modelling
PU	Perceived Usefulness
SAT	Satisfaction
SEM	Structural Equation Modelling
TAM	Technology Acceptance Model
TCT	Technology Continuance Theory
TPB	Theory of Planned Behaviour
TR	Trust
TRA	Theory of Reasoned Action
UTAUT	Unified Theory of Acceptance and Use of Technology
VIF	Variance Inflation Factor

CHAPTER ONE : INTRODUCTION

Mobile Payment Services (MPS) can be considered as those services that allow people to make payments for goods and services as well as transfer funds to various other members via portable devices like mobile phones (Franque et al., 2021). Globally, it has been observed that the rate of internet penetration, as well as people's accessibility to smartphones has risen to prominence and is continuing to grow. Keeping up with the global trend, Nepal has seen a rapid expansion of internet services in the past few years. Currently, the internet penetration rate of Nepal stands at 63 percent (Karki et al., 2021). Looking at this scenario, mobile payment services can be considered as a viable alternative to paper-based transactions since they allow people to carry out their daily financial transactions in a more convenient way, consuming less time and effort and with a high service quality.

Although the technological advancement promises convenience and multiple benefits, getting people to accept new technology is not always as straightforward as it appears. Furthermore, retention seems to be a major challenge when it comes to the scaling up of newer technologies. As such, for successful business outcomes regarding products that build upon newer technologies, getting a deep insight into the behavioural intention of end users is very important. With growing internet availability and increased accessibility to smartphones, to enrich users' life with new and more advanced technological services new fin-tech startups have started to increase worldwide. Access to the newest and advanced technologies has also changed various aspects of the financial market, and to keep up with a global shift in the existing financial market, commercial banks and financial institutions have been concurrently upgrading their system with the latest available technology as seen viable.

Nepal is not untouched by this global shift and has started realizing the benefits of digital payment systems and- albeit slowly- has been importing and developing certain digital payment solutions for local use within the country. Considering Nepal's unique history of monetary policies, it is difficult to bring about a rapid change in the existing financial systems. For context, the payment system in Nepal was fully under the control of banks and financial institutions until the rise of privately owned digital payment solutions provider called eSewa (Timilsina, 2019). It was only when eSewa started its operation as a digital wallet in 2009, various other digital payment service providers began to sprout. In the past few years, however, the number of digital payment service providers all around Nepal have grown significantly. Some currently popular mobile payment apps in Nepal are eSewa, Khalti, Prabhu Pay, IME Pay, Connect IPS, to name a few. With many competing service providers, and their services almost similar- apart from a few novelty here and there, understanding the continuous usage intention of the end user towards such newer

services is of prime importance from the perspective of the service providers.

1.1 Background

While developing any new technology, proper identification and in-depth understanding of the various elements that influence users' behavioural intention is important. Researchers have developed several theoretical models which explores different factors influencing user's behavioural intentions when using any technology. Upon further examination of behavioural intention in relation to technology use, it is seen that such intention can be further broken down into two sub categories namely: adoption intention and continuation intention. Looking at existing studies around technology adoption and usage, many that have been conducted are in the context of adoption intention. Although the focus of most studies is on adoption intention, Bhattacherjee (2001b) in their research have shown that the continuation of technology that has been adopted is more important for the survival of various service industries, but despite their importance, such studies have been scarce.

In addition to it, the focus of most of the researchers is on behavioural constructs. Even though people are motivated to adopt technological services, if various aspects of their surrounding environment – cultural, technological, social, regulatory etc does not support both the adoption and continuation of such services, it cannot be assumed that the users will adopt and continue the usage of such services in the long run. As such, the importance of contextual factors comes into picture. Contextual factors are those factors that can vary by context and does not pose any restriction to the researchers willing to conduct research studies on similar field but in different contexts.

Therefore, considering the importance of user's continuation intention in determining the success of digital payment service providers and considering the fact that the contextual factors play a different role in different contexts, it becomes important to explore the role of contextual factors in influencing the user's continuation intention in digital payment services like mobile payment services. Hence, the main focus of this research will be in identifying the role that contextual factors play in influencing the continuation intention of mobile payment services in the context of users within Kathmandu Valley. This research aims to highlight the current continuation behaviour in the existing digital payment solutions, if any, and hope to come up with the findings that can have some valuable contribution in the existing literature.

1.2 Problem Statement

Among many other industries, especially in case of service industry, existing user retention is cheaper than new user acquisition by a factor of five (Bhattacherjee, 2001a; Bitner

et al., 2002; Nataraj and Rajendran, 2018). Although developed nations are well ahead when it comes to taking risks with such newer technologies, several studies have shown that mobile payment solutions have also started gaining more popularity in the developing countries in the recent days. Despite the realization of benefits obtained upon performing different types of digital financial transactions, some of the previous researches conducted in digital payment technology has also found that people in developing countries are still reluctant to use online platforms for performing their regular financial transactions and prefer paper-based transactions instead.

In the context of Nepal, according to Nepal Rastra Bank's economic review, even though there has been a significant involvement of financial sectors in promoting the digital payment services in the recent days, the usage of such services has been below expectations- mainly because most of the population still prefer cash to other means of payment. Even though some efforts have been made by Nepal's central bank i.e. Nepal Rastra Bank in making the existing systems more accessible and trustworthy, when it comes to investigating the real reasons behind such a low usage of digital payment systems in Nepal, they seem to have fallen behind (NRB economic review Volume 33 (1 & 2), 2021). Similar to other developing countries, in case of Nepal as well, people are still reluctant to use online platforms for performing their regular financial transactions. But because of the growing number of mobile payment service providers, increased promotional campaigns, a gradual shift in consumer preferences, and an increased digital literacy, the trend of using digital platforms for performing various financial transactions has increased to some extent.

Looking globally at recent times- because of the COVID-19 pandemic- the preferences of many people have shifted towards digital payment systems (Jonker et al., 2020). It was seen that during the pandemic, mobile apps download went up, and so did the usage of various digital transactions services. In case of Nepal as well, research conducted by Tamang et al. (2021) in digital payment adoption during COVID-19 pandemic also showed that the digital payment adoption rate was increased during the pandemic. However, with the pandemic subsiding, although the service providers report a slow-down in online transactions as compared to the peak pandemic times, no formal studies have been published yet to establish this as a fact. Considering the investment made in the digital commerce infrastructure, and the fluctuating usage patterns, it becomes necessary to identify those factors that are responsible for facilitating or inhibiting the continuous usage intention of users towards digital payment services like mobile payment services.

1.3 Objective of the study

1.3.1 Main Objective

The main objective of this research study is to identify the role of contextual factors in influencing the continuous usage intention of Mobile Payment Services in Kathmandu Valley using TCT framework.

1.3.2 Specific Objectives

- To evaluate the relationships among the constructs of TCT framework.
- To evaluate the relationship of contextual factors with the continuation intention of Mobile Payment Services.
- To identify those constructs that have a substantial impact upon continuation intention of Mobile Payment Services.
- To evaluate the explanatory power of the proposed model.

1.4 Definitions

Behavioural Intention

Behavioural intention refers to the willingness of an individual to use a particular technology in a way that directly affects its actual usage (Ajzen, 2002). Behavioural Intention can be further broken down into two sub categories namely adoption intention and continuation intention.

Adoption Intention

"Adoption intention refers to factors that explain why an individual adopts or rejects a technology" (Franque et al., 2021).

Continuation Intention

"Continuation intention refers to factors that explain why an individual uses a technology for a long time, thus contributing to the continued use of the technology" (Franque et al., 2021). Therefore, continuation intention can be defined as the intention of any individual to use a system / technology continuously.

Contextual Factors

"Contextual factors are those factors which are constant within a group, but varies by context and may involve elements of technology, financial resources and local environment and culture" (Contextual variables, 2022).

Latent Constructs

Latent constructs are hypothetical constructs that are not directly measurable. These constructs can be measured only indirectly with the help of various types of observable variables known as indicators. For example: variables like satisfaction, attitude, intention of people cannot be measured directly (Kline Rex, 2016).

1.5 Limitations of the Study

1. The participants selected for the research study are those users who are currently residing in Kathmandu Valley.
2. This study is a cross-sectional research study. To capture the variation in user's behaviour over time, longitudinal studies will be more appropriate.
3. This research study is limited in providing the theoretical insights regarding the continuation intention of Mobile Payment Services.

CHAPTER TWO : LITERATURE REVIEW

2.1 Theoretical Background

Studies on behavioural intention of users is considered a very important factor. Therefore, a large number of research studies have been conducted globally - in many contexts - on the adoption of technology and its use, and several theoretical models have been proposed. The Technology Acceptance Model (TAM) Davis (1989), Unified Theory of Acceptance and Use of Technology (UTAUT) Venkatesh et al. (2003), UTAUT2 Venkatesh et al. (2012), Innovation and Diffusion Theory (IDT) Rogers (2010), Theory of Reasoned Action (TRA) Fishbein (1979) and The Theory of Planned Behaviour (TPB) Ajzen (1985) are considered as dominant theories in the studies of technology adoption. Upon further examination, another theory that explains the user behaviour towards continuation intention of technology- Expectation Confirmation Model (ECM) by Bhattacherjee (2001b), is significantly popular as well. Among various other models that has been developed, TCT is a theoretical framework developed by Liao et al. (2009) that aims to explain the user's behaviour towards continuation of any given technology by combining several constructs from three popular models, namely Technology Acceptance Model (TAM), Cognitive Model (COG), and Expectation Confirmation Model (ECM). As demonstrated by researchers in Liao et al. (2009), even though COG model combined constructs like satisfaction and attitude into one model, it failed to consider constructs like perceived usefulness and perceived ease of use. To fill this missing gap, TCT was developed by including constructs like perceived usefulness and perceived ease of use into COG model, and in doing so, it was found that the explanatory power of the model in explaining the user's continuation intention increased significantly.

2.1.1 Contextual Factors

Upon literature review of previous studies conducted on digital payment services, it can be concluded that- beside behavioural constructs- there are several other factors which can also influence human behaviour during adoption and continuation of technology. Among such factors, an important factor that has been identified is contextual factors that should not be ignored while conducting research studies on mobile payment services. Also, according to Shalley and Gilson (2004), contextual factors can also play a pivotal role in influencing the users' behaviour, since a user's surrounding environment which includes various aspects of their economic, social, regulatory and technological realities can also pose a certain level of risk and uncertainty that are impacting them unknowingly. Further, Pal et al. (2019) discovered that despite the fact that many research studies have been carried out in mobile payment services throughout the world, those studies have not always yielded a consistent result, and seem to differ significantly. Emphasizing on that finding,

the paper has highlighted the practicality of contextual factors. Among many other contextual factors, the role of environmental factors like government regulations have also been pointed out by the researchers which were generally ignored by many previous IS researchers.

2.1.2 Mobile Payment Services

The rapid growth in accessibility to internet infrastructures as well as smartphones has brought a significant change in many day to day task including the daily economic activities of many people. It is obvious to have certain trust issues and security related concerns while adopting newer technologies, but there is no denying that the use of such newer technologies generally provides enormous benefits and open up newer possibilities. Mobile payment is also one of the newest and growing technology where novel innovations are happening continuously. Considering the benefits provided by mobile payment services in how they allow users to perform transactions in a quick, flexible, and convenient manner, they can be easily regarded as future payment systems (Choi et al., 2020; Kim et al., 2010). As such, realizing the need to understand the users' behaviour in terms of adoption as well as continuation of such growing technology, in the recent days, many researchers have started showing more interest towards the field of mobile payment services as well.

2.2 Related Studies

Although researchers have discovered the importance of studies regarding behavioural intention of users in case of new technological services like mobile payment services, the studies conducted in the respective field are limited. Among studies that have been conducted on mobile payment services to date, adoption intention has been a major focus of many researchers (Chen et al., 2019; de Luna et al., 2019; Kalinic et al., 2019; Shao et al., 2019). Only few studies have been carried out in understanding the continuation intention. Some notable researches which have been carried out in understanding the continuation intention of mobile payment services in different contexts are Abdul-Halim et al. (2021); Foroughi et al. (2019) in Malaysia, Tam et al. (2020) in Portugal and Hidayat-ur Rehman et al. (2021) in Saudi Arabia.

Foroughi et al. (2019) carried out a research study to look into the determinants of intention to continue using mobile banking services, applying the TCT framework. Considering TCT as a key theoretical framework and extending the framework with constructs like self-efficacy and channel preference, the aforementioned researchers tried to investigate the significant predictors which affected the continuity of mobile banking services usage in Malaysia. The findings showed self-efficacy, channel preference, attitude, satis-

faction and PU as important determinants of continuous usage intention. This highlights the significant importance of satisfaction and PU in encouraging the customer in forming a pragmatic attitude towards services such as mobile banking. Furthermore, the findings also revealed that confirmation of initial expectation regarding any new technology enhanced the user perception towards the usefulness of the system i.e. perceived usefulness (PU), which in turn increased their satisfaction level. However, the results also showed that PEU cannot be considered as a predictor of attitude and PU in post-adoption stage.

Abdul-Halim et al. (2021) carried out a research study to investigate the predictors which affected the continuity of e-wallet usage in Malaysia. Considering TCT as a main theoretical framework, and extending it with constructs like habit, operational constraints, trust as well as price benefit adapted from several other literature, the researchers tried to understand the significant predictors which affected the continuity of e-wallet usage. The outcomes demonstrated a positive impact of confirmation on PU and satisfaction. In other words, when the initial requirement of users regarding a particular technology is confirmed, they start to perceive the technology as useful, which further enhances the satisfaction level of those users. Another finding of the study was that the relationship between PU, satisfaction and attitude is positive. In addition, the researchers discovered that PEU positively impacted PU and attitude. In other words, when the users find that it is mentally effortless and convenient to use a given technology, they start to perceive the technology as worthwhile, and as a result they are likely to develop a positive perception towards the continuity of that technology.

Similarly, satisfaction was found to have a positive effect on attitude and continuation intention of e-wallet. To put it another way, when users are content with the use of any new technology, their attitude towards the continuous usage of that technology becomes positive. Further, attitude, habit and price benefit showed a positive effect on continuation intention of e-wallet. To rephrase it, when users develop a positive perception, or experience price benefits in terms of promotional offers like cashback and discounts, they are enthusiastic about acceptance and usage of technologies like e-wallet and when people adopt such technology in performing their regular financial transactions, they become habituated to it and hence, will develop an intention to continue the usage for longer periods. And finally, it was seen that operational constraint has a marked effect on intention to continue the usage of e-wallet. In other words, when users find any new technology difficult to learn or to use, they will eventually discontinue the usage of such technology. However, the researchers found no significant effect of trust and PU on intention to continue the usage of e-wallet.

Tam et al. (2020) conducted a research to point out the factors influencing the intention to continue using mobile apps. This was the first research that combined two models:

Expectation Confirmation Model (ECM) by Bhattacherjee (2001b) and UTAUT2 model by Venkatesh et al. (2012) in order to determine the continuous usage intention of mobile apps in Portugal. The researchers, in this paper, have attempted to extend the ECM model by adapting several constructs from UTAUT2 model to understand the mobile apps continuation intention. It was clearly seen that the new constructs included from UTAUT2 model were helpful in adding value to the original ECM model. For context, constructs like performance expectancy, effort expectancy, satisfaction, and habit proved to be strong determinants that helped increase the model's explanatory power regarding the continuation intention, whereas constructs like facilitating conditions, hedonic motivation, social influence, and price value proved to be inconsequential predictors when it comes to continuation intention. Comparing the overall output of the proposed model, it is without doubt that the extended ECM model increases the predictive capacity of the original model- for the most part- when it comes to explaining the continuation intention of mobile apps.

