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**Underpinning Motives and Outcomes of Consumer Decision-making in
the Wearable Sports Technology Products Market**

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ABBREVIATIONS:

AD: Advertising
AVE: Average Variance Extracted
BOS: Bristol Online Survey
CB-SEM: Covariance-Based SEM
CFA: Confirmatory Factor Analysis
Cog: Cognition
CTA-PLS: Confirmatory Tetrad Analysis For PLS-SEM
CR: Composite Reliability
EFA: Exploratory Factor Analysis
FCB: Foote, Cone, and Belding
HBM: Health Belief Model
HI: Health Issues
HTMT: The Heterotrait-Monotrait Ratio
IT: information technology
IoT: Internet of things
P: Purchase
PI: Purchase Intention
PLS: Partial Least Squares
PLS-SEM: Partial Least Squares SEM
R²: Coefficient of Determination
SEM: Structural Equation Modelling
SmartPLS: Smart Partial Least Squares
S-O-R: Stimulus-Organism-Response
SPSS: Statistical Package for The Social Sciences
SWAM: Smart Wearables Acceptance Model
TAM: Technology Acceptance Model
TPB: Theory of Planned Behaviour
TR: Technology Readiness
TRA: Theory of Reasoned Action
TRAM: Technology Readiness and Acceptance Model
TOL: Tolerance
UTAUT: Unified Theory of Acceptance and The Use of Technology
WOM: Word of Mouth
VIF: Variance Inflation Factor
WSTP: Wearable Sports Technology Product

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Abstract

The next enormous trend in the technology domain following on from computers, laptops, tablets and smartphones is predicted to be in the market of wearable sports technology products (WSTPs), with analysts expecting this market to be worth over \$150 billion by 2026 (Cheng & Mitomo, 2017). Despite the continued growth in the WSTP market, the sales of WSTPs faces vast challenges if they are to increase. To date, there is no reliable evidence for how to motivate and increase consumer purchase behaviour. This indicates that more research is needed on potential consumers' intentions leading to actual purchase behaviour in order to increase sales of WSTPs. These products have been broadly applied in the fields of sports, healthcare and individual communications, and are often associated with creativity, innovation and even novelty. A number of studies has focused on WSTPs using several models related to technology, yet few have examined the role of the marketing communication strategy as the external stimulus in this market. From this perspective, the study seeks to remedy these problems by hypothesizing a model encompassing motives, marketing communication, cognition, purchase intentions and actual purchase behaviour.

A review of the literature and empirical theories, including the theory of reasoned action (Fishbein & Ajzen, 1975), the theory of planned behaviour (Ajzen, 1985, 1991), the technology acceptance model (Davis, 1989), the unified theory of acceptance and the use of technology (Venkatesh et al., 2003) followed by the technology readiness and acceptance model (Lin et al., 2007) and the stimulus-organism-response paradigm (Mehrabian & Russell, 1974), was initially undertaken to confirm the relevance of the study. The methods used to examine this study integrated the triangulation approach of mixed methods research. This informed the subsequent examination of data from 15 interviews (12 consumers and 3 marketers), leading to the development of a questionnaire. An online questionnaire was posted via social media and other social

networks for pilot testing and collected in person, resulting in 301 samples. The responses were analysed by using SPSS software, while structural equation modelling (SEM) was employed and smart partial least squares (Smart PLS) utilised to identify specific constructs and path models. Seven constructs were identified, including IT innovation, health issues, word of mouth, advertising, cognition, purchase intentions and actual purchases. Two full mediation and four complementary mediation effects were also confirmed. A final stage involving six structured face-to-face interviews was organized to examine the reliability and validity of the outcomes of consumer behaviour decision-making in the WSTP market.

The contribution of this study is related to the understanding of the constructs and mediating effects that marketers will apply to their marketing strategies, based on this model association with motives, marketing communication, cognition, purchase intentions and actual purchase behaviour in the WSTP context. It also facilitates the improvement of purchase velleity and supports marketers in targeting consumers in different market segments. Furthermore, this research can also enlighten WSTP marketers so as to exploit the mediators in the decision-making process in order to eventually accomplish the buying goal of consumers. In light of the findings, the study finishes by reviewing the issues and implications for academics, researchers and practitioners.

Keywords: wearable sports technology products, consumer decision-making, motive, actual purchase behaviour, SPSS, SEM, SmartPLS, the mediation effect

PART 1. INTRODUCTION

CHAPTER 1 Introduction

1.1 Chapter overview

The chapter introduces the key features of the study, providing an overview of the following: the rationale for the study and research questions; the context of the WSTP market, consumer behaviour, decision-making and relationships with motives, marketing communication, cognition and actual purchase behaviour in the literature; an outline statement of the research objectives associated with the methodology on which the research is based; and confirmation of the specific research hypotheses developed for the study.

1.2 Introduction to the study

This study, which is concerned with the determinants of motives, marketing communication, cognition, purchase intentions during the decision-making process, and actual purchase behaviour, is centred on the following overall aim:

To investigate the underpinning motives and outcomes of consumers' decision-making in the WSTP market.

Drawing on the literature, the study starts by investigating the context of the WSTP market. Consumer behaviour and the relationship between cognition and decision-making are subsequently explored, along with a critical assessment of relevant models, after which the determinants of motives and marketing communication in the literature are detailed. Informed by the literature review, the nature of methodology and science in

marketing is discussed. By acknowledging recommendations emanating from the relevant scientific arguments, a statement of methodology for the study is provided.

This integrates a range of research philosophies and strategies, which is reflected in the data collection and analysis methods applied. Employing pragmatism and realist philosophies, the study embraces abductive research approaches and applies strategies based on grounded theory, case analysis and the use of survey instruments.

Next, the initial collection and analysis of a small sample size of 15 interviews (12 consumers and three marketers) are detailed. The results are then used as the basis for observing the development of a hypothesized model, which was assessed following a pilot test amongst 16 respondents. Following changes to the online survey instrument, a questionnaire, which was administered to a sample population of 301, is presented, and the data from 301 responses were subject to SmartPLS analyses using SEM. Utilising a triangulation method, the study seeks to validate the findings of this analysis, followed by a discussion of the findings and their implications, ending with a summary and conclusions resulting from the research.

1.3 Rationale for the study

The rationale for the research is derived from several sources. Saunders et al. (2016, p. 5) define research as “a process that people undertake in a systematic way in order to find out things, thereby increasing their knowledge”. In other words, research should develop from logical relationships, beliefs, methods, activity and involvement; hence, the researcher’s own beliefs and feelings are valuable. As such, the study can be seen as having developed from the following:

- The author’s background is related to health medicine; she has also gained enormous benefits from participating in sports and fitness on a personal basis. Therefore, integrating sports and health into research topic was inevitably of interest to her.

- The sports industry has become an important division of economic activity due to the growth in revenue including sports leagues, advertising, sponsorship, broadcasting rights, event management, sports-related clothing and other products. The sports industry, unlike in Western countries, is declining in Taiwan due to the decreasing size of the audience involving in sports leagues and lack of participatory habits in sports as well. The Taiwan government has therefore provided the author with the opportunity to investigate the sports industry in view of its dynamic development.

- Selecting the WSTP market is based on the fact that Taiwan has a mature health medical system, which has led to extend life expectancy, and is anticipating a super-ageing society, meaning that an emphasis on health issues will be a core subject in future research. Without doubt, the more exercise you take, the more benefits gained for your health. With technology advancements, taking exercise could be an efficient way in which WSTPs offer the best solution. The trade volume of sporting merchandise produced by multinational companies, for example, Nike, Adidas and Reebok, has a specific presence in world trade. These sporting merchandise companies have launched their own WSTPs or alternative apps, such that WSTPs can be classified as among the sporting merchandise created in this industry. Taiwan is an island which is home to various technologies, as well as the Taiwan Semiconductor Manufacturing Company Limited (TSMC), which is the world's largest semiconductor foundry, and Garmin, which is one of the leading worldwide providers of WSTPs, whose founder is from Taiwan as well. Based on such solid foundations, Taiwan is expected to develop the multifeatures of WSTPs in the future. In recent years, there has been an increasing interest in investigating WSTPs, with a focus on the technology perspective, while, more recently, health-related findings have been reported in the literature and practiced in the WSTP market. Most studies on WSTPs have only been carried out in relation to consumer behaviour and no reliable evidence has been produced. We assume that there are high expectations for WSTPs in several areas of the sports industry. Some studies report that health and fitness functions are not the only rationale for using WSTPs, but they play a key role in this market in the future. Recent evidence also indicates that well-known innovative firms, Google and Apple, for

example, are making efforts to add health-related functions to their WSTPs (Mitrasinovic et al., 2015; Wu et al., 2014). As such, finding the best strategies for the management of consumer behaviour is vital.

1.4 Research aim

Followed by the overall aim on section 1.1, the aim of this study is to discover how consumer behaviour are changed in the WSTPs market in terms of decision-making process and to investigate the outcomes that lead a consumer to make a purchase decision. This study therefore seeks to remedy this issue by applying triangulation as found in mixed methodology, in order to understand what consumers need and want and how to motivate them to buy. This may help the WSTP industry to pursue the right marketing strategies, while understanding consumer behaviour could also aid companies to develop WSTPs which meet consumers' needs.

1.5 Research questions:

To further understand this topic under investigation, this study will seek to answer the following questions:

Question 1: What changes in the nature of consumer behaviour significantly affect the decision-making process when adopting WSTPs?

Question 2: In what sequence does marketing communication influence consumers in forming their cognition?

Question 3: What are the features of WSTPs that are perceived as opportunities for developing marketing strategies, based on consumers' perspectives, resulting in the act of purchasing a WSTP?

1.6 Research objectives

In the context of the five key themes of this study (motives, marketing communication, cognition, purchase intention and actual purchase intention), the objectives of the study are as follows:

- To explain why WSTP research needs to be undertaken in relation to the theory on adoption found in the academic and practitioner literature.
- To draw on existing reviews of the consumer behaviour literature involving a critique of the main models and existing subjects.
- To examine the decision-making literature and establish and understand motivational determinants by utilising a grounded technique.
- To classify statistically significant determinants of the hypothesized model by using multivariate techniques and structural equation modelling (SEM) and applying smart partial least squares (SmartPLS) for confirmatory factor analysis in order to verify the findings.
- To triangulate the mixed methods employed in this study and validate the quantitative findings by using structured interviews.
- To highlight opportunities for further research in areas relating to the main findings of the study, that is, the determinants motive, marketing communication, cognition, purchase intention and actual purchase behaviour, as well as research methodology.

1.7 The context of WSTPs

WSTPs are among the most personal and user-friendly IT devices (Mills et al., 2016). IDC (2017) highlighted that the worldwide wearables market in 2017 reached 26.3

million units; by 2026, it is predicted to generate over \$150 billion (Cheng & Mitomo, 2017; Hayward et al., 2016; Wu & Chang, 2016). Some examples from this field include studies undertaken on wearable glasses and wearable watches (Kumar & Venkateshwarlu, 2017; Liu & Guo, 2016), as well as fitness trackers (Coorevits & Coenen, 2016).

Nevertheless, there has been a lack of literature analysing the relationship between motives, marketing communication, cognition, purchase intention and actual purchase behaviour in the sector in recent years. Most of the available marketing and consumer behaviour literature explores WSTPs from the perspective of perceived value (Cheng & Mitomo, 2017; Hsiao & Chen, 2018; Yang et al., 2016). A few academic studies have been undertaken in related areas, for example, the adoption of new products (Chao et al., 2012; Huh & Kim, 2008; Jeong et al., 2017) and product knowledge (Vanwesenbeeck et al., 2017).

Over the past decade, there has been a dramatic increase in the literature on WSTPs associated with IT innovation, but far too little attention has been paid by marketing academics. Recent developments in the field of WSTPs have led to a renewed interest in consumers' needs and their willingness to adopt a WSTP, as follows: competing with online social groups (Kaewkannate & Kim, 2016; Karapanos et al., 2016; King et al., 2014), direct social support (Karapanos et al., 2016) and social confirmation (Kaewkannate & Kim, 2016).

Traditionally, WSTPs are associated with the adoption of new products or technology (Chao et al., 2012; Huh & Kim, 2008; Jeong et al., 2017), but the changes experienced in the WSTP market over the past decade remain unprecedented. It is surprising that little is known about marketing literature and it is not clear what factors are related to the decision-making process. One example of research in this area has been Google Glass, the first wearable glasses to attract significant public attention, which was in the end unsuccessful (Choi & Kim, 2016; Hunn, 2015). Yang et al. (2016) attempted to show that marketers should consider various strategies for increasing consumers' purchase intention in the WSTP market.

Therefore, this study will review the research conducted on the WSTP context. Further, it is hypothetically productive for marketing academics to address recent industrial and business changes. As such, the study critically examines both the marketing field and consumer behaviour. The aim of the study is to inspect a range of specific issues related to motives, marketing communication, cognition, purchase intention and actual purchase behaviour. It is expected the study will seek to resolve these problems by analysing the literature on marketing strategy and consumer behaviour in the WSTP market.

1.8 Consumer decision-making

With the Internet having become a central part of our daily life, the way in which a consumer seeks information has changed. Pre-purchase searching plays a vital role in the decision-making stage and actual purchase behaviour (Mir, 2014a; Robinson & Doss, 2011). During the pre-purchase stage, a consumer searches for information to evaluate the alternatives and makes a decision, which may result in an actual purchase. The consumer makes a decision based on both internal (previous experience) and external sources (friends, family, advertising, salespeople, the Internet and independent research reports) (Babin & Harris, 2015; Leon et al., 2008, p. 449; Lin et al., 2007; Soh, Rezaei, et al., 2017; Tajvidi & Karami, 2015), such that the relationship between motives and purchase intention is among the most important factors in decision-making. In order to create an appropriate marketing strategy, marketers should therefore examine how consumers proceed through the decision-making process before they act.

The intensification of the relationship between purchase intention and actual purchase behaviour has been addressed, for instance, by Fishbein and Ajzen (1975), who proposed the theory of reasoned action (TRA), in which intentions can be the essential predictors of people's actual behaviour, while, as an extension of the TRA, Ajzen (1985, 1991) has put forward the theory of planned behaviour (TPB). In terms of adopting technology, Davis (1989) indicates that the technology acceptance model (TAM) explains why consumers accept or discard new technology, whereas Venkatesh et al. (2003) introduced the unified

theory of acceptance and the use of technology (UTAUT), which added critical moderators (gender, age, voluntariness and experience) to the model. In the WSTP market, many studies apply the UTAUT (Hwang et al., 2016; Moon et al., 2016; Seol et al., 2017). The profile of consumer decision-making research has therefore evolved in a highly distinctive way.

Yet, others have expressed concern about the apparent failure of the UTAUT (Jackson et al., 2013). One observer has already drawn attention to the paradox in that marketers should manage and understand the relationship between decision-making and actual purchasing (Rawwas et al., 2005). As such, Mehrabian and Russell (1974) established the stimulus-organism-response (S-O-R) paradigm in relation to the environment (the stimulus) leads to an internal effect on an individual (the organism), which in turn drives their behavioural response (the response) (Abarbanel et al., 2015; Chang & Jai, 2015; Wu et al., 2013; Zhu et al., 2016), in which an external stimulus is an important component in the construction system of the decision-making process and plays a key role in forming the internal effect. That is, the external stimulus in the case of marketing communication determines the internal organism, cognition, and its role in consumer decision-making.

In recent years, there has been growing interest in WSTPs, but there has been little discussion about consumer decision-making, which makes it an appropriate topic for academic analysis. After assessing the related theoretical background and developing a mind map (Figure 1, p. 9), it was found that there is a lack of research which comprehends all aspects of consumer behaviour including the external and internal stimulus in the WSTPs context. One major issue in related theories shows a persuasive weight on the technology aspect. That shows a gap in the literature of marketing communication for consumer decision-making of purchasing a WSTP. In a highly competitive business environment, there has been little discussion about marketing communication applying in the WSTPs market. The importance of consumer behaviour and purchase intention is well documented. Criticism that the process of consumer decision-making involving WSTPs and marketing determinants has attracted little attention from academics is valid,

however. Thus, this study seeks to overcome this criticism. The study, therefore, will examine the relationship between motives, marketing communication, and purchase intention leading to actual purchases and fill the literature gap.

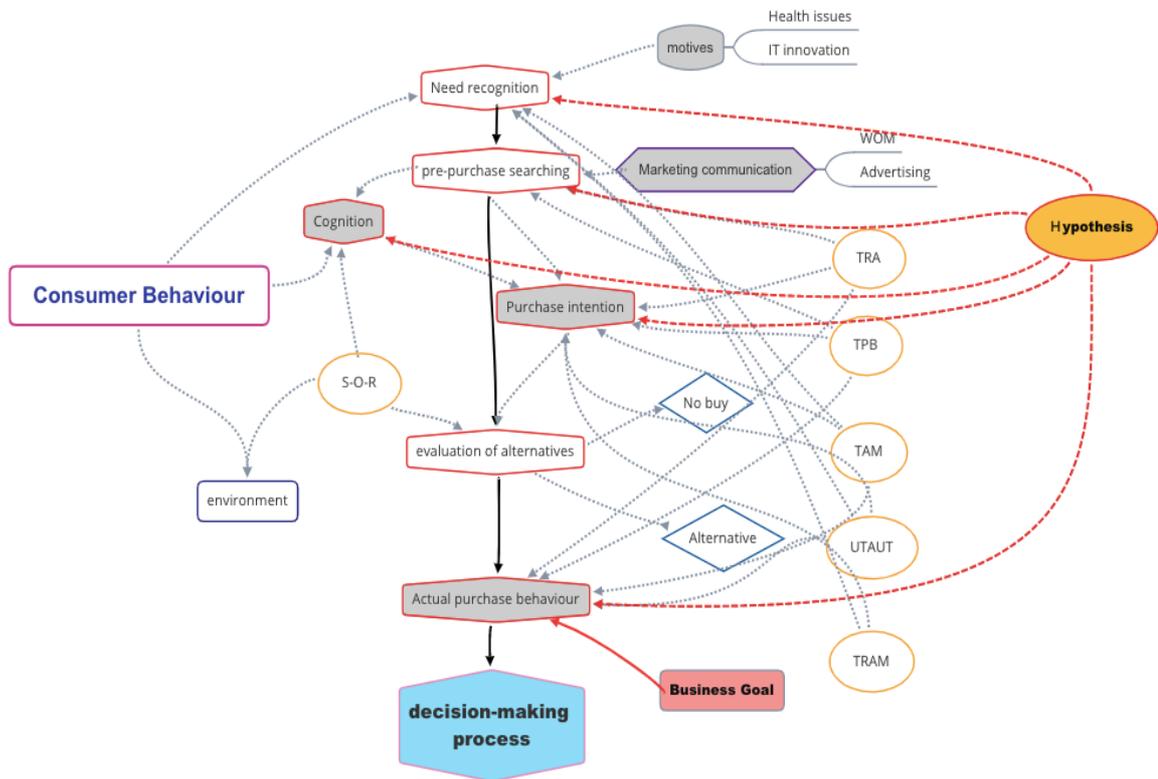


Figure 1. Mind map

1.9 Motives and consumer behaviour

Motives are generally acknowledged as having a fundamental role if a marketing strategy is to lead to actual purchases. The nature of marketing strategy has been broadly discussed in a number of studies on price, promotion, product, distribution channels and market segmentation, among others (Babin & Harris, 2015; Leon et al., 2008, p. 449). The WSTP context is a new, novelty domain, with the appearance of a relational pattern in marketing, which emphasizes the importance of technology adoption associations, resulting in a wide range of studies involving several models including the TRA, the TPB, the TAM and the

UTAUT. A review of the literature shows that IT innovation is considered as being able to strengthen the relationship with purchase intention in the WSTP market.

To integrate various marketing strategies based on the literature, interviews and observations, the evidence indicates that advertising and word of mouth (WOM) are critical in the relationship between motives and purchase intention. The unique character of WSTPs, that is, they gather physical data in order to either improve fitness performance or increase the physical condition of the human body, has been confirmed by numerous researchers (Anzaldo, 2015; Bonfiglio & De Rossi, 2011; Chan et al., 2012; Jensen et al., 2015; Karapanos et al., 2016; Seshadri et al., 2017).

This study will, therefore, examine the determinants of motives in the relationship with consumer decision-making by undertaking research in relation to purchasing intention and actual purchase behaviour. Thus far, the study has selected four critical determinants as the motives in the overarching hypothesis.

1.10 The nature of marketing communication

The subsequent stage is information-searching. In marketing strategies, a communication strategy plays three key roles: offering needed information and advice, convincing target customers of the merits of a specific product, and encouraging them to take action at specific times (Khan et al., 2013). As such, a successful product could represent the benefit which can be communicated visibly to the target market (Khan et al., 2013). In the nature of promotion in the marketing mix, marketing communication indeed refers to a specific combination of tools used by a company to persuasively communicate consumer value and build consumer relationships (Todorova, 2015; Yeshin, 2012).

Following the recent growth in marketing communication in the digital era, the communication form between firms and consumers has been elevated to a new platform (López & Sicilia, 2014). As marketing represents the anticipation of information, it is

necessary for decisions to be based on existing, relevant and accurate communication when approaching the marketplace (Yeshin, 2012). The study therefore sets out to examine the determinants of marketing communication adopted for WSTPs. In this framework, the study is based on the marketing communication model in order to adopt variables relating to the development of information-searching within the decision-making process.

1.11 Cognition behaviour

Following the process of purchase intention, cognition refers to the mental constructions and processes of experience and memory and stimuli from the external environment (Chang et al., 2014; Kim et al., 2009; Peter & Olson, 2010). Several theoretical perspectives have contributed to this discussion, including on the presence of three cognitive concepts (Hamilton, 2015; Peter & Olson, 2010), interpretation processes (Costermans & Fayol, 2014; Kendeou et al., 2014; Peter & Olson, 2010), consumers' perceptions, attitudes and judgements (Chen, Phelan, et al., 2016), and the S-O-R model (Floh & Madlberger, 2013; Wang & Chang, 2013; Zhang et al., 2015).

In addition to its neurological function, the cognition system has a relationship with decision-making according to many researchers (Dabholkar et al., 2009; Forgas, 2008; Peter & Olson, 2010). It has been argued that humans' rational decisions are not only consequential from a cognitive perspective (Fang, 2014). In order to address the complication of such measures, there is a strongly held view that marketers try to stimulate consumers' cognition by using specific external information to inform decision-making (Park et al., 2005; Peter & Olson, 2010). To address these apprehensions, this study examines the determinants of cognitive motives in their relationship with purchase intention by undertaking research.

1.12 Actual purchase behaviour

The end goal of marketing is that consumers act by purchasing specific products that marketers want to sell. This has led to the emergence of a relational pattern in actual purchase behaviour, which includes “purchase”, “alternatives” and “not to buy”. A consumer makes a purchase decision based on those three circumstances. Purchase intention behaviour involves a customer’s psychological, physiological and emotional activities (Lee & Lee, 2015; Wu & Chang, 2016; Wu et al., 2013). Given the nature of actual purchase behaviour, several concerns may affect the consumer’s purchase decision-making. These include product qualities and prices (Hsu & Lin, 2015a) and more attractive alternatives (Bansal et al., 2005; Hsu & Lin, 2015b; Kuo et al., 2013), while several attempts have been made to address uncertainties about innovative products (Bansal et al., 2005; Gupta & Ogden, 2009; Heidenreich & Kraemer, 2016; Kleijnen et al., 2009) and privacy concerns (Mani & Chouk, 2017; Xu, 2015).

In relation to the purchase decision of “not to buy”, much research has been conducted in three key areas: rejection, postponement and opposition (Cornescu & Adam, 2013; Heidenreich & Kraemer, 2016; Kleijnen et al., 2009). Piwek et al. (2016) argue that WSTPs exist within a “grey area” with consumer safety as one of the concerns. To address these concerns, this study will discuss the determinants of actual purchase behaviour in the hypothesis. The study will also investigate the mediation effect within the hypothesis on the consumer decision-making process.

1.13 Research problem

A review of the content of reports and websites has shown that WSTPs represent the next trend in the technology domain. The academic literature on consumer behaviour and the adoption of WSTPs emphasizes that IT innovation in this field is behind the positive impact on consumer behaviour. However, few arguments has been presented concerning resistance towards innovation (Kleijnen et al., 2009; Yu, 2012). A number of studies has

approached WSTPs via several models in relation to purchasing intention and actual purchase behaviour. According to the consumer behaviour literature, the decision-making process, leading to an actual purchase, is contingent on the relationship between motives, cognition and purchase intention.

The literature has thus far mainly considered motives and marketing communication as external stimuli, which affect cognition and intention and influence purchase decisions, particularly when other models are involved. Against this backdrop, this study initially sets out to explore how the marketing of WSTPs influences the decision-making process from a consumer's perspective. It then highlights the significance of intention within this model, identifying the basis upon which it is built.

The study identifies the determinants of the decision-making process, including motives, marketing communication, cognition, purchase intention and actual purchase behaviour. It is anticipated that this study will not only address issues relating to technology adoption but also help to identify the outcome of purchase intentions in the WSTP market during each of the five research stages.

1.14 Overview of research methodology

A multi-phase methodology has been applied in order to achieve the objectives of this study, encompassing research philosophies, approaches, method, strategies, time horizons and research design and process. The focus of this study is mixed methods research in the context of primary research. Nonetheless, literature on evidence synthesis has been explored in order to learn about any lessons of relevance to primary research.

A vital component of the study draws upon the pragmatist approach, which is the philosophy of choice for mixed methods (Bishop, 2015; Creswell, 2010; Frels & Onwuegbuzie, 2013; Hesse-Biber, 2015; Saunders et al., 2016; Sreejesh & Mohapatra, 2014). The claim that research in marketing should engage additional theories has resulted

in components of realism and positivism being merged into the study. This helps in connecting the gap between practitioners and scholars and aids in triangulating the methods used. Figure 2 (below) shows the structure of this thesis research design. Starting from research questions, the process involves five phases and the finding at the last section reflects research questions.

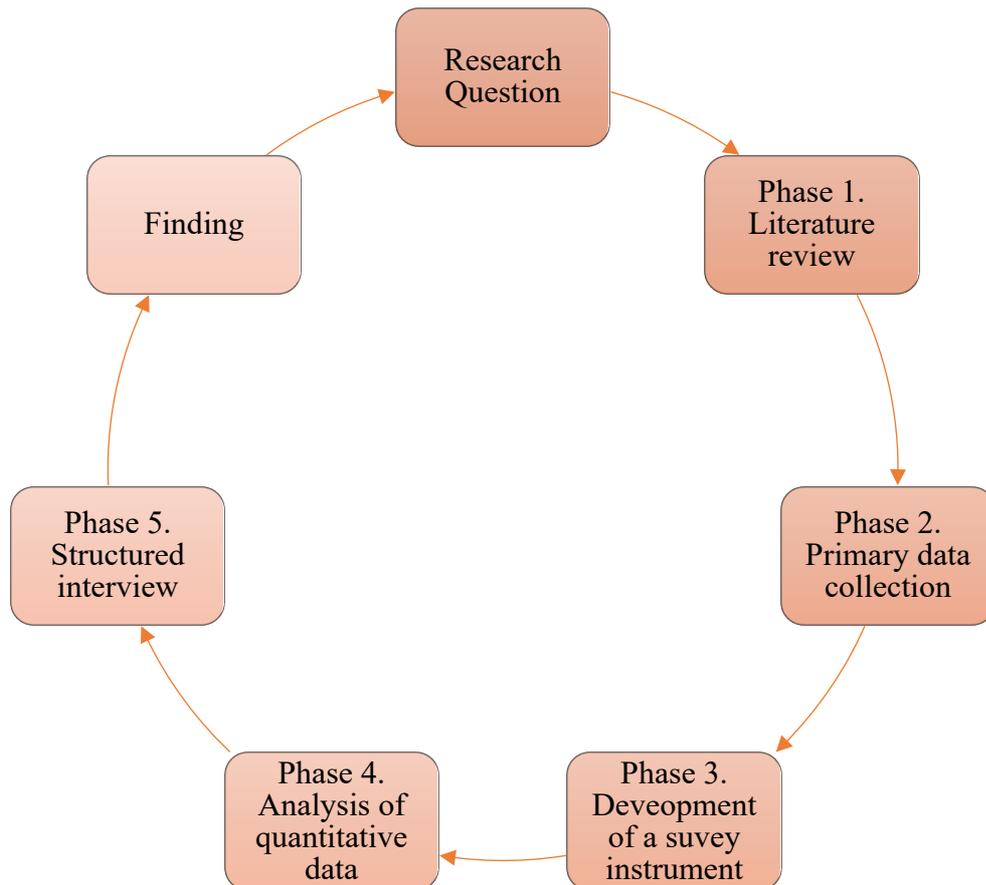


Figure 2. Research design

Thus, the methodology consists of the following phases:

Phase 1: Collection and analysis of secondary data, based on an interpretivism philosophy aimed at generating meaningful social phenomena (Saunders et al., 2016, p. 138). The study initially surveyed the existing literature, news and business reports in terms of the

WSTP context. Based upon explanations made by Aliyu et al. (2014) and Tsang (2014), the content of this material is analysed.

Phase 2: Primary data collection from semi-structured interviews. Secondary data generated during Phase 1 then provided the basis for an interpretivist approach which integrated components of grounded theory and relied on creating estimates that could be verified by subsequent studies (Saunders et al., 2016, p. 138). The study began by examining 15 interviews (with 12 consumers and three marketers). The observations (Saunders et al., 2016, p. 354) were then referred to existing theories, thus adding some significance to the interviews in order to develop the hypothesized model. Seven determinants were identified using scales drawn from the existing literature (Kwon et al., 2007; Li et al., 2016; Park et al., 2011; Vanwesenbeeck et al., 2017). In this framework, an online investigation was subsequently established and verified. Drawing from Fink (2017) suggestions, 14 questionnaires were primarily pilot-tested. Sample members were asked to respond to the questions, with the data recorded with no problem (Fink, 2017; Saunders et al., 2016).

Phase 3: Development of a survey instrument. Following identification of the determinants during Phase 2, drawing on the explanatory design, qualitative data were needed to explain significant quantitative results. An additional evaluation stage was undertaken, and the final version of the questionnaire was agreed. This phase followed a positivist philosophy approach, based on Comte's obvious principles, in order to support the observation of social reality, and a deductive approach in order to test the hypothetical proposal. Thereupon, an online questionnaire was administered to a sample of 301 respondents. To maximize the response rate, the use of incentives was reflected by De Bruyn and Lilien (2008) and Kim et al. (2014), an overall response rate of 60% was achieved.

Phase 4: Analysis of quantitative data. The results collected from Phase 3 were then examined in two steps. SPSS version 25 was employed to undertake exploratory factor analysis in order to analyse the descriptive statistics and reduce the errors which could

occur prior to subsequent analysis (Saunders et al., 2016). Confirmatory factor analysis was then used to assess the measurement model and the structured model (Hair et al., 2019; Hair Jr et al., 2017; Ma et al., 2016), which resulted in seven constructs, 10 path relationship and six mediation effects being identified. SEM SmartPLS was used to verify the predictive power of every construct and path analysis (Hair Jr et al., 2017). Using measures established by Hair Jr et al. (2017), the measurement model was employed to evaluate the validity and reliability of the indicators and the constructs while the structural model was applied to test the causal relationship between the constructs. During this step, six mediation effects were acknowledged as making a vital contribution to the hypotheses. As a result, statements were created regarding whether or not the hypotheses were supported.

Phase 5: Structured interviews. The final phase involved triangulating interviews. The structured interviews helped to examine the findings generated during the previous phase of research, in which a cross-sectional approach was applied with one pilot test and six interviews. A cross-sectional case study approach was applied, comprising an analysis of six interviews. The structured interviews were conducted in order to assess the findings generated during the previous phase of research. The context proposed by Creswell and Clark (2018, p. 51) was applied as the basis for constructing and analysing the findings from the interviews.

1.15 Research hypotheses

The research hypotheses were developed for examination purposes during the deductive phase. The research hypotheses guiding the core study are shown in the path chart in Figure 3 (p. 18).

Hypothesis 1: There is a positive relationship between IT innovation and WOM.

Hypothesis 2: There is a positive relationship between IT innovation and advertising.

Hypothesis 3: There is a positive relationship between health issues and WOM.

Hypothesis 4: There is a positive relationship between health issues and advertising.

Hypothesis 5: There is a positive relationship between IT innovation and purchase intention.

Hypothesis 6: There is a positive relationship between health issues and purchase intention.

Hypothesis 7: There is a positive relationship between WOM and cognition.

Hypothesis 8: There is a positive relationship between advertising and cognition.

Hypothesis 9: There is a positive relationship between cognition and purchase intention.

Hypothesis 10: There is a positive relationship between purchase intention and actual purchase behaviour.

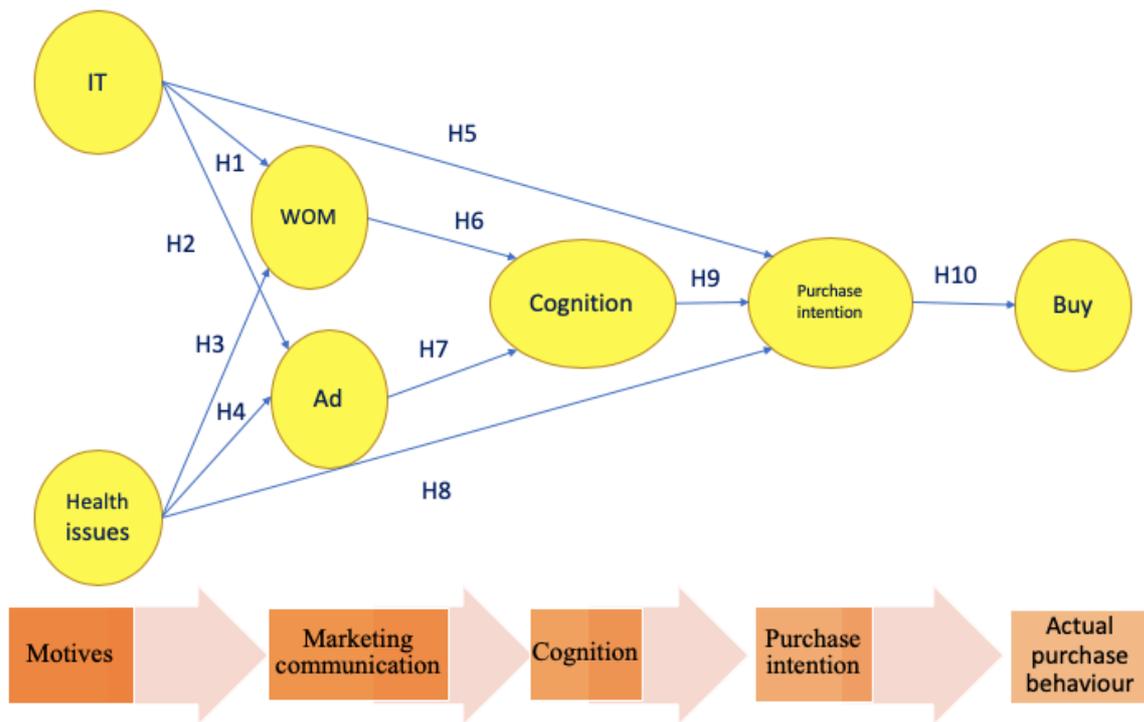


Figure 3. Hypothesized model

Mediation effects:

The research hypotheses of the mediation effects were established by SmartPLS as follows:

Hypothesis 11: Purchase intention fully mediates the relationship between IT innovation and actual purchase behaviour.

Hypothesis 12: Purchase intention fully mediates the relationship between health issues and actual purchase behaviour.

Hypothesis 13: WOM and cognition partially mediate the relationship between IT innovation and purchase intention.

Hypothesis 14: Advertising and cognition partially mediate the relationship between IT innovation and purchase intention.

Hypothesis 15: WOM and cognition partially mediate the relationship between health issues and purchase intention.

Hypothesis 16: Advertising and cognition partially mediate the relationship between health issues and purchase intention.

1.16 Intended contribution

The findings from this study make several contributions to the current literature, which are as the follows:

1. This study critically examines all the proposed constructs from motives, marketing communication, cognition and purchase intention, which are demonstrated to significantly affect consumers' actual purchase behaviour concerning the adoption of WSTPs. This contribution to the academy will be achieved via the conceptual model.
2. Most research in the WSTP context only emphasizes IT innovation, with only a few studies having addressed health-related issues as a determinant. Yet, new insights into the significance structure behind consumer behaviour have been generated from the results of the present research and the confirmation of seven constructs. The results of this study could provide marketers in the WSTP market with certain meaningful recommendations for promoting and marketing. The study has demonstrated that purchase intention mediates the relationship between two motives (IT innovation and health issues) and actual purchase, such that marketers can exploit the mediation effect to achieve business aims.
3. The partial mediating effects have been investigated in Hypothesis 13, 14, 15 and 16, which not only pose significant implications for validating these effects on the decision-making process, but also powerfully highlight the strong connection created between motive and actual purchase intention, according to three mediators: WOM,

advertising and cognition. This study has identified mediating effects which have not previously corroborated the findings of previous work in this field.

4. For researchers, this is an opportunity to validating those constructs that practitioners should apply. Further research should be undertaken to investigate the mediation effects between the decision-making process and successful outcomes.

1.17 Limitation of the study

Despite the significant findings generated by this study, six limitations are identified:

1. The empirical data used for hypothesis testing were collected from 2016 to 2018. It must be noted that the adoption of WSTPs was still in its early stage in 2016; thus, it was unclear which WSTPs should be considered while trying to set up a longitudinal database related to the WSTP context. Added to this, data collection was only carried out in the UK only, meaning that the potential influence of cultural and technological differences between different countries has not been established. A better understanding of the adoption of WSTPs would have been contingent on applying a longitudinal approach and interrogating the full range of cultural and economic effects on decision-making practices.
2. In light of the first limitation, the research sample was relatively young in terms of (less than 40 years old), even though it has been acknowledged (Intel, 2016, 2018) that younger consumers are the primary users of WSTPs. Adding older consumers to the primary research database should therefore be considered in future studies.
3. While the hypotheses possess significant explanatory power concerning consumer decision-making about whether or not to purchase a WSTP, future studies could merge additional variables in their hypotheses, such as perceptions of value and quality of a WSTP in order to more broadly comprehend the marketing strategy involved in this context.

4. Many WSTP companies have adjusted their WSTP products' original functions and added more innovations, future studies should also investigate consumer behaviour in accepting these technologies to better understand consumers' fundamental WSTP needs. The study did not examine actual usage experiences which should be assessed to accomplish accurate research outcomes in the future.

5. This study was pursued from multiple perspectives and has generated some meaningful findings on mediation effects. However, it has not classified any direct influence of mediation effects on actual purchase behaviour. It would be interesting for future studies to investigate other variables mediating the process of decision-making and its interaction with actual purchase behaviour in the case of repurchases.

6. The exogenous factor at the core of this study is the motive to make an actual purchase. As the types and applications of WSTPs become diverse, future researchers could answer more questions in this regard. This study advances our understanding of consumer decision-making processes in the WSTP market. The most important of these limitations is the fact that the study was unable to define causal relationships among the variables using a cross-sectional survey. Further research should examine this conceptual framework with alternative methodologies: longitudinal research designs or different target groups, even cross-cultural ones.

1.18 Conclusion

Consumer behaviour is an increasingly important area in the marketing literature. This study makes a contribution to academic research by examining motives as the external stimuli through strategic marketing communication, leading to cognition and purchase intention, resulting in an actual purchase. The study is also unique in that it addresses issues fundamental to the process of consumers' decision-making in the WSTP market, which the existing research fails to do.

Most of the relevant marketing literature has examined the adoption of WSTPs from either an IT innovation or an actual use perspective, rather than in terms of the motivation and marketing communication leading to an actual purchase being made. As such, it is intended that the study will contribute to consumer behaviour and marketing communications and strategy literature, as well as further our understanding of the mediating effects. Given the structure of the research methodology for this study, it is also likely to be of significance and meaningfulness to marketers.

PART 2. RESEARCH FINDINGS AND IMPLICATION

CHAPTER 2 LITERATURE REVIEW

2.1 Chapter overview

This chapter offers a critical review of the literature concerning consumer behaviour in the pre-purchase stage, including motives, cognition and purchase intention, leading to actual purchase behaviour. Drawing on various paradigms and theories, the key aspects of the literature are emphasized and the critical conceptual considerations for this study are highlighted.

2.2 The WSTP market in context

2.2.1 Wearable technology

Wearable technology has achieved mass market attention lately by introducing novel, innovative patterns to the market (Kim & Shin, 2015; Lee et al., 2016; Sultan, 2015). Wearable technology products are characterized by wireless connection technologies or designed to deliver a particular function via a device that can be worn on the consumer's body (Lee et al., 2016; Schwartz & Baca, 2016; Wright & Keith, 2014). Classic wearable devices contain various elements: speech recognition technologies, sensors, displays, locating chips, record data and monitoring equipment (Bower & Sturman, 2015; Cheng & Mitomo, 2017; Doherty et al., 2013; Howard, 2015; Lee et al., 2016; Mitrasinovic et al., 2015). Hence, in the past decade, wearable technology has been applied in many different divisions including the sports, medicine, personal safety, lifestyle computing, military and

emergency disaster intervention domains (Bonfiglio & De Rossi, 2011; Cheng & Mitomo, 2017; Lee et al., 2016; Mills et al., 2016; Perera et al., 2014). The reason why the wearable technology market is expanding is that the users can obtain information which is available at any time and in any place, where wearable technology products must be self-powered and individually practical (Bower & Sturman, 2015; Jeong et al., 2017; Kim & Shin, 2015).

IDC (2017) reported that: “The worldwide wearables market took another step forward in the third quarter of 2017 with total shipment volume reaching 26.3 million units, up 7.3% year over year.” In fact, consumers bought 3.6 million smartwatches in 2014 (Li et al., 2016). By 2026, it is predicted that the market will be worth over \$150 billion (Cheng & Mitomo, 2017; Hayward et al., 2016; Wu & Chang, 2016), which indicates that wearable technology products represent the next enormous trend in the technology domain following on from computers, laptops, tablets and smartphones. In particular, developing countries could experience more rapid growth than the global average, for example, with the market of wearable products in China expected to be worth \$20 billion by 2020 (Hunn, 2015; Liu & Guo, 2016).

Existing research on wearable technology products has explored topics ranging from monitoring individuals in their home to detecting or predicting health issues via such technology (Bonfiglio & De Rossi, 2011; Hunn, 2015; Patel et al., 2012), and from market dynamics analysis of these products (Almalki et al., 2015; Banos et al., 2016; Lavallière et al., 2016; Perera et al., 2014) to enhancing the quality of human life through the adoption of wearable technology (Chan et al., 2012; Jeong et al., 2017; Lee et al., 2016; Li et al., 2016). As consumer interests and consciousness concerning wearable technologies are on the increase, this has led to a growth in the WSTP market (Nasir & Yurder, 2015) which in turn underlines the need to carry out research from a comprehensive perspective to better understand consumer behaviour within this field.