Hidayat-ur Rehman et al. (2021) carried out a research to understand the mobile banking continuation intention in Saudi Arabia. In designing the study, the researchers combined ECM model with UTAUT model in hopes that the integrated model would be more relevant in explaining the continuation intention. The results demonstrated that the positive confirmation regarding the perceived ubiquity, perceived autonomy, effort expectancy and facilitating conditions enhance the overall perceived usefulness of the system. In addition, Perceived usefulness (PU) enhance the users' satisfaction, and consequently encourages them towards continued usage of mobile banking services. Similarly, trust and perceived security concern is instrumental in deciding the mobile banking user's continuation intention. In other words, when security concern of the users regarding any system increases, it negatively effects trust as well as satisfaction towards that system, which in turn affects the continuation intention. Additionally, confirmation regarding the security concerns is seen to have a negative influence on both the perceived usefulness and satisfaction. However, no notable relationship between effort expectancy and satisfaction was indicated by the results. In other words, the users' belief regarding the ease of use of any system only enhance the perceived usefulness of that system, but it does not contribute to increase the overall satisfaction level. Further, contextual factors like social influence seem to have very little influence on satisfaction and continuation intention. One particular contribution of the study is in combining the theoretical models like UTAUT and ECM, and further extending such models with various behavioural, technological and contextual factors for identification of acceptance and continuation intention of mobile banking.

Tamang et al. (2021) conducted a research study in Nepal to understand the factors that helped accelerate the adoption rates of digital payment services during the COVID-19

pandemic situation. The study was done using the Technology Acceptance Model(TAM), and it tried to evaluate the influence of variables such as area of living, age, gender, IT skills, education upon PU and PEU of TAM framework keeping in context the risk posed by COVID-19. In addition, the relationship of variables like PU and PEU were further evaluated for identifying the adoption of digital payment via intention to use digital payment. The findings indicate that factors such as area of living, IT skills, gender, education were primary contributors which influenced the people towards adoption of digital payment during the pandemic situation. By evaluating the relationship of aforementioned relevant factors in context of the risk posed by COVID-19, this research study showed that the digital payment adoption rate was indeed accelerated during the pandemic.

2.3 Research Gap

In addition to several behavioural constructs, the role played by contextual factors in determining the continuous usage intention of mobile payment services is also inherent in developing countries like Nepal. However, looking at the available literature, it is evident that not much work has gone into this research possibility. Of the few researches that are published, most seem to be particularly focused on adoption intention of technology, and they are seen to be relying on Technology Acceptance Model (TAM), which was specially designed to determine the adoption intention of users, and not particularly continuation intention.

The research conducted by Tamang et al. (2021) in digital payment adoption during COVID-19 pandemic also showed that the digital payment adoption rate increased during the pandemic. However, the researchers herein have mentioned that their research is not adequate in capturing the users behaviour after the pandemic situation mainly because of the fact that once the situation returns to normal, people may start to ditch recently adopted digital payment services in favor of cash once again. Pal et al. (2019) in their research have highlighted the importance of contextual factors, thus creating opportunities for new research where future researchers who opt to work on it can select the factors that are relevant in the context of their country and can validate the aforementioned claims through empirical data collected locally.

In addition, Liao et al. (2009) point out that TCT has high explanatory power in explaining the continuation intention. Hence, this study is aimed at exploring the role played by contextual factors in impacting the continuous usage intention of mobile payment services using TCT framework. As no substantial research which highlights the continuation intention of mobile payment services in the context of Nepal was found, this research study aims to address this gap. As this is a first study of its kind, the focus of this research will be on the mobile payment users inside Kathmandu valley.

CHAPTER THREE : RESEARCH METHODOLOGY

Research Methodology is a structured method designed for solving a research problem. It provides a general outline of the steps that the researcher is going to follow throughout his study period. Every research starts with a proper identification of steps that has to be followed by the researcher specific to his research problem. The goal of this chapter is to discuss in detail the various aspects of conducting a research effectively like research approach, research design, methods of sampling to determine the sample size, methods of data collection and analysis.

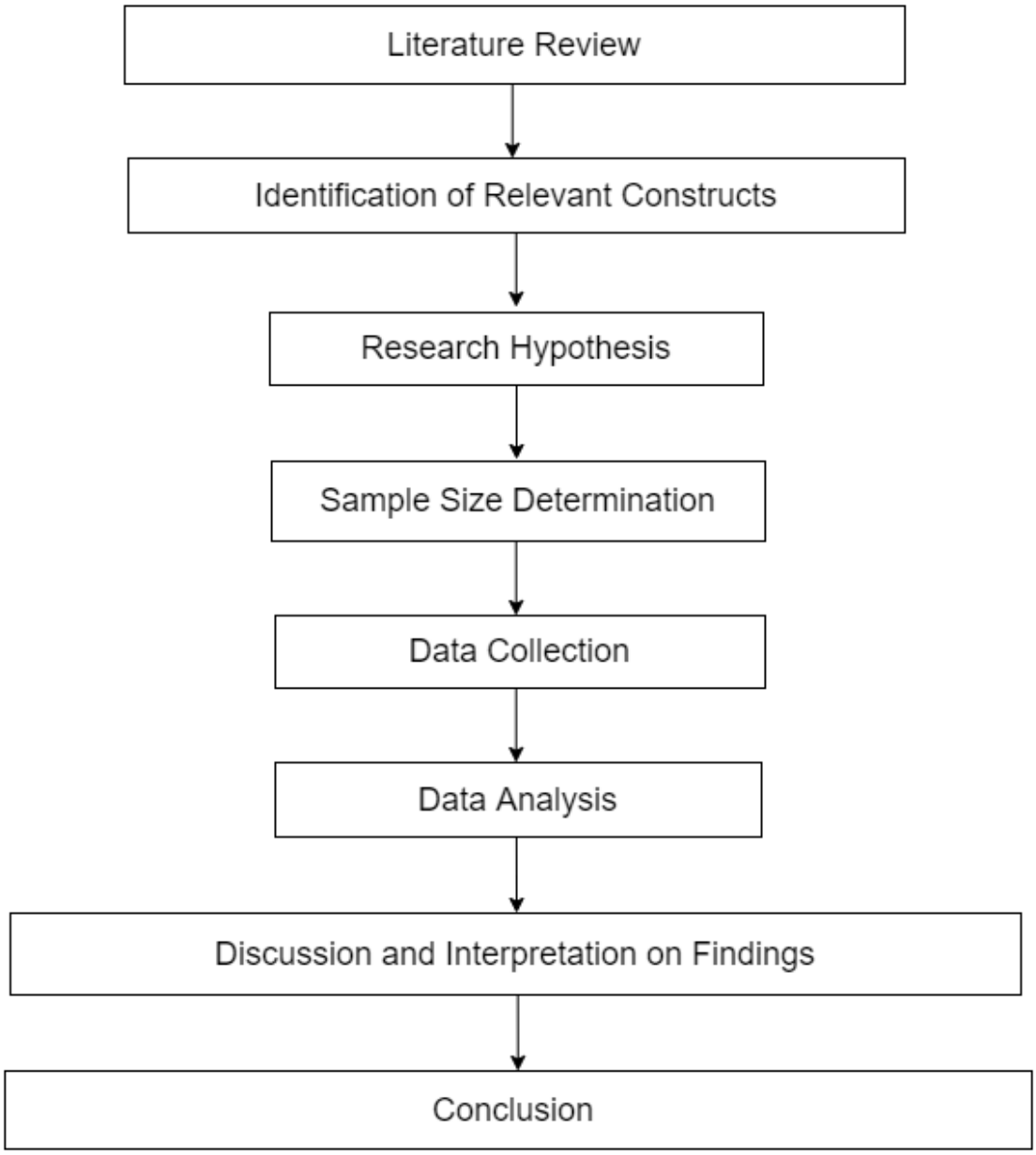

Figure 1: Research Methodology Flowchart

3.1 Research Framework and Hypothesis Development

TCT framework uses constructs such as Confirmation (CONF), Perceived Usefulness (PU), Perceived Ease of Use (PEU), Satisfaction (SAT) , Attitude (ATT), and Intention to Continue (INT). This research study attempts to expand upon the role of contextual factors in influencing the intention to continue using mobile payment services by extending the TCT framework to contextual factors like: Price Benefit (PB), Trust (TR), Facilitating Conditions (FC) and Government Regulations (GR). The relevance of constructs which have thus been added in the original TCT framework in determining the continuous usage intention of mobile payment services will then be validated through empirical data obtained from the field research.

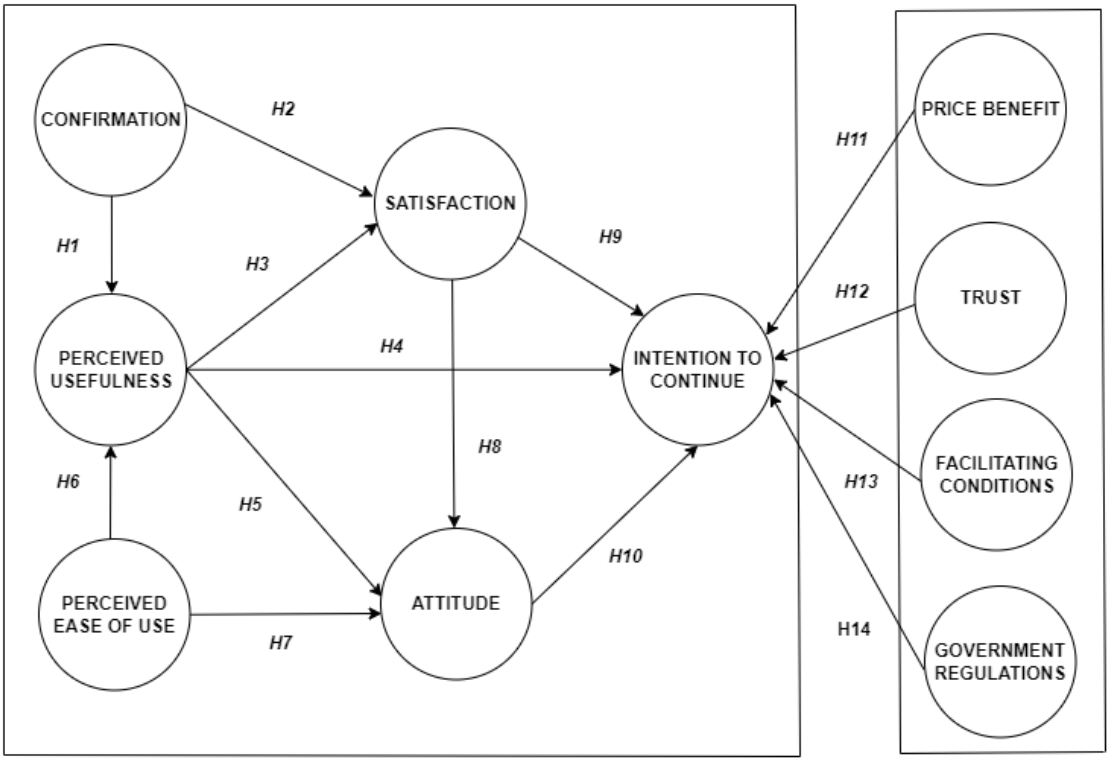

Figure 2: Research Framework

1. Confirmation (CONF)

Confirmation is defined as "the user's belief that actual performance when using a particular IT system meets expectations" (Daragmeh et al., 2021). When users adopt any new technology, once they feel that their initial expectation regarding the technology or services associated with that technology has been met, they will be satisfied and hence, will develop a perception that the technology that has been adopted is going to be useful for them. Susanto HT et al. (2016) showed that the confirmation of expectation of users

has a positive and significant impact upon satisfaction and perceived usefulness of mobile payment services. Therefore, building upon this research study the following null and alternate hypotheses have been proposed.

Hypothesis 1

Null Hypothesis (H_0)
Confirmation has no impact on Perceived Usefulness (H_0:$\beta = 0$)
Alternative Hypothesis (H_1)
Confirmation has a positive and significant impact on Perceived Usefulness (H_1:$\beta > 0$)

Hypothesis 2

Null Hypothesis (H_0)
Confirmation has no impact on Satisfaction (H_0:$\beta = 0$)
Alternative Hypothesis (H_2)
Confirmation has a positive and significant impact on Satisfaction (H_2:$\beta > 0$)

2. Perceived Usefulness (PU)

Perceived usefulness refers to "the degree to which a person believes that using a particular system would enhance his or her job performance"(Davis, 1989). TCT emphasizes the role of PU in determining users' attitude regarding a given technology, and the satisfaction they derive by using the said technology. In addition to its influence on factors like satisfaction and attitude, TCT framework puts PU as a key component which determines the continuation intention of a given technology, which have been explored in several previous studies. Abdul-Halim et al. (2021) have noted a positive and significant role of PU in influencing a user's attitude. Also several past researches clearly point towards a positive and significant impact of PU on factors like satisfaction and decisions regarding the continuous use of given services. Therefore, building upon the study done by Foroughi et al. (2019) and Abdul-Halim et al. (2021), the following null and alternate hypotheses have been proposed.

Hypothesis 3

Null Hypothesis (H_0)
Perceived Usefulness has no impact on Satisfaction (H_0:$\beta = 0$)
Alternative Hypothesis (H_3)
Perceived Usefulness has a positive and significant impact on Satisfaction (H_3:$\beta > 0$)

Hypothesis 4

Null Hypothesis (H_0)

Perceived Usefulness has no impact on Intention to Continue (H_0:$\beta = 0$)

Alternative Hypothesis (H_4)

Perceived Usefulness has a positive and significant impact on Intention to Continue (H_4:$\beta > 0$)

Hypothesis 5

Null Hypothesis (H_0)

Perceived Usefulness has no impact on Attitude (H_0:$\beta = 0$)

Alternative Hypothesis (H_5)

Perceived Usefulness has a positive and significant impact on Attitude (H_5:$\beta > 0$)

3. Perceived Ease of Use (PEU)

As stated in Davis (1989), PEU refers to "the degree to which a person believes that using a particular system would be free of effort." Users are expected to develop a positive attitude regarding the continuous usage of any new technology if they find it useful, convenient and mentally effortless for fulfilment of their specific needs. Several past researches have highlighted the positive and significant impact that PEU has on both PU and attitude. Therefore building upon the study done by Abdul-Halim et al. (2021) and Rahi et al. (2020), the following null and alternate hypotheses have been proposed.