2.2.2 Wearable sports technology products

Without doubt, WSTPs are possibly the most personal and user-friendly of IT devices (Mills et al., 2016; Seol et al., 2017). Initially, WSTP applications were used in sports, where they help elite professionals to achieve specific goals and to adapt to rules, conditions and environments (Halson et al., 2016; Page, 2015). A number of researchers has reported that a WSTP is defined as a wearable computer with a mobile Internet connection, which is worn in the same way as clothing or personal adornments and generates information for users intelligently and efficiently, while offering the advantages of being a hands-free, connected, always-on, environmentally aware, attention-getting development platform (Jeong et al., 2017; Jung et al., 2016; Kim & Chiu, 2019; Liu & Guo, 2016; Xu, 2015). Examples include wearable glasses and watches (Kumar & Venkateshwarlu, 2017; Liu & Guo, 2016), as well as headbands, smart fabrics, contact lenses, e-textiles, beanies and caps, jewellery, bracelets, rings and hearing aid-like devices (Hunn, 2015; Kim & Chiu, 2019; Ledger, 2014; PSFK, 2014; Tehrani et al., 2014).

Evidently, sports participation brings many benefits at the social, physical health and mental well-being levels (Chen, Snyder, et al., 2010; Dionigi et al., 2011; Nielsen et al., 2014; Oja et al., 2015). Recent evidence indicates that physical activities improve resistance to some illnesses, while team sports help in building teamwork skills and leadership and regular physical exercise develops self-confidence, leading to better mental health (Anzaldo, 2015; Besharat & Pourbohloul, 2011; Mwisukha et al., 2017; Nielsen et al., 2014). People are increasing aware that pursuing better health is critical in order to enjoy a better quality of life (Anzaldo, 2015; Xu, 2015). To enhance physical fitness, programmes need to involve the following fundamentals: strength training, flexibility training, cardiovascular suitability, body composition, muscular endurance and general skill training (Bonfiglio & De Rossi, 2011, p. 166; Hoeger et al., 2018, p. 2-5; Sperlich & Holmberg, 2016). Bonfiglio and De Rossi (2011, p. 165) explain that “physical fitness is considered a measure of the body’s ability to function efficiently and effectively in work and leisure activities, to be healthy, to resist hypokinetic diseases and to meet emergency

situations". In order to enhance physical fitness programmes and sports performance effectively, they must be linked with health management, which has stimulated the speedy growth of wearable technology (Xu, 2015). Numerous studies have attempted to discuss wearable technology applied in the case of health and sports (Lee & Lee, 2018; Li et al., 2019; Piwek et al., 2016; Seshadri et al., 2017; Zheng et al., 2014). The involvement of technology, therefore, has led to major changes in people's lifestyles of late (Anzaldo, 2015; Xu, 2015).

For fitness and sports training, the accuracy of the measurement is important: distance, time, length, height, weight, strength, heart rate, oxygen consumption and temperature (Seshadri et al., 2017). For example, consumers would like to observe the steps taken and decide whether they have reached their daily goal in order to track their ordinary daily activity, for example. If not, they might take more stairs or be faster paced when walking for a long time in order to reach their self-determined health target (Rupp et al., 2016; Seshadri et al., 2017). Accordingly, almost all forms of WSTPs embed different types of measurement systems to collect various physical data (Anzaldo, 2015; Bonfiglio & De Rossi, 2011; Gu, 2016; James & Petrone, 2016; Kim & Chiu, 2019; Lee et al., 2016; Rupp et al., 2016; Seshadri et al., 2017). However, wearable technology comes with a general and vague perception. In this study, to distinguish wearable technology and WSTPs, the utilisation of WSTPs includes products that are worn in all sports and physical activities.

To date, smart wristbands and smart watches have been the most popular types of WSTPs, with 47% and 58% of users using them every day, respectively, which significantly raises expectations among firms about launching the right WSTP on the market in the future (Bourne, 2014). In particular, wrist-worn products' appearance on the WSTP market grew from nearly four million in 2017 to 4.2 million in 2018 (Mintel, 2018). WSTPs have been key in directing manufacturing businesses towards a valuable future market (Mills et al., 2016), while consumers are moving beyond the early adopter status (Kim & Chiu, 2019; TheRecord, 2014) into the next wave of mass market

consumption (Ledger, 2014; Ledger & McCaffrey, 2014). Surveys such as that conducted by Ledger and McCaffrey (2014) have shown that the majority of current consumers are aged 25-44 years and mostly use fitness trackers. But the recent trend in WSTPs has shifted their emphasis towards health management, for instance, Apple Watch, which seems to attract more interest from the older population (Neely, 2019).

WSTPs support consumers' need in various ways (Karapanos et al., 2016). First, consumers are able to participate in the online community and interact with others who have similar goals and face similar challenges (Kaewkannate & Kim, 2016; Karapanos et al., 2016; King et al., 2014), akin to previous years when people participated in sports which were usually facilitated via federations, associations and clubs, centred on a race between individuals or between teams, and managed by established guidelines (Bonfiglio & De Rossi, 2011; Ibsen et al., 2016, p. 27). Second, WSTPs play a crucial role in direct social support. Some consumers have reported that purchasing WSTPs has helped a family member or close friend to overcome their weight problem (Karapanos et al., 2016). Lastly, a recent study by Kaewkannate and Kim (2016) found that consumers using a WSTP can experience feelings of popularity and social confirmation when others show the same interest in the device. Despite the positive visions and functionality of WSTPs, the debate is ongoing about how many WSTPs suffer from the image of being a "solution in search of a problem"; in other words, they do not add functional value to what is already expected from personal technology of this type (Piwek et al., 2016). Conversely, Etkin (2016) has argued that measurement applications on WSTPs can also destroy intrinsic motivation and reduce the fun behind doing certain activities, which has led to a reduction in consumer interest in continuing them in the future and may even reduce people's satisfaction with the overall situation. That is, by measuring whether a WSTP is intrinsically motivating, we can enhance additional insights beyond measuring perceived usability alone. Rupp et al. (2016) and Strath et al. (2011) strongly criticize WSTPs, given that, compared with using standard pedometers, WSTPs with self-determining functions have been proven to be underpowered and not successful in increasing physical activity. In the early days when WSTPs started to become commercialized, studies showed that

their proliferation rate in the public domain had not met expectations (Clawson et al., 2015; Lee et al., 2016). Recent evidence shows that WSTPs have faced a critical challenge (Lee et al., 2016).

Ledger and McCaffrey (2014) indicated that more than 30% of consumers in the US who owned wearable products stopped using the product within six months (Gartner, 2016; Kim & Chiu, 2019), while 50% of them no longer used it (Lee et al., 2016). This could lead to the failure of wearable technologies to stimulate constant engagement among consumers. Besides, the abandonment rate of smartwatches and fitness trackers is 29% and 30%, respectively. A survey by Gartner (2016) showed that people do not consider WSTPs to be useful and that they get bored with them or break them. If consumers are dissatisfied with their WSTP purchases, these outcomes will be significant because consumers store their evaluations in their memory and refer to them during the decision-making stage in future choices (Blackwell et al., 2006, p. 83; Darley et al., 2010).

Recently, investigators have examined the effect of WSTPs on adopting new products (Chao et al., 2012; Huh & Kim, 2008; Jeong et al., 2017). Many studies on technology adoption involving WSTPs have centred on the application of several models including the TAM and its extensions (Choi & Kim, 2016; Gao & Lai, 2015; Nasir & Yurder, 2015). These model have been used to illustrate consumers' intention to use the most common types of WSTPs (Chuah et al., 2016; Kim & Shin, 2015; Kim & Chiu, 2019). Yet, most studies on WSTPs have only been carried out in the technology area, although, more recently, some research has looked at health-related issues as a determinant (Lunney et al., 2016; Wang, White, et al., 2015; Zhang et al., 2017). Little is known about how marketing communication functions in the WSTP context, nor is it clear which factors would inform consumers' cognition and purchase intention. We argue that there has been little discussion about those marketing communication factors that motivate consumers when making a decision, especially from their own perspective. Consequently, the aim of this study is to investigate the relationship between the motives surrounding WSTPs,

consumers' cognition and forming the intention towards adopting purchase behaviour in relation to such products.

A number of researchers, when looking at the adoption of WSTPs, has employed the TAM, the TAB, the TRA, TR, the TPB and the UTAUT (Kim & Shin, 2015; Kim & Chiu, 2019; Lunney et al., 2016; Seol et al., 2017; Wang, White, et al., 2015; Zhang et al., 2017), which are related to technology and applied in the case of health issues. Arguments have been made by Jeong et al. (2017) and Cresswell and Sheikh (2013) that individual characteristics and other factors should not be ignored because these will affect consumers' willingness to purchase or use a WSTP. Even though WSTPs are the next trend in the technology market, a recent study by Jung et al. (2016) indicates that they still represent a small niche market compared with using a mobile phone. In order to increase market sales, the latest evidence suggests that marketers should consider various strategies for increasing existing consumers' repurchase intention and potential consumers' intention to use WSTPs (Yang et al., 2016). This is an excellent opportunity for business to cultivate potential consumers with a broader recognition of WSTPs (Nasir & Yurder, 2015).

Recent developments in the field of WSTPs have led to a renewed interest in investigating consumer behaviour. The psychology of consumer acceptance and use relating to IT innovation should be discussed. As such, previous research indicates that consumers strongly emphasize their innovativeness in new product adoption, according to innovation diffusion theory (Jeong et al., 2017; Rupp et al., 2016). That is, it is essential to understand how consumers who have substantial interests in a particular field distinguish the launch of a new product more quickly than their peers or others, find the positives and negatives of new products rapidly, and also pass on the experience of using them (Jeong et al., 2017). That said, not every WSTP which has launched has been able to survive, let alone succeed. Google Glass, for instance, the first wearable glasses to initially capture major public attention, failed to become a marketing success (Choi & Kim, 2016; Hunn, 2015). Despite the failure, Google itself has not dismissed the significance of the WSTP

trend: in 2019, the Internet company paid \$40 million to acquire technology from the research and development team of the watchmaker Fossil Group and \$2.1 billion for Fitbit, because Fitbit's technical groups could help Google come up with a WSTP to take on its biggest rivals such as Apple Watch or Samsung's Galaxy Watch (Austin, 2019). As mentioned above, central to the entire discipline of WSTPs is the concept of technology adopted by several theories. Some attempts have made to address health issues, yet little is known about consumer behaviour, not is it clear what causal factors play a role in the decision-making process. In particular, no research has investigated the mediating effects relevant to the WSTP context. In the new global economy, the sports industry is a vital part and offers a rich opportunity to consumer marketers (Bush et al., 2005; Chadwick et al., 2015). Given their uniqueness, WSTPs cannot be ignored.

2.3 Consumer behaviour

The American Marketing Association defines consumer behaviour as “the dynamic interaction of affect and cognition, behaviour, and the environment by which human beings conduct the exchange aspects of their lives” (Peter & Olson, 2010, p. 5; Rahbar & Abdul Wahid, 2011). In other words, consumer behaviour relates to when a consumer is motivated by a need, and the processes for finding desired ways to fill this need (Babin & Harris, 2015; Lassoued & Hobbs, 2015). Consumers can be influenced by their surroundings, different elements and trends (Babin & Harris, 2015; Rani, 2014; Solomon et al., 2016). It is interesting that both marketing and social science are increasingly focusing on consumer behaviour (Solomon et al., 2016; Tomczak et al., 2017, p. 7). What is known about the field of consumer behaviour is largely based on empirical studies which have investigated buyer behaviour, reflecting the importance of the interaction between consumers and manufacturers during the purchase period (Ashley & Tuten, 2015; Solomon et al., 2016). Tomczak et al. (2017, p. 7) argue that consumer behaviour is “not just the consumers' purchasing power”. As such, marketers recognize that consumer behaviour is an ongoing movement, not simply what occurs at the point where a consumer

pays for a product or service (Blackwell et al., 2006; Peter & Olson, 2010, p. 9; Solomon et al., 2016).

To achieve business goals, marketers need to design a marketing strategy which delivers a plan to stimulate exchanges (Peter & Olson, 2010, p. 9; Soh, Rezaei, et al., 2017; Tomczak et al., 2017, p. 2-3). The fundamental marketing concept claims that the purpose of businesses' existence is to satisfy consumers' needs (Peter & Olson, 2010; Szmigin & Piacentini, 2015). Marketing strategies seek to increase the opportunities for consumers to have helpful thoughts and feelings about specific services and products so that they will buy them and repeatedly so (Blackwell et al., 2006; Solomon et al., 2016; Tomczak et al., 2017, p. 37). Marketing strategies seek to raise the opportunities for consumers to have helpful thoughts and feelings about specific services and products so that they will attempt and buy them repeatedly (Peter & Olson, 2010; Tomczak et al., 2017, p. 25). Marketing is the process of changing what consumers will purchase if a product or service works well; the firm is influenced by the needs and desires of consumers, instead of consumers being influenced by the wishes of marketers (Blackwell et al., 2006; Tomczak et al., 2017, p. 1-3). As a result, for businesses, consumption is crucial (Blackwell et al., 2006; Tomczak et al., 2017, p. 102). Once marketers identify the reasons why consumers are encouraged to buy specific products, it becomes easier to create strategies to influence them (Blackwell et al., 2006; Solomon et al., 2016).

But, to understand consumer behaviour is not easy because, with time, behaviour can change very quickly (Peter & Olson, 2010; Shareef et al., 2016). Peter and Olson (2010) highlight that consumer behaviour is dynamic; it consists of interactions with how consumers are thinking, feeling, judging and acting, and also has a positive relationship with the environment (Peter & Olson, 2010; Pham, 2013). For instance, in the competitive environment of technology, WSTP marketers need to take notice of why people are willing or otherwise to buy such products (Blackwell et al., 2006) and how to motivate and produce the necessary factors to prompt consumers' action (Babin & Harris, 2015, p. 90-91).

The debate about purchase habits continues, with Solomon et al. (2016) arguing that, when consumers purchase specific goods or services based on past consumption habits, inertia behaviours happen (Kuo et al., 2013; Lee & Neale, 2012). Inertia makes consumers avoid dealing with unfamiliar suppliers and incurring considerable learning costs. As such, consumers who have high inertia persist with their existing products and service suppliers unintentionally (Lee & Neale, 2012). To this end, it is challenging for marketers to promote a new product. Yet, not all purchase behaviours develop into habits, nor does the condition of inertia continuously occur (Lee & Neale, 2012; Liao et al., 2016).

A considerable body of literature has discussed consumer behaviour, while the marketer must distinguish how a consumer buys a product to satisfy a need through the process of decision-making by exploring the activities that happen before, during and after the purchase of a product (Blackwell et al., 2006; Soh, Rezaei, et al., 2017; Solomon et al., 2016, p. 6). There are two questions to be asked by marketers before developing a marketing strategy: first, before buying a product, a consumer may think about the many different kinds of risks involved (Soopramanien et al., 2007; Tomczak et al., 2017, p. 84) ; next, the consumer may need to make a decision (Leon et al., 2008, p. 444; Tomczak et al., 2017, p. 3). However, most studies in the field of WSTPs have only focused on technology innovation or technology used. In other words, consumer behaviour should be the primary focus of every aspect of firms' marketing strategy (Solomon et al., 2016; Szmigin & Piacentini, 2015), particularly in the WSTP context. Marketers and researchers are interested in how consumers will be influenced by different motives and physical stimuli (Hu et al., 2016; Jang & Namkung, 2009). From their perspective, consumers probably decide whether or not they need the product or service they are interested in, or are able to satisfy their need with alternatives. We even question whether a WSTP is an innovation product, on which consumers should have different perspectives. Although extensive research has been carried out on health issues, no single study exists in the WSTP context which involves marketing communication strategy and mediators. This

indicates the importance of seeking to understand the comprehensive perceptions of lack concerning WSTPs which exist within the decision-making process.

Recently, some arguments have been put forward that consumer behaviour should not have an exclusively strategic emphasis (Kandampully et al., 2015; Tomczak et al., 2017, p. 11; Wilson & Gilligan, 2012, p. 31); the field should not be a “handmaiden to businesses” (Shaw, 2011; Varey & Pirson, 2014, p. 277). In fact, there is a dispute about whether businesses obtain better findings from non-strategic research as they are unbiased by strategic objectives. As such, criticism of consumer behaviour research has led to a recognition that not all consumer behaviour and marketing activity are essentially helpful to people or to society (Peter & Olson, 2010, p. 13). In brief, the value of the knowledge found in the existing literature has been measured traditionally, related to its ability to increase the efficiency of marketing practice.

Nevertheless, given the technology involved in our daily lives, these rapid changes are having a serious effect on consumer behaviour nowadays. Drawing on its singular emphasis on purchasing behaviour and the motives affecting the decision-making process, the field has increasingly expanded to take account of what occurred before and after the purchase (Peter & Olson, 2010, p. 5-7; Tomczak et al., 2017, p. 131). Peter and Olson (2010) insist that marketing strategies are not only modified to satisfy consumer needs and wants, but they are also transformed to reflect what consumers think and sense about themselves, about numerous marketing formats and about the motives and conditions for buying and using (Peter & Olson, 2010; Tomczak et al., 2017, p. 2). In the meantime, from marketers’ perspective, it is essential to understand the attitudes and cognition of consumers regarding their products or services and which marketing communication strategy can influence them effectively (Solomon et al., 2016; Tomczak et al., 2017, p. 1-13).

Since WSTPs represent a new, albeit prominent, topic, the limited number of empirical studies available has analysed the determinants motivating consumers’ purchase

intentions (Ko et al., 2009), the acceptance of WSTPs and actual purchase behaviour. Indeed, there has been little discussion about examining business models in the WSTP context from a consumer perspective. Thus, this preliminary study contributes by considering these factors simultaneously. In turn, from a different consumer perspective, it offers a method to approach consumer decision-making as associated with WSTPs, while engaging with relevant literature about various marketing strategies in relation to the development of cognition, intention and actual purchase behaviour. In the following section, we report on our preliminary findings.

2.4 Consumer decision-making

In 1968, Engel, Kollat and Blackwell developed a consumer decision-making model, hereafter referred to as the EKB model (Engel et al., 1993, p. 40). A considerable body of literature has been published on the EKB model, in which the process of consumer decision-making involves five stages: problem recognition, information search, alternative evaluation, purchase and post-purchase evaluation (Chae et al., 2006; Darley et al., 2010; Engel et al., 1995; Rickwood & White, 2009; Szmigin & Piacentini, 2015; Yeung et al., 2016). Meanwhile, a recent study by Leon et al. (2008, p. 448) divided the consumer decision-making process into three stages: “need recognition, pre-purchase search, and evaluation of alternatives” (Kpossa & Lick, 2019). These models have been shown to facilitate practical means for analysing and understanding consumer behaviour. Traditionally, the EKB model subscribes to the belief that the decision-making process involves post-purchase evaluation; on the other hand, Leon et al. (2008) are merely concerned about the evaluation of alternatives. Returning to the questions posed at the beginning of this study, it is now possible to define the decision-making process leading to act to purchase. So far, little is known about this process regarding WSTPs, while the influence of marketing communication has not been explored. While numerous studies refer to the characteristics of WSTPs within the context of IT innovation, we argue that they rely too heavily on analyses of IT innovation using various models. Taken together,

these outcomes suggest that this study will approach the decision-making process suggested by Leon et al. (2008) and integrate the actual purchase behaviour in the model.

Need recognition

Need recognition occurs when an individual discovers an unmet need that must be fulfilled (Blackwell et al., 2006; Peter & Olson, 2010; Tomczak et al., 2017, p. 101). One well-known approach to differentiate needs, which has been copiously featured in the literature, is Maslow's hierarchy (Bonfiglio & De Rossi, 2011; Cheng & Mitomo, 2017; Rani, 2014; Rouse, 2004). According to psychologist Abraham Maslow, physiological needs are the most basic in the hierarchy (Bonfiglio & De Rossi, 2011); they take top priority. Only after these needs have been satisfied can people progress to the next level of needs in the hierarchy. Blackwell et al. (2006) argue that Maslow's hierarchy could match the priorities of many people, but everyone's priorities in all situations do not all fit in the hierarchy: "Difference in the importance consumers attach to various needs ultimately affect how they evaluate products being considered for purchase and consumption." Consumers seek different products and services because they have different needs (Blackwell et al., 2006; Soh, Rezaei, et al., 2017). Recent evidence suggests that a consumer should consider many different kinds of risks in their mind before purchasing a product (Soopramanien et al., 2007).

Motivation is the complicated procedure that makes people act in a particular way (Mir, 2014a) in which consumers may have stimulating, guiding and maintaining behaviour, with the same types of consumer behaviour possibly having different motivations behind them (Chen, 2012). How to motivate need recognition is a crucial issue for business and marketers, which, if ignored, can have a critical consequence (Blackwell et al., 2006). That said, the theoretical and practical significance of this evidence adopted in the WSTP is unclear. In particular, we are living in the technological era, whereby technology is driving us in more unpredictable directions than previously. On the one hand, marketers

and firms have uncertain challenges, while, on the other hand, consumers have different needs and desires in the ever-changing rapid technology age.

However, much indecision still exists about the relationship between marketers and consumers: even marketers know that they cannot control the scenario of need recognition, although they could influence the need recognition of consumers to increase sales (Blackwell et al., 2006). In light of the marketing concept in the modern world, generating information about consumer needs and motives is imperative. There is almost a consensus that the main purpose of marketing is not to find and persuade people to buy products produced by the company, but to satisfy their consumption desires (Mihart, 2012). In this study, we must explore not only the rationale, but also the motives that contribute to consumer decision-making adopted in the WSTP context.

Pre-purchase searching

The sequence phase of a need recognition is pre-purchase searching. A number of researchers has reported that pre-purchase searching is one of the most broadly explored topics in consumer behaviour study (Chae et al., 2006; Rickwood & White, 2009; Van Rijnsoever et al., 2012). In order to obtain a better understanding of consumers' decision-making process, investigating the factors leading to their pre-purchasing of products is significant, and essential if we are to discover the determinants relevant to the WSTP market (Blackwell et al., 2006; Chae et al., 2006; Ha, 2002; Mir, 2014a).

To begin with, the pre-purchase stage is when a consumer perceives a need, a want or a problem, such that they need to purchase a product or service to satisfy or resolve it (Blackwell et al., 2006; Peter & Olson, 2010). Consumers are motivated when their needs must be fulfilled (Knight & Young Kim, 2007; Lu et al., 2015). Surveys have shown that consumers can go through the phases of cognition, information gathering and purchase behaviour in order to reach their individual goal in the subsequent process of decision-making (Cui & Roto, 2008; Lu et al., 2010; Yeung et al., 2016).

Next, purchase intention will be influenced by product assessment, in which perceived quality includes extrinsic (prices, image and brand) and intrinsic cues (performance and durability), which have a direct impact, while a consumer has less information related to the product (Mummalaneni & Meng, 2009; Peter & Olson, 2010; Soh, Rezaei, et al., 2017). Pre-purchase searching represents the decision-making stage in which consumers seek to simplify their buying decisions (Mir, 2014a; Robinson & Doss, 2011).

An information search is the first stage in the consumer pre-purchasing process. The purpose of pre-purchase information gathering is to collect useful data from different sources to reach their goals (Cui & Roto, 2008). Some studies, which have investigated the pre-purchase phase, indicate that the process of gathering information can influence purchase intention (Lu et al., 2010; Pavlou & Fygenson, 2006). However, technology is changing our lifestyle as well as consumer behaviour. The reasons behind online searching by consumers have been widely investigated, showing that their decision-making may be highly influenced as they can spend more time looking for a better deal and price (Chen, Phelan, et al., 2016; Lin et al., 2007; Mazaheri et al., 2012). Marketers should therefore explore how consumers go through the decision-making process before they act in order to create the right marketing strategy in this rapid technology era.

If customers can search for information and assess replacements, thus making choices easily, in the online environment nowadays, this is likely to influence customers' decision-making deeply, particularly in repurchase decisions and post-consumption evaluations (Liao et al., 2016; Yim et al., 2007). Much literature has been published that many consumers make their decisions based on both previous experience (internal source) and the environment (external search, i.e., friends, family, advertising, salespeople, the Internet and independent research reports) (Babin & Harris, 2015; Leon et al., 2008, p. 449; Lin et al., 2007; Soh, Rezaei, et al., 2017; Tajvidi & Karami, 2015). However, a recent survey by Park et al. (2015) revealed that the phases of pre-purchase and post-purchase are equally important for consumers in delivering their satisfaction. Pre-purchase satisfaction occurs at the alternative evaluation stage, which could move forward

to the next stage, i.e., decision-making (Blackwell et al., 2006). In the meantime, consumers will reduce perceived risk when they seek out information during the pre-purchase stage (Ha, 2002). Marketers and firms seeking to deliver consumer satisfaction can be addressed from “transaction-specific and cumulative perspectives” (Kaura et al., 2015; Kuo et al., 2013). The former is associated with the evaluation of recent purchase experiences, whereas the latter is linked to the overall evaluation of all aspects of consumption to date (Gao & Lai, 2015; Kaura et al., 2015; Kuo et al., 2013). The debate is ongoing about the best strategies for the management of consumer behaviour and the satisfaction of consumers’ needs in order to achieve competitive advantages and sustainable growth (Johnson et al., 2008; Kuo et al., 2013; Park et al., 2015).

Numerous studies have attempted to explain that purchase intention relates to the product that consumers want to purchase (Blackwell et al., 2006; Hsu et al., 2017; Soh, Soh, et al., 2017; Wee et al., 2014; Wirtz et al., 2017). When consumers have an intention to buy a product, most of the time, this depends on the product’s value in their memory and recommendations that their friends or other users have shared. Recent surveys show that searching for information on social media is vibrant (Agliari et al., 2009; Dehghani & Tumer, 2015; Mir, 2014a). Studies of consumer behaviour underline the importance of purchase intention which shapes their purchasing behaviour, based on past experience, while affecting actual purchase behaviour in the future (Nguyen et al., 2016; Wirtz et al., 2017). Purchase intention is associated with consumers’ behaviour: based on their cognition, consumers modify the product, which may be rooted in their mind as a consequence of external stimulation – this includes marketing activities, which can influence and encourage a consumer to buy and use a product and even relate to the product itself (including its package, size and guarantees), pricing policy, mass media advertising and market segmentation (Chen, Phelan, et al., 2016; Leon et al., 2008).

Actual purchase behaviour and alternative purchase

The final stage in the decision-making stage is to make a purchase decision, in which consumers may feel it worthwhile to obtain related information to add value to that decision (Muntinga et al., 2011). However, much uncertainty still exists about consumer decision-making, in that not all consumer decision processes lead to purchases (Rawwas et al., 2005).

For WSTP businesses, the outcome of marketing is to ensure that consumers are willing and ultimately act to purchase a product (Rawwas et al., 2005). Recently, researchers have examined consumers' satisfaction at the post-purchase stage of the decision-making process (Park et al., 2015; Rajagopal, 2010). Evidently, satisfaction is a consumer perception at the purchase stage, which facilitates the transaction (Alavi et al., 2016; Gao & Lai, 2015; San Lim et al., 2016). Studies of purchase habits underline the fact that consumer transaction behaviour may be caused by automative and unconscious decisions (Hsu & Lin, 2015a; Stawarz et al., 2015). Purchase intention is intensified by increasing consumers' satisfaction (Chang & Tseng, 2013; Hsu & Lin, 2015a). To achieve this goal, companies need to know how to employ modern technological tools and processes in order to motivate consumers about their purchase intentions, as well as offer appropriate products or services, leading to actual purchase behaviour as a result (Cheah et al., 2015; Lin et al., 2007; Soh, Rezaei, et al., 2017).

One of the most significant discussions about WSTPs at present is from a technology perspective, adding the determinant of health issues. It is becoming increasingly difficult to ignore the marketing communication associated with searching for information and for the WSTP industry to investigate how external influences offer essential information to a consumer when making a decision (Babin & Harris, 2015; Huang & Dubinsky, 2014). Nevertheless, understanding consumer behaviour is extremely meaningful if WSTPs can generate huge profits from the market. The empirical findings in this study provide a new understanding of the decision-making process, where the motives of consumers are formed by external marketing communication, then clarified by cognition, leading to a purchase intention and ending with the purchase of a product.

2.5 Motive and consumer behaviour

This study's context, the WSTP market, is a new domain, in which little is known about the motives behind consumer decision-making; nor is it clear what motives have the most weight in the process. As such, we integrate the above-mentioned models based on the literature, interviews and observations, enabling us to select two analytical determinants as motives within our hypothesis. This chapter reviews the literature concerning the usefulness in integrating several models and interviews, with two determinants of the motivation to adopt a WSTP considered: IT innovation and health issues. The former is one of the most widely applied in the WSTP context, while the latter represent an increasingly important area in the WSTP context, as several WSTP companies are shifting their focus onto health-related functions. Although most studies in the context of WSTPs have only emphasized the technology perspective, extensive research has been carried out on health issues; no single study exists which develops those two determinants into motives and makes a link with marketing communication strategy in the decision-making process. The following section reviews the existing literature on consumer behaviour in this context and examines the constructive motives relevant to our current understanding of WSTP purchase motives. The section of this chapter will examine two determinants behind motives in detail.

2.5.1 IT innovation

During the process of searching for information, consumers may be influenced by external stimuli, including marketing and external information from friends, family, the Internet, salespersons and reliable reports (Babin & Harris, 2015; Leon et al., 2008, p. 449). Recent evidence reveals that marketers gain information on consumer behaviour through consumers' response, cognition and purchase behaviour, which, in turn, informs how they create their marketing strategies (Leon et al., 2008; Peter & Olson, 2010, p. 232). This information helps marketers to evaluate their strategies and make new inputs into the process. In order to maintain their competitiveness, many firms develop

innovative products to increase purchase intentions, specifically involving innovative technologies (Chao et al., 2012; Truong et al., 2017; Wu & Chang, 2016). Numerous researchers have reported that companies develop new products to increase their own competitiveness and satisfy consumers (Chao et al., 2012; Chen, Damanpour, et al., 2010; Ho & Wu, 2011; Jeong et al., 2017; Rubera & Kirca, 2012). Investigators have found that developing innovative products can attract more consumers which can eventually contribute to growing sales (Porter, 2008; Tajvidi & Karami, 2015). Surveys such as that conducted by Hanssens and Pauwels (2016) confirm that product innovation plays a significant role in business growth and keeps enterprises competitive (Ho & Wu, 2011; Wu & Chang, 2016).

Gupta et al. (2007) defined innovation as “the production or emergence of a new idea”. The fundamental characteristic of innovation is a set of unique product attributes that can result in consumer adoption (Ho & Wu, 2011). The theory of innovation is at the heart of understanding the idea of novelty (Cui & O'Connor, 2012; Gupta et al., 2007). Recently, Tajvidi and Karami (2015) and Truong et al. (2017) revealed that highly innovative products can create new categories in which consumers understand familiarity and knowledge, which lead to differences in the purchasing decision. Several studies have attempted to explain that the level of novelty of a product is defined as “product innovativeness” or “possession of newness” (Jeong et al., 2017; Roehrich, 2004; Truong et al., 2017).

Previous studies have reported that innovation plays an important role affecting entrepreneurial performance, which has been recognized and measured in the marketing literature (Jeong et al., 2017; Tajvidi & Karami, 2015). Innovation helps the business to produce value by generating new ideas, new products, new technologies and new services in order to develop new markets (Cui & O'Connor, 2012; Dutot, 2013; Ho & Wu, 2011; Jeong et al., 2017; Kelley et al., 2011; Wu & Chang, 2016) and in turn increase revenue (Li et al., 2015). Therefore, firms need to keep their market power through a constant stream of innovations (Hunn, 2015; Rubera & Kirca, 2012). To address this, in the early

1970s, several studies tried to predict consumers' buying behaviour when buying innovative or new products by using different scales intended to measure innovativeness (Schuurman et al., 2011; Vandecasteele & Geuens, 2010). Numerous studies have attempted to explain "consumer innovativeness", which refers to the fact that consumers like to buy new products faster and more often than other people or to try out new IT (Cheng & Mitomo, 2017; Jackson et al., 2013; Kwon et al., 2007; Li et al., 2016) or "personal innovativeness" (Kwon et al., 2007; Thakur & Srivastava, 2014) .

What is known about consumer innovativeness is largely based upon empirical studies that have investigated how inherent innovativeness affects consumer behaviour (Chao et al., 2012; Vandecasteele & Geuens, 2010). Consumers who have a high association with technology innovation are motivated to acquire knowledge about new technological products (Kabadayı & Alan, 2012). However, these rapid changes in the consumption of innovative products are having a serious effect on business (Ho & Wu, 2011; Jeong et al., 2017; Li et al., 2015) and in the IT markets (Herrmann et al., 2007; Kelley et al., 2011). As the WSTP market has become one of the fastest-growing consumer segments of new innovative technology products in recent years (Cheng & Mitomo, 2017), a considerable amount of literature has examined the nature of innovation in this market (Choi & Kim, 2016; Chuah et al., 2016; Jeong et al., 2017). Kabadayı and Alan (2012) shows that innovativeness motivates consumers to "(1) search for new information; (2) push them to distinguish themselves through the ownership of rare items; (3) pursue independence of judgment in innovative decisions".

In other words, a person with a high level of personal innovativeness could be an early adopter, which affects their consumer behaviour in terms of adopting new technology (Kwon et al., 2007). Personal innovativeness seems to be an essential determinant of cognitive engagement (Kwon et al., 2007). This indicates a need to understand how consumer innovativeness influences purchase decisions (Jeong et al., 2017; Kleijnen et al., 2009; Truong et al., 2017; Wu & Chang, 2016).

Several studies have revealed that innovation-minded consumers who are not only more likely to accept new technology (Li et al., 2016; Te'eni-Harari, 2014), they also tend to make decisions to adopt innovations individually based on new product information, as well as possess a high appreciation of novelty (Afzal, 2009; Ho & Wu, 2011; Kabadayı & Alan, 2012; Truong et al., 2017). From consumers' perspective, for technology innovations to be successful, they must be perceived as new and unique compared with others (Jeong et al., 2017; Wien & Olsen, 2014). Li et al. (2016) indicate that consumers could react differently, due to individual differences in characteristics related to technology innovativeness. The first serious discussion about personal innovation was started by Agarwal and Prasad (1998) who defined it as "the willingness of an individual to try out any new information technology". As such, personal innovativeness affects a consumer's behaviour or intention to use new technology (Kwon et al., 2007; Te'eni-Harari, 2014). Kabadayı and Alan (2012) indicate that new technology products are involved with marketing outcomes. In this study, "IT innovation" describes "consumers' interest in innovativeness in technology", "product innovation" and "personal innovativeness".

Many firms experience positive results from IT innovation, although innovation in the high technology field is not always successful. Several studies reveal that many firms have experienced high rates of innovation failures (Chao et al., 2012; Ho & Wu, 2011; Kleijnen et al., 2009). Truong et al. (2017) highlight the fact that many technologically innovative products bring new features, which seems to lead to more hesitation among consumers. Vandecasteele and Geuens (2010) argue that prior studies have ignored the different foundations of motivation. An innovativeness scale should be more balanced when addressing potential purchase motivations related to individual differences in innovativeness levels (Im et al., 2007). The argument proposed by Ho and Wu (2011) is that consumers' own traits can affect their evaluation of an innovative product and the level of innovative characteristics, as well as the acceptability of innovation. This view is supported by Li et al. (2015) who claim that an innovative product does not always promise a high market acceptance rate.

When consumers are unfamiliar with innovative products, a higher level of uncertainty in the measurement of technology and quality will result in a lower level of consumer intention towards purchasing these products; even earlier adopters are affected (Kelley et al., 2011; Truong et al., 2017; Wu & Chang, 2016). One major criticism of highly innovative products is that these products can elevate perceived risk due to the limitations of consumer familiarity, experience and knowledge (Rupp et al., 2016; Truong et al., 2017). Surveys such as that conducted by Li et al. (2015) showed that cognitive ability inspires innovative consumers to increase their cognitive limits. A recent study by Kleijnen et al. (2009) involved some of the factors that drive consumer resistance towards new technology, which can be classified into two types: those that “change the established behaviour pattern and cause a psychological conflict”. Therefore, if an innovative technology product has complicated functionality and requires more time to be spent to use and understand it, this can lead consumers to resistance (Cheng & Mitomo, 2017; Ho & Wu, 2011; Kleijnen et al., 2009). Much uncertainty still exists about innovative products, which might lead us to be hesitant about their functionality and assessment, while these products do not satisfy certain consumer needs which could pose (Seol et al., 2017). During the new product adoption process, potential consumers’ intentions are greater when they perceive new products to be helpful and well matched with their needs, which makes a robustly positive contribution to product success (Castaño et al., 2008; Li et al., 2015). A significant influence has been found in terms of how consumers receive and use IT innovation, when considering several models, i.e., the TAM, the TRA and the UTAUT (Cheng & Mitomo, 2017; Choi & Kim, 2016; Kim & Shin, 2015; Seol et al., 2017). Among these models, adopting IT innovation relates to perceived usefulness and perceived ease of use, which leads to a causal relationship between beliefs and behaviour intentions. With increasing technological advancement in our daily lives nowadays, IT innovation should not merely address perceived usefulness and perceived ease of use; rather, IT innovation should be understood as a motive in relation to WSTPs while its effects on the intention to purchase should be investigated.

WSTPs are unique, on the one hand, because they allow for a close interaction between technology and the consumer's body, such that a sense of familiarity connects with the user's mind, mood and sense of self (Bonfiglio & De Rossi, 2011; Jeong et al., 2017; Lee et al., 2016; Nasir & Yurder, 2015; Yang et al., 2016). They can record their physical responses and share such data with a group while the user is taking exercise (Karapanos et al., 2016). WSTP consumers are not just technology users; they are also part of a social network (Thakur & Srivastava, 2014; Yu, 2012). However, a major problem with the adoption of IT innovation could decrease if consumers are more informed about the perceived privacy risk (Li et al., 2016). The debate continues about the best strategies for the management of IT innovation in the case of WSTPs, in which a differentiation strategy for boosting capability and satisfying the ever-growing variety of consumer needs could generate innovative modifications to existing products (Heidenreich & Kraemer, 2016; Seol et al., 2017).

On the other hand, WSTPs are complex because they can combine the characteristics of other technological devices with those of garments. These rapid changes are having a serious effect on the development of new technologies; as such, the life cycle of new products has become shorter (Ho & Wu, 2011). Several researchers have recently investigated the adoption of electronic products from the perspective of personal innovativeness (Ho & Wu, 2011; Jeong et al., 2017). Jeong et al. (2017) suggest that exploring the acceptance of WSTPs should be considered in relation to various factors, including cognitive, physical and psychological issues, while arguing that ignoring the factors of usefulness, comfort and ease of use may lead to the failure of a new product. More recently, literature has emerged showing that the individual cognition of consumers is based on their understanding of innovative technology products, rather than the visual change made to products on the market (Wu & Chang, 2016) – this also needs to be integrated in the model.

Recently, a number of researchers has sought to examine technology innovation in the WSTP field with reference to various theoretical models, including the TRA (Hsiao &

Chen, 2018), the TPB (Lunney et al., 2016), TAM (Choi & Kim, 2016; Chuah et al., 2016; Jeong et al., 2017) and the UTAUT (Hwang et al., 2016; Seol et al., 2017). Certainly, IT innovation is a determinant relevant to the research in this field, despite the fact that the existing literature fails to resolve the contradiction among other factors (Zhang et al., 2017). Researchers have inevitably found that individuals respond differently due to their differences in characteristics associated with IT innovativeness. In general, even though much uncertainty exists about the adoption of IT innovation, consumers are more likely to adopt a new IT product in the WSTP market (Li et al., 2016). Thus, marketers should consider that individual differences may lead to modified responses to this innovativeness (Jeong et al., 2017; Li et al., 2016).

Extant studies rely too heavily on analyses from the technology adoption perspective of WSTPs. Drawing on previous research, we would like to extend the determinant of IT innovation by moving beyond the existing, mostly one-dimensional, scale to construct a new IT innovation scale, which incorporates diverse underpinnings of the motives and outcomes associated with decision-making when buying an innovative WSTP (Vandecasteele & Geuens, 2010). More specifically, IT innovations enable firms to reach beyond existing practices in order to make products differently. This study considers the characteristics of WSTPs associated with technological, functional and novelty features, which are believed to work as principal determinants in the decision-making concerning these devices.

2.5.2 Health issues

People's lifestyles have significantly changed in recent years (Xu, 2015) in the pursuit of a healthier, more science-based and sophisticated lifestyle (Xu, 2015). In the 1980s, exercise for some people represented not only physical activities but also a fashionable lifestyle choice (Karapanos et al., 2016). Nowadays, people like to have more fun and more scientifically informed exercise, while abandoning the practice of boring or "untrendy" physical exercises (Nasir & Yurder, 2015). Recently, several researchers have

investigated whether WSTPs precisely meet the demands among this new generation of so-called “fitness fanatics” (Piwek et al., 2016; Xu, 2015).

On the one hand, the world’s population is ageing, with the demographic shift affecting many parts of life (Lavallière et al., 2016; Nasir & Yurder, 2015). Chronic disease is increasing too, leading to a significant hike in health costs; for instance, as the levels of coronary heart disease, diabetes, hypertension and obesity increase, so does the amount of money spent on healthcare (Anzaldo, 2015; Bonfiglio & De Rossi, 2011; Nasir & Yurder, 2015; Patel et al., 2012; WHO, 2017). So far, governments enthusiastically support the sports manufacturing industry in pursuing new materials and technologies to improve our quality of life (Hoeger et al., 2018, p. 12; Xu, 2015). Therefore, taking part in regular exercise and sports activities is especially important to those with different backgrounds and ages seeking a healthy lifestyle (Anzaldo, 2015).

On the other hand, a longer life represents a significant opportunity for older people and their families as well as the whole of society (WHO, 2017). For this purpose, people seek a healthy lifestyle and hence a better quality of life (Lavallière et al., 2016). In 2007, the presidents of the American Medical Association and the American College of Sports Medicine referred to exercise as the “wonder drug” (Karapanos et al., 2016). Lately, people are encouraged to precisely “walk 3000 steps per day”, instead of following the vague advice “to walk more”, and monitor their success throughout the day by using a WSTP (Karapanos et al., 2016). This monitoring offers users’ insights into their daily behaviour and motivates them to increase activity levels in certain areas. A WSTP is expected to deliver a new means to cope with health issues. Indeed, a considerable amount of literature has centred on WSTP applications in public health (Behkami & Daim, 2012; Bonfiglio & De Rossi, 2011, p. 52; Lee & Lee, 2018). In many areas of the sports industry, numerous studies have reported that WSTPs have been highly effective (Xu, 2015), for instance, in relation to mental health programmes (Jensen et al., 2015) well-being (Chan et al., 2012; Karapanos et al., 2016), workout injury prevention

(Anzaldo, 2015; Bonfiglio & De Rossi, 2011; Seshadri et al., 2017), and physical conditioning and performance metrics (Anzaldo, 2015).

What is known about WSTPs is largely based on studies of specific health-related tasks via monitoring (Karapanos et al., 2016; Kumar & Venkateshwarlu, 2017; Li et al., 2016; Wang, White, et al., 2015; Zheng et al., 2014), that is, when a set goal is achieved, WSTPs will remind the users to make the exercise efficient.