Hypothesis 6

Null Hypothesis (H_0)

Perceived Ease of Use has no impact on Perceived Usefulness (H_0:$\beta = 0$)

Alternative Hypothesis (H_6)

Perceived Ease of Use has a positive and significant impact on Perceived Usefulness (H_6:$\beta > 0$)

Hypothesis 7

Null Hypothesis (H_0)

Perceived Ease of Use has no impact on Attitude (H_0:$\beta = 0$)

Alternative Hypothesis (H_7)

Perceived Ease of Use has a positive and significant impact on Attitude (H_7:$\beta > 0$)

4. Satisfaction (SAT)

According to Bhattacherjee (2001b), Satisfaction refers to " a psychological or affective state related to and resulting from a cognitive evaluation of the discrepancy between

expectancy and performance." When users feel that their initial expectation regarding the technology has been met, they will be satisfied using such technology and are likely to develop a positive viewpoint regarding the continuous use of them. Satisfaction was found to have a positive and significant impact on attitude in various technological systems (Daragmeh et al., 2021; Franque et al., 2021). Further, Tran et al. (2019) suggest that the degree of customer satisfaction is most likely the primary reason that influences a customer's decision regarding the continued usage of e-wallet. Therefore, building upon these research studies the following null and alternate hypotheses have been proposed.

Hypothesis 8

Null Hypothesis (H_0)
Satisfaction has no impact on Attitude (H_0:$\beta = 0$)
Alternative Hypothesis (H_8)
Satisfaction has a positive and significant impact on Attitude (H_8:$\beta > 0$)

Hypothesis 9

Null Hypothesis (H_0)
Satisfaction has no impact on Intention to Continue (H_0:$\beta = 0$)
Alternative Hypothesis (H_9)
Satisfaction has a positive and significant impact on Intention to Continue (H_9:$\beta > 0$)

5. Attitude (ATT)

As stated in Davis (1989), attitude can be defined as "the degree of a person's positive or negative feelings about performing a target behaviour." It is often found that the level of satisfaction obtained after the initial usage of any new technology determines whether the end user develops an optimistic or pessimistic feeling towards the usage of said technology. This feeling, in effect, can play a key role in deciding the continuation intention of such users. TCT framework considers attitude as one of the important drivers in influencing any user's continuation intention of a particular technology. Rahi and Ghani (2019) have observed a positive and significant impact of attitude towards continuation intention of internet banking users, and Foroughi et al. (2019) have noted similar results for mobile banking users. Therefore, building upon these research studies, the following null and alternate hypothesis have been proposed.

Hypothesis 10

Null Hypothesis (H_0)
Attitude has no impact on Intention to Continue (H_0:$\beta = 0$)
Alternative Hypothesis (H_{10})

Attitude has a positive and significant impact on Intention to Continue (H_{10}:$\beta > 0$)

6. Price Benefit (PB)

According to Venkatesh et al. (2012), cost structure and various types of price benefits associated with technology can have a pronounced effect on consumers' technology use. Price benefit offered in terms of various promotional offers like cashback or discounts can encourage people to use digital platforms for making various financial transactions (Pal et al., 2019). In the present context, globally there has been an increase in the number of digital payment service providers. Considering both the investment made in the digital payment services as well as to counteract each other, digital payment service providers have offered various promotional offers for encouraging as well as attracting large customer base towards their services. Talking about Nepal, payment service providers like eSewa, IME pay, Prabhu pay, Khalti and Fone pay Mobile Banking have offered various promotional offers like cashback in various types of transactions performed through such apps. Therefore, the price benefit offered in terms of various promotional offers can play a significant role in influencing the existing users to continue the usage of digital payment facilities like mobile payment services.

As mentioned by previous researchers, price benefits come under the category of contextual factors because price benefits offered by service providers can vary depending on situations. For instance, the price benefits offered by service providers of one country may differ in terms of criteria and amount from the price benefits offered by service providers of another country. So, similar criteria can trigger the consumer behaviour differently in different context. Abdul-Halim et al. (2021) have found a positive and significant impact of price benefit on continuation intention of e-wallet. Therefore, building upon the aforementioned study, the following null and alternate hypothesis have been proposed.

Hypothesis 11

Null Hypothesis (H_0)
Price Benefit has no impact on Intention to Continue (H_0:$\beta = 0$)
Alternative Hypothesis (H_{11})
Price Benefit has a positive and significant impact on Intention to Continue (H_{11}:$\beta > 0$)

7. Trust (TR)

Trust is another important factor in any technological services related to finance in terms of earning large customer base and retaining them in the long run. It is inherent to have a certain amount of risk while performing financial transactions so customers are always in search of service providers that can provide them with the required services via safe

and reliable system. Those service providers who can ensure that their system is safe for performing any type of financial transactions and can protect the personal information of their existing customers can build trust with their existing customers and can attract new users which in turn help them to gain customer loyalty in the long run. As noted by previous researchers, trust also comes under the category of contextual factor because the system security of service providers can also vary by context. So, depending upon the level of security provided, trust can play a significant role in deciding the continuous usage intention. Sun et al. (2014) have shown trust positively and significantly impact intention to continue in case of online social networks. Hidayat-ur Rehman et al. (2021) also discovered a positive and significant effect of trust on continuation intention of mobile banking services. Therefore, building upon these research studies the following null and alternate hypothesis have been proposed.

Hypothesis 12

Null Hypothesis (H_0)
Trust has no impact on Intention to Continue (H_0:$\beta = 0$)
Alternative Hypothesis (H_{12})
Trust has a positive and significant impact on Intention to Continue (H_{12}:$\beta > 0$)

8. Facilitating Conditions (FC)

"Facilitating conditions refers to the availability of resources, complete support, favourable conditions, technological infrastructure and compatibility support" (Alalwan et al., 2017; Dwivedi et al., 2017; Shaikh et al., 2015). To put simply, it can be defined as the supporting conditions that are expected by the end users when using a given technology. Facilitating conditions also come under the category of contextual factors because these supporting conditions also vary by context. Hidayat-ur Rehman et al. (2021) have found a positive as well as significant impact of facilitating conditions on continuation intention of mobile banking services. So, building upon these findings, the following null and alternate hypothesis have been proposed.

Hypothesis 13

Null Hypothesis (H_0)
Facilitating Conditions has no impact on Intention to Continue (H_0:$\beta = 0$)
Alternative Hypothesis (H_{13})
Facilitating Conditions has a positive and significant impact on Intention to Continue (H_{13}:$\beta > 0$)

9. Government Regulations (GR)

Government regulation can also be of key importance in facilitating or inhibiting the use of mobile payment services. Pal et al. (2019) have also pointed out the importance of government regulations which has been ignored by many previous IS researchers. Promotion of digital payment services can persuade customers towards digital payment adoption to some extent but consumer friendly rules and regulation determine the rate in which those services expand and continue in the existing market. The recently occurred COVID-19 pandemic situation made people realize the importance of digital payment systems so in this regard, Nepalese government has also taken some initiatives like automation of its public data/information, various approval processes, revenue collection methods like tax payment system and pay-out processes have also been digitized for encouraging people towards digital payment systems. Nepal Rastra Bank has also taken several steps in encouraging the people towards digital payment systems. Among them, increase in transaction limits on POS transaction, Wallet transaction, Mobile Banking, Internet Banking, QR code are some of the notable steps taken (NRB Payment Systems Oversight Report 2076/2077, 2020). Factors like government regulation is also nation specific and hence, it is categorized under contextual factor by previous researchers. Nugroho et al. (2019) too noted a positive and significant impact of government regulation on continuation intention of technology based innovation. Therefore, building upon these research studies the following null and alternate hypothesis have been proposed.

Hypothesis 14

Null Hypothesis (H_0)
Government Regulations has no impact on Intention to Continue (H_0:$\beta = 0$)
Alternative Hypothesis (H_{14})
Government Regulations has a positive and significant impact on Intention to Continue (H_{14}:$\beta > 0$)

3.2 Research Approach

The two well known research approaches are: inductive approach and deductive approach. This research work has been conducted using the deductive approach, which is associated with developing a hypothesis, and coming up with a research design aimed at testing the hypothesis developed during the initial phase of the research.

3.3 Research Design

Research design refers to a conceptual framework within which the entire research will be carried out. It specifies what kind of inquiry the researcher is going to conduct. Selection of an appropriate research design will help the researcher in providing a specific direction for the procedures to be followed to complete the research effectively. Descriptive (cross-sectional) as well as exploratory research has been conducted in this research study.

3.4 Methods of Sampling

Sampling is a method which allow the researchers in sorting out a definite number of samples from among the large population in their field of inquiry. This research study has been conducted using purposive sampling which is a non-probability sampling method. For this, a single screening question was included in the beginning which ensured that only those participants who have at least one-time of prior experience in using mobile payment services were selected for the study.

3.5 Sample Size Determination

For determining the minimum sample size required, PLS-SEM considers Inverse Square Root method as the most appropriate, since this method is simple and fairly precise for both normally and non-normally distributed data. In addition to it, this method provides estimates that is always slightly greater than the required true minimum sample size. Therefore, in this study, Inverse Square Root method has been used for calculating the minimum sample size required.

For a significance level of 5% and minimum statistical power of 80%, the sample size required can be calculated by applying the Inverse Square Root method as follows:

$$N > \left(\frac{2.486}{\beta_{min}}\right)^2 \qquad \text{(Equation 3.5.1)}$$

where, β is the value of path coefficient
N is the number of samples

The value of path coefficient β can be obtained using:

$$\frac{\beta^2}{1-\beta^2} > 0.4$$
$$\beta \geq 0.197 \qquad \text{(Equation 3.5.2)}$$

For a significance level of 5%, taking $\beta = 0.197$ in (Equation 3.5.1), we get:

$$N > \left(\frac{2.486}{0.197}\right)^2$$
$$N > 160 \qquad \text{(Equation 3.5.3)}$$

(Equation 3.5.2) covers large majority of models including complex models provided that they are free of lateral and vertical collinearity. Therefore, in situations where the value of path coefficient is not known to the researcher in advance, to achieve a minimum statistical power of 80%, the minimum sample size needed for any PLS-SEM study computed with Inverse Square Root method at a significance level of 5% is 160 (Kock and Hadaya, 2016). In this research study, the total number of responses gathered was 507.

3.6 Data Collection and Analysis

3.6.1 Data Collection

Data collection method is a procedure employed by a researcher for collecting necessary data that is appropriate for the planned research. Primary data collection has been used for collecting the data required for this study. The data collection phase lasted from July 2022 to August 2022, and was carried out through an online survey. The survey included responses from those users having previous experience of using mobile payment services.

3.6.2 Research Instrument

Questionnaire was used as a research instrument, and it was distributed via electronic platforms like email and social media. The design of the questionnaire was such that it included two major sections: the first section of the questionnaire consisted of questions related to the demographic data of the participants as well as other questions related to mobile payment services- which was presented in the form of response questions, whereas the second section of the questionnaire covered all the questions regarding the constructs utilized in the study- which was presented as likert-scale questions.

3.6.3 Measures

Likert-scale questions for all the constructs used in this study were measured on a five point scale ranging from 1 *(strong disagreement)* to 5 *(strong agreement)* whereas, the final dependent construct i.e Intention to Continue was measured on a *seven point scale* ranging from 1 *(strong disagreement)* to 7 *(strong agreement)*. The measurement items used in this research study are validated instruments adopted from past researches. The measurement items along with the source from which they were taken are listed in Appendix section.

3.6.4 Data Analysis Tools and Methods

Data analysis methods like descriptive analysis, correlation analysis and inferential analysis has been carried out. Structural Equation Modelling (SEM)- which is a multivariate data analysis technique- has been employed for correlation and inferential analysis. Within SEM, Partial Least Square - Structural Equation Modelling (PLS-SEM) has been used since this technique is suitable for predictive purposes, can handle more complex models, has high degree of statistical power, and has no distributional assumption (Hair et al., 2019). Smart-PLS has been used as data analysis software for analyzing the research model.

1. Descriptive Analysis

Descriptive analysis gives the general description of our sample which helps us to understand the characteristics of our sample.

2. Correlation Analysis

Correlation analysis shows how variables used in the model are related to each other.

3. Inferential Analysis

Inferential analysis helps to make inferences or predictions about the entire population. By analyzing collected sample data, predictions can be made about the entire population from which the samples were taken.

3.7 Structural Equation Model

Structural Equation Model (SEM) falls under multivariate data analysis techniques. It can be simply understood as a combination of confirmatory factor analysis (CFA) and path analysis. Path analysis a method that is capable of modelling relationships between multiple dependent and independent variables simultaneously. While modelling complex relationships, path analysis considers direct effect, as well as indirect effect that independent variables have upon dependent variables via mediating variables. But path analysis alone cannot model latent constructs. Therefore, for modelling the complex relationships between the latent constructs, SEM was proposed. The advantage of SEM is that it can model complex relationships among multiple dependent and independent variables simultaneously, can model latent constructs, and also considers the measurement error for observed variables (indicators) while modelling the relationships between the variables (Chin, 1998). SEM consists of two kinds of models i.e Measurement Model and Structural Model. A Measurement Model is a model which analyzes the relationships between the indicators and latent constructs whereas the Structural Model is the one which analyzes the postulated relationships between the latent constructs (fan et al., 2016).

3.7.1 Measurement Model

Before analyzing the measurement model, it is necessary to recognize whether factor models or composite models are being used. Factor models are considered suitable for modelling latent constructs. Since, latent constructs are formed as a collective influence of indicators, the indicators are highly correlated and interchangeable. Hence, collinearity among the indicators should not be evaluated. Instead, a Confirmatory Factor Analysis (CFA) - which includes the tests of validity of the measurement model- needs to be evaluated prior to the analysis of the Structural Model (Hair et al., 2022).

3.7.2 Structural Model

The structural model can be evaluated only after the assessment of measurement model. The evaluation of structural model involves analyzing the relationships among the latent constructs. Before detailed analysis of the structural model, things like Common Method Bias (CMB) and Multi-Collinearity needs to be accessed. The structural equation model of the proposed framework is represented in Figure 3.

3.8 Common Method Bias

In research methods like survey, one source of measurement error due to the instrument used is the common method bias. Common method bias can generally be reduced by applying the preventive measures. To reduce the possibility of CMB, the questionnaire was formulated such that all the independent variables were estimated using a 5 point likert scale while the final dependent variable i.e Intention to Continue was estimated with the help of a 7 point likert scale. Although preventive measures were applied to reduce the possibility of CMB, the obtained response may not be completely free from bias. According to Kock and Hadaya (2016), a full collinearity test - which involves the simultaneous evaluation of both the vertical and lateral collinearity has to be conducted for the identification of CMB. After conducting a full collinearity test, if the Variance Inflation Factor (VIF) values are less than five, the model is said to be free from the issue of CMB. In this study, all the VIF values was found to be less than five, which indicates that our model is free from the issue of CMB. All the VIF values obtained from the analysis are listed in Table 9.