Recently, investigators have examined health issues related to the use of WSTPs (Nasir & Yurder, 2015). Previous studies have also reported that health-specific WSTPs can facilitate early diagnosis, prevention and continuous care in order to increase healthy behaviours and quality of life (PSFK, 2014). It also has been confirmed that physicians can use information collected from a WSTP for analysis in order to improve the management of chronic diseases (Anzaldo, 2015; Bonfiglio & De Rossi, 2011; Chan et al., 2012; Chung et al., 2012; Jensen et al., 2015; Park & Jayaraman, 2003; Patel et al., 2012; Porter & Heppelmann, 2016; Schwartz & Baca, 2016), Alzheimer's disease (Bower & Sturman, 2015; Chan et al., 2012; Mahoney & Mahoney, 2010), cardiopulmonary diseases (Patel et al., 2012; Piwek et al., 2016; Zheng et al., 2014), diabetes and hypertension (Piwek et al., 2016; Zheng et al., 2014), as well as managing stress (Wright & Keith, 2014), increasing productivity (Piwek et al., 2016; Swan, 2012), and improving sleep quality (Swan, 2012) and well-being (Karapanos et al., 2016; Xu, 2015). In this context, Nasir and Yurder (2015) investigated the perceptions of physicians and users to analyse their level of acceptance of WSTPs.

The relationship between individuals' adoption of a healthier lifestyle and their adoption of IT innovation has been widely investigated by several researchers (James & Petrone, 2016; Li et al., 2016; Nasir & Yurder, 2015; Zhang et al., 2017). As such, WSTPs play a vital role at the centre of healthcare innovation (Nasir & Yurder, 2015; Piwek et al., 2016). At present, Piwek et al. (2016) recently reported that a WSTP is more likely to be purchased by consumers who already lead a healthy lifestyle and need to measure their

progress. Little is known about consumers' purchase intention concerning health-specific WSTPs; nor is it clear what aspects of marketing communication are affected (Li et al., 2016), as most literature on WSTPs focus on technical perspectives (Keller, 2013; Lee et al., 2016). This study critically discusses the motives in the decision-making process while acknowledging that health issues have emerged as a determinant in the model.

Preventive interventions, without doubt, reduces the long-term cost of healthcare (Bonfiglio & De Rossi, 2011; Li et al., 2016; Zheng et al., 2014). WSTPs allow for the collection of user data, which can be shared with professionals, for instance, tracking real-time data to remind patients when it is time to take medications (Cheng & Mitomo, 2017; Hsu & Lin, 2015a; LexInnova, 2016; Nasir & Yurder, 2015; Piwek et al., 2016; Seshadri et al., 2017; Xu, 2015). To address this, one approach is to shift the responsibility of health monitoring and management directly onto the family in order to collect relevant data from home, instead of expensive medical centres (Bonfiglio & De Rossi, 2011; Piwek et al., 2016), which enables physicians to make early interventions by tracking patients' health (Nasir & Yurder, 2015). Nasir and Yurder (2015) show that applying a WSTP is a new way in which technology can be applied in the health sector.

Several existing studies focus on the factors that impact the adoption of WSTPs related to health issues (Lavallière et al., 2016; Nasir & Yurder, 2015; Rupp et al., 2016). Bonfiglio and Ross (2011, p. 166) also report that health and fitness functions are not the only rationale for using WSTPs, but they will likely control the market in the future. Recent evidence shows that well-known innovative firms, such as Google and Apple, are making efforts to add health-related functions to their WSTPs (Mitrasinovic et al., 2015; Wu et al., 2014).

Drawing on existing studies, one argument has been proposed by some researchers, which states that personality differences may affect the level of health information sensitivity, given that personality characters are related to how people seek information and their behaviour (Bansal & Gefen, 2010; Piwek et al., 2016). Perceived risk relates to

consumers' concerns about the reliability of WSTPs, data storage and privacy (Nasir & Yurder, 2015; Piwek et al., 2016; Trivedi, 2011). The impact of WSTPs which have been adapted to offer health-related functions could lead to alternatives being chosen (Gao & Lai, 2015; Piwek et al., 2016; Trivedi, 2011). Therefore, when exploring determinants that affect decision-making in terms of purchasing a WSTP, it is especially important to take health issues among consumers into consideration.

In summary, previous studies have measured various motives to assess consumer behaviour in relation to WSTPs. The complication of motivation leads to a diffusion of scale and structure. Underpinning the guidance of various theories, an empirical method has been used to conceptually develop our understanding of consumer decision-making in the case of WSTPs. This approach identifies two types of motives that are consistently discussed throughout the literature: IT innovation and health issues. These motives carry the same weight in individuals' decision-making processes. Therefore, we will explore what inform these motives.

2.6 The nature of marketing communication

The next stage in the sequence of motives and needs is to search for relevant information. Nowadays, consumers are exposed to an enormous amount of information on a daily basis (Yeshin, 2012). A successful product represents nothing unless its benefits can be communicated visibly to the target market (Khan et al., 2013). In marketing, a communication strategy is therefore significant because it plays three vital roles: offering required information and advice, convincing target customers of the merits of a specific product, and encouraging them to take action at specific times (Khan et al., 2013). By identifying the fact that marketing involves communication between a firm and its consumers, this underscores the increasingly significant role of marketing communications as a strategic tool (Yeshin, 2012).

The term “marketing mix” was initially proposed by Borden (1964) and is still used today in relation to important decisions made about a marketing plan (Todorova, 2015). For Borden (1964), the marketing mix comprises “product planning, pricing, branding, channels of distribution, personal selling, advertising, promotions, packaging, display, servicing, physical handling, and fact-finding” (Todorova, 2015). Thus, in the nature of promotion in the marketing mix, marketing communications is the specific combination of promotional tools that a company uses to persuasively communicate customer value and build customer relationships (Todorova, 2015; Yeshin, 2012).

Kotler and Armstrong (2016) define marketing communications as “the means by which firms attempt to inform, persuade and remind their customers - directly and indirectly - of products and brands they sell”. Marketing communications denote the voice of the company and its brands; they are the means by which it can initiate a dialogue and build a relationship (Todorova, 2015). In other words, successful marketing communication relies on the combination of these fundamentals if the benefits of a company’s products are to be effectively targeted at consumers (Todorova, 2015).

A communication strategy is a critical component of new product adoption processes (Kotler & Armstrong, 2016; Yeshin, 2012). When a new product is announced, a consumer may wish to search for product information to learn about specific features (Shaw & Sergueeva, 2019). Understanding the overarching process of communications is essential to any appreciation of how marketing communications could work (Yeshin, 2012). It is also vital to identify how individuals obtain information from the environment where they live and, significantly, how they understand this information to support them in their daily lives (Stephen, 2016; Yeshin, 2012). Marketers have replied to this central modification by increasing their use of marketing communication channels. It is increasingly being acknowledged that marketing communications are not only a set of key tools, but they also play a strategic role for firms (Yeshin, 2012).

In the digital era, using the Internet, mobile apps, social media and other digital communication technologies has become part of billions of individuals' daily lives nowadays (Stephen, 2016; Yeshin, 2012). The communication form between firms and consumers has been elevated to a new platform (López & Sicilia, 2014). The primary requirement of the “new marketing” approach is the development of a close customer focus via technology, which, in turn, underlines the need to understand consumers as people in order to recognize their perceptions, anticipations, wants and needs (Stephen, 2016; Yeshin, 2012). For this purpose, firms have sought to meet the growing demand for consumer products, while the ever-expanding means of transportation has allowed these companies to serve a wider market in digital settings (Stephen, 2016). As such, an essential function of marketing is the anticipation of information, such that decisions are based on existing, relevant and precise communication entering the marketplace (Yeshin, 2012).

As previously stated, the expansion of marketing communications has moved our thinking way beyond the simple differences among public relations, advertising, sales promotions and similar categorizations of the myriad tools available (Yeshin, 2012). Not only are the tools themselves significantly enhanced by the availability of new forms of media and connecting devices, but their application has also altered alongside the development of the Internet, electronic points of sale, virtual advertising and ambient media (Stephen, 2016; Yeshin, 2012). In brief, this study improves our understanding of the purchase intentions of consumers in adopting WSTPs via marketing communication, and that all of these considerations will be explored in the next section.

2.6.1 Word of mouth

In the marketing discipline, for more than five decades, researchers have been highly interested in WOM (Peter & Olson, 2010, p. 205; Wien & Olsen, 2014). Dichter (1966) was one of the first scholars to address WOM in the *Harvard Business Review*, whose study identified four key motivations that drive individuals to engage in WOM behaviour:

“perceived product-involvement”, “self-involvement”, “other involvement” and “message involvement” (King et al., 2014).

The power of influence via WOM-based communication has been comprehensively acknowledged in the consumer behaviour literature (see Table 1) (Chen & Xie, 2008; Cheung & Thadani, 2012; Wang & Yu, 2015; Yadav et al., 2013). Consumers like to seek information via WOM means from those whom they trust (Chen & Xie, 2008; Park et al., 2011).

Table 1: Definition of WOM

Definition	Origin
“Oral, person to person communication between a receiver and a communicator whom the receiver perceives as non-commercial, concerning a brand, a product or a service.”	Arndt (1967, p. 3)
“[All] informal communications directed at other consumers about the ownership, usage, or characteristics of particular goods and services or their sellers.”	Westbrook (1987, p. 261)
“[Informal], person-to-person communication between a perceived non-commercial	Harrison-Walker (2001, p. 63)

communicator and a receiver regarding a brand, a product, an organisation, or a service.”	
“Shared personal experiences and opinions among friends, colleagues or relatives in a face-to-face situation.”	Sun et al. (2006)
“Discussing one’s consumption experiences with other people is a common activity.”	Blackwell et al. (2006, p. 214)
“Consumers may share information with friends about good deals on particular products, a valuable coupon in the newspaper, or a sale at a retail store.”	Peter and Olson (2010, p. 425)

WOM refers to interpersonal communication in informal settings relating to products and service, the assessment of a store and associated customer involvement (Gupta & Harris, 2010; Ha & Im, 2012; Kuo et al., 2013; Prendergast et al., 2010). In other words, WOM is viewed as more reliable and trustworthy than messages from advertisers or marketers (Ha & Im, 2012; Kuo et al., 2013; Sicilia et al., 2016). Consumers can be affected by or learn from other consumers’ thoughts and actual purchase decisions (Chen et al., 2011; Coulter et al., 2012; East et al., 2008; Ferguson et al., 2010; Ha & Im, 2012; Roy et al., 2014; Sweeney et al., 2014). Much literature has been published indicating that WOM has a much stronger influence on consumer decision-making than traditional communication tools, including television and radio advertising, personal selling and posters (Bush et al., 2005; Cheung & Thadani, 2012; East et al., 2008; King et al., 2014; Prendergast et al., 2010; Reimer & Benkenstein, 2016; Roy et al., 2014).

As the Internet increasingly becomes a part of our daily lives, its ability to influence the information-gathering process will intensify (Chan & Ngai, 2011; Gupta & Harris, 2010; López & Sicilia, 2014; Nasir & Yurder, 2015; Reimer & Benkenstein, 2016; Stephen, 2016; Xu, 2015). Understanding how consumers search for information from the Internet is essential. The advancement of technology has strongly changed the traditional WOM phenomenon by bringing it into the digital domain in the form of electronic WOM (eWOM). As such, people rely on other consumers' experiences and reports; they make decisions offline using the information that is occasionally gleaned online (Lee et al., 2008). López and Sicilia (2014) found that 90% of online consumers seek out other online users' opinions before buying, and that 70% of consumers believe eWOM. eWOM, therefore, has altered the way in which many consumers make purchasing decisions (Cheung & Thadani, 2012; Fang, 2014). Indeed, there are both opportunities and challenges for businesses when it comes to managing WOM strategically (Chen et al., 2011; Park et al., 2007). This also reveals that the pattern of WOM communication has shifted from the local to the universal, and from the verbal to the technological (Chan & Ngai, 2011; Fang, 2014; King et al., 2014; Laroche, 2010; Lu et al., 2014; Prendergast et al., 2010; See-To & Ho, 2014). Taken together, this search for WOM is characterized by reading or watching online advertising, voting, looking at other users' comments and writing about their own experiences (Celebi, 2015; Hsu & Lin, 2015a).

Studies of eWOM underline the fact that online reviews generated by consumers are more influential than any other online commercial information. Hennig-Thurau et al. (2004, p. 39) define eWOM as "any positive or negative statement made by potential, actual, or former customers about a product or company, which is made available to a multitude of people and institutions via the internet". That is, consumers directly gather information through online social networks and discussion groups, online review forums, and other sources of user-generated online content (Dellarocas et al., 2007). Mudambi and Schuff (2010) claim that online consumer reviews, which are posted on e-retailer or third-party websites, represent a form of eWOM. To illustrate this point, more recent studies have found that consumers often refer to reviews by other consumers before purchasing a

product online (Hsu et al., 2017; Liang, 2016). Online customer reviews are therefore an essential source of product information (Hsu et al., 2017; Huang et al., 2015).

Related to WOM, several studies have revealed that eWOM might involve greater credibility and relevance for customers than marketer-generated information on the Internet (Chan & Ngai, 2011; Huang et al., 2012). This new phenomenon has changed decision-making behaviour, with consumers tending to be influenced by their social networks with others (Chen et al., 2011; East et al., 2008; Kuo et al., 2013). Chen and Xie (2008) therefore conclude that eWOM is a new component in marketing communications, that is, eWOM producers could function as online sellers' unpaid "sales assistants" helping consumers to identify products that best match their needs (Chen & Xie, 2008). Consequently, the ways in which messages are conveyed and consumed in the online world significantly affect the impact of eWOM (Chan & Ngai, 2011; King et al., 2014). What is known about the impact of eWOM is that it influences product sales and purchase intentions (Hsu & Lin, 2015a; King et al., 2014). As such, eWOM recommendations lead to more time spent on the choice task.

It is evident that the growth in the popularity of social networking sites, including Twitter, Facebook and LinkedIn, has changed the way in which WOM operates, such that marketers need to consider how to start leveraging these platforms to create interest and purchase intentions (Batrincea & Treleaven, 2015; Cheung & Thadani, 2012; Coulter et al., 2012; Dellarocas et al., 2007; Fang, 2014; Kumar Roy et al., 2014; Park et al., 2007; Wang & Yu, 2015; Wien & Olsen, 2014). This process takes place in the public media domain, where people do not need to build relationships, but connect through common topics or interests and in virtual communities where relationships are recognized, based on this commonality (Chan & Ngai, 2011; Lu et al., 2014). Previously, in the context of traditional WOM, when consumers needed information, they asked for suggestions from friends and relatives, looked at third-party guarantees or turned to marketer-generated sources (King et al., 2014). Thus, new media technology has changed the mode of interactive communication (Sun et al., 2006). That is, the Internet has become a vital

marketing and communications tool (Chan & Ngai, 2011; Prendergast et al., 2010; Sicilia et al., 2016). In recent years, eWOM has been accepted as an extension of traditional interpersonal communications (Chan & Ngai, 2011; Cheung & Thadani, 2012). For the purposes of this study, we carried out a comprehensive, extensive and systematic search using the keywords “electronic word of mouth”, “eWOM”, “Internet word of mouth”, “online customer review”, “online word of mouth”, “online recommendations”, “Internet recommendation”, “electronic referral” and “online rating” (Chan & Ngai, 2011; Lu et al., 2014; Reimer & Benkenstein, 2016; Stephen, 2016). In this study, WOM refers to both traditional WOM and eWOM.

So far, there has been several discussions about whether an online review that is trustworthy increases a consumer’s willingness to make use of such information in their purchase decisions (Chen et al., 2011; Lu et al., 2014; Reimer & Benkenstein, 2016). When consumers demand information, for instance, due to the hesitation of purchasing, costs and risks associated with their buying choice, consumers will seek out eWOM from consumers who like to share their experiences and opinions about products or services they have purchased, sometimes behind a wall of anonymity.

On the one hand, the credibility of eWOM relies on receivers’ perception of the contributors’ expertise and trustworthiness (Fang, 2014; Wien & Olsen, 2014). A plethora of studies suggests that positive online reviews lead to significant outcomes in terms of consumer behaviour (East et al., 2008; King et al., 2014; Prendergast et al., 2010; Reimer & Benkenstein, 2016; Sweeney et al., 2014; Ye et al., 2009). East et al. (2008) highlight the fact that positive WOM is more likely to be given than negative WOM.

On the other hand, it can be argued that negative WOM has more impact on purchase intentions than positive WOM (Cheung & Thadani, 2012; De Matos & Rossi, 2008; East et al., 2008; Kamakura et al., 2006; King et al., 2014; Reimer & Benkenstein, 2016). Consumers are also more likely to post negative WOM content on online social networks in order to decrease the purchase intention of others (King et al., 2014). This is because,

in the online environment, the anonymity of WOM content is a powerful marketing tool, in which consumers' tendency to post reviews related to opponents can influence the decision-making procedure (King et al., 2014; Yoo et al., 2013). Therefore, a number of studies has revealed that online consumers are much more sensitive to negative WOM (Chevalier & Mayzlin, 2006; De Bruyn & Lilien, 2008; Hernández-Méndez et al., 2015; King et al., 2014; Park et al., 2007; Prendergast et al., 2010; Yoo et al., 2013); this is also known as a “negativity effect” (Cheung & Thadani, 2012; East et al., 2008; Sotiriadis & Van Zyl, 2013).

The relationship between positive and negative WOM has been widely investigated by Sweeney et al. (2014), who found that both can have a cognitive effect on the consumer. Peine et al. (2009) refer to two different behavioural intentions: a willingness to spread positive WOM (“I would recommend this offer to a friend”) and to share their purchase intent (“I would book this flight”) (Peine et al., 2009). To date, only a few studies have employed WOM as the main dependent variable within the behaviour intention model (Wien & Olsen, 2012). One major advantage of this approach is that WOM is a more of a core structure of marketing communication and regulates the impact of quality concepts on behavioural intentions. This view is consistent with the traditional belief-attitude-intention-behaviour approach in the TRA (Fishbein & Ajzen, 2011; Wien & Olsen, 2012).

When the World Wide Web evolved into Web 2.0 followed by Web 3.0, consumer behaviour changed, such that online WOM began to play an important role, particularly in the adoption of new products (Ho & Dempsey, 2010; Laroche, 2010; Sperlich & Holmberg, 2016; Stephen, 2016; Wien & Olsen, 2014). In fact, by 2017, approximately one third of universal advertising spending is forecast to be on digital channels (Stephen, 2016). As such, some researchers have suggested that traditional media channels have lost their advantage (Sweeney et al., 2014), while social media platforms facilitate the instant and rapid communication of WOM (Chen et al., 2011; Söderlund & Mattsson, 2015; Wien & Olsen, 2012). In the WSTP market, WOM is regarded as a possible marketing communication strategy with which to engage consumers (Sperlich & Holmberg, 2016;

Yoo et al., 2013) taking place in a range of online environments (Stephen, 2016). As mentioned above, in this study, our definition of WOM includes online WOM, eWOM and online consumer reviews. In turn, we apply WOM as a determinant of communication marketing in the decision-making process.

2.6.2 Advertising

Consumers are reminded by businesses that their advertising objective is to sell their products (Parente & Strausbaugh-Hutchinson, 2014, p. 130; Pishghadam & Navari, 2012). Baker (2014) points out that: “Advertising works in a number of different ways and that one must be careful to define the exact in which advertising is to be used before one will be able to determine what may be possible.” In the theory of how advertising works, first, consumers learn about something related to a product, then form an attitude or feeling; as a result, they take action, which means buying the product or going to the shop with the intention of purchasing (De Mooij, 2013, p. 217; Pishghadam & Navari, 2012).

Advertising, which refers to communication objectives, must be specific to the target audience, that is, the end users of an advertising campaign (Baker, 2014). Without a doubt, good advertising produces favourable attitudes, awareness and preferences in the minds of consumers, motivating them to try and continue to use a product or service (Baker, 2014, p. 418; Tomczak et al., 2017, p. 144-148). By using advertising, marketers try to affect consumers’ attitudes (what they think) and their behaviours (what they do), that is, navigating consumers through the purchasing cycle in order that they will eventually buy their products (Parente & Strausbaugh-Hutchinson, 2014, p. 132; Tomczak et al., 2017, p. 7).

As such, two different types of advertising intent have been distinguished: selling intent and persuasive intent (Kunkel et al., 2004; Rozendaal et al., 2010). The definition of selling intent in advertising relates to the advertiser’s effort to influence consumers’ behaviour directly, and to specifically encourage them to purchase a product (Moses &

Baldwin, 2005; Rozendaal et al., 2010). Persuasive intent is, more broadly, defined by the advertiser's attempt to influence consumer behaviour indirectly by changing their mental state, for example, their beliefs and desires related to a product (Moses & Baldwin, 2005; Rozendaal et al., 2010).

Once consumers have their desires and needs met, a process of information-seeking takes place (Celebi, 2015). This is essential because it allows consumers to collect information related to the products (Afzal, 2009; Celebi, 2015). De Mooij (2013) report that the high-involvement model shows that consumers are active participants in the process of gathering information and making a decision (Park et al., 2007; Poczter, 2013; Tomczak et al., 2017, p. 193; Yeung et al., 2016). With this object in mind, a number of studies reveals that advertising has an enormously significant role to play in communicating information including the characteristics, performance and availability of products, which keep them in the consumer's mind (Baker, 2014, p. 406; de Medeiros et al., 2016; Park et al., 2007; Tomczak et al., 2017, p. 193; Wang & Sun, 2010; Yeung et al., 2016).

In contrast, low-involvement behaviour occurs when a consumer has little interest in the product, for instance, a detergent or another fast-moving consumer product (de Medeiros et al., 2016; De Mooij, 2013; Park et al., 2007; Tomczak et al., 2017, p. 78). The sequence in the low-involvement model is supposed to be "learn-do-feel", that is, knowledge comes first, followed by purchasing, while attitude is only formed after using the product (Ahuvia et al., 2008; De Mooij, 2013, p. 217; Hanekom & Barker, 2009; Poczter, 2013). Thus, the low-involvement model provides a suitable explanation of how advertising works in a specific framework, in which most of the advertising spending and activity are focused (Baker, 2014, p. 406; de Medeiros et al., 2016). In turn, the success of advertising creates interest and attraction among consumers, motivating them to try out specific products (Dehghani & Tumer, 2015). Despite high levels of successful advertising, Herbst et al. (2013) argue that consumers may have a negative relationship with unfamiliar brands or products as a result of a particular advertisement (Herbst et al., 2013).

Vaughn (1980) proposed the Foote, Cone, and Belding (FCB) grid (named after the advertising company of the same name), which positions consumers' attitudes in relation to products that include high involvement and low involvement, emphasizing the concept of "think-feel" (Demoulin et al., 2014). The FCB grid suggests four sequences in the process by which advertising influences consumers: (a) learn-feel-do, (b) feel-learn-do, (c) do-learn-feel and (d) do-feel-learn (Ahuvia et al., 2008; De Mooij, 2013; Poczter, 2013). The first two sequences are related to high involvement; the third and fourth sequences are related to low involvement (De Mooij, 2013, p. 217; Poczter, 2013). Similarly, Ramond (1976) discussed three variations that have been used in advertising research, that is: the "learn" element, which addresses the cognitive component and refers to how a consumer becomes aware of product attributes; the "feel" component, which describes whether consumers like or dislike a product; and, finally, the "do" component, which refers to the consumer's actual behaviour towards a product. Accordingly, prior studies have proposed a cognitive-affective-conative approach, in which advertisers need to observe how consumers respond to advertising (Baker, 2014, p. 406; Chen, Phelan, et al., 2016; Christou, 2011).

In previous decades, traditional advertising consisted of television, radio, print media and billboard campaigns, while marketing campaigns were often put in place to drive sales naturally; but, given advances related to the Internet, advertisers should consider the influence that advertising will have across channels (Dinner et al., 2014; Tomczak et al., 2017, p. 193; Yeshin, 2012). Online advertising, in particular, search advertising, is more efficient than traditional advertising in terms of overall sales impact (Dinner et al., 2014). With this object in mind, advertisers have started making appeals via social networking sites in their advertising in order to attract consumers' attention and address their needs (Dehghani & Tumer, 2015; Kim et al., 2009; Tomczak et al., 2017, p. 197).

Online advertising seeks to engage consumers, inviting them to stop, spend time and become involved with the marketing message (Celebi, 2015; Dehghani & Tumer, 2015; Stephen, 2016; Wu & Chang, 2016). In online advertising contexts, consumers' attitudes

towards advertising affect their motivation in seeking out further information (Lu et al., 2014; Te'eni-Harari, 2014; Wang & Sun, 2010). Social media has quickly changed marketing approaches of late (Dehghani & Tumer, 2015; Elseminas et al., 2015), as it encourages consumers to share their experiences and facilitates free advertising (Dehghani & Tumer, 2015). This situation has gone onto underscore the power of marketing communication tools in the Internet age and quickly changed traditional marketing methods (Elseminas et al., 2015; Tomczak et al., 2017, p. 194). For instance, Facebook creates broad platforms for viral online recommendations, allowing consumers to obtain a great deal of information and view various advertising messages (Dehghani & Tumer, 2015; Elseminas et al., 2015).

Drawing on relevant theories, the success of advertising should be measured by taking into account consumers' evaluations of the interest aroused by advertisements (Dehghani & Tumer, 2015; Te'eni-Harari, 2014; Yeshin, 2012). Baker (2014, p. 406) argues that, if advertising can encourage people to try products unconsciously in the pre-purchase stage, a very real risk exists, whereby, if the product does not meet consumers' expectations, it may lead to rejection (Baker, 2014, p. 406; Herbst et al., 2013). Consumers have high involvement with the products and a high level of product knowledge; thus, an advertising campaign alone cannot simply transfer the effects of those consumers' product-related involvement into favourable advertising attitudes and purchase intentions (Baker, 2014; Kim et al., 2009). In light of marketing literature, advertising is a major topic with respect to consumer behaviour, which considers how consumers respond to various features of digital advertising (Stephen, 2016).

Advertising, in the WSTP market, should be approached by applying various strategies in order to target potential consumers and increase their intention to become actual users of WSTPs (Yang et al., 2016). Existing studies reveal that advertising does indeed play a key role in motivating new product adoption (Chao et al., 2012; Kim et al., 2009; Wilson, 2014). A number of recent articles has addressed the behavioural aspects of advertising

from several perspectives. Therefore, this research incorporates “advertising” as a determinant of communication marketing in the hypothesized model.

2.7 Cognitive behaviour

The environment we live in is full of information. In everyday evaluations, cognitive judgement stands as a broadly accepted element of current management knowledge (Fang, 2014). If the information can stimulate consumers’ decisions, it must be managed (taken in, interpreted and used) by their cognition system (Godwin et al., 2017; Peter & Olson, 2010). Consumers rely on the information to make decisions (Peter & Olson, 2010; Van Rijnsoever et al., 2012). Recent studies investigate that cognition is related to the mental constructions and processes involved in the experience of thinking, making sense of something, understanding, memory and stimuli from the external environment (Chang et al., 2014; Kim et al., 2009; Peter & Olson, 2010). In other words, cognition interpretations provide in-depth, the representative meaning of products and behaviours, associated with past experience. Peter and Olson (2010) show that prior events form evaluation and purchase decision-making process.

Peter and Olson (2010) indicate that any decision-making situation is covered by the three cognitive processes: first, consumers create personal meaning or knowledge by taking relevant information into account (Moore, 2012), second, consumers evaluate products through integrating knowledge and selecting from among alternative actions (Cheung & Thadani, 2012; Chung et al., 2012), lastly, consumers recover product knowledge from their memory to use in the integration and interpretation processes (Hamilton, 2015; Peter & Olson, 2010). The cognition system starts to process interpretations when completing cognitive tasks, for example, by identifying goals and evaluating alternative ways to act to meet those goals and display the necessary behaviours (Huys et al., 2012; Peter & Olson, 2010). Several studies examined interpretation processes which are related to two signs of progress: attention and comprehension (Costermans & Fayol, 2014; Kendeou et al., 2014; Peter & Olson, 2010). The former, attention determines how consumers choose which

information to take into account and which can be ignored. The later, comprehension is associated with how consumers decide on the subjective meaning of information and hence build individual knowledge and beliefs (Kendeou et al., 2014; Peter & Olson, 2010). More recently, Chen, Phelan, et al. (2016) show that cognition connects to consumers' perceptions, attitudes and judgements during the process of evaluating relevant information. Following the cognitive process, consumers start to build information inside and evaluate all the costs and benefits to make the best decision regarding the purchase (Chen, Phelan, et al., 2016; Laroche et al., 2003), although consumers are not always involved in cognitive activity. Several studies have reported that cognition is built more likely a map in our brain (Costermans & Fayol, 2014, p. 18; Downs & Stea, 2011), which leads to many behavioural and purchasing decisions (Costermans & Fayol, 2014; Peter & Olson, 2010). When people interpret information from the environment and create new knowledge structures in memory, cognitive learning happens (Kolfschoten et al., 2010; Sternberg & Zhang, 2014, p. 34-37). Cognitive learning can also gather knowledge indirectly by observing others using the product, for example, when consumers take product-related information from the mass media (advertising) or from personal sources (friends, WOM) (Moore, 2012; Wang, Yang, et al., 2015). Those new knowledge will adapt to their existing memory structures. Kolfschoten et al. (2010) and (Peter & Olson, 2010) investigate that people use content ratings to preserve cognitive resources in order to decrease energy expenditure and facilitate the process of a purchase decision. Ideally, the cognitive and behavioural processes behind purchasing decisions can better meet consumer needs.

Recently a number of researchers has examined the relationship between affect and cognition (de Medeiros et al., 2016; del Bosque & San Martín, 2008; Forgas, 2008; Huang & Dubinsky, 2014; Sidi et al., 2017). With reference to neurology, the affective and cognitive systems are independent in different parts of the brain but are profoundly linked by neural pathways (Dabholkar et al., 2009; Forgas, 2008; Peter & Olson, 2010). Therefore, each system constantly stimulates the other. However, Mauri et al. (2010) argue that consumers' affective responses are more important to some marketing

purposes; whereas Bouckenooghe et al. (2007) support that cognition is significant. The affective segment, which involves maintaining a positive or negative feeling related to a purchase, is an extensive factor in predicting consumers' purchasing behaviour (Chen, Phelan, et al., 2016; Forgas, 2008; Morris et al., 2002). Clore et al. (2001) and Forgas (2008) have examined the affective segment on information theory which is a different mechanism, and that can operate as a unique source of information to enter evaluation in an informed way. Liao et al. (2016) have examined the integrated theory in which consumers involved in integration processes make behavioural choices when knowledge is associated with affective response. Consumers store product information in their memories and connect to the different types of knowledge, meaning, and beliefs. Forgas (2008) and Peter and Olson (2010) address that product knowledge in memory has the potential to stimulate and activate the integration process because activating a meaningful concept may launch-related concepts and activate those meanings. Yet, Fang (2014) argues that people's rational decisions are not only the result of cognition but also that of affect. Li et al. (2011) also debate that, when online consumers interact with a website, those stimuli will generate both affective and cognitive reactions. A number of literatures therefore indicate that achieving consumers' satisfaction occurs when both affect and cognition are fulfilled (Forgas, 2008; Ho & Dempsey, 2010; Liao et al., 2016; Peter & Olson, 2010).

During the consumer decision-making process, marketers provide certain elements of knowledge as the external stimulus (advertising, billboards, media and packaging) to consumers in order to form and influence their cognition (Park et al., 2005; Peter & Olson, 2010). Several researchers report the importance of cognition that a marketer must make the right decisions when selecting which channels to use to promote the chosen strategic meaning to consumers (Jackson et al., 2013; Park et al., 2005; Peter & Olson, 2010). Kendeou et al. (2014) debated that marketing may fail if marketers do not understand the importance of cognition in the decision-making process.

Nowadays, companies want to raise consumers' awareness and knowledge of products to increase sales (Jeong et al., 2017; Peter & Olson, 2010). A considerable amount of literature has been published on that the information presented to consumers leads to cognitive aspects, which take the decision about a product or service further forward (Jones & Taylor, 2007; Pedersen & Nysveen, 2001; Yuksel, Yuksel & Bilim, 2010). As such, if consumers develop a purchase intention, which denotes the level to which they are motivated to buy a specific product (Vanwesenbeeck et al., 2017).

Moreover, recently numerous studies have employed the Stimulus-Organism-Response (S-O-R) model to identify cognition factors (Floh & Madlberger, 2013; Wang & Chang, 2013; Zhang et al., 2015). The S-O-R model was proposed by Mehrabian and Russell (1974) in the environmental psychology field. The S-O-R model posits that environmental cues (stimuli) influence a consumer's affective and cognitive reactions (organism), which further affect behaviour (responses). According to the input-response-output (S-O-R) framework, external stimulation affects consumer cognition (i.e. functional experience), as well as consumer psychology (i.e. emotional experience) (Chang et al., 2014; Zhang et al., 2015). A study has been conducted on the relationship between stimuli, cognition, purchase intention and attitude (Wu & Chang, 2016). Fishbein and Ajzen (1975) developed the TRA in which a person's attitude is retrieved from memory under specific conditions, through which a person develops an emotional or evaluation response to what is observed (Wu & Chang, 2016). However, the debate continues about consumers adoption of WSTPs in pervious theories such as TRA, TAM, and UTAUT, Chen and Yao (2018) report that the S-O-R model has become the most commonly used basis for studying online shopping behaviour while online shopping behaviour is rising, which is referred to consumers relying on eWOM. The view is supported by Cho et al. (2019) who address that the S-O-R framework is more suitable for explicating WSTPs acceptance by consumers because WSTPs can deliver consumer satisfaction and pleasure. Little is known about S-O-R model adopted WSTPs and no research has been found that integrate S-O-R model and several existing consumer behaviour models, such as the TRA, the TAM, and the UTAUT adopted WSTPs during the decision-making process. Drawing on

the S-O-R model, by integrating it with marketing stimuli, we can identify a 'response' associated with actual purchase behaviour.

Considering the feature of WSTPs involves both IT innovation and health issues, first, when consumers contain innovativeness in cognition, this refers to "the desire for new experiences with the objective of stimulating the mind" (Van Rijnsoever et al., 2012; Vandecasteele & Geuens, 2010). Second, if a consumer has high involvement with health issues, this will influence how much effort they apply in interpreting the value of WSTPs (Peter & Olson, 2010). Chang et al. (2014) also highlight that the features of WSTPs related to IT innovative products could influence consumers' feelings and understanding, containing their objective cognition (functional experience) and subjective emotions (emotional experience). Taken together, we address that WSTPs are a product which owns both health issues and IT innovation features entail various stimuli (marketing communication) and consumers' response (cognition) to it.

Although, a considerable amount of literature has been investigated on S-O-R model (Chen & Yao, 2018; Cho et al., 2019; Jang & Namkung, 2009; Mazaheri et al., 2012) adopted various situations and consumer behaviour. Little is known about the mediating effect among the path relationship and most research fails to examine a mediator. Only Jang and Namkung (2009) report that the mediating effect shows how consumers' perceptions of atmosphere and services influence their behavioural intentions by generating positive emotions. Recently, Cho et al. (2019) published a paper adopted the S-O-R model with WSTPs in which they described they add 'pleasure' as a mediator in the model initially, but ignored to analyse the mediation effect in the end. We argue that there supposed to have the mediating effect in the S-O-R model, however, many researchers ignore or fail to examine it. This indicates a need to understand various perceptions of poverty that the mediation effect exists among the consumer decision-making process. Therefore, we determine to examine the mediation effect in the hypothesis.

Apparently, firms are highly interested in tapping into broad types of consumer motivations, as noted by some motivation researchers (Vanwesenbeeck et al., 2017). It is essential for marketers to recognise how consumers understand their marketing strategies. Yet, the integration processes involved in purchase intentions are critical. If marketers understand what kinds of product knowledge consumers use in the decision-making process and what knowledge is unnoticed, they can therefore focus on making changes in the marketing strategy because the same stimulus may activate different knowledge in different consumers' memory (Floh & Madlberger, 2013; Peter & Olson, 2010). This is important to study the consumer's cognition during the decision-making process.

2.8 Actual purchase behaviour

Engel et al. (1995) state that purchase behaviour is related to the direct behaviours of seeking information, which leads to decision-making and in turn, actual purchasing. Before acting to purchase, Blackwell et al. (2006) indicate that consumer will form the purchase intention which is related to the product that consumers want to buy. Purchase intention measures the possibility that consumers will purchase a definite product (Ho & Wu, 2011). A number of researchers have confirmed the positive relationship between the actual purchase and purchase intention (Hsu & Lin, 2015a; Thakur & Srivastava, 2014; Wu & Chang, 2016; Yang & Lee, 2017), which includes a recent study on the purchase of innovative technology products (Wu & Chang, 2016).

Several studies show that purchase behaviour involves a customer's psychological, physiological and emotional input, which may influence their willingness to purchase (Lee & Lee, 2015; Wu & Chang, 2016; Wu et al., 2013). As such, the purchase procedure is complicated, which includes making several decisions and contains a choice "between two or more alternative actions" (Peter & Olson, 2010, p. 161; Wu & Chang, 2016; Yeung et al., 2016). Kotler (2016) investigates that purchase behaviour is the way in which a consumer selects, purchases, uses and handles products and services. When consumers need to make a choice, they must understand various aspects of the decision

problem. A study of consumer behaviour by Peter and Olson (2010) describe that this problem demonstration may contain “(1) an end goal, (2) a set of simple rules by which consumers search for, evaluate, and integrate this knowledge to make a choice”. To achieve the end goals, consumers must have their needs satisfied throughout the entire problem-solving process. In the problem-solving process, consumers’ relevant knowledge in their memory about the choice field is a key fact (Peter & Olson, 2010; Punj & Brookes, 2002). Surveys such as that conducted by Chen, Damanpour, et al. (2010) and Gao and Bai (2014) revealed that most problem-solving processes actually contain multiple problems and decisions.

A considerable amount of literature has been investigated purchase intention adopted into various models, including online WOM and purchase intention by Prendergast et al. (2010), purchase intention and purchase behaviour by Lee and Lee (2015), purchase intention to pay a App by Hsu and Lin (2015), advertising and purchase intention by Dehghani and Tumer (2015), and a recent study of purchase intention on a smartwatch by Hsiao and Chen (2018), and purchase intentions of wearable devices by Liu and Guo (2017). Several researchers have investigated purchase intention as a moderator, such as purchase intention is moderated by perceived justice by Hsu et al. (2017), the moderating effect of cause involvement and skepticism on an attitude-intention basis by Patel et al. (2017). Therefore, this shows the importance of studying the relationship between purchase intention and purchase behaviour. Even from the existing research, we know how purchase intention plays a role in the decision-making process and some researchers have examined the moderation effect on purchase intention. What is not yet clear is whether purchase intention mediates the decision-making process among the other factors. Moreover, little is known about the mediating effect adopted WSTPs in the consumer decision-making process. In this study, we will examine the relationship between purchase intention and actual purchase behaviour in addition to address the mediating effect.

Nevertheless, Hu et al. (2016) and Kwon et al. (2007) argue that purchase intention is not the only predictor of actual behaviour. We will discuss the other factors adopted the actual purchase behaviour in the model on the next sections as consideration. In brief, marketers provide different choices concerning products or services, whereas consumers may actually select alternative choices. Several studies have revealed that consumers make many decisions involving non-purchase behaviours which impact purchase behaviour (Krishnan & Menezes, 2015; Peter & Olson, 2010, p. 161; Wang et al., 2004). This study will discuss actual purchase behaviour as the consumption behaviour of actual purchasing, including purchasing, the determination not to buy and alternative choices, which will be discussed to measure actual purchase behaviours (Wu & Chang, 2016; Yang & Lee, 2017). Clearly, a decision has to be made between different behaviours (Peter & Olson, 2010) and consumers' purchase intention may alter their responses to cause purchase behaviour.

2.8.1 Alternative behaviour

Alternatives refer to the alternative behaviours that consumers consider in the problem-solving process. Consumers are highly engaged in a cognitive thinking process when they evaluate possible alternatives before making the purchase decision (Chen, Phelan, et al., 2016; Liao et al., 2016). Before making a purchase decision, consumers will compare altered products from their memory in terms of products qualities and prices (Hsu & Lin, 2015a). Recently studies report that searching for information and alternative evaluations often happen simultaneously during the pre-purchase stage (Chen, Yen, et al., 2016; Liao et al., 2016). During the pre-purchase stage, first, consumers seek information and then assess the worth of each presented purchase alternative. Lin et al. (2007) also indicate that an alternative evaluation involves the factors that affect a consumer's evaluation of alternative selections. Recent evidence suggests that a consumer makes a purchase decision which depends on the consideration of different principles, including product classes, product forms, brands or models (Kuo et al., 2013; Peter & Olson, 2010; Yeung et al., 2016).

In a highly competitive business, consumers are easily affected by marketers' perspectives on numerous products and services, which can make them easily switch to whichever option is the most attractive (Bansal et al., 2005; Hsu & Lin, 2015b; Kuo et al., 2013). Marketers, therefore, create strategies to increase the prospect that a product will stimulate consumers' memory and inform their suggested sets of choice alternatives (Lin et al., 2007; Peter & Olson, 2010; Robinson & Doss, 2011). Anderson (2009) reports that, if a similar product is offered a price with almost zero downsides, a consumer feels no risk in making a wrong decision, meaning that they are more willing to buy it. Consequently, free or trial products remove the psychological transaction costs and increase the speed of decision-making, that is, giving a free alternative a try will increase a consumer's willingness to make a purchase decision (Hsu & Lin, 2015a). Liao et al. (2016) investigate alternative choice and carries out that consumers may not be satisfied with their current service providers, they may still stay with them if they are better than other alternatives. Whereas, consumers may choose the alternative option when suitable alternatives become available.

Some categories of WSTPs, for instance, wristbands or smartwatches, can record data on steps made and distance travelled, via a mobile phone connection. As such, it is worth to think about that if some providers offer free mobile apps for consumers to download for recording such data, which have similar functions to those of WSTPs, then might cause an alternative choice (Ernst, 2016). Hsu and Lin (2015a) confirm that, if a free alternative is available, consumers will typically select the free alternative rather than the paid versions. While WSTPs offer better-quality functionality, the enormous availability of alternatives may reduce consumers' willingness to purchase such devices (Hsu & Lin, 2015b; Kuo et al., 2013). As one interview was taken in 2016, the interviewee from the leading sports manufacturing, Nike, reveals that they found most functions on the WSTP require to connect the smartphone, rather launch a WSTP, they prefer to develop an app on the smartphone. Because they believe many consumers will choose the alternative choice. However, the rapid changes in the WSTP context are having a serious effect on consumer behaviour since WSTPs become an independent gadget in which can be a phone and

record the data without connecting the phone, and WSTPs shift the weight from fitness function to health-related. Consumer behaviour adopted the WSPT is changing.

In short, if consumers find the alternative to better satisfy their needs, it will be chosen when the next purchase is made (Ha & Park, 2013; Kim et al., 2006). The attraction of the alternative, therefore, plays a role in consumers' purchase decisions (Liao et al., 2016).

2.8.2 Not to buy

Recently investigators have examined the factors that contribute to the 'positive' decision to adopt innovative technology such as WSTPs (Ho & Wu, 2011; Li et al., 2015; Li et al., 2016), but understanding why customers resist adoption is also important (Kleijnen et al., 2009; Yu, 2012). Although innovative technology is a key part of our daily life, Kleijnen et al. (2009) and Mani and Chouk (2017) report that many innovations still meet resistance. Resistance refers to 'non-adoption' and it seems to simply confuse the difference with passive (Heidenreich & Spieth, 2013; Kleijnen et al., 2009).

Garcia and Atkin (2005) revealed that consumers have a concern about many uncertainties with innovative products, in particular, regarding functions and performance, which leads to that negative outcomes may arise (Kobayashi, 2006). A number of studies explain that risks include physical, economic, social, privacy and functional risks (Bansal et al., 2005; Gupta & Ogden, 2009; Heidenreich & Kraemer, 2016; Kleijnen et al., 2009). First, physical risk relates to consumer perceptions about the likely damage to people caused by innovation (Kleijnen et al., 2009; Klerck & Sweeney, 2007). Next, the social risk is about consumers' concern about whether their social group will accept or support adoption (Wang & Chang, 2013). Recent several studies (Cornescu & Adam, 2013; Heidenreich & Kraemer, 2016; Kleijnen et al., 2009) have highlighted that innovation resistance can be described in terms of the basic 'not trying' stance or three different types of consumer behaviour: rejection, postponement and opposition. Therefore, innovation resistance can be broadly defined as 'resistance to innovation'. Yet,

Claudy, Garcia and O'Driscoll (2015) and Mani and Chouk (2017) argue that consumers' innovation resistance should be determined by the type of innovation.

Kleijnen et al. (2009) explicate that "rejection is not driven by a simple lack of awareness or ignorance about the innovation on the consumer's part". Rejection is one form of resistance which indicates an active evaluation of the consumer behaviour, and that results in a strong hesitation to adopt the innovation (Mani & Chouk, 2017; Rogers, 2004).

Ganier et al. (2004) emphasis the view that rejection appears to be driven by inertia. Rejecters seem to like maintaining the status quo because they are highly concerned about personal and financial risks (Woodside & Biemans, 2005). In other words, they are more comfortable with sticking to what they know best. Chrea et al. (2011) claim that extrinsic product cues are also important for consumers when assessing new products. Negative brand images can bring about negative perceptions of innovations, which lead to resistance. Rauschnabel et al. (2015) make an example of Google which gaining information for Google Street View led to a fear of being spied on by the Internet company has some negative images in consumers' mind. Consumers may resist using Google in the future. Same as WSTPs, if WSTPs companies do not have a good reputation, and then consumers will reject or resist to buy it. Recent studies by Cheng and Mitomo (2017) and Ho and Wu (2011) denote that if innovative technology is difficult to use and understand for some consumers, which will lead to innovation resistance. However, Rogers (2004) provides a better explanation, in that preliminary versions of innovative products can occasionally offer consumers the opportunity to express their interest in the innovation they represent for a period of time.

Recently researchers have examined the risk of using WSTPs that information exchange and communication technologies related to a WSTP has a significant impact rising on consumers' concern (Bonfiglio & De Rossi, 2011; Chan et al., 2012; Jeong et al., 2017). Many consumers use WSTPs to communicate and share private information, and these consumers experience difficulty in knowing how and where their data are stored and who is authorised to access and use them (Mani & Chouk, 2017). Difficulties arise, resistance

in consumers' mind may grow. Mani and Chouk (2017) and Xu (2015) argue that privacy concerns may influence consumer willingness to use WSTPs. Privacy concerns have a negative effect on adopted WSTPs (Müller-Seitz et al., 2009) and purchase intention to purchase WSTPs (Mani & Chouk, 2017). Therefore, As WSTPs are still in the early stages of product development (Mahoney & Mahoney, 2010; Wright & Keith, 2014; Yang et al., 2016), consumers' concerns about those uncertainties may lead to resistance or reject (Liu & Guo, 2016; Yang et al., 2016).

Cornescu and Adam (2013) indicate that consumer resistance innovativeness may cause an inhibited or delayed in the decision-making process, because they may decide not to adopt an innovative product at that point in time, but wait until the situation is more suitable (Mani & Chouk, 2017). Furlong (2014) also interpreted opposition as innovation disruption, that is, consumers keenly involved in strategies to avoid innovation success. Opposition is also defined as when consumers think the innovation is unsuitable (Kleijnen et al., 2009). The opposition appears to be strongly driven by tradition and rules (Kleijnen et al., 2009; McKinley et al., 2014). Kleijnen et al. (2009) report that economic threat is a factor caused consumer resistance, as such, some features of WSTPs are costly which may lead to resistance (Kim & Shin, 2015; Mani & Chouk, 2017). The second risk of using WSTPs is that people become over-reliant on automatic systems that provide a false sense of security. Piwek et al. (2016) find that WSTPs exist within a "grey area" of consumer safety. How to protect consumers' data and data privacy has become a challenge for the WSTP industry. Last, functional barriers of WSTPs drive consumer resistance to innovation (Heidenreich & Kraemer, 2016). In the past decade, a number of researchers have focused on "technology perceived usefulness" and perceived ease of use" adopted TAM model in the WSTP context, which shows that innovation of WSTPs might lead to resist.

Recent studies by Kleijnen et al. (2009) and Mani and Chouk (2017) show that WSTPs are not yet regarded as a standard; some consumers may think that purchasing them is too risky, while many others are still doubtful of what they consider to be unverified

technology. Subsequently, they postpone their purchase decision in this regard (Mani & Chouk, 2017).

On the contrary, prior studies (Castaño et al., 2008; Gatignon & Robertson, 1989) have disputed whether consumer resistance to innovation should be classified as innovation adoption, as it is conceptually separate from innovation adoption. Equally important, Labrecque and Wood (2015) indicate that resistance is a consequence of habits. These habits are shaped when a consumer uses a product or service habitually for a long period of time (Kleijnen et al., 2009). The smartphone is launched in the market longer than WSTPs, which becomes a habit in consumer's daily lives. Consumers may prefer to keep using a smartphone instead of WSTPs because most functions on WSTPs need to connect smartphone currently. Kleijnen et al. (2009) demonstrate that innovations struggle with well-established habits and will challenge resistance.

WSTPs are new technology products with various features, equipped with technical options that differentiate them from other existing goods. Consumers identify these products as technological innovations and may be inclined to resist them at the beginning. To find the drivers of actual purchase behaviour, we initially conducted a quantitative study to examine the three determinants into the actual purchase behaviour behind the identified factors in the hypothesized model.

2.9 Conclusion

This study has investigated the underlying determinants of consumer decision-making adopted WSTPs – one of the fastest increasing trends in the technology domain. It is important to understand consumer behaviour in the WSTP context as the WSTP market is expected to grow, with sales predicted to reach over \$150bn by 2026 (Cheng & Mitomo, 2017; Hayward et al., 2016; Wu & Chang, 2016). Starting with need recognition, people wish to pursue a healthy lifestyle by adopting new IT innovative products. As such, WSTPs deliver various benefits to consumers and can satisfy their needs. WSTPs were

initially designed for elite athletes and fitness consumers to record physical data in order to analyse and share them when competing with peers or friends. With WSTPs, the weight shifts to health management. WSTPs can collect health-related data for dealing with health issues. A considerable amount of literature has been published on adopting WSTPs as IT innovation, and more recently, several studies investigated health issues within it. However, one major challenge of WSTPs is that potential consumers will hesitate to use such devices and existing consumers usually abandon them within six months after purchasing them (Lee et al., 2016).

At the decision-making stage, a consumer starts with a need; in order to satisfy the need, they search for information, after which they make a decision about whether or not to purchase the product in question. At the final stage, actual purchase behaviour is the key factor for firms that enables them to survive in the market. It is vital to understand how to create the right marketing strategy in order to be succeeded while launching a new product. Drawing on the existing literature, we have considered the two determinants of motives and marketing communication strategies in the WSTP market respectively: IT innovation, health issues, advertising, and WOM. Further, we have discovered the relationship between cognition and purchase intention, which may cause the final purchase action. In addition, we have seen that three actual purchase behaviours will occur in the end.

Given the lack of literature examining the consumer decision-making process in the WSTP context, coupled with the current debate about it, identification of the remaining related determinants that have developed from the outcomes of the primary research processes will be detailed in Chapter 4.

CHAPTER 3 Theoretical Background

3.1 Introduction

When deliberating adoption or developing a hypothesis, the researcher tends to employ the theories of Theory of Reasoned Action (TRA), Theory of Planned Behaviour (TPB), Technology Acceptance Model (TAM), Unified Theory of Acceptance and Use of Technology (UTAUT), Stimulus Organism Response (S-O-R) and technology readiness and acceptance model (TRAM). This chapter is examining these theories.

The theories of technology adoption have been established and engaged constantly since the last few decades, TRA by Fishbein & Ajzen (1975) is the initiating and classic theories of adoption. TPB and TAM were then developed in the next trend of technology development. In the early 21st century, UTAUT was applied for new technology introductions and finally, the TRAM theory was enhanced, which is evaluated in this chapter. We also consider the internal creature replicating consumers' perceived information from the various marketing domains on S-O-R model.

3.2 Theory of Reasoned Action (TRA)

In previous decades, a number of researchers has examined the relationship between purchase intention and actual behaviour (Cannière et al., 2010; Hsu & Lin, 2015a; Lee & Lee, 2015). Fishbein and Ajzen (1975) initially proposed the TRA (Figure 4, p. 78), in which intentions can be the essential predictors of people's actual behaviour. Indeed, it has been adopted in various studies as a theoretical foundation from which to explore wearable technology and other fields (Cheng & Mitomo, 2017; Ha & Janda, 2012; Hsiao & Chen, 2018; Wien & Olsen, 2012). Certainly, Nguyen et al. (2016) demonstrate that a positive correlation between

purchase intentions and actual purchase behaviour exists.

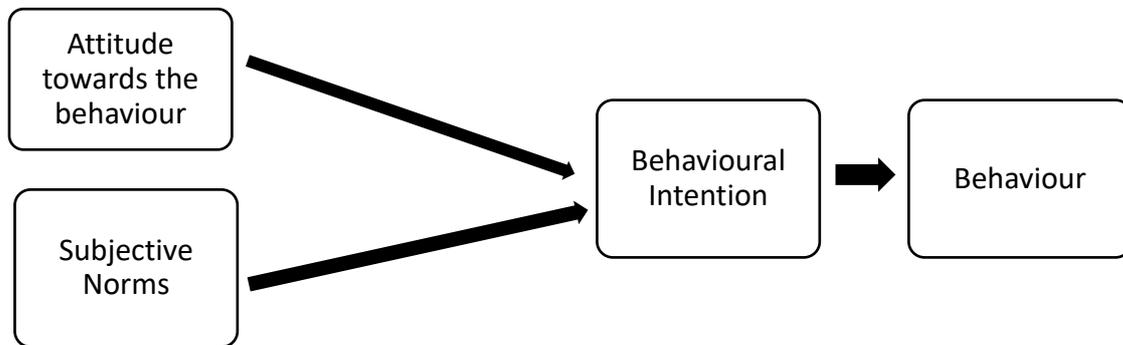


Figure 4. TRA model (Fishbein & Ajzen, 1975)

Although there is copious research is known about consumer behaviour in the context of the TRA, it is not clear which factors affect actual purchase behaviour. Soh, Rezaei, et al. (2017) argue that this model is unsatisfactory, and that the elements of resources, collaboration or abilities should be added to evaluate consumer purchase behaviour, which explains the reasons for not adopting this model to this study.

3.3 Theory of Planned Behaviour (TPB)

Nevertheless, much uncertainty exists from the TRA perspective about the relationship between purchase intention and behaviour in which there is a lack of control over a person's action. The TPB (Figure 5, p.79), developed by Ajzen (1985, 1991) extends the TRA, which, after extensive research, includes a new factor, i.e., "perceived behavioural control", adopted in a number of studies (Gupta & Ogden, 2009; Ha & Im, 2012; Lu et al., 2010; Soh, Rezaei, et al., 2017). The research to date has tended to focus on the TPB rather than the TRA when

investigating consumer purchase behaviour. Recent studies which have adopted the TPB have explored consumers' intention to purchase smart wearable devices (Lunney et al., 2016), purchase intention regarding health-related WSTPs (Meyer et al., 2016), and the integration of WSTPs in smart bras and T-shirts (Turhan, 2013).

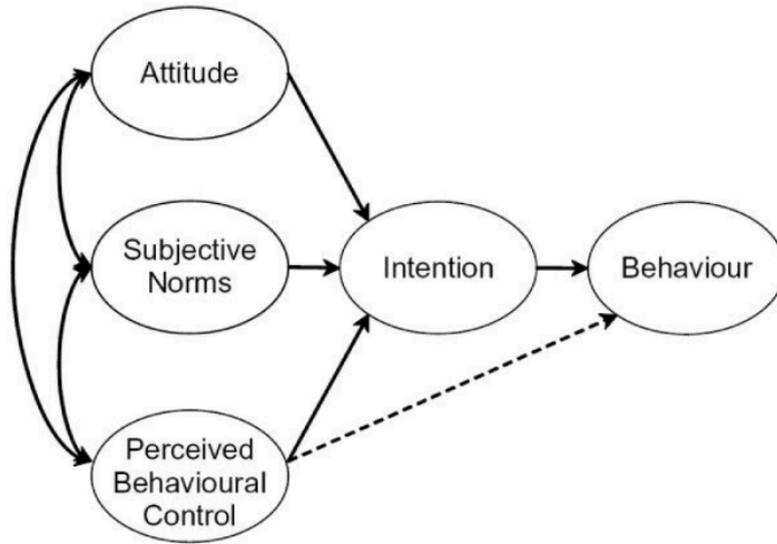


Figure 5. TPB model (Ajzen , 1985; 1991)

Although a considerable amount of literature has applied the TPB and find a positive relationship. Turhan (2013) integrated the TPB and the TAM to explore wearable technologies, finding that perceived usefulness may not directly stimulate consumers' purchase intention. Perhaps the most serious disadvantage of the TPB in the WSTP context is that consumers' perceived perspective of these products is not just about usefulness. It might not be practical in related to this research emphasising on the WSTPs market.

3.4 Technology Acceptance Model (TAM)

More recently, Davis (1989) proposed the TAM (Figure 6, p. 81) comprising two components of behavioural intention: attitude towards behaviour and perceived usefulness (Rahman et al., 2017; Seol et al., 2017), which extends the adaptation of the TRA. The

TAM supposes that, with a positive attitude and high perceived usefulness, consumers are more likely to be inclined to use technology and ultimately use it (Bashir & Madhavaiah, 2014; Nasir & Yurder, 2015; Rahman et al., 2017). According to TAM research, consumers' attitude is influenced by the determinants of perceived usefulness and ease of use (Kim & Shin, 2015; Nasir & Yurder, 2015; Rahman et al., 2017). Several studies have been published on the TAM in the technology adoption framework, in which the determinants are cognitive factors, including perceived usefulness and perceived ease of use (Hsu & Lin, 2015b; Kim & Shin, 2015; Nasir & Yurder, 2015; Yang et al., 2016). Prior studies have applied the TAM to the study WSTPs, for example: smartwatches (Choi & Kim, 2016; Chuah et al., 2016); fitness trackers (Coorevits & Coenen, 2016); health issues (Nasir & Yurder, 2015). Similarly, Jeong et al. (2017) and Cheng and Mitomo (2017) respectively applied the TAM to explore wearable technology and its uses in disaster interventions. A recent study by Choi and Kim (2016) investigated the TAM by integrating perceived enjoyment and perceived self-expressiveness, finding that the features of smartwatches as fashion products significantly explain the purchase intention in the WSTP context. What is known about the TAM is largely based upon empirical studies that apply it to the study of WSTPs, in turn confirming that consumers perceive that such products will bring new technology into their daily lives (Chae, 2009; Chuah et al., 2016; Kim & Shin, 2015; Nasir & Yurder, 2015). However, debate arises, Jeong et al. (2017) and Seol et al. (2017) argue that TAM-based models cannot be exclusively biased toward cognitive theories within the framework of IT adoption. In other words, it overlooks the fact that the purpose of use is subject to change due to various factors such as individual capability, time, environment, organizational restriction and unconscious habit, which stimulate consumers' behaviour (Seol et al., 2017).

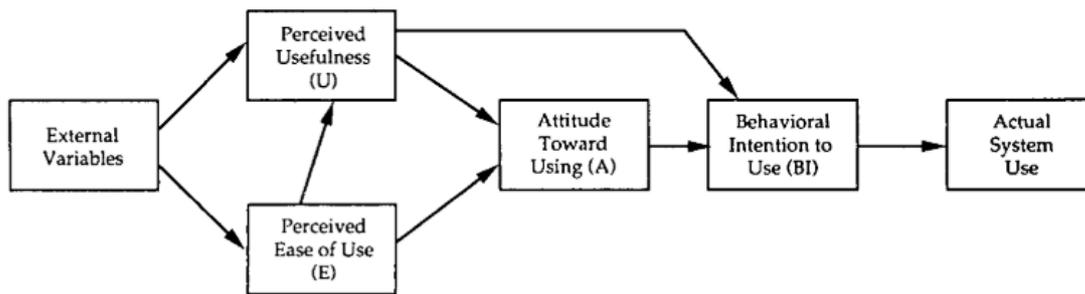


Figure 6. TAM model (Davis, 1989)

One major drawback of the original intention of TAM is that there is a lack of generalizability when seeking to investigate consumers who may wish to use the model for diverse reasons (Seol et al., 2017). So far, there has been little discussion about the mediating effect within this model. Only a few studies have examined the mediator of attitude and how it significantly influences intentions (Bashir & Madhavaiah, 2014; Lee & Lee, 2018; MacKinnon, 2012). A recent study on the TAM also proposes a mediation between the effect of perceived usefulness and ease of use (Rahman et al., 2017). One of our major criticisms of the TAM model is that more than two mediators should be located in the model as well as the extended model. As such, this study considers embracing a new theory to explicate WSTP adoption.

3.5 Unified Theory of Acceptance and Use of Technology (UTAUT)

A longitudinal study by Venkatesh et al. (2003) reported the UTAUT (Rahman et al., 2017) (Figure 7, p. 82), which refined and integrated the above models into a new model, uses four determinants of “direct acceptance and usage behaviour, performance expectancy, effort expectancy, social influence, and facilitating”, as well as adding critical moderators (gender, age, voluntariness, and experience) (Ringle & Sarstedt, 2016; Yu, 2012). Yu (2012) shows how the UTAUT is important, because it not only emphasizes the core determinants of predicting major adoption factors, but also allows researchers to

analyse the moderators, as well as which factors can magnify or limit the impact of core determinants. Several studies have therefore adopted the UTAUT when investigating WSTPs (Hwang et al., 2016; Ma et al., 2016; Moon et al., 2016; Seol et al., 2017).

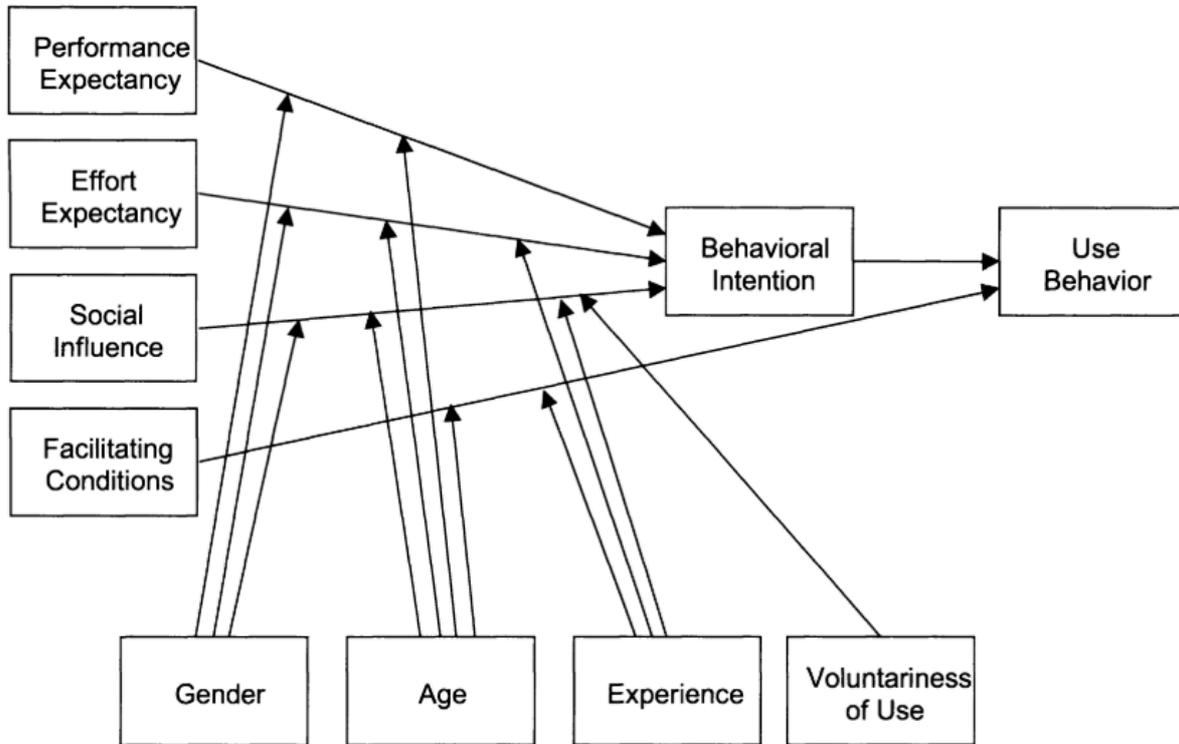


Figure 7. UTAUT model (Venkatesh et al., 2003)

Yet, one key drawback of the UTAUT model is its lack of applicability to all technology products. A recent study by Jackson et al. (2013) integrated the TPB and the UTAUT to verify that the determinant of perceived ease of use does not significantly influence consumers' purchase intention. To date, the research in the WSTP context seems to focus on technology in terms of perceived ease of use, perceived usefulness and social influence, as well as the conditions that influence behaviour intention, rather than considering other factors which are linked to the features of WSTPs.

3.6 Stimulus Organism Response (S-O-R)

Mehrabian and Russell (1974) clarified that the environment (the stimulus) affects an individual (the organism) internally and in turn drives consumers' behavioural response (the response), as indicated by the S-O-R paradigm (Figure 8, p. 83) which has been discussed in a considerable amount of literature (Abarbanel et al., 2015; Chang & Jai, 2015; Kabadayı & Alan, 2012; Park et al., 2014; Wu et al., 2013; Zhu et al., 2016). The existing literature on the S-O-R paradigm considers the internal organism reflecting consumers' perceived information from the various marketing domains (Floh & Madlberger, 2013; Gao & Bai, 2014; Huang, 2012), while other models focus on the perceived technological usefulness. This seeks to address our research question 2. Therefore, this model was considered to be a significant determinant in terms of developing the hypothesis.

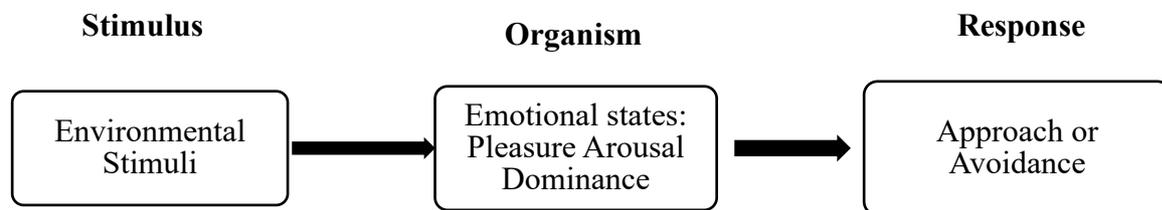


Figure 8. S-O-R model (Mehrabian and Russell, 1974)

3.7 Technology Readiness and Acceptance Model (TRAM)

However, given the failure to resolve the contradiction between individuals' beliefs related to use innovative technology, Lin et al. (2007) initially extended the TAM by integrating the construct of TR in order to create the technology readiness and acceptance model (TRAM) (Kim & Chiu, 2019)(Figure 9, p. 84). TR is individuals' beliefs related to using innovative technology-based products or services (Kim & Chiu, 2019; Parasuraman, 2000). Lin et al. (2007) identify that the extension of TR in the TRAM “shifts more emphasis from technology systems to consumers”, as TR is a factor which applies more to individuals (Kim & Chiu, 2019). Several studies have adopted the TRAM, as it can classify individual modifications preceding the use of technology; this information can be used to better understand consumers' psychological procedures involved in the acceptance of technology on a long and complex mind journey (Kim & Chiu, 2019; Lin et al., 2007). However, this model can only explain behavioural intention and is weak to lead to actual behaviour in the decision-making process.

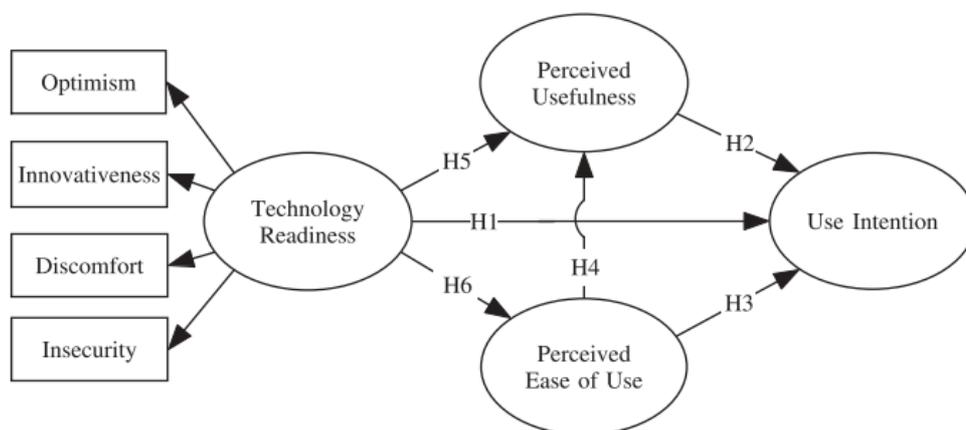


Figure 9. TRAM model (Lin et al., 2007)

3.8 Theoretical Background Summary

This chapter highlighted the theoretical background from six different theories and compared them in Figure 10 (p.85). We can apparently see that there is a gap in the consumer decision-making process in those models. The importance of needs recognition, purchase intention and actual behaviour is well recognised. Until recently, far too little attention has paid to marketing communication strategy adopted in the WSTP market. Having considered the classic theories of adoption and main topics of interest to this research and also inspected them in mind map (Figure 1, p. 9), Part 3 will explain the hypothesized model of this study. The hypothesized model will integrate those theories and select specific determinants from the literature review, observation, and qualitative interviews, which will explicate in detail in the next part and expect to fill this literature gap.

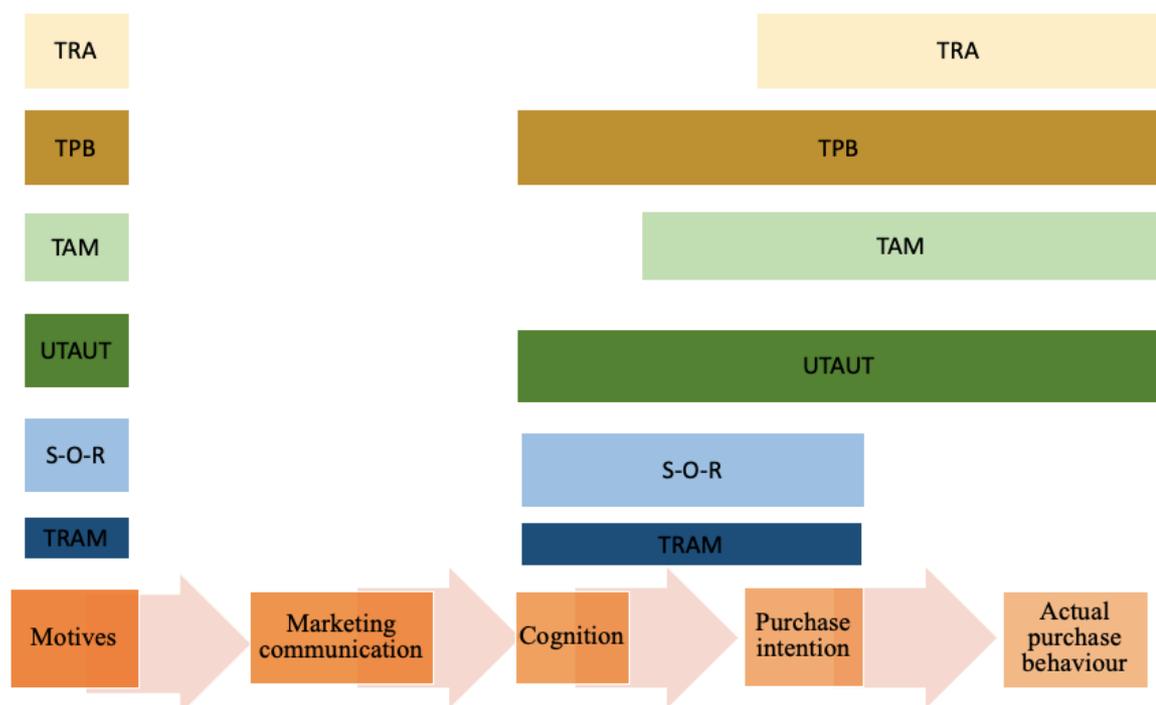


Figure 10. Comparison of Theories

3.9 Conclusion

As aforementioned theories adopted in related to WSTPs on Table 2 (p. 87) it can be perceived that TAM is one of the most popular theories applied to understand WSTPs research. In brief, Rahman et al. (2017) reach the conclusion that the TPB was developed to explain consumer behaviour generally, while the TAM and the UTAUT were specifically established to explicate technology acceptance. These theories propose several factors that affect the acceptance of technology, with behavioural intention (to use technology) and actual behaviour (actual use of technology) as measures of acceptance (Rahman et al., 2017). In addition, the UTAUT also proposes four moderating factors, i.e., age, gender, experience and voluntariness, for inclusion in the model (Rahman et al., 2017). So far, these models have only been applied to technology perspective of the WSTP context. We believe that the most serious drawback of these models is that purchasing or using a WSTP is more about perceived usefulness or perceived ease of use. This emphasises the need to understand the various perceptions of poverty that exist in the WSTPs context. As a WSTP owns unique characteristics, we seek to remedy these problems related to the motives in the consumer decision-making process, rather than simply focusing on the technology perspective.

A number of studies have used several theories: the TRA, the TPB, the TAM, the UTAUT, the S-O-R, and the TRAM to explore consumer acceptance technology and purchase intention in the WSTP context. Yet, far too little attention has been paid to examining the decision-making process and to discovering the most critical determinants of motives, marketing communication, cognition, and purchase intentions leading to purchase. Although extensive research has been carried out on each determinant in different literatures, this chapter reviews the literature concerning the usefulness of employing several theories. This study critically examines these factors among the decision-making process to seek to remedy these problems, which may help marketers make the crucial decision to apply different marketing strategies.

It is valuable for marketers to investigate the motives behind consumer purchase intention, as the demand for WSTPs has seen a significant boost of late. The marketing strategy should seek to transform potential customers into actual customers, so that they can be recalled in the future (Cheah et al., 2015). To this end, there is an opportunity and a challenge for marketers to investigate how firms develop a marketing strategy based on motives, in order to facilitate the external influences that can motivate a consumer to make a decision, against the backdrop of the WSTP market, moving from one for early adopters to a mass market (Ledger & McCaffrey, 2014; TheRecord, 2014).

Table 2. Related literature adopted theories

Literature	Theory applied	Related Application in WSTPs	Research finding
Hsiao & Chen, (2018)	TRA	Smartwatch	“Emotional values, such as enjoyment, and price/ value for money are the most important values of the smartwatches before making a purchase decision.”
Lunney et al., (2016)	TAM +TPB	Wearable fitness trackers	“As WSTPs use increases, users are likely to live a healthy lifestyle, be more active, and feel healthier, in general. This suggests that WSTPs have the potential to facilitate health behaviour change.”
Meyer et al., (2016)	TPB	Health-related for tracking various	“Using smart health devices has

		aspects of physical activity, weight, and sleep	a positive impact on the user's attitude towards a healthy behaviour."
Turhan, (2013)		Smart bras and T-shirts	"Subjective norms and attitudes towards behaviour are found significant in direct influence to buying intention, but perceived usefulness is not directly related to it."
Choi & Kim, (2016)	TAM model	Smartwatch	"Characteristics of smartwatches as fashion products significantly explain the intention to use a smartwatch, particularly the individual's desire for uniqueness."
Chuah et al. (2016)		Smartwatch	"Perceived usefulness and visibility as important factors that drive adoption intention."
Cheng & Mitomo, (2017)		Smart wearable devices to assist citizens in disasters	"People can visualize the usefulness of these devices in disaster situations."
Nasir & Yurder, (2015)		Wearable health technologies	"Perceived risk and compatibility constructs are integrated into the TAM and support the perceived usefulness of these

			technologies from the perspective of physicians as well as users.”
Coorevits & Coenen, (2016)		Wearable Fitness Trackers	“This category consists of two components: psychological and physical awareness.”
Ma et al., (2016)	UTAUT +TAM	Smartphone technology	“Those who were younger, with higher education, non-widowed, with better economic condition related to salary or family support were more likely to use smartphone. Also, cost was found to be a critical factor influencing behaviour intention.”
Moon et al., (2016)		Smart wearable device	“The two factors of hedonic motivation and performance expectancy were that consumers should experience the devices with enjoyment and get benefits by utilising them.”
Seol et al., (2017)	TR+UTAUT	Sports smart wearable devices	“Behavioural intention had a significantly positive effect on use behaviour.”
Ha & Im, (2012)	S-O-R model	Website	“Satisfaction mediated the

			relationship between emotional and cognitive responses and positive WOM intention.”
Kim & Chiu, (2019)	TRAM	WSTP	“Both perceived ease of use and perceived usefulness led to intention to use sports wearable devices.”

PART 3 VALIDATION OF RESEARCH

CHAPTER 4 RESEARCH METHODS

4.1 Chapter overview

This chapter addresses the research methodology applied in this study. It starts with a brief critical consideration of the research on marketing and consumer behaviour. Drawing on the theories and observations in such research, each phase of the methodology is considered in relation to key factors and the process involved. This chapter also presents the outcomes of the various data analyses, using the applied methods, which are also used to assess findings from the main phases of the research process.

4.2 Methodology and theory generation

Saunders et al. (2016, p. 5) define “research as a process that people undertake in a systematic way in order to find out things, thereby increasing their knowledge”. Research designs need to go through many stages, which are related to the procedures for gathering, analysing, interpreting, and reporting data in research studies (Creswell, 2010; Veal, 2017). The most significant aspect in the context of research methods concerns the research questions (Johnson & Onwuegbuzie, 2004; Veal, 2017). That is, research methods should follow the research questions, which offer the best opportunity to discover valuable answers (Johnson & Onwuegbuzie, 2004; Skinner et al., 2014; Zefeiti & Mohamad, 2015). Saunders et al. (2016, p. 124) represent the research process as an “onion” (Figure 11, p.92), which consists of six layers, as follows: “philosophy, approach

to theory development, choice, strategies, time horizons, and techniques and procedures.” Based on the research onion concept, several subjects need to be considered from the outer layer to the core, from the philosophy to data collection and data analysis (Saunders et al., 2016; Tajvidi & Karami, 2015; Zefeiti & Mohamad, 2015).

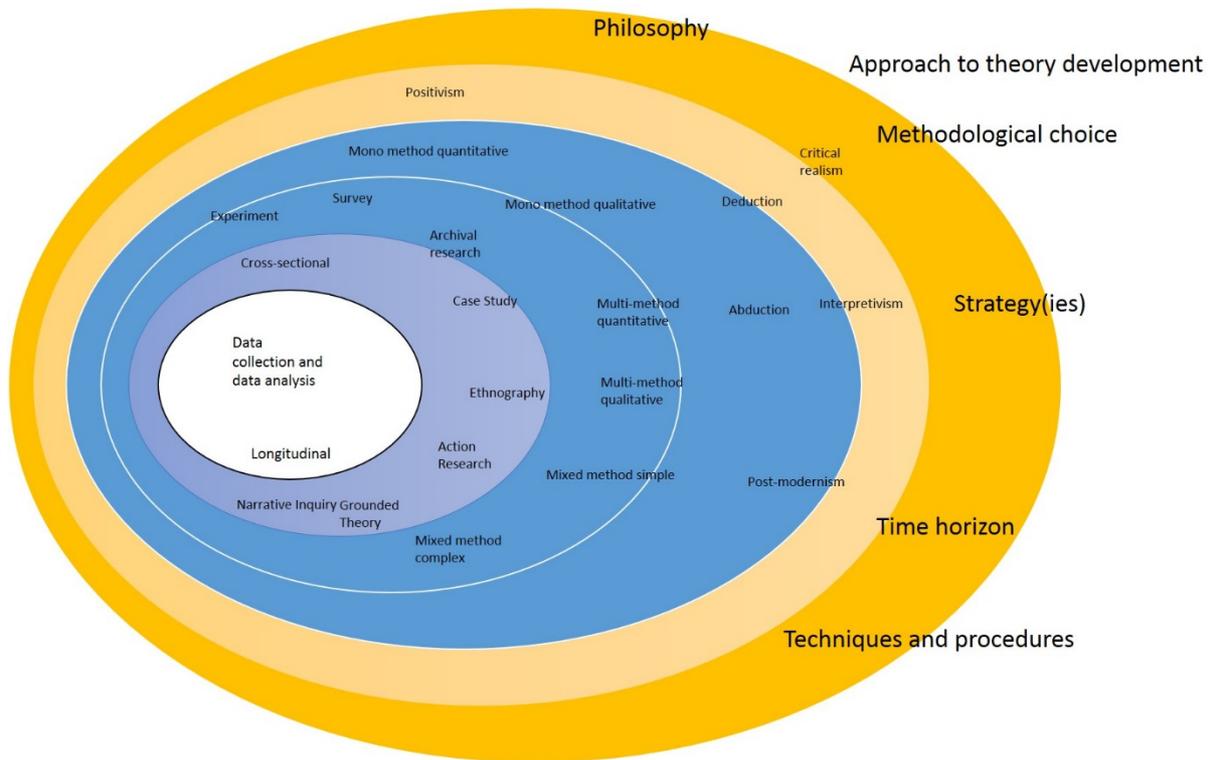


Figure 11. Research onion (Saunders et al., 2016, p. 124)

4.2.1 Research philosophy

The surface layer of the research onion is the research philosophy, which is the most crucial layer (Saunders et al., 2016). The research philosophy represents an attitude and a belief about the ways of gathering, analysing and using data about a phenomenon (Skinner et al., 2014; Tajvidi & Karami, 2015; Zefeiti & Mohamad, 2015). In turn, this study applies the mixed methods approach to examine the crucial issues. Therefore, the research starts with a problem, with the aim of delivering practical solutions, which can

inform future practice; this is known as a pragmatist approach (Johnson & Onwuegbuzie, 2004; Saunders et al., 2016, p. 143).

Pragmatism is where the research philosophy of a study is ontologically led (Bishop, 2015; Creswell, 2010; Simpson, 2009). Pragmatism focuses on the results of exploration, on the prior importance of the research questions asked, and on the use of various methods of data gathering to verify the findings (Bishop, 2015; Creswell, 2010; Frels & Onwuegbuzie, 2013; Greene, 2008; Hesse-Biber, 2015; Simpson, 2009). The main emphasis on practicality and practical issues has led pragmatism to discard many of the strict standards imposed on knowledge claims by other paradigms (Shaw & Zecevic, 2010). However, mixed method research presented “pragmatism as a paradigm for social research”, mostly evading serious contact with the foundation of pragmatism philosophy, Morgan (2014) argued. Johnson and Onwuegbuzie (2004) debate that pragmatism is the only perfect solution for mixed methods. They suggest that researchers from various paradigms will have better communication by applying a pragmatist or pluralist position (Johnson & Onwuegbuzie, 2004; Onwuegbuzie & Leech, 2005; Simpson, 2009).

Morgan (2014) identified that John Dewey's pragmatism has a wide framework of philosophy and has its own direction in problem-solving. The philosophy of Dewey's pragmatism addresses the crucial question: “What is the nature of human experience?” (Morgan, 2014). Dewey therefore demonstrates how the process of inquiry offers an obvious mechanism connecting beliefs and action in Figure 12 (p. 94)(Morgan, 2014), in which inquiry is a constant practice that engages many sequences among beliefs and actions. As Figure 12 (p. 94) shows, there is significance in the statement that “Beliefs must be interpreted to generate action, and actions must be interpreted to generate beliefs” (Dewey, 1998; Morgan, 2014). It is apparent, from the pragmatism of Dewey's viewpoint, that experiences are constantly associated with a process of interpretation (Morgan, 2014). Specifically, Goldkuhl (2012) compared the differences between pragmatism and interpretivism in Table 3 (p. 94). This makes it clear that the pragmatism emphasis on action and change, and interpretivism is to create understanding and interpretation.



Figure 12. Dewey’s model of inquiry (Morgan, 2014)

Table 3. Pragmatism vs interpretivism: ideal-typical differentiation (Goldkuhl, 2012)

	Pragmatism	Interpretivism
Ontology	Symbolic realism	Constructivism
Empirical focus	Actions and changes	Beliefs (socially constructed cognition)
Type of knowledge	Constructive knowledge	Understanding
Role of Knowledge	Useful for action	Interesting
Type of investigation	Inquiry	Field study
Data generation	Data through assessment and intervention	Data through interpretation
Role of researcher	Engaged in change	Engaged in understanding

As such, pragmatism is the philosophy of choice for mixed methods (Bishop, 2015; Creswell, 2010; Frels & Onwuegbuzie, 2013; Greene, 2008; Hesse-Biber, 2015; Saunders et al., 2016; Sreejesh & Mohapatra, 2014), while also offering an increasingly popular approach to tackling the philosophical trials of mixed methods research (Bishop, 2015; Johnson & Onwuegbuzie, 2004; Morgan, 2013). Starting to ask questions about the research is the most vital determinant in the research design, as well as the strategy to employ in pragmatist research (Bishop, 2015; Creswell, 2010; Greene, 2008; Skinner et al., 2014). Certainly, central to the entire discipline of pragmatism is most relevant to for this thesis as the analysis of problem-solving and discovering the motives and outcomes of consumer decision-making in the WSTP market.

To others, the nature of pragmatism makes it suitable for mixed methods research, as it believes that scientific truth is temporary, it can be realised through various experiences and experiments and knowledge built and grounded in the world (Bishop, 2015; Creswell, 2010; Frels & Onwuegbuzie, 2013; Hesse-Biber, 2015; Saunders et al., 2016; Sreejesh & Mohapatra, 2014). Mixed methods research acknowledges the integration of results from both quantitative and qualitative data collection methods into convergent conclusions for a research study (Creswell, 2010; Shaw & Zecevic, 2010).

Creswell (2010) also indicates that pragmatism may be associated with deductive and inductive thinking, as the researcher uses both quantitative and qualitative surveys. Thereupon, the philosophy stance taken in this study is one of pragmatism, because pragmatism is not to ask whether the knowledge produced by the research is exactly like the "reality" of the mixed method research, but to ask whether it attaches importance to the external results in the context of the researcher's own time and place, and also supports the response technical challenges (Bishop, 2015).

4.2.2 Research approach

This research approach is the second layer of Saunders et al. (2016) research onion. Three key approaches contribute to theory development, including deduction, abduction and induction. Abduction refers to a combination of deduction and induction on occasion (Hamad et al., 2016; Silver & Lewins, 2014, p. 170; Skinner et al., 2014). An abduction approach starts with the observation of a “surprising fact” (Saunders et al., 2016; Skinner et al., 2014) and, following the collection of rich data, agreement about new information to be obtained and applied, and possibly allow the theoretical framework to be maintained (Simpson, 2009; Skinner et al., 2014).

Additionally, the broader philosophical issues relating to this study involve triangulation (Hussein, 2009). Triangulation refers to research that uses more than two methods to answer the research questions (Archibald, 2016; Babbie, 2013, p. 117; Heale & Forbes, 2013; Hesse-Biber, 2015; Hussein, 2009; Mingers, 2015; Sreejesh & Mohapatra, 2014).