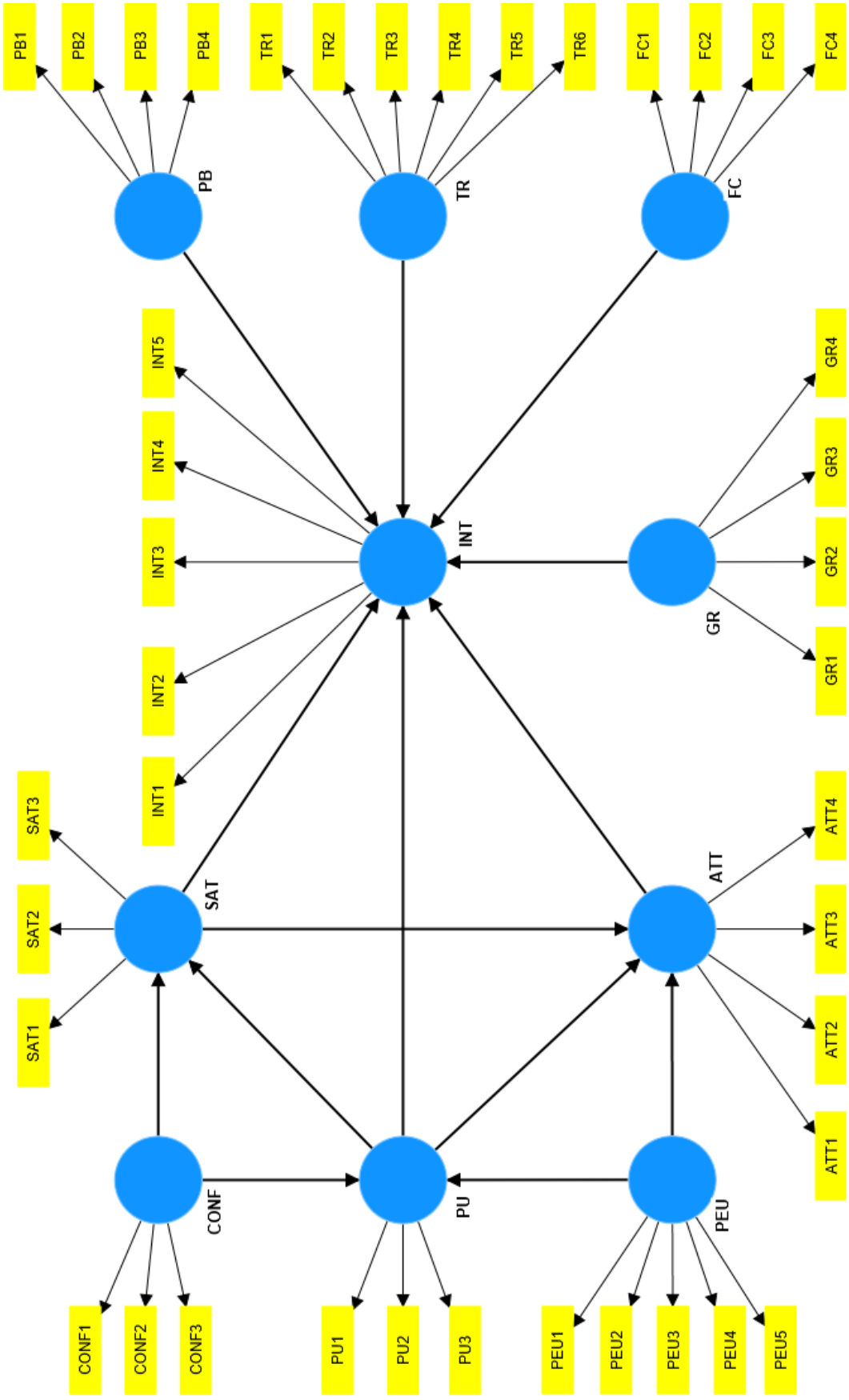

Figure 3: Structural Equation Model of the Proposed Framework

CHAPTER FOUR : RESULTS AND DISCUSSION

4.1 Descriptive Analysis

The total number of responses collected from an online survey was 507, which is documented in Table 1. As noted in Table 1, there were 387 (76.33%) male respondents whereas there were only 120 (23.67%) female respondents. Similarly, the respondents between 18-23 years of age formed the majority with 58.19%, while there was barely any response from the respondents in the age group 43-50 and the group above 50 years. The majority of respondents seem to be well educated with 67.26% having earned at least a Bachelors degree, and 28.21% having earned a Masters degree. The data collected has an over-representation of the student group (78.70%) compared to the other sectors of the society. Another interesting observation is that majority of the respondents seem to have adopted the services before the COVID pandemic (66.67%) compared to after the pandemic (33.33%).

Regarding the usage, majority of respondents seem to use these kinds of services a few times a week (48.92%), and 22.49% seem to be using these services on an everyday basis in some form or the other. Majority of transactions fall between Rs. 1000 - Rs. 5000 with 46.55% responses, and very few seem to perform transactions between Rs. 25000 - Rs. 50,000. eSewa seems to be the app of choice with 86.00% of respondents using it, and Mobile Banking Apps (78.90%), and Connect IPS (38.36%) seem to be doing pretty well too. Mobile Top-up is one popular reason for using such services with 87.97% participants using it to do so. Fund transfer(82.25%) and payment of bills(76.33%) seem popular with mobile payment user as well. A detailed account of the descriptive statistics of participants in this study is shown as pie and bar charts in Figures 4-7, as well as tabulated in Table 1.

Descriptive Statistics of the Measurement Items (Indicators)

Ordinal scale is considered suitable for measuring non-numeric concepts like satisfaction, attitude etc. The individual likert type question which is considered as ordinal scale was used for obtaining the response from the participants of the survey. However, the overall likert score can be interpreted as an interval scale, and it is well known that mean and standard deviation are common central tendency measures of a set of interval data. The mean value denotes the average score of the entire responses obtained on a certain parameter, whereas standard deviation represents the variation within the responses obtained on a certain parameter. Higher the value of standard deviation, higher is the variation in the response obtained. Similarly, lower the value of standard deviation, lower is the variation in the response obtained. The mean values along with standard deviations of the responses obtained on each measurement item (indicators) are shown in Table 2.

Table 1: Demographic Profile of the Participants of the Study

Measures	Items	Frequency	Percentage (%)
Gender	Male	387	76.33
	Female	120	23.67
Age	Less than 18	7	1.38
	18 - 23	295	58.19
	24 - 35	187	36.88
	36 - 42	16	3.16
	43 - 50	1	0.20
	Above 50 Years	1	0.20
Education	High School	18	3.55
	Diploma	3	0.59
	Bachelors	341	67.26
	Masters	143	28.21
	PHD	1	0.20
	Others	1	0.20
Occupation	Student	399	78.70
	Service Holder	62	12.23
	House Maker	1	0.20
	Business Person	17	3.35
	Retiree	1	0.20
	Other	27	5.33
Marital Status	Single	454	89.55
	Married	52	10.26
	Widowed	1	0.20
Income Bracket	Less than Rs.25000	185	36.49
	Rs.25000 - Rs.50000	99	19.53
	Rs.50000 - Rs.75000	32	6.31
	Above Rs.75000	29	5.72
	Other	162	31.95
Adoption time	Before Covid-19 Pandemic	338	66.67
	After Covid-19 Pandemic	169	33.33
Permanent Address	Inside Kathmandu Valley	184	36.29
	Outside Kathmandu Valley	323	63.71
Frequency of Use	Daily	114	22.49
	Few times a week	248	48.92
	Few times a month	90	17.75
	Only sometimes	55	10.85

Demographic Profile of the Participants of the Study (contd.)

Measures	Items	Frequency	Percentage (%)
Transaction Amount	Less than Rs.1000	100	19.72
	Rs.1000 - Rs.5000	236	46.55
	Rs.5000 - Rs.25000	151	29.78
	Rs.25000 - Rs.50000	8	1.58
	Above Rs.50000	12	2.37
Apps	eSewa	436	86.00
	Khalti	154	30.37
	Connect IPS	197	38.36
	IME Pay	65	12.82
	Mobile Banking Apps	400	78.90
	Prabhu Pay	5	0.99
	I Pay	3	0.59
	Other	13	2.56
Usage Purpose	Bill Payment	387	76.33
	Mobile Top-up	446	87.97
	Fund Transfer	417	82.25
	Ride Sharing	192	37.87
	Food and Beverage Services	223	43.98
	Ticket booking	277	54.64
	Groceries and everyday items	249	49.11
	Other	44	8.68

Table 2: Descriptive Statistics of Measurement Items (Indicators)

Indicators	Mean	Standard Deviation
ATT1	4.357	0.738
ATT2	4.290	0.807
ATT3	4.355	0.782
ATT4	4.250	0.776
Average	4.313	0.776
CONF1	3.765	0.830
CONF2	3.621	0.887
CONF3	3.846	0.804
Average	3.744	0.840
FC1	3.903	0.987
FC2	4.128	0.880
FC3	3.836	1.008
FC4	4.146	0.839
Average	4.003	0.929

Descriptive Statistics of Measurement Items (Indicators) (contd.)

Indicators	Mean	Standard Deviation
GR1	3.152	1.133
GR2	3.124	1.119
GR3	3.215	1.116
GR4	3.432	1.124
Average	3.231	1.123
INT1	5.783	1.208
INT2	5.706	1.232
INT3	5.694	1.185
INT4	5.775	1.177
INT5	5.757	1.238
Average	5.743	1.208
PB1	3.475	1.097
PB2	3.580	1.052
PB3	3.507	1.160
PB4	3.365	1.219
Average	3.482	1.132
PEU1	4.280	0.795
PEU2	4.039	0.984
PEU3	4.323	0.776
PEU4	4.491	0.739
PEU5	4.286	0.842
Average	4.284	0.827
PU1	4.351	0.881
PU2	4.400	0.806
PU3	4.353	0.835
Average	4.368	0.841
SAT1	4.020	0.792
SAT2	3.992	0.816
SAT3	4.026	0.780
Average	4.013	0.796
TR1	3.890	0.842
TR2	3.690	0.953
TR3	3.805	0.965
TR4	3.576	1.113
TR5	3.698	1.004
TR6	3.621	0.992
Average	3.713	0.978

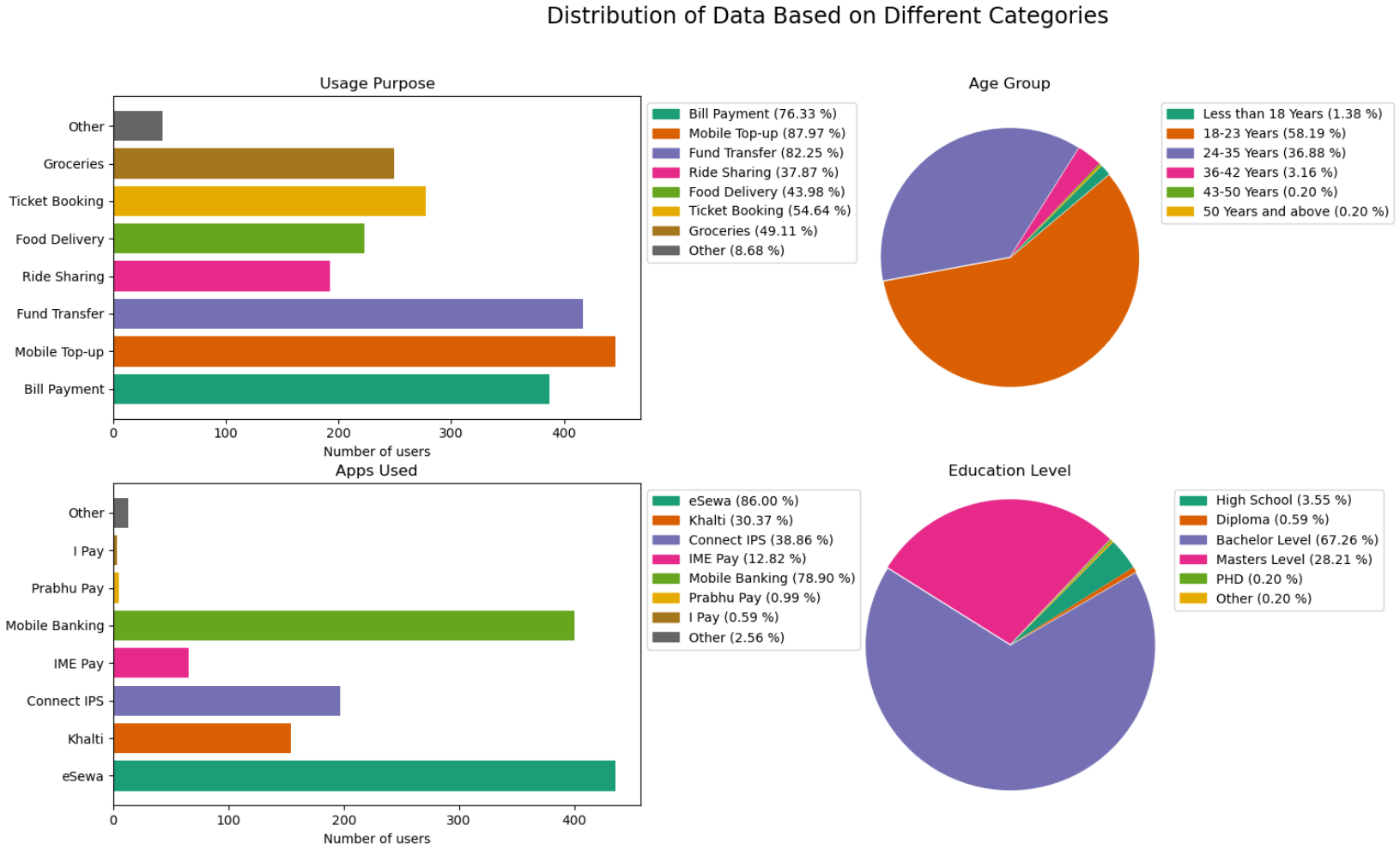

Figure 4: MPS Usage Purpose, Age Group, Applications Used, and Education Level of the Participants