Greene (2008) and Bishop (2015) propose that “different designs serve different purposes”; for instance, in triangulation, there is an intent towards convergence, compared to an intent towards development, by using one method to inform the development of another. Triangulation is more accurate as it seeks to disclose complementarity, merging and sewing conflict among the findings (Heale & Forbes, 2013; Hesse-Biber, 2015; Hussein, 2009; Sreejesh & Mohapatra, 2014). Equally as important is synchronisation, in that both quantitative and qualitative methods are typically applied (Archibald, 2016; Bishop, 2015). The study employs a mix of quantitative and qualitative methods, which are applied in sequence (qualitative first, then quantitative and qualitative last in Figure 13, p. 97) by Creswell and Clark (2018, p. 111) suggestion, with a quantitative research design leading to a qualitative approach. That is, first identify why the qualitative element is needed to improve the experiment and then the procedure involves conducting the experiment and collecting and analysing the qualitative data where it fits into the experiment. Lastly, the final stage is to determine how the qualitative findings add to the

experimental results (Creswell & Clark, 2018, p. 111). In other words, triangulation is applied to confirm a quantitative approach once the theoretical underpinnings have been discovered in the research phenomenon (Hussein, 2009; Saunders et al., 2016).

In light of the above, this study starts with an observation (Saunders et al., 2016, p. 354; Skinner et al., 2014) and then refers to existing theories and in turn adds some significant interview data to develop the hypothesized model. Later, quantitative data collection and qualitative approaches are pursued in order to explore the same phenomenon within the research, with both methods applied to test the hypothesized model (Hussein, 2009; Tajvidi & Karami, 2015). As such, triangulation is introduced to try and balance various viewpoints in the marketing research design and to confirm the total validity and credibility of the quantitative and qualitative surveys, while, at the same time, reducing the risks of avoiding biases and prejudices (Baker & Hart, 2016; Heale & Forbes, 2013; Saunders et al., 2016).

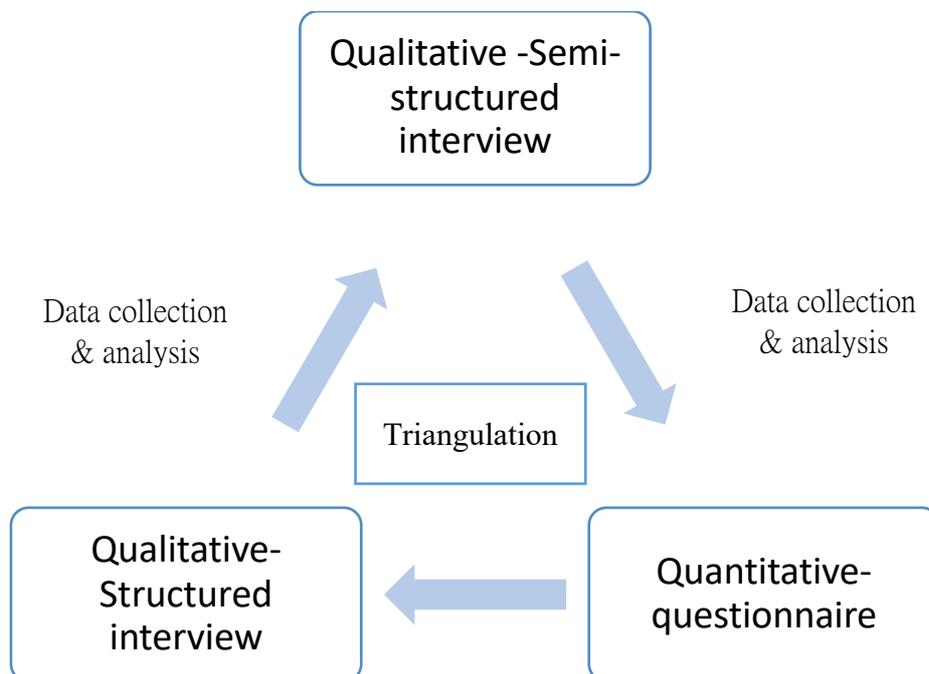


Figure 13 Research approach- triangulation

For instance, a quantitative approach could check hypotheses about fundamental relationships between motives, cognition, purchase intention and actual purchase behaviour. If the decision-making behaviour survey reveals a solid, but unexpected, correlation between actual purchase behaviour, associated with motives and cognition, then inviting the small sample, which could be depending on the specific combination of variables, attending a qualitative interview can provide a possible explanation. If the study finds that a specific motive influenced cognition, leading to decision-making in the purchase stage, but the actual purchase behaviour shows that the consumer decided not to buy a WSTP, a follow-up qualitative study could address those people in both situations.

4.2.3 Research method

Choosing the most suitable research method depends on different phases, including research questions, objectives and topic. Saunders et al. (2016) and Skinner et al. (2014) highlight that the decision about the research design is based on the research questions. The research decision for this study led to the use of a mixed-methods approach, which is the third layer of the research onion (Saunders et al., 2016).

Both quantitative and qualitative methods are designed to explore a specific subject area, although, each of which has strengths and weaknesses (Hussein, 2009). Bishop (2015) explained that some researchers are interested in placing emphasis entirely on the practical tasks of a mixed methods research, which guides them to realise the quantitative approach as a pure method for collecting and analysing numerical data. Whereas, the qualitative method is a pure method for collecting and analysing non-numerical data (Bunyaminu, 2015). Creswell (2010) argued about whether or not quantitative or qualitative data could be combined. Because qualitative data are related to certain philosophical assumptions; yet, quantitative data are associated with other philosophy assumptions (Creswell, 2010; Johnson & Onwuegbuzie, 2004; Krauss, 2005). Currently, using quantitative and qualitative methods to study the same phenomenon has expected a significant notice from scholars and practitioners (Hussein, 2009). The mixed methods

research has a number of attractive features: it declines the weakness of one method and strengthens the benefits of the other in order to get better research results (Hussein, 2009). Against this backdrop, this study applies a qualitative initially where the emphasis is placed on a quantitative method (Bishop, 2015; Creswell, 2010, p. 65).

In this study, to find the motives and outcomes of consumer decision-making behaviour in the WSTP market, quantitative data are applied. However, the use of the hypothesized model in testing the quantitative method could suggest that this method is not entirely appropriate to the research questions. Thus, a qualitative interview approach is used to explain how potential consumers in the WSTP market are influenced in the decision-making stage. In turn, the quantitative data will provide a broader context in which to answer the research questions, while qualitative data and the analysis will improve and clarify the statistical results by discovering the participants' observations regarding their actual purchase behaviour in more depth.

4.2.4 Research strategy and time horizons

Saunders et al. (2016, p. 177) define a research strategy “as a plan of how a researcher will go about answering the research questions”. As such, the researcher addresses the need for methodological research on the WSTP market by examining the motives and outcomes of consumer decision-making using the survey strategy. The use of questionnaires allows for the collection of large amounts of data from a sizeable population in an efficient and cost-effective approach (Groves & Heeringa, 2006; Sauermann & Roach, 2013; Saunders et al., 2016). Also, this is a usual method in business and management research and is most often used to find responses to “who”, “what”, “where”, “how much”, and “how many” questions (Saunders et al., 2016; Zefeiti & Mohamad, 2015). As a result, the most appropriate choice of time horizon for this study is cross-sectional, involving a snapshot descriptive survey, which is carried out at a specific time (Obiedat, 2013; Saunders et al., 2016; Soh, Rezaei, et al., 2017).

4.3 Research design and process

Research design includes all components ranging from theoretic reading, methodological development, to the data collecting, and interpreting (Creswell & Clark, 2018, p. 51). Equally important, the research design consists of complicated decisions and matters. Even so, the process of using mixed methods can become more challenging due to the additional complexity of the approach (Creswell & Clark, 2018, p. 52; Hesse-Biber, 2015). Based on the aim of this study, research designs can be classified to a mixed methods experimental design which is shown in Figure 14 (p.101). Creswell and Creswell (2014, p. 228) had used the term “multiphase design” to define a research design within multiple stages of program evaluation. Regardless some researchers argued that most mixed methods researches have multiple phases (Creswell & Clark, 2018; Hesse-Biber, 2015). Thus, Creswell and Clark (2018) focus on the core design of mixed methods as well as leaving open the wide range of possibilities and proposed that in every single study has the weight on the primary intent applied on the multiple methods. Drawing from this, the research uses a mixed methods experimental design as above mentioned.

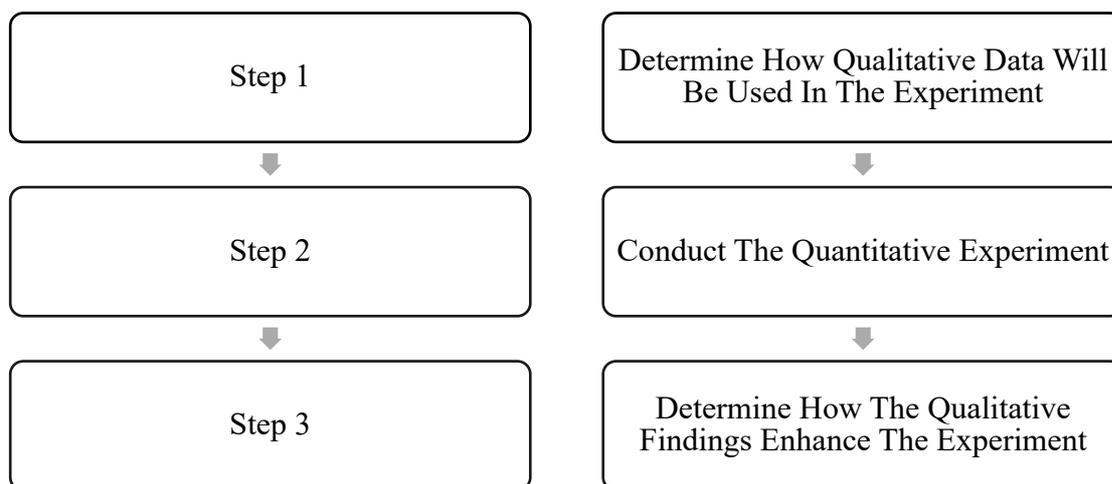


Figure 14. Flowchart of the Basic Procedure in implementing a Mixed Methods Experimental Design (Creswell & Clark, 2018, p. 111)

In order to design the mixed methods research, the researcher must first recognise why the qualitative element is required to improve the experiment and how the qualitative data will be used in this experiment (see Figure 14, p. 101), suggested by Creswell and Clark (2018). The qualitative data is used in this research as the first phase to collect a primary source of information; after analysing it, the second phase quantitative data is collected to explore the hypothesis. At the last phase, the qualitative method helps to explain and confirm the experimental outcome (Creswell & Clark, 2018, p. 110-111). That is, to design the quantitative measures (before), exploring the process of experiences of individual participants in the study(during), and then to explicate the experimental outcome (after) (Creswell & Clark, 2018).

For this purpose, the philosophy of this research is driven by a post-positivist orientation in which the primary aim of the study (as a quantitative experiment) leads the design (Creswell & Clark, 2018). Creswell and Clark (2018) identify that researchers use a conceptual model to lead the experiment and draw an important deductive conclusion from the outcome of the quantitative method. That is, the researcher builds a conceptual model from the qualitative findings as well as the quantitative results. Thereupon, the post-positivist orientation often influences the qualitative element, when the researcher pursues the answer of the research questions and also think that qualitative analysis would aid to adopt the research questions to a boundless scope (Frels & Onwuegbuzie, 2013; Onwuegbuzie et al., 2011). In contrast, the positivist method may lead to face potential error and prejudice if the researchers are influenced by the situations they observe. Post positivism provides not only one method and technique in a study to enable that the research is studied from not just one aspect (Panhwar et al., 2017). Gamlen and McIntyre (2018) argued that qualitative methods acknowledge researchers to know why and how this social reality has been made and quantitative methods may support to explain a

reliable social reality. In brief, mixed methods are well-matched to the post-positivism to social science theory construction.

4.3.1 Phase 1- collection and analysis of secondary data

Interpretivism acknowledges that humans are unlike physical phenomena because they are creating richer, innovative identifications and interpretation of social worlds (Saunders et al., 2016, p. 140). Hasan (2016) and Saunders et al. (2016) stated that interpretivism can be perceived as applicable to a certain level of analysis in which they generate meaningful social phenomena. For directing social science research, Tsang (2014) recognised that interpretivism pursues the methods of natural science insufficient, the trade of the social sciences is to understand intentional phenomena by accepting the meanings enclosed to the phenomena by their actors. Yet, arguments are that individuals and the social worlds are a complication, which should be deliberated in a different way (Saunders et al., 2016). Interpretivist researchers try to collect the meaningful phenomena from their research participants by considering the complication, and also face the challenge that is to go into the social world of the research participants and from their view to understand the world (Aliyu et al., 2014; Saunders et al., 2016, p. 140). The root of most interpretive research is to collect the experiential facts fundamentally (Aliyu et al., 2014). That is, to use phenomenology or hermeneutics as paths to get knowledge and information (Aliyu et al., 2014), the philosophy of the interpretivism is to look at reality or truth as a paradigm of the mind's inner feeling (Aliyu et al., 2014). Interpretivism is also characterised by an inductive method to research rather than generalisation by given the individuality of detailed social circumstances (Aliyu et al., 2014; Tsang, 2014). That is, to generate theory from data can aid assess and donate to resolve grand challenges by creating novel ideas, illuminating efficient progressions, coping with complexity: emergence, configurations, unpacking subtle constructs, and exploiting extreme cases (Baker & Hart, 2016).

In research developments, document secondary data are employed that also gather primary data frequently (Saunders et al., 2016, p. 319; Skinner et al., 2014). Document secondary data are defined as data that sustain physically as evidence and allow data which can be reversed throughout time and space and analysed in an altered way for a purpose transformed to that for which they were initially gathered (Saunders et al., 2016). As such, this study is undertaken multiple-source secondary data which includes books, journals, reports, and publications. One of the advantages to using a multiple-source data set is that combine and extract selected comparable variables from many surveys which have been done several times to offer longitude information (Saunders et al., 2016; Skinner et al., 2014). But, data that we collect with a particular purpose is to response the research questions and to highlight the objectives (Saunders et al., 2016, p. 332).

The use of multiple-source secondary data in the WSTP market has been widely discussed related to technology, specifically in ease use of technology, and also developed several models: the TAB, the TRA, the TAM and the UTAUT. In addition, some research has also applied in health-related perspective. Therefore, these two variables have been widely accepted. To answer the research questions, the following marketing communication would be the further point to explore. For formatting the conceptual structure of this study on consumer decision-making behaviour at this stage the secondary data has shown the theoretical process. In this study, whether the level of decision-making purchase intention and actual purchase behaviour are merely certain by the factor of predetermined terms is a concern which will be explained.

To an extent, the nature of cognition as a determinant of the decision-making process is a rather more complex one than this. Upon the decision-making process a need forms and then search the related information all that reflects a consumer's cognition. The extent to which cognition may therefore replicate the degree to which the decision-making process meet. Following this, purchase intention may be closely connected with the nature of consumer decision-making behaviour. To this end, the actual purchase behaviour would be the vibrant component of the whole process. Even though this is a matter that a

consumer made the purchase decision and then took the act, the alternative choice and no buy would be the determinants associated with actual purchase behaviour.

It is hard to make any conclusive explanations approaching the determinants in the WSTP market at this phase of the study. Although it is evident in statements made by consumer decision-making in the WSTP market that the process is more complicated. This means a decision-making process to relations with motives, marketing communication, cognition, purchase intentions, and actual purchase, is not built upon a decision-making process simplistically. Reasonably, there are expected to be several determinants underpinning the consumer decision-making process in the WSTP market that motives and purchase intention make towards each other. As such, the initial review of consumer decision-making in the WSTP statements has operated to check the ideas upon which this study is established.

4.3.2 Phase 2- Primary data collection from semi-structured interviews

Interpretivism highlights that individuals are diverse from physical phenomena as they generate significances and that is more applicable to recognise the complicated movements and to take the numerous truths of the society (Hasan, 2016; Saunders et al., 2016, p. 140). Saunders et al. (2016, p. 140) find that “The purpose of interpretivist research is to create new, richer, understandings and interpretations of social worlds and contexts”. On the contrary, critical realism’s emphasis is on explaining what we see and experience through the outline of observable events (Kempster & Parry, 2011; Miller, 2015). In other words, critical realists argue that what people observe is only a small part of everything in their sight, that is, they cannot explore the real implications directly. Reality is seen as a social construct constructed by social actors based on the meaning given by their experiences and recognises that world from their views by embracing interpretivism in social research (Saunders et al., 2016; Skinner et al., 2014; Tsang, 2014). Therefore, Saunders et al. (2016) identify that the interpretivist view is suitable for the

paradigm of business and management research. As such, in the nature science interpretivism is suited to this phase of the research.

Corbin and Strauss (1990) argued that social research must apply a pattern based on an evidence that philosophy discloses a pre-existing reality, and they therefore develop the grounded theory which establishes as a process to analyse, understand and enlighten the meanings that social actors in specific situation create to make sense of their daily involvements (Saunders et al., 2016). Grounded theory is related to a theory that is grounded in or settled from a set of data inductively and also used to foster theoretical clarifications of social conditions and subjective experience in a broad scope of settings which include the field of business and management (Charmaz & Belgrave, 2015; Saunders et al., 2016). The grounded theory provides a systematic approach to collecting and analysing qualitative data (Charmaz & Belgrave, 2015; Saunders et al., 2016, p. 193). Saunders et al. (2016) indicate that even grounded theory is typically referred to inductive approach, but, it may be suitable to be abductive which is between induction and deduction (Charmaz & Belgrave, 2015; Saunders et al., 2016, p. 193). As such, grounded theorists can take the pragmatist by using them by explaining concepts that adopt power, ideology, and equity to construct captivating analyses of social issues (Charmaz & Belgrave, 2015). Grounded research depends on the use of qualitative data collection methods driven mixed methods underlined by the quantitative findings (Charmaz & Belgrave, 2015; Churchill & Iacobucci, 2010). In the light of grounded theory, many researchers build questions from the interviews as the most usual technique of gathering data, while the purpose of the study is clear, yet, answers to the questions are open-ended (Charmaz & Belgrave, 2015; Churchill & Iacobucci, 2010).

Therefore, the method used during the first phase of research outlined above, was applied in order to illustrate that motives are the determinants of the relationship between cognition, purchase intentions and actual purchase behaviour. To address these issues, the study employed semi-structured interviews in the beginning to generate observations related to motives and their determinants. The semi-structured approach was chosen

because it stays true to defining the subject under investigation and provides opportunities for both interviewer and interviewee to discuss some subjects in more detail (Skinner et al., 2014).

Saunders et al. (2016, p. 391) categorised three main types of interviews:

- Structured interviews: Using a pre-determined standardised or identical list of questions. The researcher and the interviewees interact with the preliminary explanations limitedly before responding to the questions.
- Semi-structured interviews: Starting with an organized set of questions, but this is not fixed. During the interview, the researcher may adjust, add, delete, and change the order of some questions.
- Unstructured interviews: These can be used to discover in-depth a general topic in which the researcher is interested. An unstructured interview is 'nonstandardised' and informal, which enables the participants to talk freely.

Miles and Gilbert (2005, p.65-66) also identify several advantages of the semi-structured interview approach, which are purely conversations in which you know what you want to find out about and take a set of questions to ask. The flexibility of semi-structured interviews makes it ideal for answering "why" questions, which we can address various aspects by changing the questions and the areas discussed. We can therefore obtain a better understanding of the research question. (Miles & Gilbert, 2005, p.65-66). The semi-structured interview approach was also chosen to allow the researcher to cover some specific topics and hear the interviewee's stories. Thus, the researcher may draw on the format of an opening statement and a few general questions to elicit discussion (Rabionet, 2011). It is vital to collect rich, qualitative, and exploratory insights through interviews for this study. These are collected from in-depth, semi-structured interviews.

The format of an ordinary semi-structured interview was engaged to produce the qualitative data which combined the which fulfilled with following elements: 1) an introductory statement explicating the objective of the research; 2) interview questions regarding the content and nature of measures that had motivated interviewees to be willing to purchase a WSTP; 3) chances to contribute usual and particular comments for interviewees related to the WSTPs; 4) a closing statement. Following Skinner et al. (2014) recommendations, each interview was no tape recording, but instead with a detailed note-taking by the interviewer being used the memory to increase and explain the notes after the interview during the interview. This method is helpful if the time is short and the results are needed quickly. Yet, if this method is applied, and real care must be taken to record the consequences of the interview (Skinner et al., 2014).

Starting with the first step at this phase, this study designed the questions based on the above-mentioned literature and theories; the interview technique was embraced. A total of 15 face-to-face individual interviews was undertaken, containing 12 consumers and three marketers in the WSTP market and normally each interview enduring between 30 and 60 minutes. The interviews were undertaken in 2016, which 12 consumers' interviews were recruited by snowball sampling, with four interviewees had owned a WSTP and 8 interviewees who will be the potential consumers had not owned a WSTP. Dusek et al. (2015) describe that eligible participants take a snowball sample when sharing invitations with other similar subjects that meet their target population qualifications. Vashistha et al. (2015) also explain that researchers are advocated for using snowball sampling in social science research. Interviews with three marketers from two leading sports manufacture, Nike and Adidas, made the qualitative data more comprehensive. This was a satisfactory sample size for qualitative studies, as informational power suggests that the more appropriate information a sample contributes to an actual study, the fewer participants are required (Malterud et al., 2016). As such, a sample with a satisfactory level of informational power should be associated with the objective of the study, sample specificity, use of well-known theory and the quality of discussion (Malterud et al., 2016). From a consumer perspective, the participants, who included consumers who have owned

WSTPs and potential buyers, engaged in a quality discussion, which highlighted the importance of the determinants of motives.

Following the interview data collection, it was to analyse the interview data by choosing manually. This allowed the author to create great gratitude for the nature and complication of all interviews examined. Therefore, that was supported with open codes being applied and after numerous readings of the interview materials. Open coding is used to name and classify key concepts, categories, and experience patterns by factoring, examining, comparing, and grouping phenomena. According to this strategy, the following procedures are used to analyse the interview records: First, the interviews are divided into two groups: consumers and marketers, and the two groups of records and read records and codes are compared. This led to the development of many codes, which were derived from the literature. Second, a briefing document was created outlining various theories of consumer behaviour and its determinants. Third, use these codes to analyse the remaining transcripts. Finally, once completed, the summary will be shown in Appendix 1. Our analysis in the table identified nine key factors from each of the 15 interviews, by which we classify and examine the nature of the motives, marketing communication, cognition, purchase intentions, and actual purchase behaviour. Integrating methods into the research methodology, which could accept this data to be taken and analysed was of principal significance. In order to adapt to the nature of the association between the motives, marketing communications, cognition, purchase intentions, and actual purchase behaviour, axial coding was also employed. During the period of axial coding, we need to construct a conceptual model and to decide whether sufficient data exists to support the interpretation by Skinner et al. (2014) suggestion.

In addition, the three interviews with marketers who work in the WSTP market contribute the view from the business side. The interviews were transcribed with reference to the literature and empirical theories, that is, by integrating the interviews and the literature review findings. We then developed the hypothesized model at this phase detailed in section 4.4 so as to support the aims of this study.

4.3.3 Phase 3- Development of survey instrument

4.3.3.1 Questionnaire development

Positivism highlights the efforts to build, express and verify hypotheses, which are ordinarily categorised by quantitative approaches (Hasan, 2016; McGuirk & O'Neill, 2016; Mingers, 2015; Tajvidi & Karami, 2015), as well as establishing causal relationships explicitly across the collection and analysis of quantitative data (Tajvidi & Karami, 2015). As such, positivism is concerned with objects that are associated with the world as a rational place, and with an obviously defined past, present and future (Solomon et al., 2016).

Meanwhile, Comte's evident principles of social science may seem rather basic now, but he was making strong claims for technical and scientific facts built on developing and testing general theoretical principles through unbiased evaluation data (Aliyu et al., 2014; Bannister, 2014; Hasan, 2016). "Positivism" was broadly applied to symbolise approaches to social science based on Comte's sociology, which made use of huge numerical data, quantitative measurements, and statistical techniques of analysis (Halfpenny, 2014; Hasan, 2016).

Equally important are the crucial features of quantitative research, which focus on deductive theory, confirmation, hypothesis testing, prediction, explanation, data collection and statistical analysis (Johnson & Onwuegbuzie, 2004; McGuirk & O'Neill, 2016). Therefore, at the core of the quantitative method is a deductive approach which is to develop a theory containing the testing of a hypothetical proposal to this study (Bishop, 2015; Saunders et al., 2016). The qualitative and quantitative research approaches were mixed in this study and involved the research objective, data collection, data analysis and consequence. These phases occurred in sequence, with the quantitative approach carrying more weight in this study.

4.3.3.2 Research sample selection

Due to this study will apply SEM by using SmartPLS. The sample size is therefore determined by the often-cited '10X Rule' (Hair Jr et al., 2017; Hwang et al., 2016; Li et al., 2011; Yi & Gong, 2009), which indicates that the sample size should result in the collection of at least 280 responses. Data collection concerning chosen target populations depends on statistical probability (Saunders et al., 2016). Saunders et al. (2016, p. 279) highlighted that "Probability sampling is, therefore, a compromise between the accuracy of your findings and the amount of time and money you invest in collecting, checking and analysing the data". As such, the questionnaire used in this study contains 28 scales in the initial conceptual model. The questionnaire refers to consumer behaviour decision-making in the WSTP market, which is aimed at existing consumers who have owned a WSTP and potential consumers. For this purpose, the survey data should be distributed to all participants who are aged over 18 years to complete.

4.3.3.3 Response rate considerations

This study applied the online survey. The online survey refers to two types: web-based and email-based (McPeake et al., 2014). First, web-based surveys ask potential participants to visit a webpage on which the questionnaire can be accessed and completed online (Bryman, 2015; McPeake et al., 2014). Second, there are two ways to employ an email survey: one is to embed it in the body of an email, the other is when a questionnaire is attached to the message (McPeake et al., 2014). This study tried to use both the web-based and the email (with the questionnaire webpage link included) methods. As such, the response rate of the online survey may have resulted in a lower response rate than the email survey, which was approximately 10% lower than average (Shih & Fan, 2008).

The online survey, which was the primary data collection method used in this research, was promoted via several social media platforms, making the process less time-consuming and inexpensive for the researcher (Bryman & Bell, 2015). Social media is commonly used in our daily lives (Townsend & Wallace, 2016). Social media platforms, such as Facebook and Twitter, allow users contact and develop networks of friends, family and significant professionals easily (Fielding, Lee & Blank, 2008); they also provide effective opportunities for researchers (Beninger et al., 2014).

First, using Twitter is one of the most popular social media sites for researchers to collect data (Beninger et al., 2014), enabling them to post online survey links and provide inducements to raise the response rate (Sauermann & Roach, 2013). Second, LinkedIn is used to engage the business community (Beninger et al., 2014) and invite relevant professionals to complete an online survey directly or via discussion forums. In this case, searching for discussion groups using the terms ‘wearable’, ‘wearable technology’ and ‘wearable sports, technology’ revealed more than 600,000 LinkedIn members. The survey invitation letter was also sent to those who are working in this particular field. Third, using social network platforms, such as WhatsApp, WeChat and LINE, as well as asking friends to complete the survey and forward it onto other participants (i.e., snowball sampling), was another dissemination strategy (Beninger et al., 2014; Dusek et al., 2015; Fink, 2017; Saunders et al., 2016, p. 303; Vashistha et al., 2015). That said, Dusek et al. (2015) highlighted that publishing a survey link on a group discussion board does not generate many responses. Therefore, we adopted various approaches for the piolet test. At the end of the piolet test, we found that the response rate was lower than we expected. Consequently, the strategy for data collection from the online survey was made for the piolet test.

Therefore, applying a traditional method to collect data, using an iPad, participants were invited to complete the survey on the University of Salford campus, train station and the high street to ensure the age and number of participants were appropriate, based on Mintel

(2016), the biggest group of existing consumers in the WSTP market are aged 16-34 years. As such, several methods were engaged to affect an adequate response rate.

In order to maximise the response rate, using incentives was under consideration. The main incentive used in this study was a lottery incentive, also call post-incentive (Sánchez-Fernández et al., 2012), in which participants had a chance of winning a prize. Some studies have argued about the relative merits of such incentives (Gajic et al., 2012; Keusch, 2015; Ryu et al., 2005; Sauermann & Roach, 2013; Vashistha et al., 2015). To raise the survey response rate, some studies support the use of lottery incentives (De Bruyn & Lilien, 2008; Kim et al., 2014), whilst some prefer fixed incentives (Keusch, 2015; Wang & Chang, 2013).

Sánchez-Fernández et al. (2012) report that incentives can increase the response rate and decrease the amount of incomplete responded. Different theoretical methods have tried to deliver a reason why the use of different types of incentives can increase Web survey results (Laguilles et al., 2011; Sánchez-Fernández et al., 2012). In brief, the theory of economic exchange can explain that respondents will complete and return the survey in exchange for financial reward, rather than any benefits their actions might have for society (Ryu et al., 2005; Sánchez-Fernández et al., 2012). On the contrary, Ryu et al. (2005) argue that using incentives should take into account certain sampling biases and impact response distributions. Heerwegh and Loosveldt (2009) therefore propose that offering a post-incentive link the behaviour of completing a survey with a positive outcome. Nevertheless, it cannot be predicted whether these incentives help to distribute surveys to others and grow the overall range of snowball sampling (Vashistha et al., 2015). Owing to incentives may rise the survey results, specifically the quality of response. As such, a prize draw to win a £25 Amazon voucher was offered to participants.

4.3.3.4 Determination of an appropriate questionnaire length

It has been broadly argued regarding the suitable length of a questionnaire. Drawing from McGuirk and O'Neill (2016), researchers need to ensure the simplicity of research objectives and questions, as this will help to identify suitable participants. Beukenhorst and Kerssemakers (2012) highlighted that the quality of a questionnaire and its attractiveness clearly play a vital role. The online questionnaire and all of its features, including layout, length and content, were not standardised to the sample when the preliminary survey participation request was issued (Keusch, 2015). Given the different measures applied in this study, the variation in effect size is moderately affected by the survey length, containing the number of questions, the number of screens, the number of pages, and the time of finishing the survey (Fan & Yan, 2010). A potential respondent assesses the various measures on the survey webpage before decided to complete the questionnaire (Keusch, 2015).

Fan and Yan (2010) presented an example in which two studies were conducted among college students, which showed that the ideal length to gain a good response rate is 13 minutes or less for the completion time. Moreover, Sheila Wilson and Macer (2013) and Brace (2018, p. 49) indicated that the average acceptable length of an online questionnaire as being 15 minutes. In addition, technical issues, the wording of questions and questionnaire design also affect the response rate (Dusek et al., 2015; Keusch, 2015). As such, this study took into consideration the probability that longer questionnaires may cause lower response rates, which in turn informed the decision about which scale items were needed and how they were worded. After the pilot testing, this study consisted of seven questions of the consent form, eight questions on background information, and 28 scale items, with a completion time of 10-15 minutes, which meet the requirements above- mentioned. Appendix 2 shows all items which were adapted from existing published research with slight amendments in wording to suit into WSTPs.

4.3.3.5 Selection of question types

Questions are proper for different purposes in the various ways and by using the different types of data of collection can be analysed differently. The procedure of extension and replication applied in this study is the main element of the question types. To determine what types of analysis is able to be carried out, it is very significant to recognise the diverse types of data will be produced (Brace, 2018, p. 58). There are few types of question in an interview which is stated by Brace (2018): 1) “open or closed question”, depending on whether the answer can come from a boundless, or certainly unknown, range of responses from a closed or fixed number of possible responses; an open question is able to appeal a short answer, where the anticipated answer should simply be one. 2) “spontaneous or prompted question”, depending on whether participants are asked to answer with their own words or given a number of choices from which to select a response; 3) “open-ended or pre-coded question”, depending on whether the answer is recorded precise or against one or more of a number of fixed solutions. An open-ended question is commonly applied in market research, which is that the responses are recorded exactly, and differentiating it from an open question (Adams et al., 2014; Brace, 2018, p. 59).

To prepare a questionnaire, there are some considerations by several researchers in the following, which boost its efficiency :(Adams et al., 2014, p. 107; Williamson & Johanson, 2018, p. 45)

1. The wording of questions is clarity and simplicity to understand in order to protect balanced answers.
2. The layout and instruction of a questionnaire are flawless to produce the data required for the purpose of the study.
3. The purpose of content is probably to make a valid reply.

4. The process of recording answers is to be considered, which is related to the response format, order, and completion time.
5. The data collected is used to analyse, which are coherent with the intended methods of analysis.

As such, typical survey design guidelines should be required following by designing an online survey, and also reflecting distinctive factors to the online setting. Well-designed of online survey and length of the survey are equally important donating issues to response rates and in order to gain higher response rates, shorter questionnaires will encourage the participants' act, which should be taken as consideration. Current software Bristol online survey (BOS) has made it straightforward to create and design online questionnaires relatively. Some formats of the available question in BOS contain filter questions that system answers based on the style they reply: lists of options, a particular question, checkboxes, drop-down lists, fill-in-the-blanks, and textboxes for open-ended questions (Williamson & Johanson, 2018). To deliver additional information for respondents, hyperlinks might be an idea. for instance, more detailed instructions or definitions of unfamiliar terms (Williamson & Johanson, 2018) Hypothetical questions are often asked to get more insight into attitudes and opinions about certain issues. Still, little is known about processes in the respondent's mind that lead to a response to such a question (Williamson & Johanson, 2018, p. 50).

Therefore, this study employed an odd number of scales of five or seven, which were considered to be less tense. Drawing from a number of research in consumer behaviour five-point Likert scales were commonly applied (Ha & Janda, 2012; Hsu & Lin, 2015a; Kim et al., 2011; Kumar & Venkateshwarlu, 2017). Five-point Likert scales were used in the pilot study stage, participants accepted it, as a result, a five-point Likert scale was applied in the final phase. Brace (2018, p. 96) explains that Likert's scale is designed for each respondent to give a general attitudinal score for each individual. Likert's intention was that the statements would denote different aspects of the same attitude (Brace, 2018,

p. 96; Hair Jr et al., 2017, p. 9; Saunders et al., 2016, p. 457). Consequently, the researcher considered the simplicity of the questionnaire; the five-point scales were applied.

4.3.3.6 Cover letter, Content form and Closing page

An appropriate questionnaire presenting a website is the following consideration, the subsequent phase is to create a covering letter (shown in Appendix 2). The cover letter represents the first image of the questionnaire, which includes an outline to the researcher, research purpose and gratitude. In addition, the letter includes the instructions and the duration for accomplishing the questionnaire, results in use and the contact details of the researcher (Keusch, 2015; Saunders et al., 2016). Regarding the content of a letter, there is a slight suggestion to guide brief letter which is more expected to be entirely received than longer ones (Keusch, 2015; Saunders et al., 2016). Saunders et al. (2016, p. 468) supposed that longer documents would limit response behaviour. After all, the final part of the cover letter concluded the guaranteeing the participants of anonymity, and incentive to motivate the participants' willing (Sánchez-Fernández et al., 2012).

The survey also has an end page attached to the end of the questionnaire. This page covered a message of appreciation to the participants and the contact information of the researcher again and assured that the file stored in the secured USB with the secure code. Hence, at the end of the closing page, the participants are asked to aid with an interview for the next phase.

In the same way, an essential requirement for researchers is the Ethical issue in which are provided including the privacy of potential and the participants who have the right to withdraw partially or entirely from the research procedure, consent of participants, keep of the confidentiality of data offered by participants. Creswell and Creswell (2014) identify that if research contains collecting data from people, about people, which researchers need to expect the ethical issues that may arise in the period of the study.

Writing the ethical issues is therefore required in making an argument for a study as well as being a key issue in the format for proposals (Creswell & Creswell, 2014). Along the same line, researchers need to protect their research participants and build trust with them. For this purpose, ethical issues in research knowledge boosted attention currently in such issues as personal disclosure, authenticity, and credibility of the research report (Creswell & Creswell, 2014, p. 92).

In summary, the researcher and a research study must not harm any potential and actual participants and ensures to confirm these features need to be delivered. As such, we had gained Ethics approval before collecting data. Finally, the online questionnaire contained linked to questionnaire on BOS, which was provided by the university. The advantage of online survey tool is that the data collected go to the cloud and save it automatically. It is an easy and economical way for the researcher to collect quantitative data.

4.3.3.7 Timescale for posting and return of questionnaires

The time when questionnaires are posted is a key factor in ensuring sample efficiency. Hoogendoorn and Daalmans (2009) suggested that weekday evenings are the best times for producing a higher response rate. However, this study collected the data within a month, so choosing which month was not a consideration.

Moreover, in theory, data collection could be worldwide if the abovementioned new communication tools are used. In other words, by employing social media, an international audience, which can be categorised as a “hard-to-reach” population, can be approached, thus enlarging the range of demographic profiles involved (Dusek et al., 2015).

On the one hand, Internet coverage is increasing with rapid speed, while, on the other, the online response rate is still lower than from using conventional mail or telephone calls (Fan & Yan, 2010). As such, employing social media is not only about posting the survey

link on a group page but also writing emails to invite individual responses to the survey. This is a productive method to attract respondents, although there is a risk that emails may be categorised as spam (Fan & Yan, 2010). Equally important is the issue where online user groups are more likely to be well educated, richer and younger, compared with people without Internet accesses (Taipale, 2016). Yet, Adams et al. (2014) argued that using social media distribute the questionnaires and receive completed questionnaires from the researchers' friends or similar people, which leads to being unrepresentative because of the restricting of the sample. During the pilot test, we find that the response rate from social media was surprising low, however. As has been said, the most quantitative data collection was gathered by tablet in person.

4.3.4 Phase 4-Analysis of quantitative data

Researchers seek to analyse questionnaire data by using several computer packages for effect size measures (Khalilzadeh & Tasci, 2017; Skinner et al., 2014). The quantitative data will be proceeded in two stages: data screening and the SEM (SmartPLS). Firstly, data screening will check for missing data, outliers, and testing the assumptions of multivariate analysis through employed SPSS version 25, a common statistical software product, which will be used to test descriptive statistics (Khalilzadeh & Tasci, 2017; Mellahi & Harris, 2016). Saunders et al. (2016) advise that descriptive statistics are usually employed to offer general samples, describing variables using numerals by computing the mean and standard deviations. Next, SEM was also be applied in order to examine the hypothesized model structure. SEM's basis based on two familiar multivariate methods: multiple regression analysis and factor analysis, as a unique combination of both interdependence and dependence types of methods (Qureshi & Kang, 2015).

To examine factor analysis, there are two key kinds of analyses lying on the common factor model: exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) (Hair Jr et al., 2017, p. 3), the former, is frequently applied initials in the process of scale

development and construct validation and descriptive data technique (Brown, 2014), the latter, when the basic structure is developed on the basis of previous experiments and theories, it will be applied to the advanced stage (Brown, 2014; Hair Jr et al., 2017). CFA is used for data analysis to assess the estimated causal relationship between variables (Hair Jr et al., 2017). Despite the application of CFA, researchers need to have a strong theory as the basis for the measurement model before analysing the data. An opposing view is that CFA is overused and used under inappropriate circumstances (Brown, 2014). Thereupon, CFA is almost applied for a range of purposes, including the detection of method effects, construct validation, psychometric evaluation, and the assessment of measurement invariance currently (Brown, 2014; Ma et al., 2016).

For these reasons, and because of the available access to IBM SPSS Statistics 25 through the University of Salford, SPSS was employed, while SEM SmartPLS 3 was also applied (Hair Jr et al., 2017) because a trial package is available from the Internet, which can create appropriate analysis including tables and charts for this research.

Analysis of data collected from online surveys, based on SEM, by using SmartPLS provides a compelling multivariate analysis (Chin, 2010; Hair, Ringle, et al., 2012; Sarstedt, 2008). SEM models principally associated with path models and confirmatory factor models. The statistical techniques applied to analyse quantitative data for the most weight of the survey has shown in Chapter 5.

4.3.4.1 SEM

The second software approach to SEM is PLS, whose emphasis is on the analysis of variance, for instance, by using VisualPLS, PLS-Graph, SmartPLS, and WarpPLS (Wong, 2013). SEM has been employed in literature since the 1980s (Hair et al., 2011). There are two modes of SEM: covariance-based SEM (CB-SEM) and partial least squares SEM (PLS-SEM), the former, CB-SEM is typically used to confirm theories and explicate the covariation between its associated indicators without explaining the variances (Hair Jr et

al., 2017, p. 15). On the contrary, PLS-SEM is causal modelling method designed to explain the variance of the dependent latent constructs (Hair et al., 2011; Hair Jr et al., 2017, p. 4). Gudergan et al. (2008) offer the confirmatory tetrad analysis for PLS-SEM (CTA-PLS), which permits researchers to empirically check constructs' measurement modes and the null hypothesis that the constructive methods are inherently reflective (Hair et al., 2011; Hair, Sarstedt, et al., 2012).

PLS is a useful soft modelling approach to SEM in applied research projects with both a small or much larger sample size, while the other approaches to SEM only need a large size, for example, generalised structured component analysis and non-linear universal structural relational modelling (Hair et al., 2011; Hair, Ringle, et al., 2012; Hair Jr et al., 2017; Wong, 2013). Although some researchers have debated for using regressions based on sum scores, instead of some type of indicator weighting as done by PLS-SEM (Hair Jr et al., 2017). PLS-SEM remains to become a powerful multivariate analysis method for marketing research, with enhanced general usefulness in numerous research sets (Hair et al., 2011). As a result, when theory is less settled, Hair Jr et al. (2017, p. 14-15) suggest that researchers would deliberate the use of PLS-SEM.

4.3.4.2 The rational of using PLS-SEM by SmartPLS

SEM was originally applied by Bollen (1989) and Jöreskog and Sörbom (1982) in social sciences. Then, PLS was initially established by Wold (1983) and were established greater by Ringle et al. (2005). A and was applied to models with constructs having multiple dimensions and fewer paths (Shaw & Sergueeva, 2019). Applied PLS has become entirely widespread recently (Hair et al., 2011). Actually, before 1990, less than ten articles using SEM were published in marketing journals, whilst more than 60% of all articles using SEM showed among 1995 and 2007 (Babin et al., 2008; Hair et al., 2011). As such, PLS was employed to test the research model due to the several advantages (Hair et al., 2011; Sun et al., 2013; Urbach & Ahlemann, 2010):

First, the multivariate analysis contains the application of statistical methods that instantaneously analyse multiple variables which symbolise measurements related to activities, individuals, events, situations, companies, and so forth (Hair Jr et al., 2017, p. 2). The PLS has been acknowledged as more suitable for exploratory analysis and has applied proxies to symbolise the constructs of motivation in research that focus on theoretical development (Hair Jr et al., 2017; Hsiao & Chen, 2018).

Second, PLS-SEM manages with complex models and small sizes efficiently, compared with CB-SEM requires normally distributed data (Hair, Ringle, et al., 2012). The sample size for PLS-SEM path model estimation minimum should reach the ten times rule at least, based upon ten times rules (Ernst, 2016; Hair et al., 2011; Hair Jr et al., 2017, p. 83; Henseler et al., 2009). That is, the data gathering for this study needs to meet 220 responses at least, even in the initial model the data requires 280 responses. The final data collection had reached the required. That is more suitable for the researcher to gather data in a period of time. The sampling of this study is random, and the purpose of this research is to explore and distinguish significant constructs of WSTPs purchase intention.

Third, drawing from Hair Jr et al. (2017), PLS-SEM emphasises on the difference between the observed (manifest variables) or approximated (latent variables) values of the dependent variables and the values predicted in the model. In other words, PLS-SEM is appropriate for prediction. When the research objective is theoretical development and variance interpretation, the present study, whereby the measure of overall motives assessment for buying a WSTP is new, therefore, PLS-SEM is the chosen approach as it has established through best practices in several management fields including marketing (Hair Jr et al., 2017; Henseler et al., 2009).

Last, PLS-SEM can manage both formative and reflective constructs. While covariance-based structural equation modelling is regarded as being more appropriate for theory confirmation, PLS-SEM does offer a good approximation of covariance-based SEM in terms of final estimates.

An opposing view by Wong (2013) is that PLS-SEM is not appropriate for entire kinds of statistical analysis owing to has several weaknesses which involve: 1) Since arrows are always single-headed, it cannot model undirected correlation. 2) High-valued structural path coefficients are required if the sample size is small. 3) The problem of multicollinearity if not controlled well. 4) The scores of latent variables may lack full consistency, which may result in the biased component estimation, loadings and path coefficients. 5) When estimating the path coefficient load, a large mean square error may occur. Regardless PLS-SEM has some disadvantages (Wong, 2013), it has been applied in many fields, including marketing (Kim, 2012; Yoo et al., 2013), consumer behaviour (Choi & Kim, 2016; Darley et al., 2010; Hsiao & Chen, 2018; Li et al., 2011; Soh, Rezaei, et al., 2017; Tan et al., 2017), management information systems (Yaping et al., 2014) and business strategy (Elbanna et al., 2013).

SmartPLS creates paths in the model between the determinants and the hypotheses based on SEM. These paths and hypotheses are essential for the theory, which describes the causal mechanism. It is easy for researchers to measure the relationship with determinants and to test the hypothesis (Urban & Mayerl, 2013). The fourth phase of data analysis will be undertaken by applying SEM, which integrates multiple regression with factor analysis (Tabachnick & Fidell, 2014, p. 60). The use of SmartPLS will clarify the causal mechanism, empirically validate the theoretical hypotheses and apply predictive oriented measures.

All in all, SEM offers the chance to draw a path model between the variables and explain the indicators of the variables. The key purpose of this procedure is to confirm the initial findings resulting from the multiple regression analysis and path analysis was used to test the proposed structural model paths and evaluate the hypotheses of the study (Ma et al., 2016). Based on the above considerations, PLS was selected for the current study. Further analysis will be presented in the next chapter.

4.3.4.3 Pilot testing

This study employed an online questionnaire survey involving two types of layout: scrolling and screen-by-screen (Fan & Yan, 2010). A scrolling design shows all questions on one single webpage; participants need to scroll from the header to the foot of that single webpage in order to look at the entire questionnaire and available responses. The advantage of using a scroll design is not only that it is less time-consuming but that is also easy for participants to answer with richer context on one page (Fan & Yan, 2010). In contrast, screen-by-screen designs place one or several questions on one screen. To proceed, participants need to press the “Next” button, which enables them to skip questions that are not applicable to them, as well as to respond to questions consistently (Keedle et al., 2018). As such, both designs were applied in the study and subjected to pilot testing.

It is a vital requirement in the development of a questionnaire to apply pilot testing (Fink, 2017). The purpose of using pilot testing is to determine the questionnaire’s appeal to the sample population in order to maximise response rates associated with language, words and images (Fink, 2017, p. 86-87; Sharma & Crossler, 2014). It also ensures that participants will have no difficulties answering questions and recording data (Fink, 2017; Saunders et al., 2016). The significance of obtaining feedback is to estimate the time that the questionnaire will take to complete (Fink, 2017, p. 86). It is essential to ensure that, in the participants, there is clarity regarding the instructions, the design and the content of the questions asked, as well as identify missing or erroneous content (Fink, 2017; Saunders et al., 2016).

In addition, the main concern about pilot testing is the number of respondents involved in the initial questionnaire. Saunders et al. (2016, p. 473) explain that the number of respondents will depend on the research questions, objectives, time, money and the size of the project, although some researchers believe that a large survey involving between 100 and 200 participants is essential (Dillman et al., 2014). Fink (2017), however, proposed

that for the purposes of improving an instrument the smallest of 10 is appropriate. A smaller sample of the pilot testing was selected, following the latter suggestion by Fink (2017).

In the pilot stage of this research, fourteen participants agreed to be involved, consisting of representatives from different countries, including the UK, India, Italy, China and Taiwan, and examined the questionnaire and gave the feedback. The pilot testing took place over a three-week period. The feedback from the participants showed that there was one-word spelling mistake and that the email address for the prize draw had a technical problem. Considering that question numbers could limit concerns that the questionnaire may be too long, which were then removed from the questionnaire after amending the problems. The response from pilot testing in this study led to a minor modification which helped to identify potential issues for further analysis. The final questionnaire informed by the feedback collected during the pilot testing phase is offered in Appendix 2.

A general absence of research involving social media in which the poor response rates testified in the first instance where the research has undertaken, it was then decided to apply a personalised approach by using a tablet.

4.3.4.4 Data collection

Data are used to explore a phenomenon, explicate patterns, and identify themes as well as create a new or modify an existing theory, to be subsequently tested, often through data collection additionally (Saunders et al., 2016, p. 152). First, the participants were recruited from social media and within the University of Salford. Participants could communicate their interest in participation on social media via the online survey link, while responses to the online survey were also invited via face-to-face contact. Participation was voluntary, and steps were applied to ensure confidentiality and anonymity.

Second, the interview participants were recruited from among the respondents to the questionnaire and subject to the same consent and data protection process. Participants at this stage were invited via email. Finally, a total of 301 complete and valid responses (excluding three invalid response) was collected from the online questionnaire in one calendar month, from 8th January to 8th February 2018.

4.3.4.5 Response rate

A total of 301 questionnaires was received within one month. It was hoped that 500 responses would be obtained; as such, an overall response rate of 60% was achieved. Williamson and Johanson (2018) revealed that response rates are usually high, partly attributable to direct personal interaction and the relationship the interviewer builds with the participant. The response rate reflected three relevant observations: First, the online survey had a lower response rate (less than 10%) than the email survey (Shih & Fan, 2008). Second, the age range of the respondents was between 18 and 34 years, which corresponds to the leading target group for the WSTPs according to Mintel (2016). Lastly, engaging participants above 60 years is difficult because they may be unfamiliar with using a tablet to respond to an online survey or social media.

Wolf et al. (2013) suggest that when considering sample size, researchers usually select achieving adequate statistical power to observe true relationships in the data to reduce bias. Therefore, in this study, the target response rate was considered to be 500. After data collection, the completed response rate was 304. When we rechecked the questionnaire, only 301 were available, which led the researcher to conclude that even 301 responses were not close to the target number of 500 but exceeded the required minimum a number of 220, which can enable the statistical power analyses in the PLS-SEM.

4.3.5 Phase 5- Structured interviews

In this study, the qualitative phase depends on the results of the quantitative phase; this study has adopted a form of the explanatory mixed methods design. Qualitative methodology highlights participants' thoughts towards the research questions (Creswell, 2010; Tajvidi & Karami, 2015). The order of phases, from the quantitative to the qualitative, relates to the sequence of procedures used in this design. The qualitative phase is an uncertain one because the central phenomenon and perhaps the participants may not be clearly specified until the quantitative phase of the study has been completed.

Followed by the quantitative phase, the structured interviews are needed to gain insight into the phenomenon (Tsang, 2014). Saunders et al. (2016) explain that structured interviews use questionnaires based on a 'standardised' set of questions and the researcher would read out each question and then record the answer on a standardised list, generally with pre-coded data. During the interview, the researcher may need to offer some information such as the preliminary explanations, the questions should be asked precisely as written and in the same tone of speech so that you do not denote any bias (Saunders et al., 2016).

In this research, individual structured interviews have been conducted, with a list of pre-prepared questions, as the data collection method used in the qualitative approach. As such, the researcher can read out each question and record the response (Saunders et al., 2016, p. 391). It is important that a researcher asks the questions exactly as written and with the same quality of expression so that they show no bias (Saunders et al., 2016, p. 391).

A mixed methods design is an explanatory design where the researcher begins by conducting the quantitative phase and then continues to explain the results in the second phase. This is followed by the qualitative phase, which examines the initial results in more depth, and in turn explains them (Creswell, 2010). This design is also referred to as a qualitative follow-up approach. Drawing on an explanatory design, the study needs

qualitative data to explain the quantitative results of significance. In addition, to discover interrelationships of variables and causal relations between ‘how’ and ‘why’, explanatory surveys try to enlighten them. Most explanatory surveys are intensely positivist, testing hypotheses and aiming to donate to the development of the theory (Williamson & Johanson, 2018, p. 168).

The important consideration, then, lies in collecting enough qualitative information so that important themes can be developed (Creswell, 2010). In their explanatory design study, Ivankova and Stick (2007) collected the data of quantitative survey from 207 former and current students on a doctoral distributed education programme and then followed up their initial findings in the qualitative phase with four participants representing different matriculation statuses. As the quantitative data refers to 301 responses in this research, the qualitative data collection involved one pilot test and six participants as a result.

In the course of the online survey, 84 participants said they were willing to be interviewed by the researcher. One advantage of an interview is the chance to obtain in-depth answers to the questions. The researcher can encourage the participants to use their voice to express their opinions through a face-to-face interview (Beukenhorst & Kerssemakers, 2012). Each interview had recorded; if the researcher cannot interview the participants in person, the interviews would be conducted and recorded via Skype. The structured face-to-face interviews had undertaken once the quantitative data analyse was completed. In order to ensure the reliability of the responses, each interview is related to the person responsible for finishing the questionnaire.

A personal interview provides better flexibility than other survey modes, for instance, the two-way interaction between interviewee and interviewer, in which the interviewer can enquiry in-depth and ask follow-up questions to explain any misunderstandings (Williamson & Johanson, 2018, p. 180). On the other hand, a personal interview conducted might be costly, time-consuming to apply; limit the number of participants and their geographic dispersion should be considered and may generate responses that are

biased involuntarily because of interviewer attendance (Williamson & Johanson, 2018, p. 180).

Creswell and Creswell (2014, p. 228) believed the use of numerous techniques is a significant part of the validation process, while Skinner et al. (2014, p. 325-326) stated: "*Triangulation should not be considered as a single unique method, but as a metaphor with different possible meanings that can be related to a variety of different methodological problems and tasks.... Triangulation offers a balance between logic and stories*". In other words, it contains the transition from one philosophical view to another in this process. Noted by a considerable studies (Archibald, 2016; Babbie, 2013, p. 117; Heale & Forbes, 2013; Hesse-Biber, 2015; Hussein, 2009; Sreejesh & Mohapatra, 2014), the rationale is therefore underlying the use of triangulating methods.

Bryman (2017) therefore suggested that the nature of combining qualitative and quantitative research has been a specific element in the social sciences, which is most commonly encountered in related to triangulation. This aids to deliver a profound understanding of social reality than would be the case if it had been applied by quantitative data merely.

Research in the field of business management is often a mix of interpretivism and positivism, frequently replicating the philosophy of realism, noted by Saunders et al. (2016). The combination of such components into the research is significant when the small sample size is a concern and hence might disturb the validity of the quantitative output (Pallant, 2016; Tabachnick & Fidell, 2014).

In this study, with the purpose of triangulating the methods used, this phase is to confirm the applicability of observations made and to examine the reliability and validity of its findings. The following fifth phase involved one pilot and six structured, face-to-face interviews. These denoted six complete structured interviews. The interviews helped the further purpose of creating the respective situations. Following observations made by Hsu and Lin (2015a); Thakur and Srivastava (2014); Wu and Chang (2016); Yang and Lee

(2017), it was proposed that such interviews would emphasise issues concerning to insights of actual purchase behaviours.

The selection of structured interviews was therefore determined with the approachability of sample respondents involving in a dialogue with the researcher in this study. While this might otherwise have been a limitation to the research. Interviews took place between September 2018 and November 2018. In every case, interviewed the main informant responsible for completing the questionnaire sent in the third phase of the study. That was recorded and transcribed for all interviews (See Appendix 4). In order to confirm interviewees were approaching with their own opinions, using a digital voice recorder has few reasons: opportunities to listen again, verification and re-examination, and permits to apply direct quotes, was explained, and their approval to use it was taken (Sarstedt & Mooi, 2014; Skinner et al., 2014). The content of each recording was transcribed subsequent to the interviews, which was correct documentation of the meetings to be kept (Skinner et al., 2014). Considering that the exploratory nature of the interview method connects to the comparatively small sample size, using software may sacrifice information density and accuracy to support a variety of perspectives (Markle et al., 2011). As a result, analysing the interview content by manual was undertaken. This enabled the researcher to establish an excellent appreciation for the nature and complexity of each of the cases analysed.

In the spirit of analytical induction (Skinner et al., 2014), this enabled a detailed investigation of the case study material supporting the precise nature of the decision-making stage and actual purchase behaviour and its determinants to be explored. Resulting from this was an identification that the generality of observations made, which will be detailed in Chapter 5. As such, various techniques which might enable the researcher to distinguish individual interviews were considered and also established a significant way of indicating the seven variables which resulted from SEM.

4.4 Hypothesized model

The research structural design of this study was based on the research questions, personal observation, interviews and relevant literature. The significance concerned the influence of consumers' motives, marketing communication strategy leading to cognition, purchase intentions and actual purchase behaviour. Figure 3(p. 18) presents the research framework.

4.4.1 Hypothesized model development

From this base, the outcome of the interviews and literature review led to two determinants of motives and marketing communication strategy, forming cognition, purchase intentions and actual purchase behaviour, as identified in the marketing literature. Based on a large number of literatures reviewing related to WSTPs adoption and considering the distinctive features of WSTPs, we integrate several theoretical models to illustrate how consumer's decision-making toward WSTPs is affected.

This step in the research process concentrated on emerging a research instrument which would identify the underlying relationships between motives, marketing communication strategy, cognition, purchase intentions and actual purchase behaviour, as well as the determinants involved in this complex phenomenon. This study adopted the methods employed in other related studies by engaging a survey including scaled questions designed to produce data. Accordingly, the questionnaire contains five sections covering the two determinants of each of motive and marketing communication strategy, cognition and purchase intentions and actual purchase behaviour.

The section on motives consisted of two determinants, IT innovation and health issues, which were operationalised using the conceptualisation and scales originally employed by Kwon et al. (2007) and Li et al. (2016). Two determinants of marketing communication strategy are WOM and advertising, which were applied by Park et al. (2011), Poels et al.

(2013), and Vanwesenbeeck et al. (2017). The determinant of cognition involved the use of Dias et al. (2016) scale. The remaining two determinants, purchase intention and actual purchase behaviour, were operationalised with the scales employed by Lu et al. (2010), and Wu and Chang (2016) (see Table 4, p. 141). Compared with other adopted in the WSTP references, it is supposed that this unified model will deliver a broader understanding of consumer's decision-making. These are now examined in detail below.

4.4.2 IT innovation

From the interviews and exiting theories, WSTPs are classified under the heading of IT innovation. The IT innovation topic includes consumers who have a high association with technology innovation, which motivates them to be knowledgeable about new technological products, which in turn generate new categories, in which consumers recognise familiarity to a varying degree, leading to possible differences in the decision-making process. In the modern age, businesses utilise IT innovation to motivate consumers' purchase intentions in order to increase profits. The interviews indeed indicated that consumers are attracted by the factors of innovation and novelty. Concerning empirical theory, WSTPs are associated with technology innovation, which relates to the TRA (Hsiao & Chen, 2018), the TPB (Lunney et al., 2016), the TAM (Choi & Kim, 2016; Chuah et al., 2016; Jeong et al., 2017; Kim & Shin, 2015) and the UTAUT (Hwang et al., 2016; Seol et al., 2017).

A consumer who possesses a high level of personal innovativeness could be classified as an early adopter of new technology, compared to their peers (Kwon et al., 2007). Regarding the theory and interviews, IT innovativeness seems to be an essential determinant of cognitive engagement (Kwon et al., 2007). As such, IT innovation is the critical determinant in the WSTP market influencing decision-making in the context of actual purchase behaviour (Jeong et al., 2017; Kleijnen et al., 2009; Truong et al., 2017; Wu & Chang, 2016).

Based on Parasuraman (2000) identify the significance of encouraging consumers' willingness to accept innovation technology earlier (Seol et al., 2017). As such, Parasuraman and Colby (2007) categorised five groups of technology users, describing their types as ranging from "innovators" to "laggards" (Kim & Chiu, 2019; Seol et al., 2017). Additionally, Parasuraman (2000) hypothesised Technology Readiness (TR) as consumers' general views about innovative technology initially; TR is also described as "the people's propensity to embrace and use new technologies for accomplishing goals in home, life, and at work" (Kim & Chiu, 2019; Parasuraman, 2000, p. 308).

In light of Parasuraman and Colby (2007) study, consumers with a higher IT innovation are more likely to purchase products online than those with a lower IT innovation in general (Kim & Chiu, 2019; Seol et al., 2017). In short, this is the trend of using sport innovation products increasingly (Seol et al., 2017). This study therefore carries IT innovation as a determinant in the hypothesis.

To address this topic, questions 1 to 3 - "If I heard about a new WSTP, I would look for ways to buy it", "I am usually the first to try out a new WSTP among my peers", "In general, I like to experiment with new WSTP" - in the "IT innovation" part of the questionnaire appearance used by this research are drawn straight from the scale engaged by Kwon et al. (2007) and Li et al. (2016), in Questionnaire section 2 question 1-3. The scale modified from Kwon et al. (2007) and Li et al. (2016) are because the former adopted consumer's innovativeness and the later also addressed IT innovation in the WSTP domain, which suit the determinant-IT innovation in the hypothesized model. Consumers who have highly innovative capabilities tend to make decisions to try out and purchase innovative products (Afzal, 2009; Ho & Wu, 2011; Kabadayi & Alan, 2012; Truong et al., 2017). In other words, consumers' own innovativeness obviously affects their purchase intentions to try out new technology earlier than their friends (Kwon et al., 2007; Te'eni-Harari, 2014). Although innovation technology may represent uncertainty and risks to some consumers, it is a crucial factor in attracting others. On the other hand, this study could provide directions for the actual purchase consumers to decide a suitable

IT innovation of a WSTP. To sum up, IT innovation is regarded as a key determinant of motives in the WSTP market. The following relationship between the three variables is therefore hypothesized:

Hypothesis 1: There is a positive relationship between IT innovation and WOM.

Hypothesis 2: There is a positive relationship between IT innovation and advertising.

4.4.3 Health issues

When using WSTPs, consumers pursue a scientific method to improve their physical condition and share their personal data with a group with the same interest in fun or competition. The benefits of WSTPs is not only that they can be easily worn on the body, but also that they can record data for analysis and improving fitness performance. On the one hand, WSTPs aid the elderly keeping their safety and health, on the other hand, it imitates the present health status and physical conditions (e.g., blood pressure, heartbeats, and diabetes) and biophysical features (e.g., visual and auditory ability, mobility, and cognitive ability) of respondents (Li et al., 2019). A significant influence of health issues on acceptance and usage of technology were applied in previous studies (Chen & Chan, 2014; Li et al., 2019)). Health issues, which are associated with the process of decision-making in the WSTP market, are included as determinants of motives in the hypothesized model.

Following the interviews, which sought consumers' and marketers' views, it was noted that health issues are among the important factors in consumers' purchase intentions positively leading to a final purchase decision. Indeed, it is to expect that WSTPs, real-time monitoring product, can contribute a much superior broad evaluation of the consumers' health condition and increase their quality of life. Certainly, a number of consumers is paying attention to this field as constant modified health monitoring using WSTPs that would be intensely helpful in showing useful treatment in which the

diagnosis can be prepared in the early stage (Jin et al., 2017). To date, many studies have explored health issues in the WSTP context (Doherty et al., 2013; Kaewkannate & Kim, 2016; Li et al., 2016; Nasir & Yurder, 2015; Sun & Rau, 2015; Zheng et al., 2014). Drawing on the interviews and literature, it was observed that health issues are leading an important role in the relationship between motives and marketing communication.

This study accepts the observations of Li et al. (2016) that information on health issues is perceived as a benefit. The study of Li et al. (2016) explains that individuals' adopted a health-related WSTPs which matches the determinant in the model. The scale therefore used in this study's questionnaire involved three questions: "Using a WSTP would improve the access I have to my health information", "Using a WSTP would improve my ability to manage my health", "Using a WSTP would improve the quality of my healthcare", in Questionnaire section 2 question 11-13. The following hypothesis therefore has been developed:

Hypothesis 3: There is a positive relationship between health issues and WOM.

Hypothesis 4: There is a positive relationship between health issues and advertising.

4.4.4 IT innovation upon purchase intention

Drawing from phase I and phase 2, the observation has made from merging the existing theories that TAB, TAM, TRA, TPB, and UTAUT all contain the behaviour intention (Choi & Kim, 2016; Chuah et al., 2016; Kim & Shin, 2015; Seol et al., 2017). Lee and Lee (2018) applied TAM to adopt WSTPs and found that IT innovation had a statistically significant association with intention.

Since WSTPs are a capable pioneering technology, IT innovation is unsurprising estimated to influence the adoption of WSTPs significantly. More people would discover the IT innovation of WSTPs to be more beneficial for their daily lives, while fewer

individuals would identify the gadget as less useful. This may denote that consumers with superior perceived IT innovation had high intentions of adopting WSTPs. This finding is coherent with previous studies of adoption of WSTPs in which IT innovation was a key determinant.

Therefore, based on the explication above, we hypothesise that:

Hypothesis 5: There is a positive relationship between IT innovation and purchase intention.

4.4.5 Health issues upon purchase intention

WSTPs help users keep their health and safety. From the phase 2, an observation from the interviewees is that health issues reflect the present health status and conditions (e.g., blood pressure, heartbeat, and diabetes) to be a crucial determinant that influence consumers' purchase decision. The significant influence of health issues on adopted WSTPs was described in previous studies (Li et al., 2019; Wang, White, et al., 2015; Zhang et al., 2017). The conceptual model is made according to the results of phase 1 and phase 2 that the preferences towards WSTPs are shaped by health issues and purchase intention. Thus, hypotheses related to health issues and purchase intention are developed as follows:

Hypothesis 6: There is a positive relationship between health issues and purchase intention.

4.4.6 WOM upon cognition

In the consumer behaviour literature, WOM communication has been acknowledged as one of the crucial factors motivating consumer decision-making (Cheung & Thadani, 2012; Wang & Yu, 2015; Yadav et al., 2013). In the early days, consumers used WOM in

a traditional way by seeking advice from those in whom they trusted (Park et al., 2011). WOM is associated with informal interpersonal communication, for instance, customers' experiences and opinions (Gupta & Harris, 2010; Ha & Im, 2012; Kuo et al., 2013; Prendergast et al., 2010). With the IoT becoming a part of our daily lives at present, eWOM is an important form of communication to be considered in a marketing strategy. Consumers consider it necessary to search for information from the Internet, reading the results of online voting and other users' comments, as well as posting about their own experiences (Celebi, 2015; Cheung & Thadani, 2012; Hsu & Lin, 2015a).

The interviews identified the importance of WOM in the decision-making stage. This is critical because consumers need to find information that they can trust and believe. Consumers rely on other consumers' experiences and information to make a decision (Lee et al., 2008). Online WOM includes online review forums, discussion groups, online social networks, and other types of user-generated online content. One advantage of online WOM is that people do not have any real-world relationships with others, but are connected through common topics or interests within virtual communities in which relevant information can be obtained (Chan & Ngai, 2011; Lu et al., 2014). As such, WOM is considered as more reliable and trustworthy than advertising messages, which marketers should recognise as an opportunity (Ha & Im, 2012; Kuo et al., 2013; Sicilia et al., 2016).

Drawing on the interviews and theories, WOM refers to trusted and reliable information, which in turn determines the relationship between cognition and motives. In this framework, the study takes the view expressed by Park et al. (2011) of the relationship between WOM and purchase intention being grounded on reliable information. With this object, the WOM scale (consisting of three items: "I will normally buy a WSTP because an online review of it is positive", "I rely on online reviews when I purchase a WSTP", "Online reviews normally affect my decision to purchase a WSTP"), is employed in this study by Park et al. (2011). These three questions presented here match those applied in the original study, in Questionnaire section 2 question 5-7. Nevertheless, the question of

how consumers' purchase intentions have been influenced by WOM is our argument of beginning. It was intended to examine the outcome within the scope of this study will be addressed later. All in all, hypotheses related to WOM and cognition are settled as follows:

Hypothesis 7: There is a positive relationship between WOM and cognition.

4.4.7 Advertising upon cognition

According to the theory, when a consumer seeks out information, advertising plays a significant role in communication. Advertising, which refers to communication objectives, is explicitly directed at a target consumer (Baker, 2014). Marketers utilise advertising to promote a product's characteristics to consumers.

Traditional advertising included television, radio, print media and billboard campaigns; the Internet has changed our lifestyles as well as advertising practice. Consumers watch or search out advertising online, which could be more effective than traditional advertising (Dinner et al., 2014), although marketers still made enormous advertising efforts to influence consumers' purchase intention.

Indeed, the interviewees confirmed that, if their attitude and cognition towards advertising were positive, this would lead to purchase intention. While acknowledging the contribution of Poels et al. (2013) and Vanwesenbeeck et al. (2017), who discussed the relationship between advertising and motives, this study adopts a critical stance towards the advertising scale they employed. This consists of three items: "My general opinion of the way in which WSTP is advertised is favourable", "Overall, I consider the advertising of WSTPs to be a good thing", "Overall, I like the way in which WSTP is advertised". These statements were presented in the questionnaire used in this study, in Questionnaire section 2 question 8-10. In the context of the above observation, it is consequently hypothesized that:

Hypothesis 8: There is a positive relationship between advertising and cognition.

4.4.8 Cognition upon purchase intention

After a consumer search for information, the next stage is to arrange the information in the brain. Cognition is associated with mental constructions and reflects the experience of thinking, understanding, memory and stimuli from the external environment (Chang et al., 2014; Kim et al., 2009; Peter & Olson, 2010), resulting in the purchase decision-making process. The three essential cognitive processes involved in consumer decision-making are: building personal meaning or knowledge by considering relevant information, evaluating products through integrating acquired knowledge, and selecting between alternative actions and finding relevant knowledge from memory to use in the processes. As WSTPs are currently classified as new, IT innovation products, some consumers have insufficient knowledge about them. Therefore, they may obtain relevant information from various channels to be retained in their memory.

According to the interviews, consumers may not be aware that information about WSTPs exists in their brain or experience (including WOM) during the decision-making process. Knowledge of such information is vital because it delivers the messages necessary to bridge motives and purchase intention, leading to the final purchase behaviour. Therefore, this study takes the explanations of Dias et al. (2016) into account, which involve a two-item scale: “I would rather use a WSTP than another type of product (e.g., using smart glasses with a camera, which shows my heart rate, mapping data and other information, as well as offer action-cam style footage and hands-free photo functionality, instead of a tablet, computer, camera and smartphone)”, “I believe that the benefits provided by a WSTP meet my needs”. These statements matched two of the eight questions associated with cognition in the questionnaire, as used by this study, in Questionnaire section 2 question 15-16. In addition, providing an example in the first scale about the characteristics of a WSTP helps to clarify the meaning of the scale. Based on the above

discussion, a two-item scale is therefore engaged in support of the following hypothesized relationship:

Hypothesis 9: There is a positive relationship between cognition and purchase intention.

4.4.9 Purchase intention upon actual purchase behaviour

When a consumer makes a decision, they search for information from extrinsic and intrinsic sources, which have a direct influence on the decision-making process (Babin & Harris, 2015; Leon et al., 2008, p. 449; Lin et al., 2007; Soh, Rezaei, et al., 2017; Tajvidi & Karami, 2015). Exploring the factors that inform consumer decision-making stage is critical, as well as necessary to identify the determinants in the WSTP market. A consumer recognises a need or a problem, which the purchase a product or service will fulfil or resolve. In order to reach the consumer's individual goal, consumers will go through the stages of information gathering, cognition, and actual purchase behaviour. In the decision-making stage, specifically, purchase intention is the critical determinant influencing the outcome of actual purchase behaviour.

According to the interviewees, particularly the marketers, they are willing to discover which crucial factors motivate consumers' decision-making to develop better marketing strategies in the WSTP market. It is clear that firms that understand consumer behaviour more enjoy greater success in the market than their competitors. Although they may use a specific marketing strategy in the existing market, the perspective of consumers is the most significant element.

That said, purchase intention is remained to be a mediator between the constructs of motives and actual behaviour in some studies, for instance, with regard to the TRA (Cheng & Mitomo, 2017; Ha & Janda, 2012; Hsiao & Chen, 2018; Wien & Olsen, 2012), TPB (Cheng & Mitomo, 2017; Lunney et al., 2016; Meyer et al., 2016) and TAM (Choi & Kim, 2016; Chuah et al., 2016; Coorevits & Coenen, 2016; Nasir & Yurder, 2015).

An understanding of intention starts by measuring motives, the perceived need for attention whilst dealing with cognition and actual behaviour. As such, this study adopted the explanations of Lu et al. (2010), which involve a three-item scale: “Given the chance, I would consider purchasing a WSTP in the future”, “It is likely that I will purchase a WSTP in the future”, and “I intend to purchase a WSTP”, which correspond to the purchase intention in this study, in Questionnaire section 2 question 4, 17 and 18. In their research, they survey the purchase intention towards buying a specific product, which results in an actual purchase. This study utilises these closely associated with three-item scales as the foundation for purchase intention with regard to testing the hypothesis.

Hypothesis 10: There is a positive relationship between purchase intention and actual purchase behaviour.

4.4.10 Actual purchase behaviour

To reach the end objectives, consumers’ needs must be satisfied, which involves the entire problem-solving process. It is crucial that most problem-solving processes contain more than one problem or decision (Chen, Damanpour, et al., 2010; Gao & Liu, 2014). In other words, the purchase procedure is complicated. Previous studies have highlighted that purchase intention can lead to actual purchase behaviour (Wu & Chang, 2016). For businesses, consumption in the final stage is the most valued. Marketers try to use the various marketing strategies to motivate consumers’ decision-making towards the end goal: consumption. Indeed, businesses need profits in order to survive in the market. Without consumption, businesses could fail. On the whole, actual purchase behaviour is the essential measure in this study.

From the interviews, we can see that some consumers are not certain that they will purchase a WSTP, as they still hesitated in purchasing such a device, which is predictable given the observation made during the phase 2 of the research. To determine the final

action in the initial conceptual model, we adopt three possibilities of actual purchase behaviour: buy, not to buy and alternative choice.

On the above literature, it can be conditional that consumers' purchase intention in the WSTP market effects actual purchase behaviour. Drawing on the actual purchase behaviour scales employed by Wu and Chang (2016), this study applies five items: "I will purchase a WSTP as soon as possible", "I will definitely purchase a WSTP", "It is highly likely that I will purchase a WSTP", "I will purchase a WSTP in the near future" and "I will definitely purchase a WSTP in the future", in Questionnaire section 2 question 14 and 19-22. The purpose of the statements is to test the relationship between purchase intention and actual purchase. Table 4 (p. 141) demonstrates an overview of all measurements.

Table 4. An overview of all measurements

Constructs	Items	Code	References (i.e., modified from)
IT innovation	1. If I heard about a new WSTP, I would look for ways to buy it.	IT1	(Kwon et al., 2007; Li et al., 2016)
	2. I am usually the first to try out a new WSTP among my peers.	IT2	
	3. In general, I like to experiment with a new WSTP.	IT3	

Health issues	1. Using a WSTP would improve the access I have to my health information.	HI1	(Li et al., 2016)
	2. Using a WSTP would improve my ability to manage my health.	HI2	
	3. Using a WSTP would improve the quality of my healthcare.	HI3	
WOM	1. I will normally buy a WSTP because an online review of it is positive.	WOM1	(Park et al., 2011)
	2. I rely on online reviews when I purchase a WSTP.	WOM2	
	3. Online reviews normally affect my decisions to purchase a WSTP.	WOM3	

Advertising	1. My general opinion of the way in which WSTPs are advertised is favourable.	AD1	(Poels et al., 2013; Vanwesenbeeck et al., 2017)
	2. Overall, I consider the advertising of WSTPs to be a good thing.	AD2	
	3. Overall, I like the way in which WSTPs are advertised.	AD3	

Cognition	1. I would rather use a WSTP than another type of product. (e.g., using smart glasses with a camera, which shows my heart rate, mapping data and other information, as well as offer action-cam style footage and hands-free photo functionality, instead of a tablet, computer, camera and smartphone).	Cog1	(Dias et al., 2016)
	2. I believe that the benefits provided by WSTPs meet my needs.	Cog2	
purchase intention	1. Given a chance, I would consider purchasing a WSTP in the future.	PI1	(Lu et al., 2010)

	2. It is likely that I will purchase a WSTP in the future.	PI2	
	3. It is likely that I will purchase a WSTP in the future.	PI3	
Purchase	1. I will purchase a WSTP as soon as possible.	P1	(Wu & Chang, 2016)
	2. I will definitely purchase a WSTP.	P2	
	3. It is highly likely that I will purchase a WSTP.	P3	
	4. I will purchase a WSTP in the near future.	P4	
	5. I will definitely purchase a WSTP in the future.	P5	

4.4.11 Mediating effects

Mediation is also fundamental to many substantive areas, especially psychology (i.e., health, social, developmental, and cognitive), social science, business research, and the social and medical sciences (MacKinnon, 2012; Memon et al., 2018). “The idea of mediation is a simple one—that a third variable transmits the effect of one variable to another” (MacKinnon, 2012; Nitzl et al., 2016). That is, the basis of mediation analysis is that it uses a series of relationships in which a mediator variable is disturbed by an antecedent variable (exogenous) and then disturbs a dependent variable (endogenous) (Hair Jr et al., 2017; Nitzl et al., 2016). Although, merely approximately 33 % of the PLS analyses issued in “top-tier” management accounting and marketing journals, and in the MIS Quarterly journal merely 20% of the PLS-SEM studies showed an evident mediator analysis (Hair, Ringle, et al., 2012; Nitzl et al., 2016). Obviously researchers are employing an increased weight on studying mediation models at present (Memon et al., 2018). Pieters (2017) perceived that the majority of empirical articles in the Journal of Consumer Research applied mediation analysis.

Thereupon, for researchers, considering mediation questions are significant (Nitzl et al., 2016). Nitzl et al. (2016) debate that a third variable works an in-between character in the relationship between two variables in a model, which could be a methodological challenge. Yet, to observe the incidence of effects is much easier because that does not straight appear their influence with complicated path models (Nitzl et al., 2016). In an immature method, researchers ignore mediating effects entirely and focus on direct-only relationships easily. That is, “this focus can heavily bias the interpretation of the results when a variable has no direct effect because its effect is mediated by another variable” (Nitzl et al., 2016). Rungtusanatham et al. (2014) also find a high ratio of mediation articles (75%) which did not hypothesise mediating effects despite appealing the mediation process in graphic form.

Accordingly, Nitzl et al. (2016) encourage a researcher to obtain insight deeply into mediation developments of a PLS-SEM, that must adapt a typical method of PLS-SEM. As such, the mediating effect is undertaken as the consideration in the conceptual model.

From the conceptual model, we can obviously note the first type of mediation: indirect only mediation. The exogenous: IT innovation and health issues, has a direct relationship with purchase intention, yet, has no direct relationship with actual purchase behaviour. The results from the interviews on phase 2 showed that interviewees are willing to purchase a WSTP in the future, even though the existing theoretical models had only examined the attitude as a mediator to cause behaviour (MacKinnon, 2012). We will examine purchase intention mediates the relationship between IT innovation and actual purchase behaviour and health issues and actual purchase behaviour.

Second, MacKinnon (2012) identify that one of the most mutual examples of mediation originated in the study of how an organism mediates the relation of a stimulus to a response. That is, the stimulus to organism to response (S–O–R) approach in psychology is explained. The S–O–R model clarifies that the mediational process can be complicated (MacKinnon, 2012). The conceptual model integrated S-O-R model in which the mediating process is mostly unobservable and may drive at different levels (MacKinnon, 2012). It is vital to note that there might be various relationships between one or more exogenous, one or more mediator variables, or one or more endogenous (Nitzl et al., 2016). Drawing from MacKinnon (2012) and Nitzl et al. (2016) recommendations, we hypothesise that there are multiple mediators: WOM, advertising, and cognition, on the path of IT and purchase intention and health issues and purchase intention. Accordingly, we expect the following mediating effect:

Hypothesis 11: Purchase intention fully mediates the relationship between IT innovation and actual purchase behaviour.

Hypothesis 12: Purchase intention fully mediates the relationship between health issues and actual purchase behaviour.

Hypothesis 13: WOM and cognition partially mediate the relationship between IT innovation and purchase intention.

Hypothesis 14: Advertising and cognition partially mediate the relationship between IT innovation and purchase intention.

Hypothesis 15: WOM and cognition partially mediate the relationship between health issues and purchase intention.

Hypothesis 16: Advertising and cognition partially mediate the relationship between health issues and purchase intention.

4.5 Conclusion

In this survey, the central emphasis of this chapter is on the description of the methodology employed, the main purpose of which is to determine the credibility of the research conducted. Therefore, it is expected that the results of the study will be reliable and valid. The research methodology has been presented with reference to enquiry models, data collection methods and data analysis techniques.

Adhering to the academic rigour of research, the methodology has integrated interviews and the quantitative approach in a process that has followed the rules of triangulation and imitation evident in the literature. Equally important, for comparison purposes in relation to other related published research, this study takes account of the depth and productivity of the methods applied.

The first phase in the research involved semi-structured interviews. In light of the grounded theory, the interviews were employed to aid classifying the determinants of motives, marketing communication strategy, purchase intention, and actual purchase behaviour, as well as to support the conceptualisation of the pre-purchase decision-making. The interviews were applied to support finding the determinants of motives, which were integrated with observations and the literature review findings to support the conceptualisation of decision-making in the actual purchase behaviour. Given the current lack of comprehensive research on the WSTP market, the use of interviews proved to be highly productive. It generated observations grounded in social reality from the open-ended nature of the interviews and formed a rich foundation of documentary material for the following analysis. The following analysis involved the coding of transcribed interview data in which a series of determinants of motives, marketing strategy, cognition, purchase intention, and actual purchase behaviour and conceptualisation of decision-making in the pre-purchase stage was provided. Studies of existing hypothesized models across the literature in Chapter 2 and 3 were noted, which absolutely confirmed the conceptualisation and quantitative measurement of various models. Thereupon, the use of qualitative techniques, by which the respondents from the quantitative research were requested to verify accounts of their decision-making process, signifies something of a new route in the study of WSTPs. Following this confirmation, seven determinants were identified, along with a conceptualisation of decision-making in the actual purchase behaviour. The scales employed in the survey were drawn from existing studies of relevance to this research.

The second and third phases of the research process, respectively involved quantitative and qualitative approaches, respectively. The data collected from the 301 questionnaires was analysed in order to capture a specific aspect of each stage of the hypothesized model. This confirmed the validity, reliability and generalisability of the findings, which were then examined by the qualitative approach. The identification of two determinants of motives and communication marketing strategy, cognition, purchase intention, and actual purchase behaviour provided the theoretical and statistical consequence of the

observations made during the quantitative and qualitative data analysis in a way that other previous researches have not.

All in all, in this chapter, the methodology detailed is unique in terms of the variety of perspectives taken and methods applied. With regard to the third phase, the quantitative method, the study employed an online survey and it should be noted that the response rate when using social media for the pilot test was lower than a traditional mail response. It is also significant that this study used triangulation and duplication, which are solid beliefs in planning and creating a methodology. As such, the necessity of conducting business research in social reality is the third deliberation that researchers need to take into consideration, principally while merging social reality with objective facts. To highlight the fact, this research combined several methods. In particular, when researching in the WSTP market, a further issue of finishing observations was related. The structured interviews were undertaken after the quantitative data analysis was completed. The highlighting of areas for further discussion is done in Chapter 5.

CHAPTER 5 ANALYSIS RESULTS AND FINDINGS

5.1 Chapter overview

The chapter examines the results of this research study in detail. Drawing on the quantitative data analysis, the determinants of the hypothesized model are analysed in order to express the nature and strength of their relationships in consumer decision-making and actual purchase behaviour. Given the sample size, which forms the basis for the study, the chapter goes onto examining in-depth the obtained results in order to assess the validity and reliability of the quantitative findings, as well as triangulate the methods employed.

5.2 Quantitative survey

If the study is related to business and management, research should consist of some numerical data that can be quantified practically in answering the research questions (Frels & Onwuegbuzie, 2013). Quantitative data, for most of the people, express very little meaning if they have not been processed and analysed (Saunders et al., 2016). Those data become useful when analysed and interpreted. Applying analysis techniques will help to reach the objective in the process. In quantitative analysis, calculations and the creation of charts can be performed with the use of an analysis software package; in this study, the SPSS and SEM SmartPLS will be employed.

Marketing research usually involves surveys, particularly questionnaires, which are targeted at cross-sectional sample populations. Thus, this stage of the research process concentrated on building a research tool which may identify the fundamental relations of the determinants in the hypothesized model. This study duplicated the methods applied in other similar studies by utilising a survey containing a scaled question design. The study

undertaken to this point shows that the hypothesized model in the consumer decision-making stage is a complex phenomenon, resulting in the identification of nine determinants.

The questionnaire, in turn, consists of seven sections in order to measure the recognised determinants. As indicated in Section 4.4, the seven determinants are: IT innovation, health issues, WOM, advertising, cognition, purchase intention, and actual purchase behaviour. These are operationalised using the conceptualisation and scales originally employed by Kwon et al. (2007), Li et al. (2016), Park et al. (2011), Vanwesenbeeck et al. (2017), Dias et al. (2016), Lu et al. (2010), Wu and Chang (2016), Mani and Chouk (2017), and Kwon et al. (2007).

Upon receiving the accomplished questionnaires, the data was moved through a four-phase process. First, to adapt the data into a form that could be input into the SPSS and SmartPLS, responses were coded. Also, this involves checking the data to identify errors, which might have happened during the coding process. Second, the reliability of the question scales was tested to confirm whether the scales applied are consistent.

Third, employing SEM SmartPLS provides the opportunity to measure unobservable variables with indicators and hypotheses in order to build the paths in the model. These paths and hypotheses are essential to the theory, which explains the causal mechanism. The outcome is vital if the results are to be presented in a logical manner. A final stage was undertaken involving a sequence of structured, face-to-face interviews.

5.3 Analysis and interpretation of quantitative analysis

At the beginning of a study, the choice of suitable quantitative data techniques depends on the nature of the objectives established by the researcher. Vogt et al. (2014) state that “decisions you make early on will affect your options for later analysis”, while the decision might be manipulated by other research conducted in the range between the

variables included in the analytical strategy (Tabachnick & Fidell, 2014, p. 1044). When making a decision, Tabachnick and Fidell (2014, pp. 64-65) propose that the choice depends on the number of variables, with the decision-making process seeking to clarify questions and examine the response scales for the questions, as well as establish a “decision tree”.