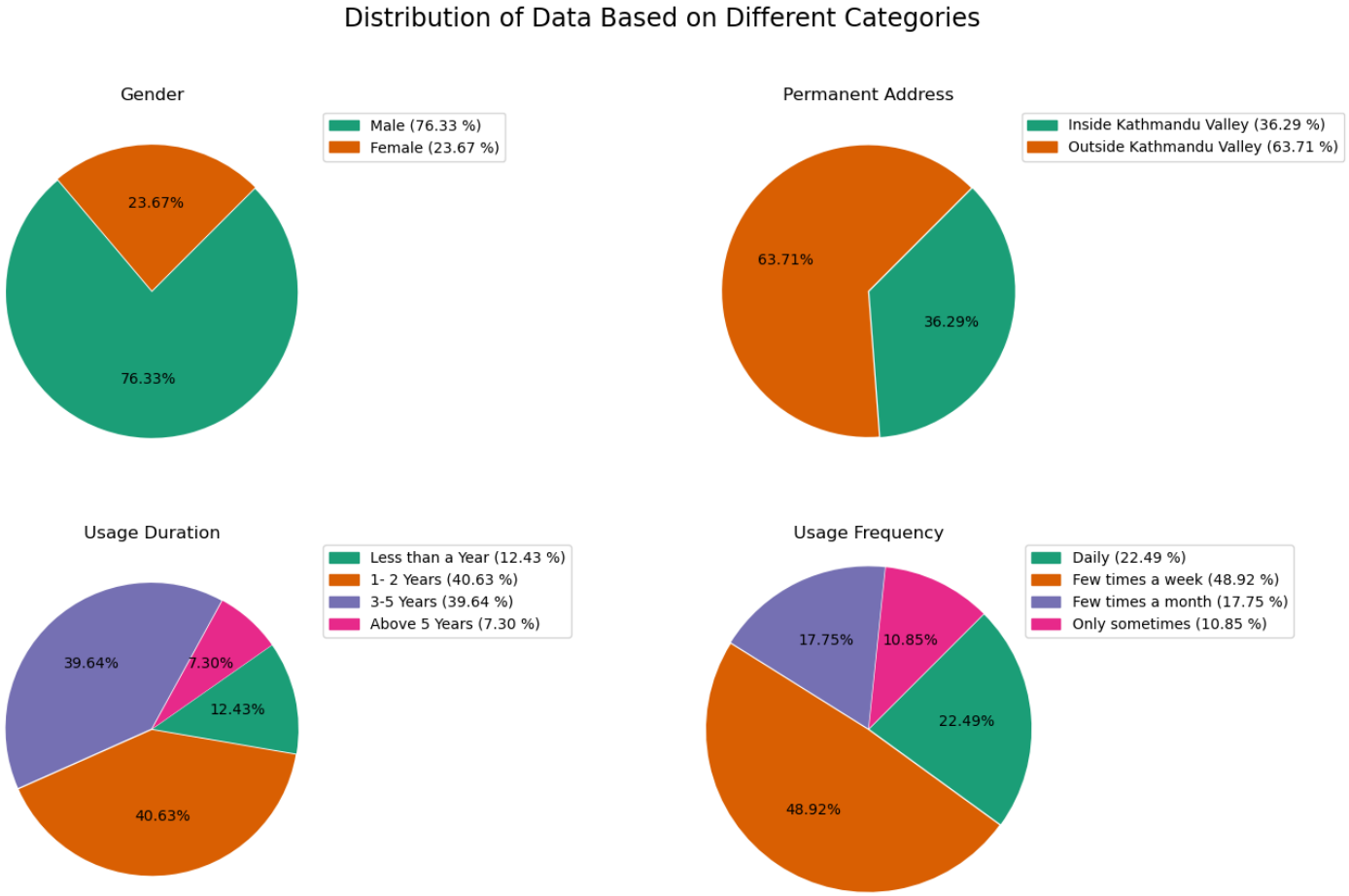

Figure 5: Gender, Permanent Address, MPS Usage Duration, and MPS Usage Frequency of the Participants

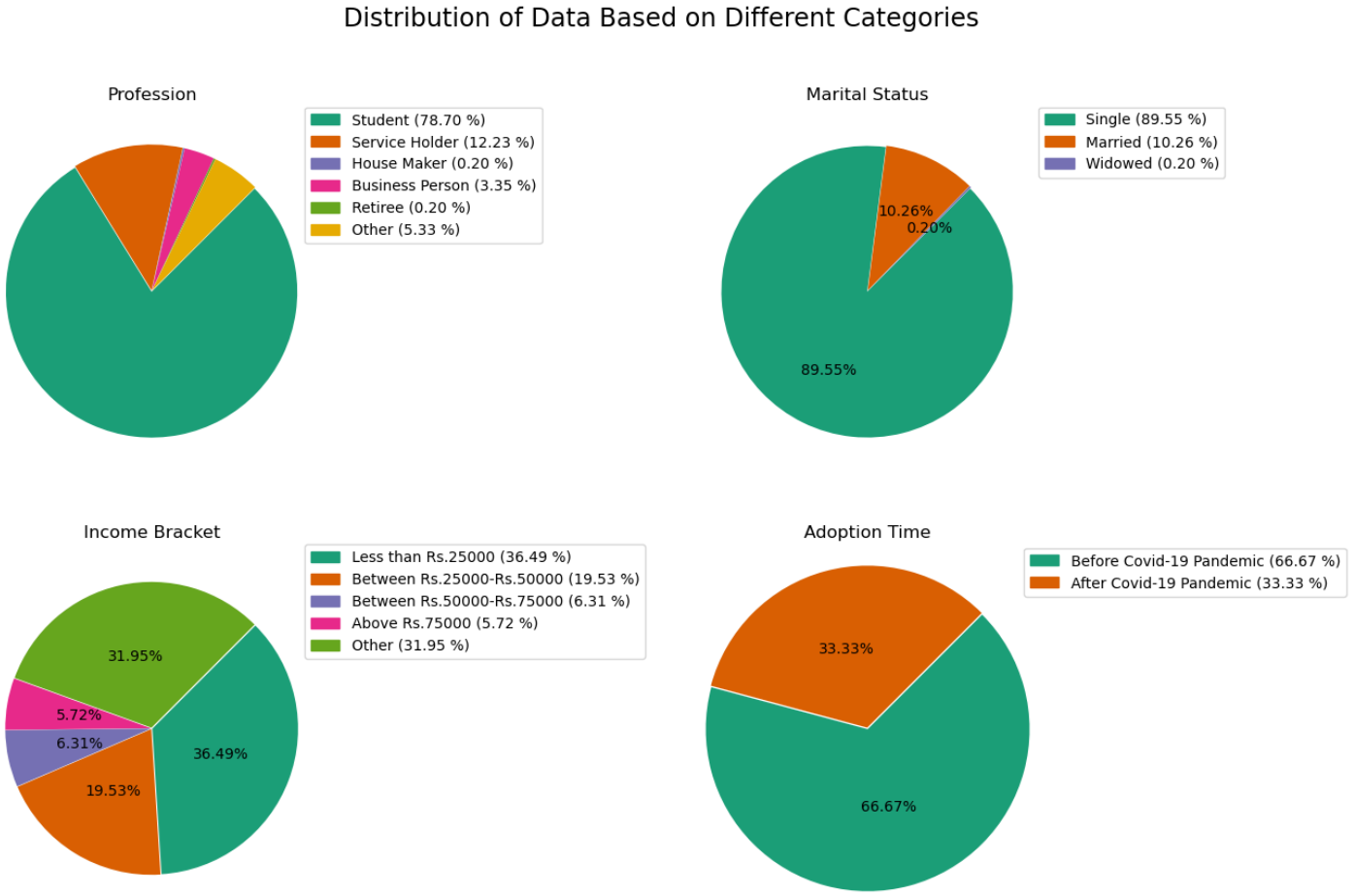

Figure 6: Profession, Marital Status, Income Bracket, and MPS Adoption Time of the Participants

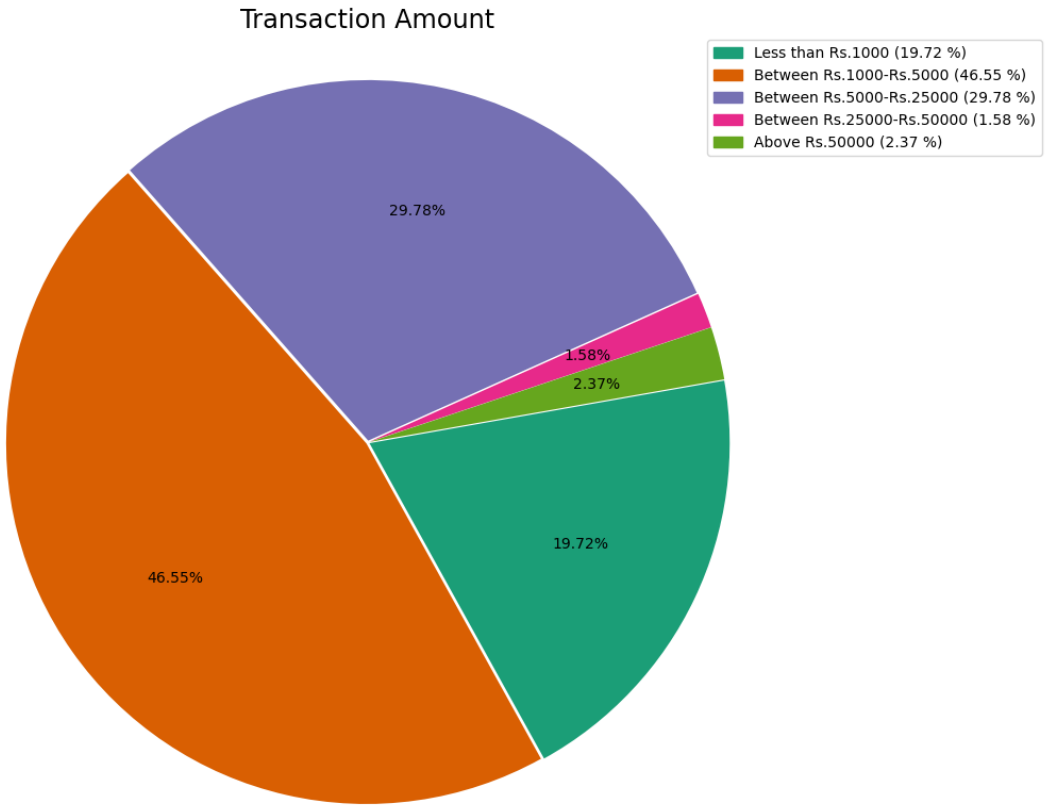

Figure 7: Transaction Amount through MPS of the Participants

4.2 Measurement Model Assessment

4.2.1 Reliability and Validity

"Reliability refers to the consistency and stability of the scale results" (Heale and Twycross, 2015). The internal consistency reliability has been evaluated with the help of composite reliability coefficient ρ_a. When common factor models are evaluated in PLS-SEM that follows composite approach, the reliability coefficient ρ_a is considered to correct the estimates generated by traditional PLS-SEM resulting in a consistent outer loading and path coefficient values. The values of ρ_a greater than 0.7 is considered as acceptable limit for internal consistency reliability (Dijkstra and Henseler, 2015). According to Borsboom et al. (2004), a model's validity can be tested with the help of Convergent Validity (CV) and Discriminant Validity (DV).

1. Convergent Validity

Convergent Validity shows the degree of actual relationship between those measures that are theoretically supposed to be related. Metrics like Indicator Reliability and Average Variance Extracted (AVE) are used to measure Convergent Validity. Indicator reliability refers to the size of the outer loading, whose values must be greater than 0.7. The indicators whose outer loading fall below 0.4 must be eliminated from the model, whereas the indicators whose outer loading fall in the range 0.4 to 0.7 must be eliminated from the model as long as the deletion of those indicators results in an increased composite reliability coefficient (ρ_a) and average variance extracted (AVE) values above the suggested threshold limit of 0.7 and 0.5 respectively. Similarly, AVE values should be 0.5 or greater which indicates that on an average, more than fifty percent of its indicators' variance is explained by the said variable (Hair et al., 2022).

While evaluating the measurement model, all the indicators with outer loading greater than 0.7 were kept while those with outer loading less than 0.4 were removed. However, the indicators whose outer loading fell in the range 0.4 to 0.7 were deleted only if the deletion increased the (ρ_a) and AVE values above the suggested limits of 0.7 and 0.5 respectively. The values of Outer Loading, Composite Reliability (ρ_a) and Average Variance Extracted (AVE) obtained after analyzing the measurement model are shown in Table 3. The values reported in the table indicates that the criteria for internal consistency reliability has been met according to the values given by (ρ_a) - which are greater than 0.7, and, similarly, all AVE values are above 0.5. And since the indicators having outer loading in the range 0.4 to 0.7 were retained by observing the values of ρ_a and AVE, it can be safely asserted that convergent validity has been confirmed. Table 3 and Figure 9 depict the statistical significance of the indicators considered for the outer model (measurement model).

Table 3: Convergent Validity

Constructs	Items	Outer Loadings	CR(ρ_a)	AVE	t-values
Confirmation	CONF1	0.745	0.805	0.578	19.857
	CONF2	0.751			21.87
	CONF3	0.784			20.327
Perceived Usefulness	PU1	0.604	0.758	0.500	13.20
	PU2	0.783			22.203
	PU3	0.724			16.919
Perceived Ease of Use	PEU1	0.821	0.867	0.550	24.927
	PEU2	0.570			10.861
	PEU3	0.741			19.086
	PEU4	0.784			16.749
	PEU5	0.767			20.541
Satisfaction	SAT1	0.887	0.906	0.763	33.997
	SAT2	0.862			31.080
	SAT3	0.872			34.114
Attitude	ATT1	0.845	0.870	0.615	36.915
	ATT2	0.762			23.295
	ATT3	0.675			13.148
	ATT4	0.843			33.785
Facilitating Conditions	FC1	0.590	0.835	0.528	9.973
	FC2	0.770			15.888
	FC3	0.628			12.129
	FC4	0.882			21.766
Price Benefit	PB1	0.742	0.851	0.587	11.856
	PB2	0.804			12.657
	PB3	0.756			10.284
	PB4	0.761			12.375
Trust	TR1	0.981	0.903	0.550	19.066
	TR2	0.758			16.361
	TR3	0.786			14.356
	TR4	0.465			6.944
	TR5	0.614			10.065
	TR6	0.743			14.963
Government Regulations	GR1	0.713	0.890	0.633	8.093
	GR2	0.697			7.535
	GR3	0.768			9.179
	GR4	0.974			10.648
Intention to Continue	INT1	0.755	0.914	0.674	21.617
	INT2	0.823			22.405
	INT3	0.874			32.283
	INT4	0.855			30.965
	INT5	0.791			17.912

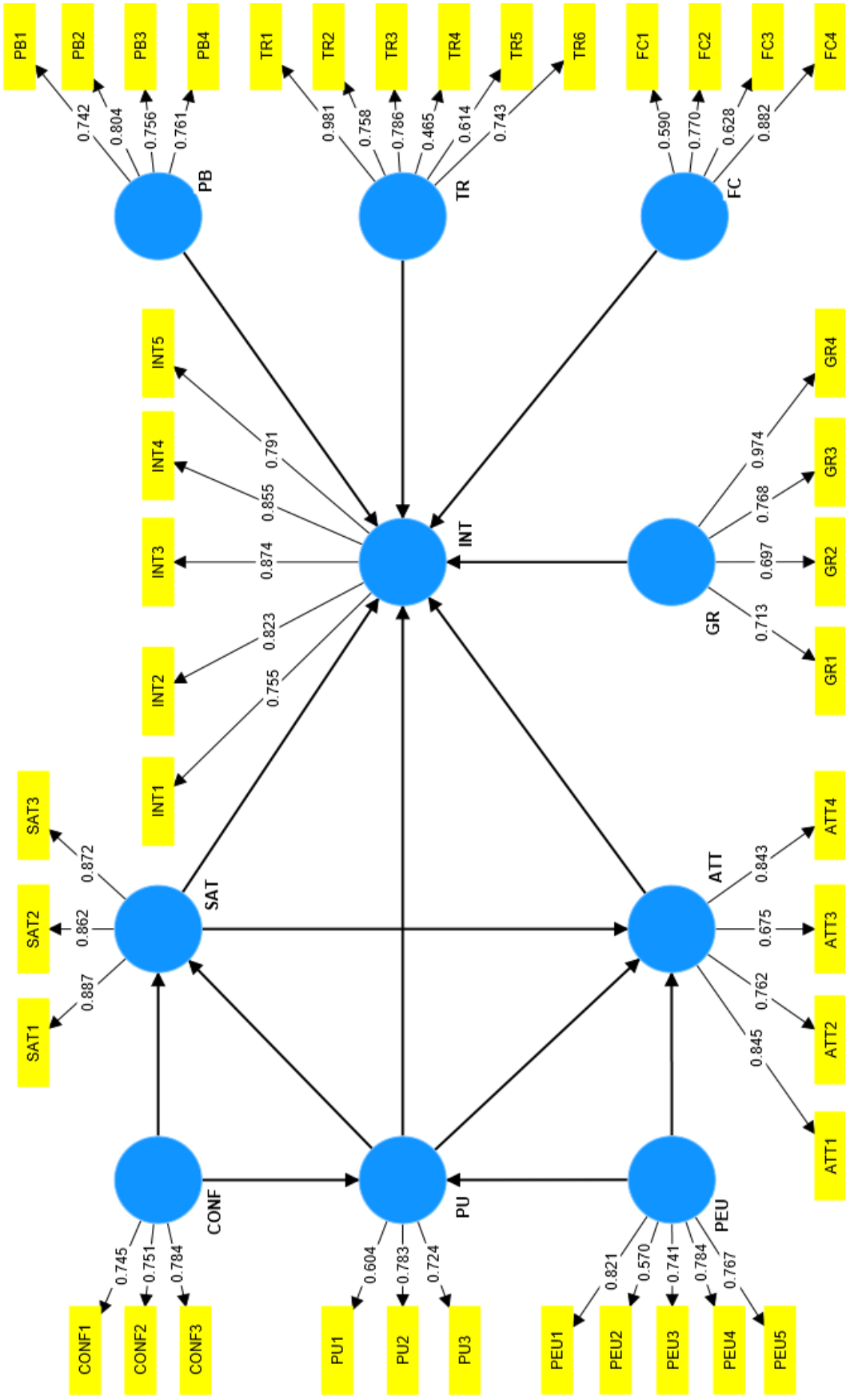

Figure 8: Measurement Model Assessment (Loadings)