In accepting the role that replication and in turn modification plays in marketing research (Vogt et al., 2014, p. 26), and in light of the observations distinguished above and the findings that developed through the foundational stages of this study, data analysis, as explicated below, was used. Drawing on previous studies, items and scales were identified, while data analysis and others approach presented in the relevant literature shaped the foundation of the methods used by this study. Additionally, following explanations from Tabachnick and Fidell (2014), Vogt et al. (2014) and Hair Jr et al. (2017), techniques and measures to confirm the strength of the findings were employed in order to confirm the reliability and validity of the outcomes created by this study.

5.3.1 Coding and input of questionnaire data

Managing the created questionnaire data by inputting them into an appropriate computer software package will help to evaluate the available power and anticipated sizes of the relationships; this needs suspicious planning for the researcher (Tabachnick & Fidell, 2014, p. 44). One of the most significant structures of this process is the coding of data by Saunders et al. (2016) advice. As such, Tabachnick and Fidell (2014) and Fink (2017) offer guidance on the development of coding procedures, grouping data, the distribution of codes and the collection of data, which are meaningful deliberations for the coder.

Drawing on these observations, codes were developed base on each sector of the questionnaire. For instance, question 1 on IT innovation was assigned the code IT 1 and so on (see Table 4, p.141). An analysis of the maximum and minimum values will be used

to examine whether the values of constant variables dropped within the minimum and maximum values arranged with the item scales.

5.3.2 Analysis of descriptive statistics

Descriptive statistics are used to describe the characteristics of the data sample related to variables or combinations of variables, thus supporting the efficacy of the statistical techniques used (Tabachnick & Fidell, 2014, p. 39). Similarly, Saunders et al. (2016) identify that descriptive statistics are typically employed to offer general samples, describing variables using numerals by computing the mean and standard deviations. These techniques can be used to analyse hypotheses about differences in populations based on measurements made (Tabachnick & Fidell, 2014). The mean and trimmed mean can be used to determine validity. The mean can check sample validity and omission errors, while the trimmed mean is able to evaluate the influence of outlying values (Andrews & Hampel, 2015, p. 7). Further statistical analysis results will be addressed.

In this study, among the respondents, the greatest number of the respondents were females, accounting 52.2% of the total number, whereas males involved merely 47.8%. In Mintel (2018) demography of the sample size had the same numbers of female 50.4% more than male involved 49.6%. More than 75% of respondents were under the age of 34, while the massive number of respondents, 61.5%, had a bachelor's degree. Nearly four-fifths said that their annual income level was approximately 60% below £20,000. More than half of the respondents were students and remained single. 67.1% were living in urban areas, and most of them were from England. Table 5 (p.154) outlines the respondents' demographic profile in the first section of the questionnaire.

Table 5. Demographics of respondents (N=301)

Characteristics		Frequency	Percent	Cumulative Percent	Mean	SD
Gender	Male	144	47.8%	47.80%	1.52	.500
	Female	157	52.2%	100.00%		

Age	18-24	134	44.5%	44.50%	1.91	1.016
	25-34	93	30.9%	75.40%		
	35-44	45	15.0%	90.40%		
	45-54	27	9.0%	99.30%		
	55-64	1	0.3%	99.70%		
	65-74	1	0.3%	100.00%		
	Above 75	0	0%	100.00%		
Education level	Less than high school	1	0.3%	0.30%	3.13	1.171
	High school graduate, diploma or the equivalent	115	38.2%	38.50%		
	Bachelor	79	26.2%	64.80%		
	Master	79	26.2%	91.0%		
	Professional	5	1.7%	92.70%		
	PhD	22	7.3%	100%		
Annual Income	Under 10000	127	42.2%	42.20%	4.06	4.265
	10000-20000	51	16.9%	59.10%		
	20001-30000	31	10.3%	69.40%		
	30001-40000	13	4.3%	73.80%		
	40001-50000	10	3.3%	77.10%		
	50001-60000	3	1.0%	78.10%		
	60001-70000	1	0.3%	78.40%		
	70001-80000	0	0%	78.40%		
	80001-90000	1	0.3%	78.70%		
	90001-100000	1	0.3%	79.1%		
	Above 100001	3	1.0%	80.1%		
not say	60	19.9%	100%			
Profession	Administrative	10	3.3%	3.30%	11.36	4.620
	Computing	12	4.0%	7.30%		
	Engineering	18	6.0%	13.30%		
	Finance	10	3.3%	16.60%		
	General	15	5.0%	21.60%		
	Management					
	Legal	3	1.0%	22.60%		
	Logistics	2	0.7%	23.30%		
	Manufacturing	2	0.7%	23.90%		
	Marketing	7	2.3%	26.20%		
	R&D	4	1.3%	27.60%		
	Sales	3	1.0%	28.60%		
	Technical	5	1.7%	30.20%		
	Personnel	3	1.0%	31.20%		
	Student	171	57%	88.00%		
Other	36	12%	100%			
Marital Status	Single/never been married	155	51.5%	51.50%	2.00	1.343
	Single with a partner	47	15.6%	67.10%		
	Married	77	25.6%	92.70%		
	Separated	4	1.3%	94.00%		
	Divorced	7	2.3%	96.30%		
	C0-habiting	5	1.7%	98.00%		
	Prefer not to say	6	2.0%	100.00%		

Live area	Urban	202	67.1%	67.10%	1.44	0.693
	Suburban	70	23.3%	90.40%		
	Rural	26	8.6%	99.00%		
	Other	3	1.0%	100.00%		

In the questionnaire, the item scale, “Do you own or have you owned a WSTP?”, was taken as the subdivision criterion for grouping the respondents. The results presented that 130 respondents own a WSTP, accounting for 43.2%, while 171 respondents or 56.8% did not. Table 6 (p.156) shows the results of a set of descriptive statistics.

Table 6. Ownership of a WSTP.

Characteristics		Frequency	Percent	Cumulative Percent
Own a WSTP	Yes	130	43.2%	43.2%
	No	171	56.8%	100%
Product type	smart glasses	3	1.0%	2.1%
	wristband	24	8.0%	19.0%
	smart watch	55	18.3%	57.7%
	jewellery	13	4.3%	66.9%
	smart shoes	21	7.0%	81.7%
	smart clothes	16	5.3%	93.0%
	others	10	3.3%	100%

5.3.3 Data examination

5.3.3.1 Data distribution

Hair Jr et al. (2017, p. 61) identify that PLS-SEM is a nonparametric statistical method which does not need the data to be normally distributed, instead, it is applied bootstrapping to decrease the likelihood relationships. But Hair Jr et al. (2017) encourage researchers to assess two measures of distributions: skewness and kurtosis. Skewness value is used to indicate the symmetry of the distribution (Pallant, 2016, p. 57). Positive values denote positive skew (the score is clustered to the left of the lower value); on the other hand, negative values show scores clustered at the high end. In addition, the further away from zero, the greater the skew (Pallant, 2016, p. 57). That is, “if the number is greater than +1 or lower than -1, this is an indication of a substantially skewed distribution” (Hair Jr et al., 2017, p. 61).

Kurtosis values show peaked distributions; if the distribution is normal, the value will be obtained as zero (Pallant, 2016, p. 57). Also, Kurtosis values below zero reveal a distribution that is quite flat (Hair Jr et al., 2017, p. 61; Pallant, 2016, p. 57). As such, the existence of skewness and kurtosis is identified with associated comments being made. Distributions displaying skewness and kurtosis that surpass these rules are deliberated unusual (Hair et al., 2017, p. 61).

If the values of skewness and kurtosis are zero so then the distribution is normal (Tabachnick & Fidell, 2014). As a result, if there are negative or positive values that reveal a deviation from normality. However, Hair Jr et al. (2017) state that the number of samples can improve statistical power by reducing sampling errors. Small samples of 30 or fewer observations, impact significantly on the results, and it may be inappropriate to run the analyses, while, a sample size of 200 or more, it could be considered as ignorable. It is vital to take into account that the variables have a normal distribution if they differ by ± 3 on the kurtosis and skewness (Hsu & Lin, 2015b; Kline, 2015). The critical value for z

(kurtosis/skewness) distribution is ± 2.58 , as proposed by Hair Jr et al. (2017), which is considered the most commonly acceptable value. Therefore, Figure 15 (p.160) presents the skewness and kurtosis values of variables for the current study. The values take place in a satisfactory domain.

Descriptive statistics														
Constructs	Items	N	Minimum	Maximum	Mean	95% Confidence interval		5% Trimmed Mean		Std. Deviation	Skewness	Std. Error	Kurtosis	Std. Error
						Lower Bound	Upper Bound	Lower Bound	Upper Bound					
IT	IT1	301	1	5	3.23	3.12	3.33	3.24	0.936	-0.317	0.14	-0.249	0.28	
	IT2	301	1	5	2.52	2.4	2.64	2.48	1.079	0.297	0.14	-0.683	0.28	
	IT3	301	1	5	3.08	2.95	3.21	3.09	1.126	-0.228	0.14	-0.839	0.28	
HI	HI1	301	1	5	3.86	3.77	3.95	3.9	0.785	-0.617	0.14	0.494	0.28	
	HI2	301	1	5	3.84	3.74	3.93	3.89	0.831	-0.706	0.14	0.707	0.28	
	HI3	301	1	5	3.5	3.41	3.6	3.52	0.855	-0.37	0.14	-0.151	0.28	
WOM	WOM1	301	1	5	3.46	3.34	3.57	3.5	1.014	-0.581	0.14	-0.127	0.28	
	WOM2	301	1	5	3.54	3.42	3.66	3.59	1.063	-0.554	0.14	-0.316	0.28	
	WOM3	301	1	5	3.68	3.57	3.79	3.74	1.002	-0.706	0.14	0.146	0.28	
AD	AD1	301	1	5	3.47	3.38	3.56	3.5	0.806	-0.791	0.14	1.154	0.28	
	AD2	301	1	5	3.75	3.67	3.84	3.79	0.725	-0.749	0.14	1.516	0.28	
	AD3	301	1	5	3.52	3.44	3.61	3.54	0.785	-0.353	0.14	0.493	0.28	
Cog	Cog1	301	1	5	3.34	3.23	3.45	3.36	0.972	-0.438	0.14	-0.359	0.28	
	Cog2	301	1	5	3.38	3.28	3.47	3.42	0.838	-0.774	0.14	0.249	0.28	
PI	PI1	301	1	5	3.71	3.62	3.81	3.77	0.875	-1.156	0.14	1.554	0.28	
	PI2	301	1	5	3.6	3.49	3.7	3.65	0.939	-0.919	0.14	0.633	0.28	
	PI3	301	1	5	3.28	3.17	3.39	3.3	0.936	-0.411	0.14	-0.271	0.28	

P	P1	301	1	5	2.7	2.58	2.81	2.68	0.999	0.192	0.14	-0.447	0.28
	P2	301	1	5	3.34	3.24	3.44	3.35	0.912	-0.271	0.14	-0.141	0.28
	P3	301	1	5	3.21	3.1	3.32	3.24	0.987	-0.395	0.14	-0.415	0.28
	P4	301	1	5	3.19	3.08	3.29	3.2	0.958	-0.312	0.14	-0.365	0.28
	P5	301	1	5	3.17	3.06	3.29	3.19	0.992	-0.476	0.14	-0.292	0.28
Valid N=301													

Figure 15. Descriptive statistics

According to Pallant (2016, p. 63) and Tabachnick and Fidell (2014), a test of normality which was the Kolmogorov-Smirnov statistic was used. For this purpose, a non-significant result (Sig. value $>.05$) show normality, while Pallant (2016, p. 63) recommended that in a large sample it is common that Sig value is $.000$. Although, Hair Jr et al. (2017, p. 61) debate that Kolmogorov-Smirnov test simply denotes whether the null hypothesis of normally distributed or not, which the bootstrapping process makes equally vigorously. In order to evaluate the distribution of values, Histograms and Normal Q-Q Plots were used. Detrended Normal Q-Q Plots were also applied to measure distribution (expected value will be collected as zero) and there is with “no real clustering of points” (Pallant, 2016, p. 63) The results of the descriptive statistics are undertaken in Appendix 3. A test of reliability and verification will be undertaken using alternative models (noted in section 5.4).

5.3.3.2 Missing data

Before making any further statistical analysis, it needs to ensure that the entered data is validity and error-free, which can identify the errors generated by outlier and missing data (Kwak & Kim, 2017; Little & Rubin, 2019). Missing data can occur for several reasons: information loss, dropouts, and nonresponses of the study participants (Kwak & Kim, 2017). In social science research, missing data is a problem due to many projects acquire data using survey research (Hair Jr et al., 2017, p. 56; Kwak & Kim, 2017). Little and Rubin (2014) and Saunders et al. (2016) explain that missing data or data errors can be an essential issue and pose problems for researchers. Because a smaller sample size of missing values might lead to compromises the reliability of the study results and also create a biased outcome (Kwak & Kim, 2017; Little & Rubin, 2019). During the pre-treatment process, missing data are either ignored in favour of ease or swapped with replaced values estimated with a statistical technique (Kwak & Kim, 2017).

Before the analysis of the data using SmartPLS 3.0, the data set was therefore scanned to recognise any missing data. Hair Jr et al. (2017) suggest that missing data should be allocated before running a PLS-SEM analysis (Nitzl & Hirsch, 2016). When less than 5% of values per indicator are missing, use mean replacement (Hair Jr et al., 2017; Hwang et al., 2016; Nitzl & Hirsch, 2016). Tabachnick and Fidell (2014, p. 97) argue that nonrandomly missing data should be treated seriously even just a few of them that may disturb the outcomes. Tabachnick and Fidell (2014) and Fink (2017) summarised processes with which to find and correct problems; it may cause reducing the sample size. As such, Hair Jr et al. (2017) recommend using mean replacement when less than 5% of the values per indicator are missing. If only a few data (5% or less) are missing in a random pattern for a large data set, deletion is a good alternative (Tabachnick & Fidell, 2014, p. 97). As mentioned earlier, 304 surveys were received. Of the 304, three were uncompleted due to technology issues, and thus were subject to removal.

5.3.3.3 Outliers

In the data screening process, the following step is to identify the outliers (Archibald, 2016; Sarstedt & Mooi, 2014). Tabachnick and Fidell (2014, p. 106) illustrate that “An outlier is a situation with an extreme value on one variable: a univariate outlier and with a strange combination of scores on two or more variables that it distorts statistics: multivariate outlier”. Hair Jr et al. (2017) enlighten that outliers should be interpreted in the research and the interpretation needs to be based on the variety of material they deliver. To evaluate the influence of outlier in which mean and trimmed mean which indicates removing the top and bottom 5% of the cases and calculates a new mean value (Hair, Sarstedt, et al., 2012; Pallant, 2016, p. 63). If these two mean values are very different, it requires to examine the data set (Kwak & Kim, 2017; Pallant, 2016, p. 63). As Figure 15 (p.160) shown, between the mean and the 5% trimmed mean, there is no significant difference which shows that extreme scores do not have a strong influence on the mean.

Statistic software packages provide a multitude of univariate, multivariate or bivariate diagram and statistics, which permit classifying outliers. For this research, we use IBM SPSS 25, which develops stem-and-leaf plots and box plots to assist the identification of outliers by respondent number (Hair Jr et al., 2017; Sarstedt & Mooi, 2014). Hair Jr et al. (2017) recommend that outlier should be identified before running PLS-SEM. Boxplots were examined to emphasise outliers, which can be used to discover the distribution of one constant variable for the whole model. Pallant (2016, p. 79) and Tabachnick and Fidell (2014, p. 107) revealed that it is a difficult decision to delete or retain outliers as well as it has not much impact. Hence, Pallant (2016, p. 64) suggested retaining the cases at the stated values if they are thought to have a relatively small impact upon the dataset and results.

Pallant (2016, p. 152) identify that outliers can be deleted from the data set, or, instead, allocated a score that is high but not too different from the remaining cluster of scores. Pre-or post- regression procedures engaged in assessing for outliers are both suitable by Tabachnick and Fidell (2014) suggestion. As a result, the study is applied PLS-SEM which is considered an important tool for deleting both the multivariate outliers and univariate outliers for entered data (Tabachnick & Fidell, 2014).

5.4 SEM-PLS using SmartPLS

SmartPLS 3 is an SEM software that assesses measurement and structural parameters simultaneously (Hair Jr et al., 2017). PLS model is easy and clear to be observed by using diagrams to display the hypotheses and relationship of variables when SEM is used (Hair et al., 2011; Hair, Ringle, et al., 2012; Hair et al., 2019; Hair Jr et al., 2017). Hair et al. (2011) identify that “The path modelling procedure is called partial because the iterative PLS-SEM algorithm estimates the coefficients for the partial ordinary least squares regression models in the measurement models and the structural model”. In light of the fundamental PLS-SEM algorithm follows a two-stage approach (Hair et al., 2011; Hair Jr et al., 2017; Wong, 2013). To start with, the application of a SmartPLS model researcher

needs to build a path model, the following step, is to gather the data in order to examine the PLS path model (Hair et al., 2011; Hair Jr et al., 2017, p. 55).

5.4.1 Reflective measurement model

There are two types of measurement models which need to be considered: reflective and formative (Hair Jr et al., 2017; Henseler et al., 2009; Hult et al., 2018). The former, has arrows pointing from the construct to the observed indicators in the measurement model in which causality is a construct to its measures, whereas, the later, measures form the construct by means of linear combination (Hair Jr et al., 2017). Based on the construct conceptualisation and the object of this study reflective measurement model has been applied due to the indicators represent consequences of the construct (Hair et al., 2011; Hair Jr et al., 2017, p. 52). Bagozzi (1994) disputes that formative indicators are only “occasionally useful” in marketing measures, however (Rossiter, 2013). More precisely, Hair et al. (2011) highlight that “when a reflective measurement model is assumed, the regression model includes single regressions with each indicator individually being the dependent variable, whereas the latent construct is always the independent variable (computation of outer loadings)”.

Indicators in a reflective measurement model are purposes of a hypothesized factor and error terms, in which experimental meaning can be said to be local. In other words, the inferred parameters connecting each indicator with the construct are following the rules specific to the nature of the relationships between all the indicators of the construct isolated and the residual for each indicator reveals errors (Bagozzi, 2011; Hair Jr et al., 2017). Bagozzi (2011) also identified that these measurements models can view as standing on their own, and that if the model in which the constructs are embedded is detailed properly and common method bias does not occur, whilst the factor loadings and error variances are not dependent on indicators of other constructs generally and the relationship among the main construct and the other constructs. Indeed, Hair Jr et al. (2017, p. 46) propose that the questionnaire may use the same questions with slight

variations when reflective measures are applied (Sarstedt & Mooi, 2014). Drawing from it, the decision has been the subject of considerable debate across different disciplines, in which some respondents felt that a few questions in the questionnaire are the same while they submitted the answers.

This measurement consists of internal consistency reliability, indicator reliability, convergent validity and discriminant validity (Hair Jr et al., 2017; Henseler et al., 2009; Zhang et al., 2017) (Table 7, p.165). Composite reliability is considered for internal consistency reliability, where a satisfactory value should be higher than 0.70 (Hair et al., 2011; Hair Jr et al., 2017; Henseler et al., 2009). Accordingly, the data was imported into SmartPLS to make several tests with the results presented in the following section. If the criteria above mentioned cannot meet, and hence Hair Jr et al. (2017) suggest that may remove single construct from the model in order to more closely reach the criteria as Table 7 shown (Hair Jr et al., 2017, p. 106). As such, Hair Jr et al. (2017, p. 84) suggest that the PLS-SEM algorithm uses the known elements to assess the unknown elements of the model. To this end, the algorithm needs to determine the scores of the constructs that are applied as input for multiple partial regression models within the path model.

Table 7. Assessment of reflective measurement models (Hair Jr et al., 2017, p. 111-132)

Assessment	Criteria
Internal consistency reliability	Cronbach's Alpha
	Composite reliability
Indicator reliability	Outer loading
	Average Variance Extracted (AVE)
Convergent validity	Average Variance Extracted (AVE)

	Factor loading
Discriminant validity	Fornell-Larcker criterion (the square root of the AVE)
	Cross-loadings
	the heterotrait-monotrait ratio (HTMT)

Bootstrapping procedure

Because PLS-SEM does not assume the data are normally distributed (Hair et al., 2011; Henseler et al., 2009). Lack of normality reveals that parametric significance tests used in regression analyses cannot be used to check whether coefficients are significant (Hair et al., 2011; Hair Jr et al., 2017). To check coefficients for the significant, PLS-SEM relies on a nonparametric bootstrap procedure, instead (Alavi et al., 2016; Hair et al., 2011; Hair Jr et al., 2017). Hair Jr et al. (2017, p. 313) explain that “Bootstrapping: is a resampling technique that draws a large number of subsamples from the original data (with replacement) and estimates models for each subsample”. In other words, in bootstrapping, a large number of samples (e.g. 5,000) are drawn from the original sample with replacement (Hair et al., 2011; Hair Jr et al., 2017; Henseler et al., 2009; Nitzl et al., 2016).

In PLS-SEM, the bootstrap sample assists the estimated coefficients to be verified for their significance (Hair et al., 2011; Henseler et al., 2009). The repeated bootstrap parameter estimates are then applied to generate an experiential sampling distribution for every model parameter, and the empirical sampling distribution’s standard deviation is applied as a proxy for the empirical standard error for the parameter (Hair et al., 2011; Hair Jr et al., 2017). The acquired path model coefficients form a bootstrap distribution, can be observed as an approximation of the sampling distribution (Hair et al., 2011). The results of all the bootstrap samples in the PLS-SEM deliver the standard error for each

path model coefficient (Hair Jr et al., 2017). The bootstrapping analysis accepts for the statistical testing of the hypothesis that a coefficient equals zero (null hypothesis) as opposed to the alternative hypothesis that the coefficient does not equal zero (two-tailed test) (Alavi et al., 2016; Hair et al., 2011; Hair Jr et al., 2017). Thereupon, reflective measurement models in this study are assessed on their internal consistency reliability and validity as shown below.

5.4.1.1 Internal consistency reliability

Internal consistency reliability is used to evaluate the consistency of results across items on the same assessment (Alavi et al., 2016; Hair, Sarstedt, et al., 2012; Hair Jr et al., 2017, p. 320; Kim & Chiu, 2019). It determines whether the items measuring a construct are similar in their scores by Cronbach's alpha and composite reliability (Choi & Kim, 2016; Hair Jr et al., 2017).

Cronbach's alpha is a traditional method which decides internal consistency demonstrate an assessment of the reliability of the measurement model (Hair Jr et al., 2017). This statistic is defined as follows (Hair Jr et al., 2017, p. 111):

$$\text{Cronbach's } \alpha = \left[\frac{M}{M-1} \right] \left[1 - \frac{\sum_{i=1}^M s_i^2}{s_t^2} \right]$$

“In this formula, s_i^2 represents the variance of the indicator variable i of a specific construct, measured with M indicators ($i=1, \dots, M$), and s_t^2 is the variance of the sum of all M indicators of that construct” (Hair Jr et al., 2017, p. 111).

Cronbach's alpha adopts that all indicators are equally reliable and is sensitive to the number of items in the scale and usually manages to underestimate the internal consistency reliability. Because Cronbach's alpha's limitations a proper tool such as Composite Reliability (CR) is applied for the PLS study. As such, the value of Cronbach's alpha should be above 0.7 by Hair Jr et al. (2017, p. 111) suggestion (Hair et

al., 2013; Wang & Yu, 2015). Similar to Cronbach alpha, the data can be considered as similar, if a CR is greater than 0.7 (Vinzi et al., 2010).

As Table 8 (p.168) shown, Cronbach' alpha were above 0.7 while the value of Cog is 0.685 below the standard threshold of 0.7, which Taber (2018) recommended that the value of Cronbach's alpha of 0.7 or 0.6 is acceptable (in exploratory research 0.60 is considered acceptable) (Hair, Ringle, et al., 2012; Hair Jr et al., 2017). Schmitt (1996) has proposed that there is no general level, for instance, Cronbach's alpha of 0.7, where Cronbach' alpha suits acceptable, but rather that instruments with quite a low value of Cronbach' alpha can still support useful in several conditions (Taber, 2018).

Table 8. Construct reliability and validity

Construct	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
IT	0.819	0.891	0.732
HI	0.809	0.887	0.724
WOM	0.877	0.924	0.802
AD	0.816	0.891	0.732
Cog	0.685	0.861	0.757
PI	0.860	0.914	0.780
P	0.914	0.936	0.746

On the contrary, composite reliability tends to overemphasise the internal consistency reliability, so resulting in relatively higher reliability estimates. The composite reliability varies between 0 and 1 in which with higher values indicating higher levels of reliability. Yet, the values of composite reliability above 0.90 and definitely over 0.95 are not desirable due to it shows that all the indicator variables are assessing the same fact and thus are unlikely to be a valid measure of the construct (Hair Jr et al., 2017; Wong, 2013). It is generally interpreted as shown in Table 9 (p.169) (Hair Jr et al., 2017, p. 112).

Table 9. Interpretation of composite reliability (Hair, Sarstedt, et al., 2012; Hair Jr et al., 2017, p. 112)

Interpretation of composite reliability	
Composite Reliability (CR)	Internal consistency
above 0.9 and definitely above 0.95	not desirable
0.7-0.9	satisfactory
0.6-0.7	acceptable
below 0.6	lack of internal consistency reliability

As Table 8 (p. 168) shown, all composite reliability values are more than 0.8, which indicate the data satisfies the internal consistency reliability test. But, the value of CR on WOM, PI, and P are above 0.90 at 0.924, 0.914, and 0.936, respectively. Hair Jr et al. (2017, p. 112) advice that researchers should diminish the number of redundant indicators. Cronbach’s alpha is a traditional measure of reliability (Hair Jr et al., 2017; Taber, 2018). Conversely, composite reliability considers the different items loading to the factor (Hair Jr et al., 2017). The true reliability mostly remains between Cronbach’s alpha and the composite reliability, while analysing and assessing the constructs’ internal consistency reliability (Hair et al., 2011; Hair Jr et al., 2017, p. 112). As a result, the study deliberated and applied both criteria.

5.4.1.2 Indicator reliability

Indicator reliability can be assessed using outer loading in which all the loadings should be higher than 0.708 or 0.7 in order to confirm reliability (Hair et al., 2013; Hair Jr et al., 2017, p. 113; Sander & Teh, 2014; Wong, 2013). Although, when an indicator’s outer loading between 0.40-0.70, it should be considered to eliminate from the construct as long

as deleting it “leading to an increase in the composite reliability”, in particular, outer loading with very low value below 0.4 should be removed, suggested by Hair Jr et al. (2017, p. 114). But at the same time, loadings of 0.40 can be considered as acceptable in exploratory studies (Hair et al., 2013; Hair, Sarstedt, et al., 2012). Table 10 (p.170) shows all outer loadings are above 0.7, which reveals all indicators reliability.

Outer loadings are originally unknown and are assessed by the PLS-SEM algorithm. Note that the relationships between constructs and indicator variables are measured outer loading for reflective constructs, whereas, the relationship for formative constructs are named outer weights (Hair, Sarstedt, et al., 2012; Hair Jr et al., 2017, p. 84). Cohen (1988) in his statistical power analyses for multiple regression models, provided that the measurement models have an acceptable quality in terms of outer loadings (i.e., loadings should be above the common threshold of 0.70) (Hair Jr et al., 2017, p. 25). Outer loadings of a construct are high, which denote the related indicators have significantly in common (Hair Jr et al., 2017). Therefore, the outer loadings of all indicators should be statistically significant at least (Hair Jr et al., 2017). When a reflective measurement model is assumed for a construct (e.g. latent variable IT, HI in Figure 3, p.18), the outer loading (e.g. IT1, IT2) is estimated through single regressions of each indicator variable on its corresponding construct (Hair Jr et al., 2017, p. 84).

Table 10. Outer loading

Outer loading							
Items	AD	Cog	HI	IT	P	PI	WOM
AD1	0.819						
AD2	0.892						
AD3	0.854						
Cog1		0.826					
Cog2		0.911					
HI1			0.866				
HI2			0.894				

HI3	0.790
IT1	0.863
IT2	0.851
IT3	0.852
P1	0.766
P2	0.853
P3	0.903
P4	0.907
P5	0.881
PI1	0.882
PI2	0.867
PI3	0.901
WOM1	0.895
WOM2	0.913
WOM3	0.879

All outer loadings of reflective constructs IT, HI, AD, WOM, Cog, PI, and P are well above the threshold value of 0.70, which recommends sufficient levels of indicator reliability. The indicator P1 (outer loading: 0.766) has the smallest indicator reliability, while the indicator WOM2 (outer loading: 0.913) has the highest indicator reliability. All reflective constructs have high levels of indicator reliability.

The average variance extracted (AVE) can also be used to assess indicator reliability (Hair Jr et al., 2017), which should be above the suggested threshold value in which is above 0.5, will explain in the next section. As can be seen in Table 8 (p.168), all values of AVE are higher than 0.5. Both the value of outer loadings and AVE are higher than the standard threshold value, which illustrates the indicator reliability.

5.4.1.3 Convergent validity

Convergent validity is defined as “different scales are used to measure the same construct, the correlation between these scales” (Saunders et al., 2016, p. 451). Measures of convergent validity are significant because indicators of a reflective construct are

preserved as altered methods to measure the same construct (Hair et al., 2011; Hair Jr et al., 2017, p. 113; Hu et al., 2016). Accordingly, convergent validity reveals how well the questions from a factor linked.

As Table 8 (p. 168) shown to assess the convergent validity of reflective constructs, the average variance extracted (AVE) and the outer loadings of the indicators can be applied (Alavi et al., 2016; Hair Jr et al., 2017, p. 106). The AVE values should be higher than 0.5 for convergent validity to be acceptable, which means that the latent variables describe more than half of the indicators (Alavi et al., 2016; Franke & Sarstedt, 2019; Hair et al., 2011; Hair, Sarstedt, et al., 2012; Hair Jr et al., 2017). The AVE is corresponding to the commonality of a construct (Hair Jr et al., 2017, p. 115). The AVE is calculated using the following formula (Hair Jr et al., 2017, p. 115):

$$AVE = \left[\frac{\sum_{i=1}^M l_i^2}{M} \right]$$

(“variable i of a specific construct, measured with M indicators (i=1, ..., M), l_i symbolises the standardised outer loading of the indicator variable i of a specific construct measured with M indicators.”)

On the contrary, an AVE below 0.50 shows that “more variance remains in the error of the items than in the variance explained by the construct” (Hair Jr et al., 2017, p. 115). Table 8 (p. 168) demonstrates that the AVE for all constructs is higher than the suggested 0.5 thresholds.

Equally important, outer loading can be used to assess convergent validity (Hair Jr et al., 2017). Outer loading can be named indicator reliability generally (Hair Jr et al., 2017, p. 113). A rule of thumb of outer loading should be 0.708 or higher, 0.70 is acceptable as mentioned in the above section. As outlined in Table 10 (p.170), outer loading for all

indicators are higher than 0.70. Thereupon, the all reflective constructs have high levels of convergent validity.

5.4.1.4 Discriminant validity

Discriminant validity confirms that a measure of the construct is empirically unique and different from other constructs by experiential standards (Hair et al., 2011; Hair, Sarstedt, et al., 2012; Hair Jr et al., 2017, p. 115; Wong, 2016). Discriminant validity can be assessed by two measures traditionally. First, the cross-loadings are usually approached to assess the discriminant validity of the indicators (Hair et al., 2011; Hair, Sarstedt, et al., 2012; Hair Jr et al., 2017, p. 115). Precisely, to assess the cross-loading, the outer loading indicators (in bold on Table 11, p.173) on the associated construct must be higher than any of its cross-loadings on other constructs (Alavi et al., 2016; Hair et al., 2011; Hair Jr et al., 2017). That is, the outer loadings all exceeded other cross-loadings in their column and row; hence confirming that cross-loadings deliver the indication for the constructs' discriminant validity (Hair Jr et al., 2017).

Table 11. Cross loadings

Cross Loadings							
Items	AD	Cog	HI	IT	P	PI	WOM
AD1	0.819	0.445	0.392	0.424	0.480	0.499	0.535
AD2	0.892	0.448	0.463	0.399	0.439	0.486	0.498
AD3	0.854	0.399	0.378	0.412	0.390	0.482	0.388
Cog1	0.378	0.826	0.364	0.414	0.504	0.476	0.373
Cog2	0.488	0.911	0.589	0.505	0.626	0.656	0.524
HI1	0.417	0.417	0.866	0.242	0.333	0.408	0.495
HI2	0.448	0.497	0.894	0.272	0.421	0.448	0.435
HI3	0.362	0.541	0.790	0.394	0.532	0.516	0.391
IT1	0.458	0.493	0.399	0.863	0.625	0.611	0.469
IT2	0.356	0.433	0.180	0.851	0.610	0.474	0.308
IT3	0.405	0.433	0.279	0.852	0.631	0.580	0.385
P1	0.369	0.551	0.350	0.638	0.766	0.579	0.354
P2	0.478	0.585	0.500	0.668	0.853	0.780	0.470
P3	0.484	0.608	0.444	0.625	0.903	0.807	0.525

P4	0.424	0.564	0.389	0.642	0.907	0.755	0.433
P5	0.442	0.530	0.441	0.582	0.881	0.767	0.411
PI1	0.539	0.576	0.523	0.506	0.671	0.882	0.552
PI2	0.453	0.503	0.410	0.583	0.724	0.867	0.501
PI3	0.522	0.660	0.477	0.641	0.865	0.901	0.536
WOM1	0.506	0.477	0.460	0.490	0.523	0.579	0.895
WOM2	0.476	0.505	0.488	0.372	0.431	0.509	0.913
WOM3	0.514	0.426	0.448	0.377	0.418	0.520	0.879

The second measure to assess discriminant validity is using the Fornell-Larcker criterion while reflective multi-item constructs are applied (Ab Hamid et al., 2017; Hair Jr et al., 2017, p. 115; Henseler et al., 2015). It compares the square root of the AVE values with the correlation of latent constructs. Thus, the square root of each construct's AVE should be greater than the correlation with other constructs in order to create discriminant validity (Choi & Kim, 2016; Hair Jr et al., 2017, p. 117; Zhang et al., 2017). From Table 12, the square root of AVE of each construct was shown in bold. The results satisfied discriminant validity. However, any model validation merely grounded in the Fornell-Larcker criterion should be observed judgementally (Hair et al., 2019).

Table 12. Fornell-Larcker Criterion

Constructs	AD	Cog	HI	IT	P	PI	WOM
AD	0.855						
Cog	0.505	0.870					
HI	0.482	0.564	0.851				
IT	0.481	0.533	0.348	0.855			
P	0.511	0.656	0.495	0.727	0.864		
PI	0.572	0.662	0.532	0.657	0.861	0.883	
WOM	0.556	0.525	0.520	0.463	0.512	0.599	0.896

Nevertheless, Henseler et al. (2015) examine Fornell-Larcker criterion's efficacy and debate that the Fornell-Larcker criteria presents very inadequately when indicator loadings of the constructs differ between 0.6-0.8. It still denotes poor even when the

indicator loadings differ more strongly. Henseler et al. (2015) then propose that the heterotrait-monotrait ratio (HTMT) is able to reach higher specificity and sensitivity rates (97% to 99%) compared to the cross-loadings criterion (0.00%) and Fornell-Larcker (20.82%) (Ab Hamid et al., 2017). Thereupon, assessing the Fornell-Larcker criterion to detect the discriminant validity problem is inadequately sensitive (Henseler et al., 2015).

Henseler et al. (2015) recommend that assessing the HTMT of the correlations as a solution (Ab Hamid et al., 2017; Franke & Sarstedt, 2019; Hair Jr et al., 2017, p. 129). The HTMT is the mean of all correlations of indicators across constructs assessing different constructs and also the ratio of the between-trait correlations to the within-trait correlation (Hair Jr et al., 2017; Henseler et al., 2015). In other words, the HTMT approach does not need to either acquire factor loadings or involve the calculation of construct values (Hair Jr et al., 2017; Henseler et al., 2015). HTMT values between two constructs close to 1 reveal a lack of discriminant validity (Ali, 2016; Henseler et al., 2015). Henseler et al. (2015) and Hair Jr et al. (2017, p. 118) advises a threshold value of 0.90 that the path model contains constructs which are theoretically very related. Therefore, an HTMT value above 0.90 suggests a lack of discriminant validity (Franke & Sarstedt, 2019; Hair Jr et al., 2017, p. 119; Henseler et al., 2015). When the constructs in the path model are theoretically more different, a lower and more conventional threshold value of 0.85 appears acceptable (Henseler et al., 2015). The value 0.954 of HTMT (PI, P) on Table 13 (p. 176) is higher than the two absolute HTMT_{.85} and HTMT_{.90} criteria. But, Henseler et al. (2015) point out that HTMT_{.85} marginally beats the other two approaches with an average sensitivity rate of 99.90% compared to the 99.45% of HTMT_{.90} and the 97.01% of HTMT_{inference}. Henseler et al. (2015) therefore suggest using bootstrapping to properly test whether the HTMT is significantly lower than 1 (Franke & Sarstedt, 2019).

HTMT_{.85} and HTMT_{.90} criteria, as well as HTMT_{inference}, yield sensitivity levels of 95% or greater under all simulation conditions (shown in Table 13, p.176). Hair Jr et al. (2017, p. 122) therefore advocate that “the confidence interval of the HTMT statistic should not include the value 1 for all combinations of constructs”. For this purpose, the value of

HTMT on PI of 0.954 approaches identify discriminant validity issues reliably. However, Hair Jr et al. (2017) also argue that an HTMT value above 0.90 implies a lack of discriminant validity. Instead, we applied the bootstrapping to develop a distribution of HTMT statistic in Table 14 (p.176). From the data in Table 14 (p.176), the columns labelled 2.5% and 97.5% show the lower and upper bounds of the 95% confidence interval (Hair Jr et al., 2017, p. 132), it appears that neither of the confidence intervals contains the value 1. As a result, the HTMT can be acted as the basis of a statistical discriminant validity test and all constructs of HTMT approaches identify discriminant validity issues reliably.

Table 13. Heterotrait-Monotrait Ratio (HTMT)

Heterotrait-Monotrait Ratio (HTMT)							
constructs	AD	Cog	HI	IT	P	PI	WOM
AD							
Cog	0.663						
HI	0.590	0.742					
IT	0.581	0.698	0.420				
P	0.589	0.821	0.584	0.844			
PI	0.682	0.837	0.644	0.766	0.954		
WOM	0.656	0.661	0.614	0.531	0.566	0.689	

Table 14. Confidence Intervals for HTMT

Confidence Intervals					
	Original Sample (O)	Sample Mean (M)	2.5%	97.5%	
Cog -> AD	0.663	0.663	0.530	0.786	
HI -> AD	0.590	0.592	0.469	0.702	
HI -> Cog	0.742	0.746	0.645	0.847	
IT -> AD	0.581	0.580	0.451	0.691	
IT -> Cog	0.698	0.698	0.583	0.805	
IT -> HI	0.420	0.420	0.302	0.534	
P -> AD	0.589	0.589	0.461	0.701	
P -> Cog	0.821	0.822	0.733	0.907	
P -> HI	0.584	0.582	0.484	0.673	

P -> IT	0.844	0.844	0.784	0.900
PI -> AD	0.682	0.683	0.564	0.786
PI -> Cog	0.837	0.838	0.742	0.923
PI -> HI	0.644	0.643	0.536	0.742
PI -> IT	0.766	0.766	0.682	0.838
PI -> P	0.954	0.954	0.902	0.994
WOM -> AD	0.656	0.654	0.545	0.750
WOM -> Cog	0.661	0.663	0.529	0.786
WOM -> HI	0.614	0.615	0.513	0.711
WOM -> IT	0.531	0.530	0.418	0.632
WOM -> P	0.566	0.565	0.449	0.673
WOM -> PI	0.689	0.688	0.574	0.787

Therefore, in the light of observations made by Hair Jr et al. (2017); Tabachnick and Fidell (2014), measures and techniques to confirm the strength of findings from the study were applied. This was planned to certify the validity and reliability of results created by this study. Based on four previous assessments: internal consistency reliability, indicator reliability, convergent validity and discriminant validity, across all constructs and the indicators show acceptable reliability and validity; subsequently, they are reserved.

5.4.2 Assessment of the structural model

The measurements of alternative purchasing and no buy in Figure 16 (p.178) were considered as a construct in the initial model. The two measurements had no significant impact because it (t-values) fall out of the acceptable range (0.02-1) -0.083 and -0.374, respectively. As a result, alternative purchasing and no buy were thus deleted for the actual path analysis by Hair Jr et al. (2017) suggestion. Consequently, the two variables were excluded from further analysis and Figure 3 (p. 18) shows the re-estimated model.

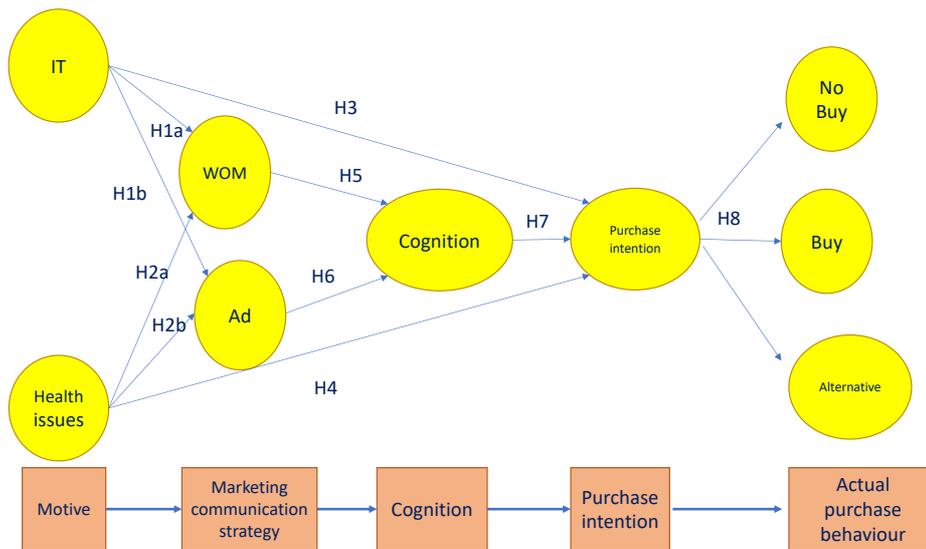


Figure 16. Original proposed model

The following step is to exam the assessment of the structural model results after the results of the reliability and validity of the construct measures are established. Drawing from Hair Jr et al. (2017, p. 192), “the structural model is primarily assessed on the basis of heuristic criteria that are determined by the model’s predictive capabilities”. Each endogenous latent construct denotes the dependent variable with its latent construct antecedents as independent variables in a partial regression model, while the structural model relationships are analysed (Hair et al., 2011; Hair, Ringle, et al., 2012; Hair Jr et al., 2017).

Thereupon, the key criteria for assessing the structural model in PLS-SEM are: 1) collinearity assessment, 2) path coefficients, 3) the level of the R^2 values, 4) the f^2 effect size, 5) the predictive relevance Q^2 , and 6) the q^2 effect size (Hair et al., 2011; Hair Jr et al., 2017).