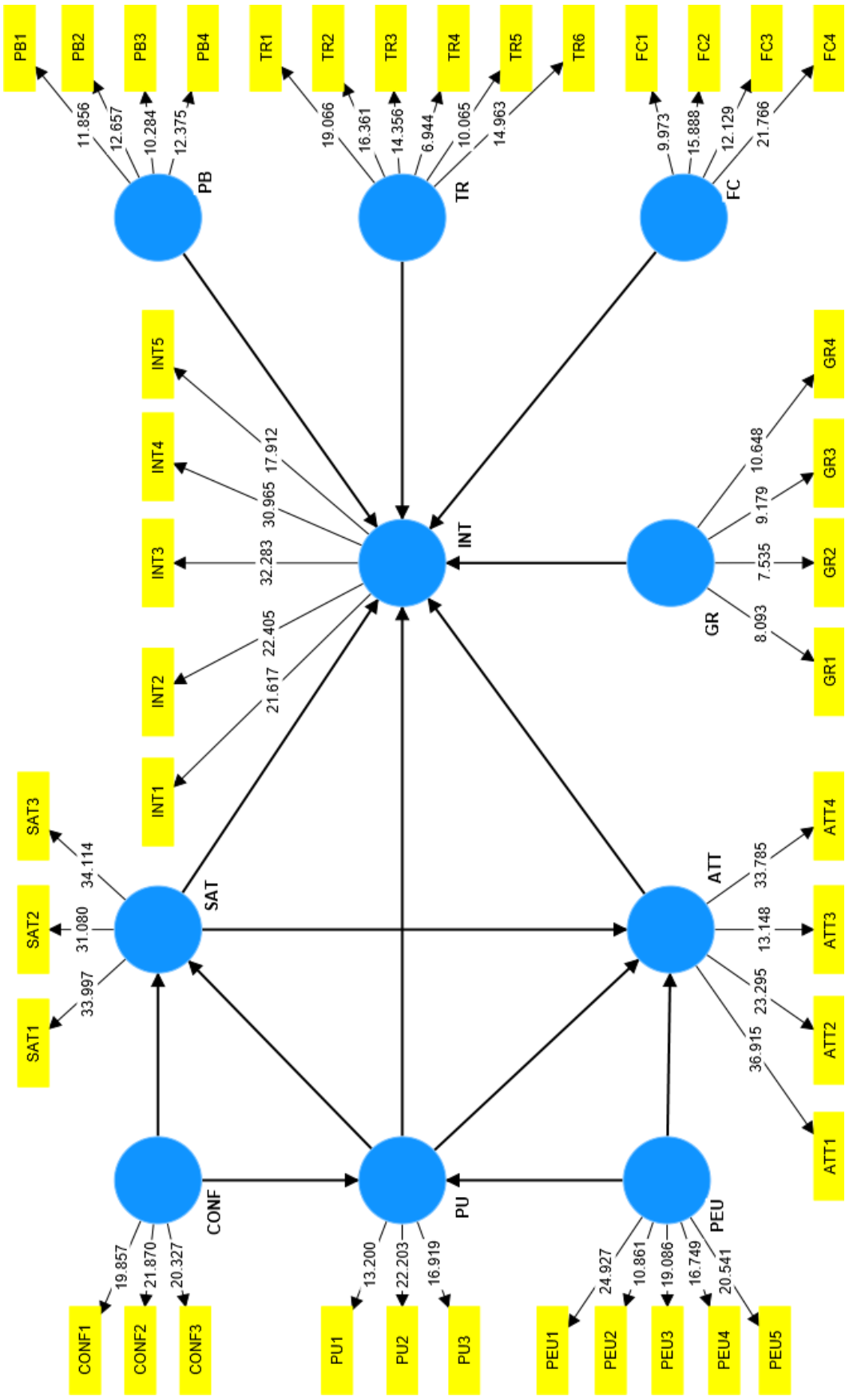

Figure 9: Measurement Model Assessment (t-values)

2. Discriminant Validity

Discriminant Validity measures the uniqueness of a given construct in relation to other constructs used in the model. Methods like Fornell-Larcker approach and Cross-loading have been employed by researchers for accessing the discriminant validity. However, as per Henseler et al. (2015), in variance based SEM, methods like Fornell-Larcker approach and Cross-Loading are not efficient in identifying the discriminant validity, hence, HTMT needs to be measured to assess the discriminant validity. The threshold limit for HTMT is 0.85.

In this study, Fornell-Larcker approach as well as Cross-loading was also used for detecting discriminant validity. The values obtained from the Fornell-Larcker approach are shown in Table 4. The values indicate that for each of the constructs, the square root of AVE is greater than its correlation value with other constructs. Similarly, the values for cross-loading are also reported in Table 5. The values indicate that each indicator is highly correlated with its corresponding constructs, as compared to other constructs used in the model. In addition to Fornell-Larcker approach and Cross-loading, HTMT was also accessed to detect discriminant validity. Table 6 shows all HTMT values to be below 0.85, which indicates that discriminant validity has been confirmed.

Table 4: Discriminant Validity - Fornell Larcker Criterion

Construct	ATT	CONF	FC	GR	INT	PB	PEU	PU	SAT	TR
ATT	0.784									
CONF	0.520	0.760								
FC	0.774	0.567	0.727							
GR	0.266	0.422	0.462	0.796						
INT	0.725	0.449	0.629	0.307	0.821					
PB	0.437	0.436	0.577	0.571	0.435	0.766				
PEU	0.657	0.491	0.692	0.261	0.569	0.392	0.742			
PU	0.738	0.557	0.627	0.243	0.676	0.348	0.731	0.707		
SAT	0.544	0.754	0.592	0.421	0.447	0.441	0.616	0.594	0.874	
TR	0.531	0.620	0.702	0.635	0.569	0.729	0.536	0.515	0.597	0.742

Table 5: Cross Loadings

	ATT	CONF	FC	GR	INT	PB	PEU	PU	SAT	TR
ATT1	**0.845**	0.423	0.623	0.199	0.627	0.317	0.552	0.627	0.439	0.411
ATT2	**0.762**	0.392	0.613	0.213	0.587	0.417	0.483	0.524	0.431	0.414
ATT3	**0.675**	0.358	0.542	0.159	0.469	0.234	0.462	0.525	0.342	0.342
ATT4	**0.843**	0.454	0.646	0.257	0.581	0.393	0.558	0.631	0.484	0.488
CONF1	0.376	**0.745**	0.419	0.275	0.336	0.331	0.349	0.383	0.582	0.444
CONF2	0.317	**0.751**	0.380	0.293	0.269	0.293	0.324	0.392	0.583	0.441
CONF3	0.490	**0.784**	0.492	0.391	0.416	0.370	0.445	0.492	0.557	0.527
FC1	0.460	0.385	**0.590**	0.403	0.371	0.383	0.448	0.354	0.401	0.469
FC2	0.589	0.432	**0.770**	0.309	0.484	0.416	0.545	0.455	0.451	0.497
FC3	0.485	0.357	**0.628**	0.381	0.395	0.474	0.399	0.428	0.404	0.542
FC4	0.686	0.469	**0.882**	0.296	0.555	0.425	0.599	0.562	0.468	0.549
GR1	0.153	0.310	0.329	**0.713**	0.219	0.461	0.160	0.177	0.301	0.497
GR2	0.187	0.353	0.368	**0.697**	0.214	0.497	0.228	0.196	0.374	0.571
GR3	0.203	0.318	0.368	**0.768**	0.236	0.470	0.188	0.185	0.325	0.493
GR4	0.286	0.367	0.407	**0.974**	0.299	0.422	0.250	0.215	0.351	0.490
INT1	0.589	0.333	0.491	0.155	**0.755**	0.306	0.455	0.523	0.324	0.418
INT2	0.585	0.410	0.506	0.307	**0.823**	0.370	0.454	0.560	0.363	0.456
INT3	0.631	0.369	0.537	0.271	**0.874**	0.391	0.464	0.563	0.413	0.515
INT4	0.596	0.380	0.552	0.286	**0.855**	0.384	0.496	0.569	0.374	0.497
INT5	0.574	0.350	0.495	0.232	**0.791**	0.326	0.468	0.558	0.357	0.442
PB1	0.320	0.344	0.416	0.476	0.322	**0.742**	0.285	0.229	0.378	0.567
PB2	0.373	0.418	0.527	0.435	0.349	**0.804**	0.335	0.294	0.388	0.607
PB3	0.328	0.267	0.442	0.396	0.328	**0.756**	0.328	0.289	0.296	0.518
PB4	0.315	0.303	0.377	0.444	0.331	**0.761**	0.252	0.252	0.288	0.538
PEU1	0.511	0.383	0.551	0.238	0.449	0.301	**0.821**	0.63	0.486	0.415
PEU2	0.385	0.315	0.411	0.152	0.324	0.259	**0.570**	0.407	0.392	0.334
PEU3	0.480	0.411	0.510	0.21	0.415	0.292	**0.741**	0.549	0.492	0.413
PEU4	0.543	0.359	0.559	0.212	0.492	0.314	**0.784**	0.545	0.464	0.431
PEU5	0.507	0.354	0.525	0.148	0.416	0.29	**0.767**	0.557	0.448	0.390
PU1	0.446	0.331	0.387	0.205	0.418	0.231	0.425	**0.604**	0.369	0.310
PU2	0.552	0.490	0.498	0.196	0.496	0.268	0.586	**0.783**	0.470	0.407
PU3	0.560	0.348	0.438	0.120	0.516	0.239	0.527	**0.724**	0.416	0.370
SAT1	0.496	0.655	0.500	0.346	0.405	0.373	0.548	0.524	**0.887**	0.504
SAT2	0.476	0.648	0.530	0.382	0.368	0.392	0.551	0.522	**0.862**	0.525
SAT3	0.453	0.674	0.521	0.376	0.398	0.392	0.515	0.512	**0.872**	0.535
TR1	0.536	0.496	0.613	0.449	0.558	0.539	0.481	0.457	0.509	**0.981**
TR2	0.417	0.576	0.607	0.516	0.431	0.607	0.426	0.427	0.528	**0.758**
TR3	0.416	0.447	0.489	0.463	0.447	0.546	0.416	0.446	0.435	**0.786**
TR4	0.272	0.359	0.449	0.488	0.265	0.514	0.321	0.240	0.355	**0.465**
TR5	0.310	0.399	0.476	0.481	0.350	0.542	0.353	0.291	0.380	**0.614**
TR6	0.357	0.488	0.500	0.509	0.423	0.559	0.378	0.386	0.444	**0.743**

Table 6: Discriminant Validity ($HTMT_{.85}$ Ratio)

Construct	ATT	CONF	FC	GR	INT	PB	PEU	PU	SAT	TR
ATT										
CONF	0.519									
FC	0.767	0.564								
GR	0.258	0.418	0.476							
INT	0.726	0.447	0.621	0.300						
PB	0.436	0.434	0.583	0.578	0.433					
PEU	0.658	0.492	0.685	0.257	0.568	0.394				
PU	0.741	0.553	0.621	0.246	0.679	0.350	0.727			
SAT	0.543	0.754	0.594	0.422	0.446	0.441	0.618	0.596		
TR	0.510	0.609	0.700	0.649	0.545	0.731	0.527	0.497	0.586	

4.3 Structural Model Assessment

4.3.1 Correlation Analysis

Correlation analysis deals with the analysis of correlation within the attributes (or variables) of a model. The values of correlation coefficient are classified as follows: weak (between 0.1 to 0.29), medium (between 0.3 to 0.49), and strong (between 0.5 to 1) (Chong et al., 2010).

Table 7: Latent Constructs Correlation

Construct	ATT	CONF	FC	GR	INT	PB	PEU	PU	SAT	TR
ATT	1.000									
CONF	0.520	1.000								
FC	0.774	0.567	1.000							
GR	0.266	0.422	0.462	1.000						
INT	0.725	0.449	0.629	0.307	1.000					
PB	0.437	0.436	0.577	0.571	0.435	1.000				
PEU	0.657	0.491	0.692	0.261	0.569	0.392	1.000			
PU	0.738	0.557	0.627	0.243	0.676	0.348	0.731	1.000		
SAT	0.544	0.754	0.592	0.421	0.447	0.441	0.616	0.594	1.000	
TR	0.531	0.620	0.702	0.635	0.569	0.729	0.536	0.515	0.597	1.000

The presence of multi-collinearity should be checked before an in-depth evaluation of any structural model. Multi-collinearity is a situation in which two or more than two independent variables are highly correlated in a model, which leads to a model generating statistical estimates that are not reliable. The values of correlation coefficient below 0.8

indicates that the variables are free of multi-collinearity (Chong et al., 2010). The values of correlation coefficient obtained after analyzing the structural model are shown in Table 7. It can be easily inferred from the table that the values of correlation coefficient between all the latent constructs used in the model are less than 0.8. Additionally, Variance Inflation Factor (VIF) values can be accessed as well in order to verify that the issue of multi-collinearity is non existent in the model. The VIF values above five denotes that multi-collinearity is present. The values obtained from the analysis are listed in Table 9, and it can be seen that all the VIF values are less than five. These values are an indication that there was no issue of multi-collinearity in the model used in the study.

4.3.2 Inferential Analysis

Inferential analysis is associated with making inferences or predictions about the entire population by analyzing the statistical relationship between the variables used in the research based on samples obtained from that population. The size and statistical significance of the dependence among the constructs of the structural model is determined by using path coefficient (β), t and p values.

Path coefficient (β) is a standardized regression coefficient. PLS-SEM falls under non-parametric methods, where no assumptions regarding the normality of data is made. Under this assumption, when testing any path coefficient's significance, parametric tests cannot be applied. Instead, a non-parametric substitute, known as bootstrapping should be employed by the researcher. A bootstrapping is a re-sampling technique in which large amount of samples are generated from given original samples. The statistical significance of given path coefficients was tested using the process of bootstrapping for which five thousand bootstrap re-samples were generated from the original sample distribution. The results for path coefficient (β) and t-statistic obtained after applying the bootstrapping procedure are listed in Table 9 and represented in Figure 10.

Regression Analysis

1. Coefficient of Determination (R^2)

Coefficient of determination (R^2) can be defined as the capacity of a model to describe the endogenous variable. R^2 has been used for analyzing the model's predictive power in explaining the endogenous variable. The R^2 values are classified as follows: substantial effect (0.75), moderate effect (0.5), and weak effect (0.25) (Hair et al., 2022). The R^2 values obtained from the analysis are listed in Table 8. It can be seen from the table that the model explains 58% of the variance in attitude, 58.5% of the variance in perceived usefulness, 61.3% of the variance in satisfaction. Lastly, it is seen that the model explains 60.8% of the variation in intention to continue, which shows the explanatory power of the

model to be moderate.

Table 8: R^2 Overview

	R-square	R-square adjusted
ATT	0.580	0.578
INT	0.608	0.602
PU	0.585	0.584
SAT	0.613	0.612

2. Effect Size (f^2)

Effect size f^2 is analyzed in any structural model to determine the changes in the values of R^2 when a specific exogenous variable is excluded from that model. It shows the practical relevance of the observed relationships between the constructs. f^2 is computed using the following formula.

$$f^2 = \frac{R^2_{included} - R^2_{excluded}}{1 - R^2_{included}} \qquad \text{(Equation 4.3.2.2)}$$

The f^2 values below 0.02 is considered to have no effect, between 0.02 to 0.15 is considered as weak, between 0.15 to 0.35 is considered as medium, and values equal to or greater than 0.35 is considered as large effect (Hair et al., 2022). The values of f^2 determined through the analysis are shown in Table 9. The values show that confirmation has a weak effect (f^2 = 0.124) on perceived usefulness but it shows a large effect (f^2 = 0.672) on satisfaction. Perceived ease of use demonstrates a weak effect (f^2 = 0.045) on attitude but it has a large effect (f^2 = 0.665) on perceived usefulness. Similarly, Perceived usefulness shows a medium effect (f^2 = 0.279) on attitude but it has a weak effect (f^2 = 0.085) on intention to continue. Satisfaction has no effect on attitude (f^2 = 0.015) and intention to continue (f^2 = 0.018). Attitude has a weak effect (f^2 = 0.144) on intention to continue. Similarly, it can be seen that the newly added constructs like trust has a weak effect (f^2 = 0.044) on intention to continue whereas constructs like facilitating conditions (f^2 = 0.000) , government regulations (f^2 = 0.000) and price benefit (f^2 = 0.000) has no effect on intention to continue.

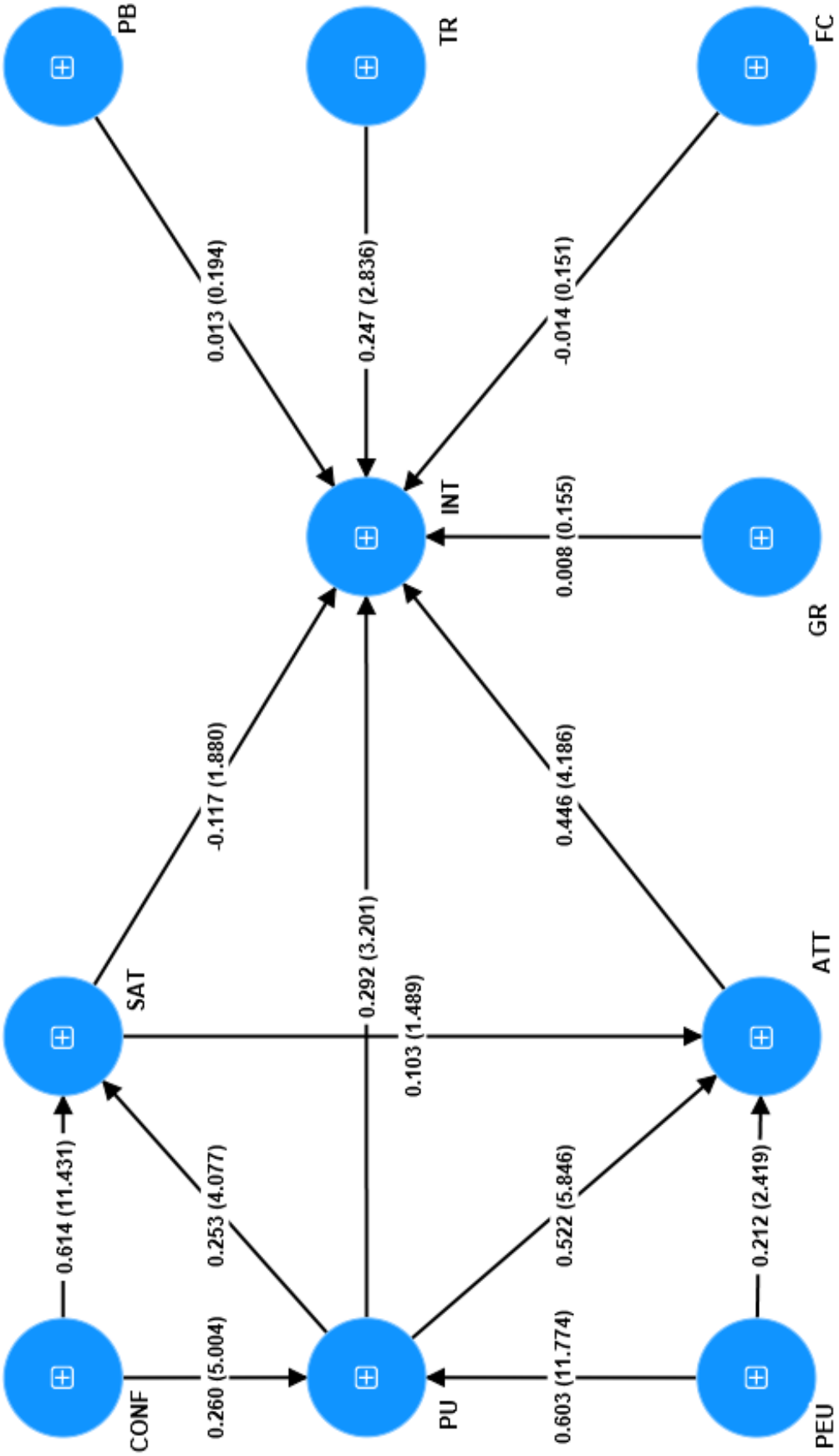

Figure 10: Structural Model Assessment(β and *t-values)*

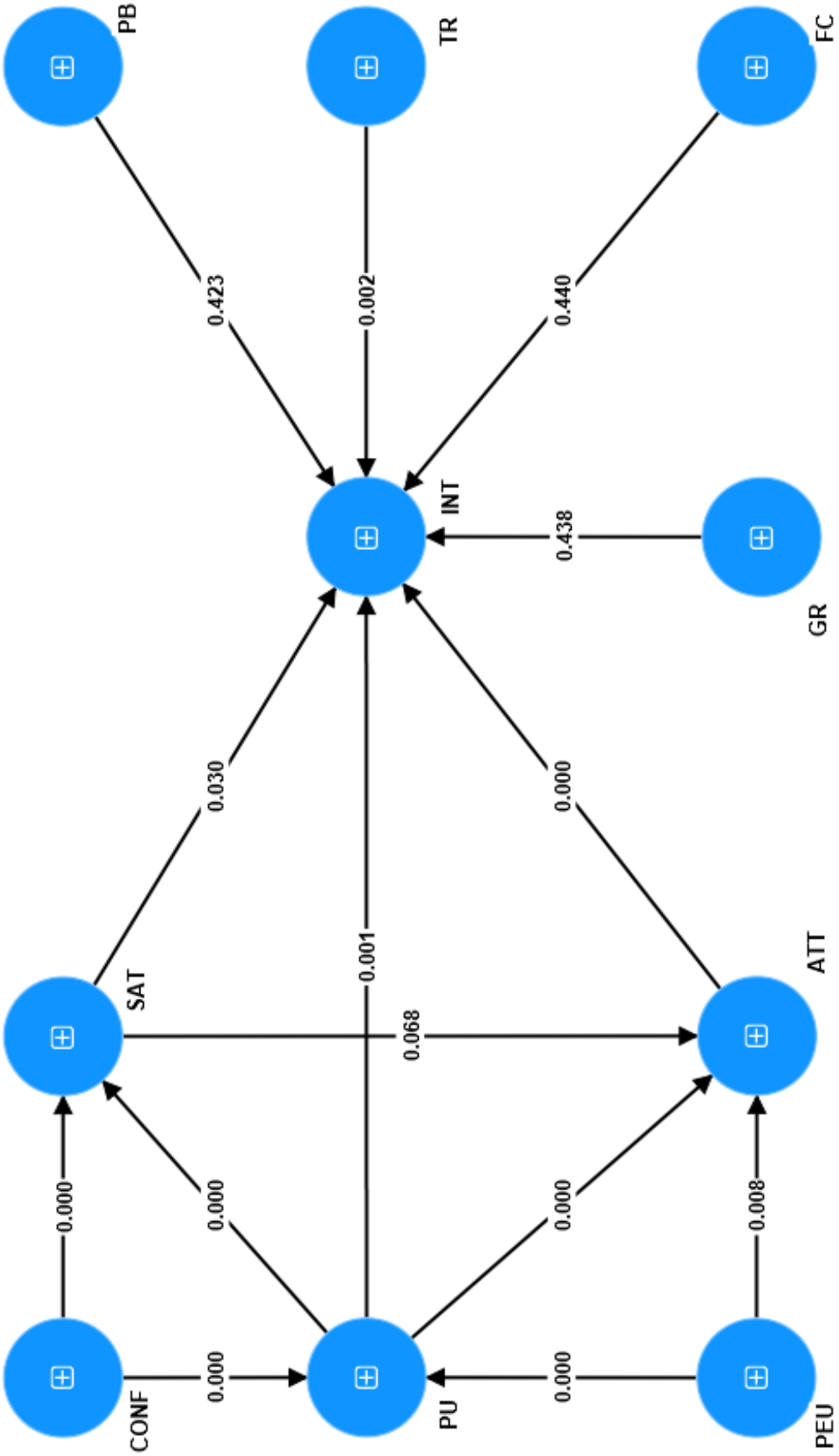

Figure 11: Structural Model Assessment (***p-values)***

Hypothesis Testing

The results of hypothesis testing showed that out of 14 hypotheses proposed, 9 of them were supported, but 5 of them were rejected. Among them, H1, H2, H3, H4, H5, H6, H7, H10, H12 were supported at a significance level of 5% whereas, H8, H9, H11, H13, H14 were rejected. The results obtained from the analysis are summarized in Table 9.

Table 9: Summary of Hypothesis Results

Hypothesis	Relationship	β	σ	t-values	f^2	VIF	p-values	Supported
H1	CONF→PU	0.260	0.052	5.004 *	0.124	1.318	0.000	YES
H2	CONF→SAT	0.614	0.054	11.431 *	0.672	1.449	0.000	YES
H3	PU→SAT	0.253	0.062	4.077 *	0.114	1.449	0.000	YES
H4	PU→INT	0.292	0.091	3.201 *	0.085	2.564	0.001	YES
H5	PU→ATT	0.522	0.089	5.846 *	0.279	2.312	0.000	YES
H6	PEU→PU	0.603	0.051	11.774 *	0.665	1.318	0.000	YES
H7	PEU→ATT	0.212	0.088	2.419 *	0.045	2.409	0.008	YES
H8	SAT→ATT	0.103	0.069	1.489	0.015	1.736	0.068	NO
H9	SAT→INT	-0.117	0.062	1.880	0.018	1.954	0.030	NO
H10	ATT→INT	0.446	0.106	4.186 *	0.144	3.497	0.000	YES
H11	PB→INT	0.013	0.067	0.194	0.000	2.302	0.423	NO
H12	TR→INT	0.247	0.087	2.836 *	0.044	3.534	0.002	YES
H13	FC→INT	-0.014	0.094	0.151	0.000	3.663	0.440	NO
H14	GR→INT	0.008	0.054	0.155	0.000	1.838	0.438	NO

** Significant Paths ($p < 0.05$)*

Looking at Table 9, it is seen that confirmation has a positive and significant influence upon perceived usefulness (β = 0.260, t = 5.004 and p = 0.000) and satisfaction (β = 0.614, t = 11.431 and p = 0.000) which shows that the results obtained are in accordance with the observations made by Susanto HT et al. (2016) for mobile payment services, and Daragmeh et al. (2021) for e-wallet systems. Similarly, perceived usefulness shows a positive and significant influence upon satisfaction (β = 0.253, t = 4.077 and p = 0.000), attitude (β = 0.522, t = 5.846 and p = 0.000) and intention to continue (β = 0.292, t = 3.201 and p = 0.001) which are also in accordance with the observations made by Ngubelanga and Duffett (2021) in mobile commerce platforms, Foroughi et al. (2019) in mobile banking services and Abdul-Halim et al. (2021) in e-wallet systems. Perceived ease of use has a positive and significant influence upon perceived usefulness (β = 0.603, t = 11.774 and p = 0.000) and attitude (β = 0.212, t = 2.419 and p = 0.008) which indicates that the results are similar with the observations made by Daragmeh et al. (2021) in e-wallet and Rahi et al. (2020) in internet banking. Satisfaction has no significant influence upon attitude

(β = 0.103, t = 1.489 and p = 0.068) which indicates that the results are not in agreement with the findings made by Franque et al. (2021) in mobile payment services. Attitude (β = 0.446, t = 4.186 and p = 0.000) and trust (β = 0.247, t = 2.836 and p = 0.002) have a positive and significant influence upon intention to continue which indicates that the results are in accordance with the findings of Rahi et al. (2020) and Hidayat-ur Rehman et al. (2021) in mobile banking.

However, satisfaction (β = -0.117, t = 1.880 and p = 0.030), price benefit (β = 0.013, t = 0.194 and p = 0.423), facilitating conditions (β = -0.014, t = 0.151 and p = 0.440) and government regulations (β = 0.008, t = 0.155 and p = 0.438) demonstrate no significant influence upon intention to continue which indicates that the results thus obtained is not similar with the observations made by the researchers in Tran et al. (2019), Abdul-Halim et al. (2021), Hidayat-ur Rehman et al. (2021) and Nugroho et al. (2019). Upon further exploration it has been found that construct like attitude seem to have a strongest influence upon continuous usage intention, followed by perceived usefulness and trust. And finally, it can be seen that the model explains 60.8% of the variation in intention to continue, which shows the explanatory power of the model to be moderate.

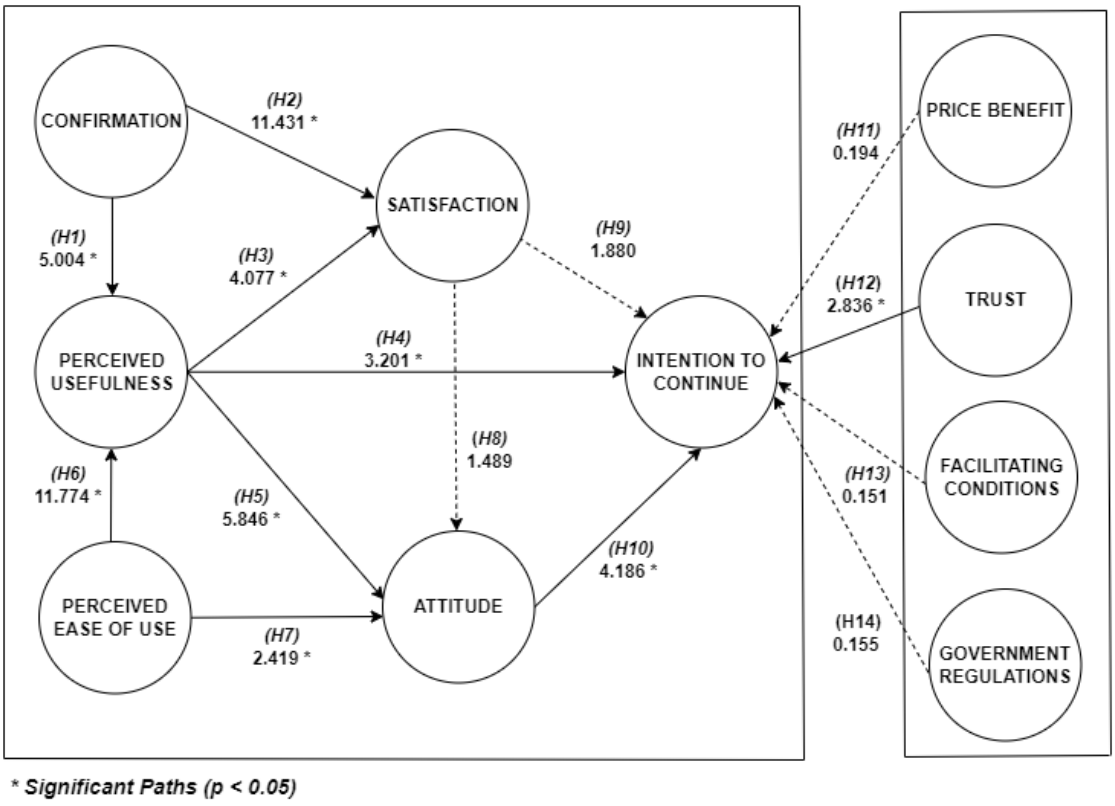

Figure 12: Research Framework with Hypothesis Results

4.4 Discussion

As found in this study, confirmation demonstrated a positive and significant relationship with perceived usefulness and satisfaction, which indicates that once users confirm that their initial expectation regarding the services associated with mobile payment is met, they will start to view the service as being useful to them. Additionally, they will also be satisfied from the use of those services. A positively significant relationship of perceived usefulness with satisfaction, attitude and continuance intention indicates that if users believe that mobile payment services are useful to them in various ways, those users will be satisfied and can develop a positive attitude regarding the continuous usage of them.

Similarly, a positively significant relationship of perceived ease of use with perceived usefulness and attitude indicates that if users find mobile payment services to be mentally effortless and user friendly, they start considering those services as being useful to them. Once users are comfortable with those services, and start considering those services as being useful to them, they will be open towards the prospect of further continuing the use of mobile payment services. Finally, a positively significant relationship of attitude with intention to continue indicates that once users develop a positive attitude towards mobile payment services, they are likely to continue the usage of those services.

On the contrary, the results obtained for the relationship of satisfaction with attitude and continuation intention was insignificant which indicates that given the present context, the mobile payment users within Kathmandu valley aren't continuing the usage of mobile payment services as a reason of the satisfaction obtained by using those services. When the association between contextual factors and continuation intention was explored, it was discovered that there was a positively significant relationship between trust and intention to continue, which indicates that in the present context, the mobile payment users within Kathmandu valley are continually using mobile payment services because they trust the currently existing systems and the services that is being offered by the service providers.

The relationship of price benefit, facilitating conditions and government regulation was not found to be significant with intention to continue which indicates that in the present context, price benefit offered by service providers in terms of cashback, discounts are not motivating people towards continuation of mobile payment services. Similarly, facilitating conditions like technological resources, necessary support and assistance from service providers and policies formulated by government are also not perceived by users as being good enough for supporting them towards continuation of mobile payment services. In the present context, even though some initiatives has been taken by Nepalese government like automation of its various internal systems like tax payment systems, increase in transaction limit on POS transaction, wallet transaction, mobile banking transaction, QR code

etc, the results obtained from this research study showed that those steps are also of not much significance in motivating people towards continuation of mobile payment services in the context of users within Kathmandu Valley.

CHAPTER FIVE : CONCLUSIONS AND RECOMMENDATIONS

5.1 Conclusions

Literature review of prior research studies clearly point to the fact that studies regarding the continuation intention of mobile payment services are scarce. Furthermore, the role of contextual factors in influencing the continuation intention has been explored by some previous researchers in their context. But in case of mobile payment services, the results given by contextual factors regarding continuation intention in the context of one country does not apply in different context of another country. Therefore, addressing the fact that the studies conducted on continuation intention is scarce, this study aimed to shed light on the role of contextual factors in influencing the continuation intention of mobile payment services in the context of users within Kathmandu Valley by using TCT framework.

The results obtained from the analysis show that most of the hypothesis formulated for the relationship between the constructs used in the TCT framework were supported except in case of relationship between satisfaction and attitude and that of relationship between satisfaction and intention to continue. In addition to it, the hypothesis formulated for the relationship of contextual factors with intention to continue was validated only in case of relationship between trust and intention to continue. However, the hypothesis formulated for the relationship of price benefit, facilitating conditions and government regulations with intention to continue could not be validated in the context of Kathmandu Valley.

Upon evaluation of results obtained by analyzing the mobile payment services continuation intention in context of Kathmandu Valley, it can be said that this research study has come up with the results that can add some value to the existing literature. For instance, contextual factors like price benefit which demonstrated a positively significant influence on continuation intention of e-wallet in studies conducted by Abdul-Halim et al. (2021) was not verified in the context of Kathmandu Valley. Similarly, government regulation which showed a positively significant effect on continuation intention of technology based innovation in studies conducted by Nugroho et al. (2019) was also not verified in the context of Kathmandu Valley. Therefore, from these results we can say that the results given by contextual factors for the continuation intention of mobile payment services can vary by context.

5.2 Recommendations

1. This research study has considered only few contextual factors upon which the explanatory power of the model was found to be 60.8%. Future researchers can evaluate the explanatory power of the model by including other contextual factors as well.

2. The moderating effect of demographic variables on continuation intention of Mobile Payment Services can also be explored by future researchers.

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A Questionnaire I - General Demographics

Questionnaire on Continuous Usage Intention of Mobile Payment Services

Dear Respondents,

The purpose of this survey is to investigate the willingness of users to continue the usage of Mobile Payment Services via Mobile Payment apps like e-Sewa, Khalti, Connect IPS, IME-Pay, Mobile Banking, Prabhu-Pay, I-Pay.

Screening Question:

Have you used any Mobile Payment Services before? (At least Once)

a. Yes

b. No

If your answer is "Yes", Please complete the questionnaire.

If your answer is "No", you do not have to complete the questionnaire. Thank you for your willingness to participate in this survey.

Response Questions:

Q No 1. Gender

i. Male

ii. Female

Q No 2. Age-Group

i. Less than 18 Years

ii. 18-23 years

iii. 24-35 years

iv. 36-42 years

v. 43-50 years

vi. 50 Years and above

Q No 3. Permanent Address

i. Inside Kathmandu Valley

ii. Outside Kathmandu Valley

Q No 4. Educational Level

i. High School

ii. Diploma

iii. Bachelor Level

iv. Masters Level

v. PHD

vi. Other

Q No 5. Profession

i. Student

ii. Service Holder

iii. House Maker

iv. Business Person

v. Retiree

vi. Other

Q No 6. Marital Status

i. Single

ii. Married

iii. Widowed

iv. Separated

Q No 7. Monthly Income

i. Less than Rs. 25000

ii. Between Rs 25000-Rs 50000

iii. Between Rs 50000-Rs 75000

iv. Above Rs 75000

v. Other

Q No 8. Have you started using Mobile Payment Services before COVID-19 Pandemic or after pandemic?

i. Before COVID-19 Pandemic

ii. After COVID-19 Pandemic

Q No 9. How long it has been you have started using Mobile Payment Services?

i. Less than a Year

ii. 1-2 Years

iii. 3 -5 Years

iv. Above 5 Years

Q No 10. Which app do you use for making payments via Mobile phones? (You can tick on more than one option)

i. E-Sewa

ii. Khalti

iii. Connect IPS

iv. IME-Pay

v. Mobile Banking (Individual Bank's app)

vi. Prabhu-Pay

vii. I-Pay

viii. Other

Q No 11. How often do you use Mobile Payment Services?

i. Daily

ii. Few times a week

iii. Few times a month

iv. Only sometimes

Q No 12. On an average how much do you spend on a monthly basis while making payments through Mobile Payment apps?

i. Less than Rs 1000

ii. Between Rs 1000- Rs 5000

iii. Between Rs 5000-Rs 25000

iv. Between Rs 25000-Rs 50000

v. Above Rs 50000

Q No 13. Mostly for what purposes do you use Mobile Payment Services? (You can tick on more than one option)

i. Bill Payment (Internet/TV, School/College fees, Insurance, Electricity, Water, Landline, Post Paid)

ii. Mobile Top-up

iii. Fund Transfer

iv. Ride Sharing (Pathao, Tootle, InDriver)

v. Payment for Food and Beverage Services (Foodmandu, Bhoj deals etc)

vi. Ticket Booking (Movies, Airlines, Hotel, Bus)

vii. Payment for Groceries and Everyday Items (QR Payment)

viii. Other

B Questionnaire II - Constructs Used in the Study

List of items by construct

Constructs		Measurement Items	Source
Confirmation	CONF1	My experience with using Mobile Payment Services was better than what I expected.	Bhattacherjee (2001b)
	CONF2	The service level provided by the Mobile Payment Service providers was better than what I expected.	
	CONF3	Overall, most of my expectations from using Mobile Payment Services were confirmed.	
Perceived Usefulness	PU1	Using Mobile Payment Services enables me to do payments more quickly.	Venkatesh and Davis (2000)
	PU2	Using Mobile Payment Services makes the handling of payments easier.	Devaraj et al. (2002)
	PU3	Overall, I believe that Mobile Payment Services is more useful than traditional ways of doing transactions.	Yang et al. (2021)
Perceived Ease of Use	PEU1	I find it easy to use Mobile Payment Services to do what I want.	Venkatesh and Davis (2000)
	PEU2	Interaction with Mobile Payment Services does not require a lot of mental effort.	
	PEU3	My interaction with Mobile Payment Services is clear and understandable.	
	PEU4	Learning how to use Mobile Payment Services is easy for me.	Yang et al. (2021)

List of items by construct (contd.)

Construct		Measurement Items	Source
Perceived Ease of Use	PEU5	It is easy for me to remember how to make payments via Mobile Payment apps.	Yang et al. (2021)
Satisfaction	SAT1	I am satisfied with the use of Mobile Payment Services.	Bhattacherjee (2001b)
	SAT2	I am pleased with my experience of using Mobile Payment Services.	
	SAT3	Overall, I am satisfied with the Mobile Payment Services.	
Attitude	ATT1	I think that using Mobile Payment Services is a good idea.	Oh et al. (2003)
	ATT2	I think that using Mobile Payment Services is beneficial.	Yang and Yoo (2004)
	ATT3	I feel that the use of Mobile Payment Services will be an inevitable trend.	NGUYEN et al. (2021)
	ATT4	In my opinion, it is desirable to use Mobile Payment Services.	
Intention to continue	INT1	I intend to continue using Mobile Payment Services rather than discontinue its use.	Bhattacherjee (2001b)
	INT2	My intentions are to continue using Mobile Payment Services for making payments rather than manual processing or any alternative means.	
	INT3	I will strongly recommend other people to use Mobile Payment Services.	Abdul-Halim et al. (2021)
	INT4	I will keep using Mobile Payment Services as regularly as I do now.	
	INT5	If I could, I would like to continue the use of Mobile Payment Services as much as possible in the future.	Daragmeh et al. (2021)

List of items by construct (contd.)

Construct		Measurement Items	Source
Facilitating Conditions	FC1	I am continuing the use of Mobile Payment Services because I have the necessary support and assistance to use Mobile Payment Services.	Yang et al. (2021)
	FC2	I am continuing the use of Mobile Payment Services because I have the financial and technological resources that is required to use Mobile Payment Services.	
	FC3	I am continuing the use of Mobile Payment Services because my service provider facilitates the use of Mobile Payment Services.	
	FC4	I am continuing the use of Mobile Payment Services because Mobile Payment Services is compatible with other technologies I use.	Venkatesh et al. (2012)
Price Benefit	PB1	I am continuing the use of Mobile Payment Services because they are reasonably priced.	Venkatesh et al. (2012)
	PB2	I am continuing the use of Mobile Payment Services because at the current price they provide a good value.	
	PB3	I am continuing the use of Mobile Payment Services because Mobile Payment apps offer various discounts and cash back.	Abdul-Halim et al. (2021)
	PB4	I am continuing the use of Mobile Payment Services because I save money when I pay through Mobile Payment apps.	

List of items by construct (contd.)

Construct		Measurement Items	Source
Trust	TR1	I am continuing the use of Mobile Payment Services because Mobile Payment apps meet my interests.	Abdul-Halim et al. (2021)
	TR2	I am continuing the use of Mobile Payment Services because Mobile Payment apps have features as promised by the providers.	
	TR3	I am continuing the use of Mobile Payment Services because I trust that the transactions carried out through Mobile Payment apps is secure and private.	Yang et al. (2021)
	TR4	I am continuing the use of Mobile Payment Services because I believe that my personal information will be kept confidential.	
	TR5	I am continuing the use of Mobile Payment Services because I believe that in case of any issue, the Mobile Payment Service provider will provide me the required assistance.	
	TR6	I am continuing the use of Mobile Payment Services because I believe that the Mobile Payment Service providers follow consumer laws.	
Government Regulations	GR1	I am continuing the use of Mobile Payment Services because the government has policies that encourage and promote the use of Mobile Payment Services.	Chong et al. (2010)

List of items by construct (contd.)

Construct		Measurement Items	Source
Government Regulations	GR2	I am continuing the use of Mobile Payment Services because the government has good laws and regulations that support the use of Mobile Payment Services.	Chong et al. (2010)
	GR3	I am continuing the use of Mobile Payment Services because the government has taken steps to promote the use of Mobile Payment Services.	
	GR4	I am continuing the use of Mobile Payment Services because the internet infrastructure and facilities such as bandwidth is sufficient for Mobile Payment Services.	

Continuous

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