5.4.2.1 Step 1. Collinearity assessment

To assess the collinearity, two measures are applied: the variance inflation factor (VIF) and tolerance (TOL) (Hair, Sarstedt, et al., 2012; Henseler et al., 2009; Wong, 2013). Firstly, it should calculate the TOL, which reveals the amount of variance of one indicator not explained by the other indicators (Hair Jr et al., 2017, p. 143). In addition, VIF, which is also a related measure of collinearity, is defined as the inverse of the tolerance (VIF= 1/TOL) (Hair et al., 2011; Hair Jr et al., 2017; Wong, 2013). “The VIF is derived from its square root ($\sqrt{\text{VIF}}$) being the degree to which the standard error has been increased due to the presence of collinearity” (Hair Jr et al., 2017, p. 143). Therefore, both collinearity statistics deliver the same information; nevertheless assessing VIF values has become standard practice (Hair Jr et al., 2017, p. 143; Henseler et al., 2009). Generally, in the context of PLS-SEM, a value of TOL is above 0.20, and VIF values should be less than the threshold value of 5 (Hair et al., 2011; Hair Jr et al., 2017, p. 175; Nitzl & Hirsch, 2016; Wong, 2013). As can be seen in Table 15 (p.179) and Table 16 (p.180), all outer and inner VIF values are below the threshold value of 5, which shows this study does not feature multicollinearity between the independent variables.

Table 15. Outer Variance inflation factor (VIF)

OUTER VIF VALUES	
	VIF
AD1	1.564
AD2	2.231
AD3	2.006
COG1	1.373
COG2	1.373
HI1	1.905
HI2	2.202
HI3	1.559
IT1	1.672
IT2	2.034
IT3	1.885
P1	1.898

P2	2.435
P3	3.328
P4	3.565
P5	2.927
PI1	2.269
PI2	2.093
PI3	2.184
WOM1	2.308
WOM2	2.690
WOM3	2.290

Table 16. Inner VIF

Inner VIF Values							
	AD	Cog	HI	IT	P	PI	WOM
AD		1.448					
Cog						1.818	
HI	1.142					1.487	1.142
IT	1.142					1.403	1.142
P							
PI					1.000		
WOM		1.448					

5.4.2.2 Step2. Path coefficients (β)

The path coefficients, which describe the hypothesized relationship among the constructs, have standardised values nearly between -1 and +1 (Hair et al., 2011; Hair Jr et al., 2017, p. 195). Hair Jr et al. (2017, p. 195) notify that “estimated path coefficients close to +1 represent strong position relationships (and vice versa for negative values) that are usually statistically significant”. Whereas, the closer the estimated coefficients are to 0, which represent the weaker relationships (Hair Jr et al., 2017).

On the contrary, *t* values need to be significant to support hypothesized paths. Parameters that have a higher absolute *t* values than 1.96 means there is a significant level of 0.05 (i.e., $p < 0.05$). Table 17 (p.181) shows that commonly used values for two-tailed and one-tailed tests (Hair et al., 2011; Hair Jr et al., 2017; Wong, 2013). For the structural model, PLS examination yields path coefficients. T-statistics provided estimated levels of significances,

which were imitative using the bootstrapping method shown in Table 19 (p.182). All values of path coefficients (see Table 18, p. 181 and Figure 17, p. 182) indicate statistically significant (Hair Jr et al., 2017).

Table 17. T-statistics test

Two-tailed tests		Significant level
<i>t</i> values	1.65	Less than 10% ($p < 0.10$)
	1.96	Less than 5% ($p < 0.05$)
	2.58	Less than 1% ($p < 0.01$)
One-tailed test		
<i>t</i> values	1.28	Less than 10% ($p < 0.10$)
	1.65	Less than 5% ($p < 0.05$)
	2.33	Less than 1% ($p < 0.01$)

Table 18. Path coefficients

	AD	Cog	HI	IT	P	PI	WOM
AD		0.308					
Cog						0.325	
HI	0.356					0.207	0.406
IT	0.355					0.410	0.318
P							
PI					0.860		
WOM		0.354					

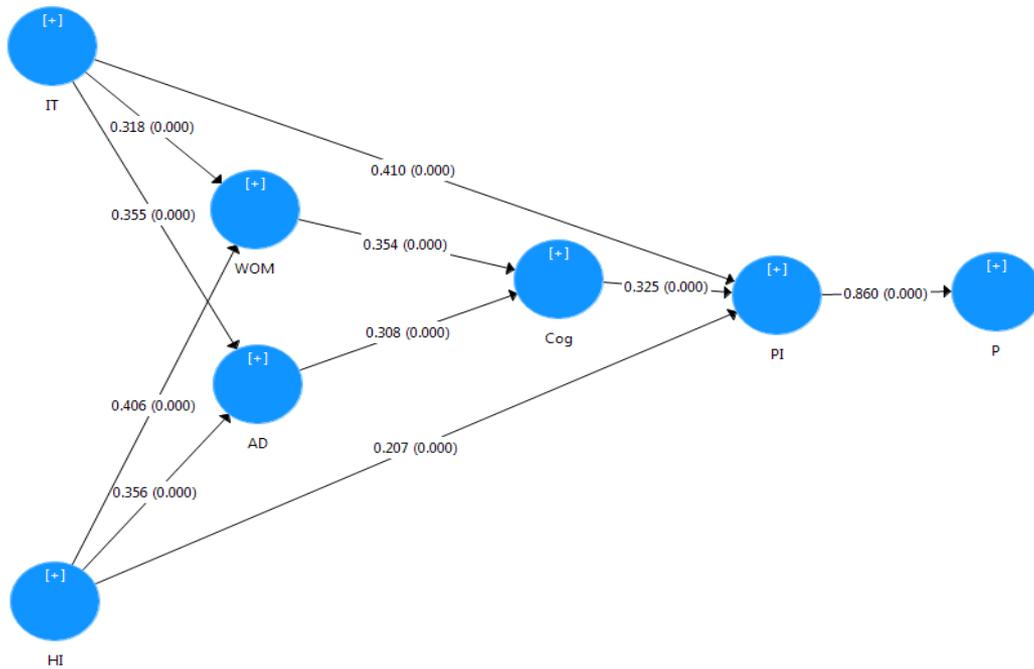


Figure 17. Path coefficients

Table 19. t value & p value

	T Statistics (O/STDEV)	P Values
AD -> Cog	4.710	0.000
Cog -> PI	5.937	0.000
HI -> AD	7.217	0.000
HI -> PI	4.311	0.000
HI -> WOM	8.648	0.000
IT -> AD	6.637	0.000
IT -> PI	8.305	0.000
IT -> WOM	6.693	0.000
PI -> P	41.017	0.000
WOM -> Cog	5.138	0.000

5.4.2.3 Step 3. Coefficient of Determination (R² Value)

“The coefficient of determination (R² value) is a measure of the model’s predictive power and is calculated as the squared correlation between a specific endogenous construct’s actual and predicted values” (Hair Jr et al., 2017, p. 198). The coefficient of determination (R²) indicates the sum of explained variance of each endogenous latent variable (Hair, Ringle, et al., 2012; Hair Jr et al., 2017). The R² statistics which is similar to multiple regression refer to the sum of variance explained by the connected latent variables (Choi & Kim, 2016). The R² is used to judge the model’s predictive power in which the range of R² value is from 0 to 1, with greater points indicating greater points of predictive accuracy (Hair Jr et al., 2017, p. 198; Rigdon, 2012). On marketing research, R² values of 0.75, 0.50, or 0.25 for endogenous latent variables can be explained as substantial, moderate, or weak, respectively (Hair et al., 2011; Hair Jr et al., 2017; Henseler et al., 2009); while R² values of 0.20 are considered high on consumer behaviour research, study at explaining consumer satisfaction is expected values of 0.75 and higher (Hair et al., 2011; Hair Jr et al., 2017).

Nevertheless, Hair Jr et al. (2017) suggest that adding extra constructs to illuminate an endogenous latent variable in the structural model rises its R² value. Hence, the adjusted coefficient of determination (R²_{adj}) can be applied as the criterion to avoid bias toward complex models as with multiple regression (Hair Jr et al., 2017). This criterion is adapted based on the number of exogenous constructs related to the sample size. The value is formally defined as (Hair Jr et al., 2017, p. 199)

$$R^2_{adj} = 1 - (1 - R^2) \cdot \frac{n-1}{n-k-1}$$

“where n is the sample size and k is the number of exogenous latent variables used to predict the endogenous latent variable under consideration”. The R²_{adj} value diminishes the R² value by the number of explicating constructs and the sample size (Hair Jr et al., 2017).

Table 20. R² statistics

	R Square	R Square Adjusted
AD	0.342	0.338
Cog	0.341	0.337
P	0.740	0.739
PI	0.595	0.591
WOM	0.357	0.353

Table 20 (p.184) demonstrates the R² value and R²_{adj} that explains the variance. The model describes the value of R², 74% of the actual buying a WSTP and 59.5% of the purchase intention is explained.

Figure 18 (p.185) visually summarises the statistics with R². The results showed that R² for actual purchase behaviour is 0.740. This is in the moderate range from 0.5 to 0.75 (Hair et al., 2011; Hair Jr et al., 2017). Whilst R² for purchase intention, WOM, advertising, and cognition is 0.595, 0.357, 0.342, and 0.341, respectively, which are considered as moderate to weak and high on consumer behaviour (Hair et al., 2011; Hair Jr et al., 2017). Thereupon, the R² values of the endogenous variables included in the model are considered to be acceptable.

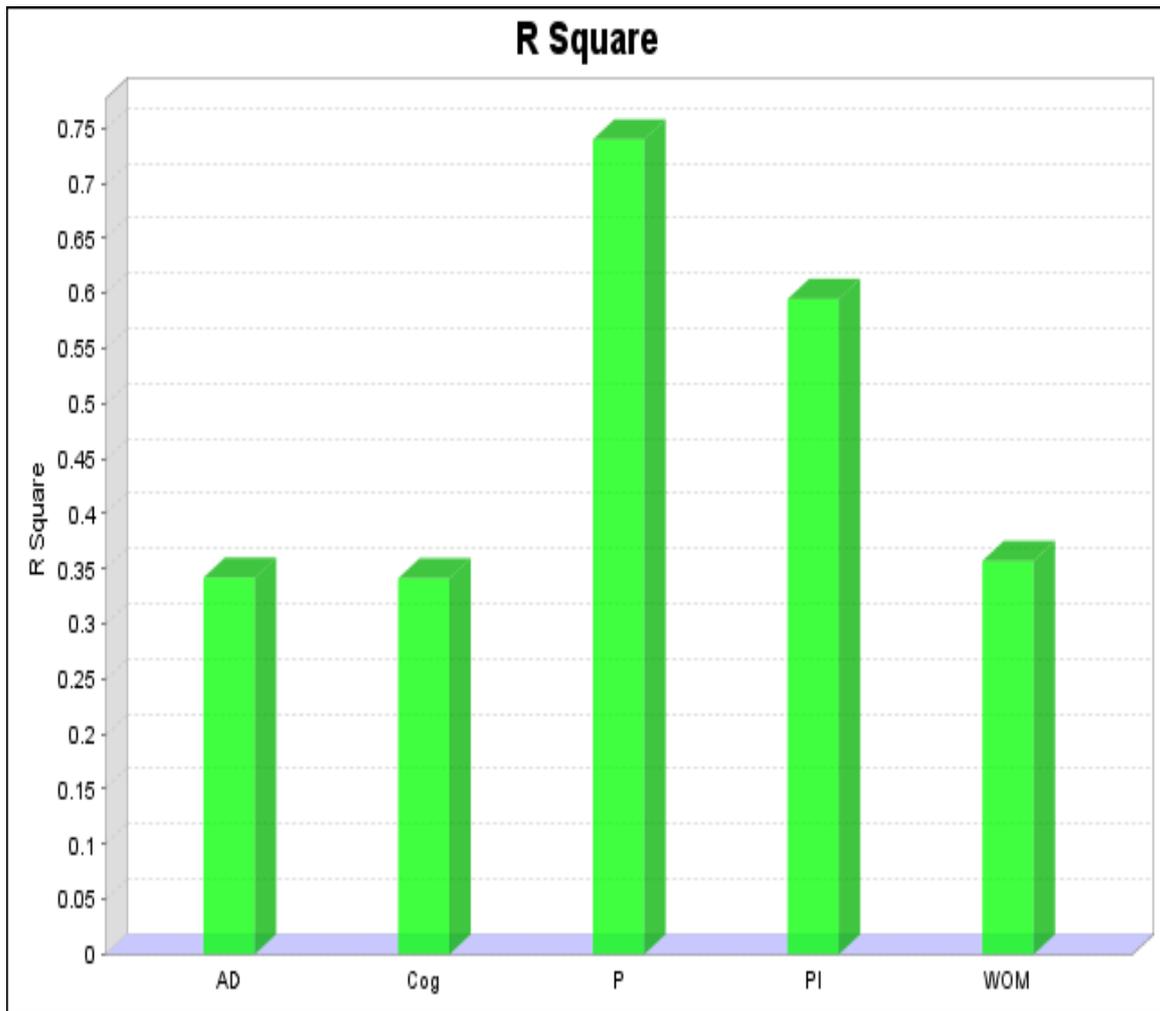


Figure 18. R square

5.4.2.4 Step 4: effect size f^2

After assessing the R^2 values of all endogenous constructs, “the change in the R^2 value when a specified exogenous construct is omitted from the model can be used to evaluate whether the omitted construct has a substantive impact on the endogenous constructs” (Hair Jr et al., 2017). As such, this measure is represented as the f^2 effect size, which is encouraged gradually to apply by researchers and journal editors. The f^2 effect size can be calculated as the following formula (Hair Jr et al., 2017, p. 201):

$$f^2 = \frac{R_{included}^2 - R_{excluded}^2}{1 - R_{included}^2}$$

Where R^2 induced and R^2 excluded are the R^2 values of the endogenous latent variable when a select exogenous latent variable is included in or excluded from the model (Hair Jr et al., 2017). Based on Cohen (1988), evaluating the f^2 are that values of 0.02, 0.15, and 0.35, denote small, medium, and large effects, respectively (Alavi et al., 2016; Hair et al., 2011; Hair, Sarstedt, et al., 2012; Henseler et al., 2009) of the exogenous latent variable. The results of f^2 values are computation manually by the researcher by applying the aforementioned equation with values of $R_{included}^2$ and $R_{excluded}^2$. There is no effect when the f^2 effect size values of less than 0.02 (Hair et al., 2011; Hair Jr et al., 2017). As can be seen in Table 21(p.186), the f^2 effect size values of (Cog-PI) 0.780 and (PI-P) 2.855 indicate large effect. Even though the f^2 effect size values of (AD-Cog) and (HI-PI) yield 0.099 and 0.071, which are above 0.02 as the small effect. All the f^2 effect size values of constructs are higher than the threshold.

Table 21. f^2 effect size

	AD	Cog	HI	IT	P	PI	WOM
AD		0.099					
Cog						0.143	
HI	0.169					0.071	0.225
IT	0.168					0.297	0.138
P							
PI						2.842	
WOM		0.132					

5.4.2.5 Step 5. Blindfolding and predictive relevance Q^2

Geisser (1974) and Hair Jr et al. (2017, p. 204) also advised that the analysis should be assessed Stone-Geisser's Q^2 value in order to evaluate the predictive accuracy as well as assessing the R^2 values (Hair et al., 2011; Henseler et al., 2009; Nitzl & Hirsch, 2016).

Q^2 value is an indicator of the model's predictive power and accurately predicts data not used in the model estimation (Hair Jr et al., 2017, p. 202). As can be seen on Table 22 (p.188), "SSO means the sum of the squared observations, SSE shows the sum of the squared prediction errors and last column (i.e., $1 - \text{SSE}/\text{SSO}$) the final value is Q^2 " (Hair Jr et al., 2017, p. 217). Q^2 values larger than zero for a specific reflective endogenous latent variable denote that the model has predictive relevance for a certain endogenous construct. On the contrary, values of 0 and below indicates a lack of predictive relevance (Hair Jr et al., 2017). In other words, a Q^2 value above 0 implies that the model delivers predictive relevance (Hair et al., 2011), whereas a Q^2 value of less than 0 advocates an absence of predictive relevance (Sanchez-Franco et al., 2009).

The Q^2 values assessed by the blindfolding procedure mean a measure of the path model can predict the originally observed values accuracy (Hair Jr et al., 2017). "Blindfolding is an iterative process" by duplicating each data point has been omitted and the model reestimated (Hair Jr et al., 2017, p. 204). This technique is a synthesis of cross-validation and function fitting; however, Wold (1982) argues that it fits PLS-SEM "like a hand in glove." (Hair, Sarstedt, et al., 2012; Henseler et al., 2009).

Table 22 (p.188) provides the Q^2 value of all endogenous constructs. The Q^2 values of P have the highest values of 0.521, followed by PI of 0.435, WOM of 0.271 and, finally, Cog and AD of nearly the same 0.237 and 0.238. As can be seen, the Q^2 values of all five endogenous constructs are considerably above zero. These results deliver vibrant support for the model's predictive relevance in terms of the endogenous latent variables.

Table 22. Q^2 value

	SSO	SSE	$Q^2 (=1-SSE/SSO)$
AD	903.000	688.979	0.237
Cog	602.000	458.966	0.238
HI	903.000	903.000	
IT	903.000	903.000	
P	1,505.000	720.424	0.521
PI	903.000	509.849	0.435
WOM	903.000	657.943	0.271

5.4.2.6 Step 6: Effect size q^2

After assessing the R^2 values and Q^2 values for all endogenous latent variables, the final step to estimate the structural model is the q^2 effect sizes (Chin, 1998; Hair, Sarstedt, et al., 2012; Hair Jr et al., 2017, p. 207). The q^2 effect size define as (Hair Jr et al., 2017, p. 207)

$$q^2 = \frac{Q_{included}^2 - Q_{excluded}^2}{1 - Q_{included}^2}$$

These values were computed manually by the researcher due to the SmartPLS does not offer them. The values of q^2 : 0.02, 0.15, and 0.35 separately reveal that an exogenous construct has a weak, moderate, strong degree of predictive relevance, for a certain endogenous construct (Hair, Ringle, et al., 2012; Hair Jr et al., 2017). Table 23 (p.189) demonstrates the q^2 effect sizes for all variables in the models. Following the rules of thumb, the q^2 effect size of PI on P of 0.455 can be considered as “very strong” (Alavi et al., 2016; Cohen, 1988, p. 481), the q^2 effect size of HI on WOM of 0.152 can be considered moderate, and the rest of q^2 effect size in the model can be considered as “weak to moderate”, expecting the q^2 effect size of Cog on PI, IT on PI, and HI on PI are -0.009, -0.323, and -0.323, respectively, which are below the threshold value of 0.02 can be considered as no effect. Even though Q^2 above 0 represents indicative of predictive relevance (Hair, Sarstedt, et al., 2012), Hair, Sarstedt, et al. (2012) find out that none of

the models reported the statistic of q^2 , while research has strained its standing for inner model evaluation (Henseler et al., 2009). For the analysis, all constructs in the model were therefore retained.

Table 23. q^2 effect sizes

	WOM	AD	Cog	PI	P
AD				0.055	
Cog					-0.009
HI	0.152	0.101			-0.323
IT	0.094	0.103			-0.323
PI					0.455
WOM			0.076		

Following the recommended by Hair Jr et al. (2017), each of the seven constructs reveals reliability in the proposed model; thus suggesting it offers positive indicators of the respective components. After the algorithm has calculated the construct scores, the scores are used to estimate each partial regression model in the path model. As a result, we obtain the estimates for all relationships in the measurement models (the loading) and the structural model (the path coefficients) as Table 24 (p.189) shown. As such, reliability is related to the scope to which the techniques of data collection or analysis process generate consistent findings (Saunders et al., 2016).

Table 24. Hypothesis decision

Hypothesis	Relationship	Path coefficient	T-statistics	P-value	Decision
H1	IT > WOM	0.318	6.693	0.000	Supported

H2	IT > AD	0.355	6.637	0.000	Supported
H3	HI > WOM	0.406	8.648	0.000	Supported
H4	HI > AD	0.356	7.217	0.000	Supported
H5	IT > PI	0.410	8.305	0.000	Supported
H6	HI > PI	0.207	4.311	0.000	Supported
H7	WOM > Cog	0.354	5.138	0.000	Supported
H8	AD > Cog	0.308	4.710	0.000	Supported
H9	Cog > PI	0.325	5.937	0.000	Supported
H10	PI > P	0.860	41.017	0.000	Supported

5.4.3 Mediation analysis

Mediation analysis is a crucial issue in the circumstance of PLS-SEM (Hair Jr et al., 2017; Memon et al., 2018; Nitzl et al., 2016). Mediational designs are at the core of social science and business research, often referred to as ‘vital to theory development’, ‘important to the scientific status of the field’ and an ‘indispensable tool’ to support a better scientific understanding of the mechanisms which interfere the relationship between the exogenous and endogenous variables (Memon et al., 2018; Pieters, 2017; Schoemann et al., 2017). Precisely, mediation happens when a third mediator variable interferes among two other related constructs (Hair Jr et al., 2017, p. 228; MacKinnon, 2012; Memon et al., 2018; Nitzl et al., 2016). To explain, mediation is a typical procedure to assess theories in order to comprehend the causal relationship (MacKinnon, 2012; Memon et al., 2018; Nitzl et al., 2016). In the PLS path model, a change in the exogenous construct causes a modification in the mediator variable, in turns, which results in a change in the endogenous construct (Hair Jr et al., 2017; Memon et al., 2018; Nitzl et al., 2016). In other words, the fundamental mediation effect means that it takes a sequence of relationships in which a mediating variable is affected by an antecedent variable disturbs, and later affects a dependent variable (Nitzl et al., 2016). In this way, “mediation is one way that a researcher can explain the process or mechanism by which one variable affects another” (MacKinnon et al., 2007). Thus, a mediator variable manages the nature of the relationship between two constructs (Hair Jr et al., 2017; Nitzl et al., 2016).

Many researchers like to draw the meditation effect based on Baron and Kenny (1986) presented (Memon et al., 2018; Nitzl et al., 2016; Rucker et al., 2011). As shown in Figure 19 (p.193), to create that an independent variable X affects a distal dependent variable Y through a mediating variable M, Baron and Kenny (1986) advise three tests:

“A variable functions as a mediator when it meets the following conditions: (a) variations in levels of the independent variable significantly account for variations in the presumed mediator (i.e., Path a), (b) variations in the mediator significantly account for variations

in the dependent variable (i.e., Path b), and (c) when Paths a and b are controlled, a previously significant relation between the independent and dependent variables is no longer significant, with the strongest demonstration of mediation occurring when Path c is zero.”

That is, direct effects are the relationships linking two constructs with a single shaft (i.e. Path c). Indirect effects ($a \times b$) are those relationships which involve a sequence of relationships with one intervening construct involved at least (Rucker et al., 2011).

In addition, Baron and Kenny (1986, p. 1177) state:

“To test mediation, one should estimate the three following regression equations: first, regressing the mediator on the independent variable; second, regressing the dependent variable on the independent variable; and third, regressing the dependent variable on both the independent variable and on the mediator.”

Paths a, b, and c are tested and estimated by equations 1, 2, and 3 (Nitzl et al., 2016; Zhao et al., 2010):

$$M = i_1 + aX + e_1 \quad (1)$$

$$Y = i_2 + cX + e_2 \quad (2)$$

$$Y = i_3 + cX + bM + e_3 \quad (3)$$

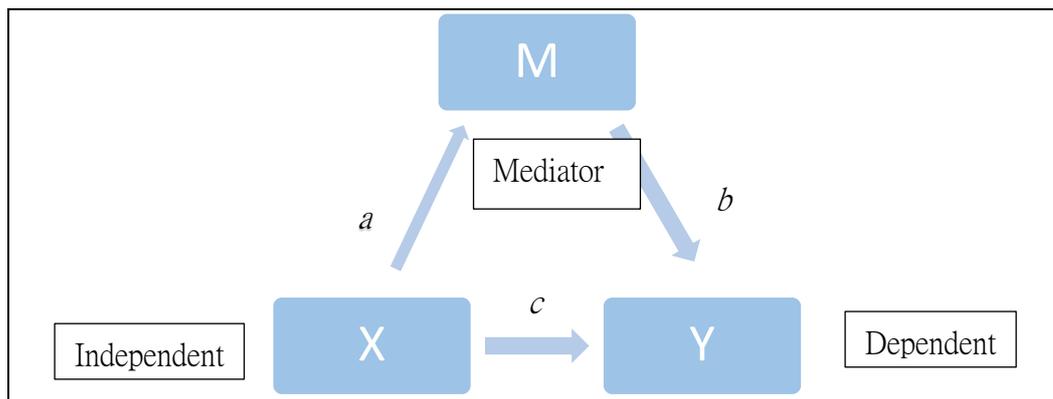


Figure 19. Mediation

Nevertheless, Zhao et al. (2010) debate that Baron and Kenny’s procedure for determining the mediation effect is not the only rule, because there are more researches pointing to conceptual and methodological problems with them (Hair Jr et al., 2017; Memon et al., 2018; Nitzl et al., 2016; Zhao et al., 2010). Preacher and Kelley (2011) and Rungtusanatham et al. (2014) also argue that Baron and Kenny’s procedure does not meet the qualification level of the mediation effect.

As such, in equation 2, “there need not be a significant effect to be mediated” (Zhao et al., 2010). To establish mediation there ought to be one requirement only that the indirect effect $a \times b$ is significant ((Hair Jr et al., 2017; Schoemann et al., 2017; Zhao et al., 2010). Hence, the effect of mediation should be measured by the dimension of the indirect effect, not by the non-existence of the direct effect (Zhao et al., 2010).

On the one hand, the concept of a “direct” effect is clear statistically. On the other hands, it is often unclear theoretically. So far, as well known that the Baron and Kenny classification of full, partial, and no mediation is misleading because a one-dimensional concept of mediation better perceived as two-dimensional (Hair Jr et al., 2017; Zhao et al., 2010).

Moreover, Baron and Kenny (1986) suggested testing the significance of the indirect path $a \times b$ by the Sobel z-test shown in the equation as below (Hair Jr et al., 2017; Zhao et al., 2010). Equally, z tests whether the difference between the total effect and the direct effect is statistically significant.

$$Z = \frac{a \times b}{\sqrt{bs + as}}$$

Many researchers debate that there is no strong evidence to indicate that the effect of X on Y is reduced in size when M is in addition to the model (Hayes, 2017; Hayes & Preacher, 2014; Zhao et al., 2010). Rungtusanatham et al. (2014) also advise that “to abandon the Baron and Kenny method in order to properly test for mediation effects”. Preacher and Hayes (2004) therefore offer an alternative “bootstrap” test of the indirect effect which is practically more powerful than Sobel’s test (Hayes, 2017, p. 172; Nishiguchi et al., 2016; Zhao et al., 2010). The indirect effect is the outcome of two variables so that the sampling distribution of products and Sobel’s z is unusual (Zhao et al., 2010).

Testing mediation effects should deliberate the following facts in PLS (Preacher & Hayes, 2008; Zhao et al., 2010): 1) test mediation by examining the indirect effect $a \times b$, 2) the power of the indirect effect $a \times b$ should decide the size of the mediation, 3) the significance of the indirect effect $a \times b$ can be confirmed by a bootstrap test. As such, “the sum of direct and indirect effects is referred to as the total effect.” (Hair Jr et al., 2017, p. 197; Zhao et al., 2010). As shown on Figure 20 (p. 195) a decision tree by Zhao et al. (2010) can be used to decide the type of mediation analysis (Hair Jr et al., 2017, p. 233; Nitzl et al., 2016). It involves “two steps that reflect the abovementioned recommendations for state-of-the-art mediation analysis” (Nitzl et al., 2016).

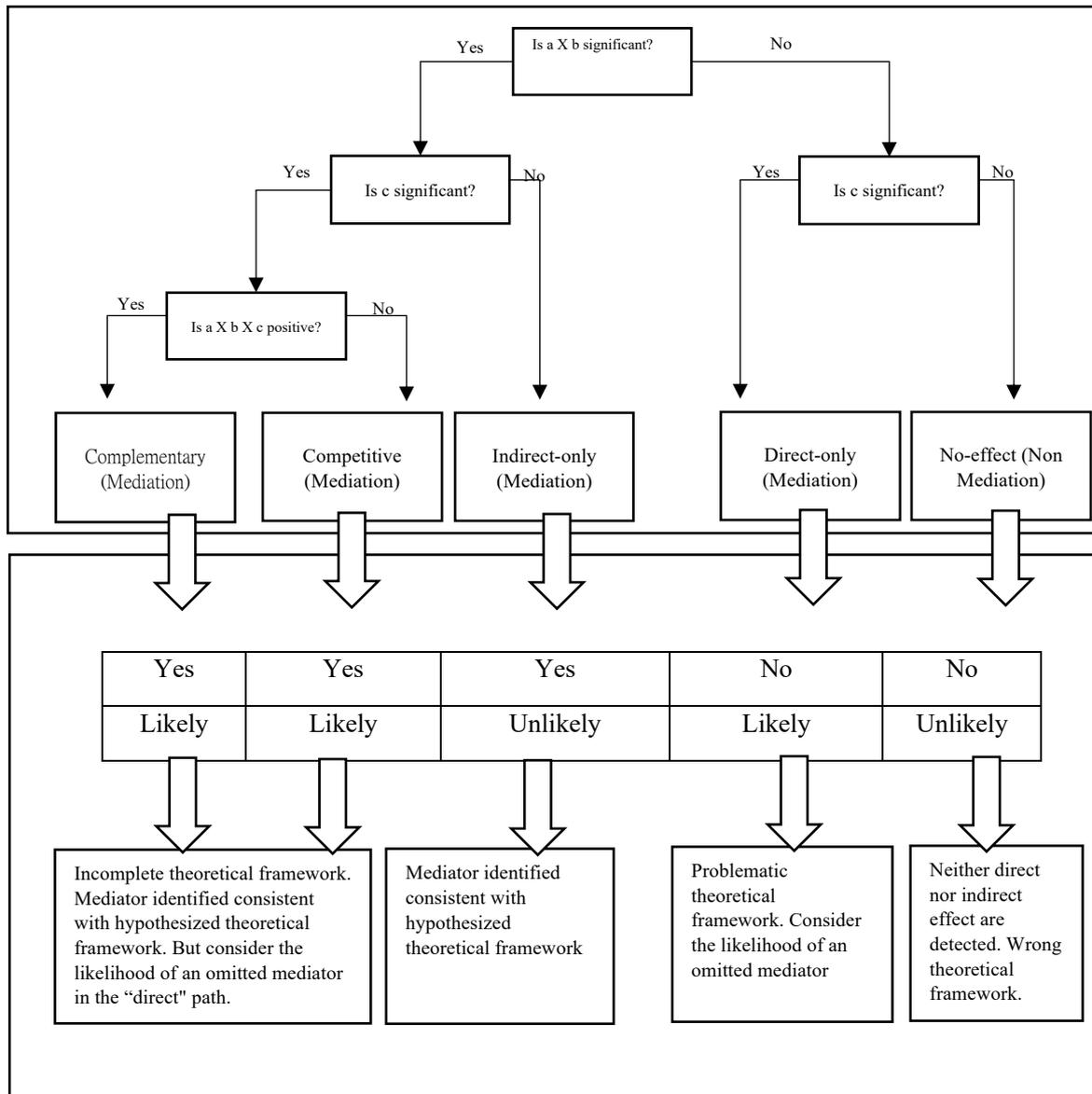


Figure 20. a decision tree for establishing and understanding types of mediation and nonmediation (Hair Jr et al., 2017, p. 233; Zhao et al., 2010)

5.4.3.1 Step 1. Determining the significance of indirect effects

In the first step, researchers should verify the indirect effect as significance (Nitzl et al., 2016). In the easiest form of mediation, the indirect relationship ($a \times b$) through the M (mediator) affects the direct relationship from X (exogenous) to Y (endogenous) (Nitzl et al., 2016). In this step, researchers operate bootstrap routines to investigate the indirect effect $a \times b$ as significance (Hair Jr et al., 2017; Nitzl et al., 2016; Zhao et al., 2010).

As aforementioned, the bootstrapping procedure is a non-parametric inferential method that is drawn several subsamples (e.g. 5,000) randomly with replacement from the original data set (Hair Jr et al., 2017, p. 119; Nitzl et al., 2016; Zhao et al., 2010). To check mediation effects by applying bootstrapping has been verified, which has the highest statistical power to identify significant mediation processes (Cheung & Lau, 2008; Hair Jr et al., 2017; Memon et al., 2018; Nitzl et al., 2016; Rungtusanatham et al., 2014), and that also has some advantages: 1) correct for the non-normality of the sampling distribution of a specific indirect effect, 2) adapt models with multiple mediation developments in a series or in parallel (Nitzl et al., 2016; Zhao et al., 2010). As such, bootstrapping proposals flexibility to test for specific indirect effects (Preacher & Hayes, 2008; Rungtusanatham et al., 2014). In the SmartPLS software, the bootstrap routines offer bootstrap results for the direct effects (e.g. paths $a \times b$). Moreover, it is required to calculate the bootstrapping results for the combination of path $a \times b$ of a certain indirect effect in multiple mediators (Hair Jr et al., 2017; Nitzl et al., 2016). The different model assessments deliver the distribution of the path coefficients for the inner path model. Rungtusanatham et al. (2014) and Memon et al. (2018) debate that researchers should “ignore the total indirect effect and then examine specific indirect effects when a model involves multiple mediators”.

Additionally, based on Preacher and Hayes (2008) proposed to solve the problem of Sobel’s test by creating an empirical sampling distribution of $a \times b$ (Zhao et al., 2010). That is, the bootstrap test relies on the 95% confidence intervals from the empirical

distribution of $a \times b$ estimates essentially (Nitzl et al., 2016; Zhao et al., 2010). “The lower bound of the 95% confidence interval is at the 2.5% point on this cumulative distribution, and the upper bound of the 95% confidence interval is at the 97.5% point” (Zhao et al., 2010). As such, if 0 is not included in the confidence interval, the indirect effect $a \times b$ is significant and mediation is established (Hair Jr et al., 2017; Nitzl et al., 2016; Rungtusanatham et al., 2014; Zhao et al., 2010, p. 156).

Table 25. Confidence interval

	Original Sample (O)	Sample Mean (M)	2.5%	97.5%
AD -> Cog	0.308	0.307	0.180	0.435
AD -> P	0.086	0.086	0.044	0.134
AD -> PI	0.100	0.100	0.051	0.156
Cog -> P	0.279	0.280	0.188	0.370
Cog -> PI	0.325	0.325	0.217	0.431
HI -> AD	0.356	0.360	0.261	0.455
HI -> Cog	0.254	0.256	0.189	0.325
HI -> P	0.249	0.250	0.171	0.326
HI -> PI	0.289	0.290	0.198	0.379
HI -> WOM	0.406	0.408	0.313	0.498
IT -> AD	0.355	0.354	0.242	0.452
IT -> Cog	0.222	0.224	0.155	0.293
IT -> P	0.415	0.417	0.327	0.501
IT -> PI	0.483	0.484	0.390	0.568
IT -> WOM	0.318	0.318	0.223	0.410
PI -> P	0.860	0.861	0.813	0.896
WOM -> Cog	0.354	0.356	0.214	0.485
WOM -> P	0.099	0.100	0.049	0.162
WOM -> PI	0.115	0.117	0.056	0.187

Firstly, as Table 25 (p. 197) shown, the exogenous variables are IT and HI and endogenous variables are WOM, AD, Cog, PI, and P. There is no zero included in the confidence interval, so that the indirect effects are significant, mediation effects are likely established. Secondly, to be specific, the relationship between IT and PI, indirect effect of the path IT>PI (0.390, 0.568) is significant, and hence the relationship between IT and P, indirect effect of the path IT> P (0.327, 0.501) is also significant. Lastly, the indirect

effect between HI and PI, the path HI>PI is significant (0.198, 0.379), and thus the relationship between HI and P, the path HI>P is significant (0.171, 0.326).

In the hypothesized model, there are no direct effects between IT (exogenous) and P (endogenous), and HI (exogenous) and P (endogenous). With this object, Zhao et al. (2010) encourage researchers should carry on discussing a mediation hypothesis even they fail to discover an “effect to be mediated.” It might be only to develop an indirect effect with no total effect (Zhao et al., 2010). In the proposed hypothesized model, Zhao et al. (2010) therefore provide a synthesis of prior research on mediation analysis and identify that if the mediated effect ($a \times b$) exists, but no direct effect (c), that is *indirect-only mediation* as shown a decision tree in Figure 20 (p. 195). As such, the indirect-only mediation by Zhao et al. (2010) overlaps with Baron and Kenney’s full mediation (Nitzl et al., 2016).

5.4.3.2 Step 2. Determining the type of mediation

Step 2 contains expressing the type of mediation. In step 1, if the indirect effect $a \times b$ is significant, a mediation effect happens (Hair Jr et al., 2017; Nitzl et al., 2016; Zhao et al., 2010). In the hypothesized model, both the direct effect c' and the indirect effect $a \times b$ are significant to denote partial mediation (Hair Jr et al., 2017; Nitzl et al., 2016; Zhao et al., 2010). Precisely, indirect effect $a \times b$ and the direct effect c' point to the same direction (Hair Jr et al., 2017; Nitzl et al., 2016; Zhao et al., 2010), for instance, IT >PI, and HI > PI. It is an experimental result that indirect effect $a \times b$ and the direct effect c' are significant and $a \times b \times c'$ is positive, which denotes that a part of the effect of X on Y is mediated across M, whereas X explicates a part of Y that is independent of M (Hair Jr et al., 2017; Nitzl et al., 2016; Zhao et al., 2010). For this purpose, the transmittal approach which this study applied needs a single hypothesis stating that mediator (M) mediates the relationship between X and Y without examining into hypotheses relating X to M and M to Y (Memon et al., 2018; Rungtusanatham et al., 2014).

5.4.4 Complementary partial mediation

This complementary mediation hypothesis recommends that the intermediate variable explains the relationships between the exogenous and endogenous variables (Hair Jr et al., 2017; Nitzl et al., 2016; Zhao et al., 2010). Complementary partial mediation is also termed as a “positive confounding” or a “consistent” model (Nitzl et al., 2016; Zhao et al., 2010). As such, the path $IT > PI$, and $HI > PI$ are complementary partial mediation (see Table 26, p. 201). WOM or AD through Cog mediate IT on PI is established. Hence, WOM or AD through Cog mediates HI on PI is established.

Although, the indirect effects of the path $IT > PI$ contains multi-mediators: WOM and Cog, AD and Cog, seems akin to each other. Table 27 (p. 202) shows the specific indirect effects of the paths suggestions by Rungtusanatham et al. (2014) and Memon et al. (2018). The specific indirect effects of the path $IT > AD > Cog > PI$ is 0.035 ($t= 3.058$) marginally different from the path $IT > WOM > Cog > PI$ on 0.037 ($t= 2.873$). moreover, the specific indirect effects of the path $HI > AD > Cog > PI$ is 0.036 ($t= 3.242$), and of the path $HI > WOM > Cog > PI$ is 0.047 ($t= 3.242$).

5.4.5 Indirect-only mediation (full mediation)

To decide the existence of mediation and whether it is **indirect-only mediation**, also call “full mediation”, it needs the fulfilment of confident conditions as specified by Zhao et al. (2010). To start with testing the indirect effect $a \times b$ when analysing mediating effects based on the decision tree (Figure 20, p. 195) (Nitzl et al., 2016; Zhao et al., 2010). In the same way, full mediation indicates that a researcher has completely explained the process by which X influences Y and no additional research is needed to search for further mediators (Hayes, 2017; Memon et al., 2018).

If the direct effect c' is not significant whereas the indirect effect $a \times b$ is significant, that is a full mediation, which means “only the indirect effect via the mediator exists.” (Nitzl

et al., 2016; Zhao et al., 2010). As Rucker et al. (2011) indicated, “*the smaller the sample, the more likely mediation (when present) is to be labelled full as opposed to partial because c' is more easily rendered nonsignificant*”. Drawing from Nitzl et al. (2016), “*the total effect is equal to the direct effect of X on Y in addition to the sum of the indirect effect. A given mediator’s indirect effect is referred to as a specific indirect effect. The sum of the two specific indirect effects is the complete indirect effect. Thus, the total effect is the sum of the direct effect and the complete indirect effects*”.

Thus, to establish mediation of the path IT > P and HI >P, all that is required is that the indirect effects are significant. There is no direct effect between the path IT > P and HI >P, whereas, the indirect effects of the path IT > P (0.415) and HI >P (0.249) are significant. Thereby, the results demonstrate that PI fully mediates the relationship between IT and P, HI and P (see Table 26, p. 201).

Table 26. Mediation effects

Mediator	Path	Direct effect (t Value)	total indirect effect (t value)	Total effect (t value)	Percentile bootstrap 95% confidence interval		Significance?	mediation effect
					Lower (2.50%)	Upper (97.50%)		
WOM & Cog	IT→WOM→Cog→PI	0.410 (8.305)	0.073(4.173)	0.483(10.597)	0.016	0.066	***	Complementary partial mediation
AD & Cog	IT→AD→Cog→PI	0.410 (8.305)	0.073(4.173)	0.483(10.597)	0.015	0.060	***	Complementary partial mediation
WOM & Cog	HI→WOM→Cog→PI	0.207(4.311)	0.082(4.221)	0.289(6.316)	0.022	0.080	***	Complementary partial mediation
AD & Cog	HI→AD→Cog→PI	0.207(4.311)	0.082(4.221)	0.289(6.316)	0.017	0.061	***	Complementary partial mediation
PI	IT→PI→P	*	0.353+0.030+0.032	0.415(9.311)	0.261	0.442	***	indirect-only mediation (full mediation)
PI	HI→PI→P	*	0.178+0.04+0.031	0.249(6.347)	0.096	0.259	***	indirect-only mediation (full mediation)

(Note: * $p < 0.1$; ** $p < 0.05$; *** $p < 0.01$)

Table 27. Specific indirect effects

Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values
IT -> AD -> Cog	0.109	0.110	0.032	3.402	0.001
IT -> AD -> Cog -> PI	0.035	0.036	0.012	3.058	0.002
IT -> WOM -> Cog	0.113	0.114	0.031	3.682	0.000
IT -> WOM -> Cog -> PI	0.037	0.037	0.013	2.873	0.004
HI -> AD -> Cog	0.110	0.111	0.028	3.849	0.000
HI -> AD -> Cog -> PI	0.036	0.036	0.011	3.242	0.001
HI -> WOM -> Cog	0.144	0.146	0.035	4.116	0.000
HI -> WOM -> Cog -> PI	0.047	0.048	0.015	3.071	0.002

Chin (2010) recommended a two-step process for analysing mediation in PLS: First, use the specific model in question containing both the direct and the indirect paths and present N bootstrap resampling and obviously compute the result of the direct paths that form the indirect path under assessment. Second, evaluate the significance of using percentile bootstrap (Williams & MacKinnon, 2008).

However, as Preacher and Hayes (2008) point out, this approach is challenging for at least two reasons: 1) to calculate for specific indirect effects involved both hypothesis tests and confidence intervals may not be accurate due to the omission of other, potentially important mediators. 2) one cannot merely add up the indirect effects calculated in several simple mediation analyses to develop the total indirect effect, as the mediators in a multiple mediation model will be corrected normally. Consequently, it will be biased if the specific indirect effects estimated by applying several simple mediation analyses and will not be the sum of the total indirect effect across the multiple mediators. The former situation is equivalent to complementary and competitive mediation, as described in Zhao et al. (2010). The complementary mediation and the indirect-only mediation from Zhao et al. (2010) overlaps with Baron and Kenny's partial mediation and full mediation, respectively.

Table 28. Mediation hypothesis decision

Hypothesis	Mediation path	Mediation effect	Decision
H11	IT > PI > P	indirect-only mediation (full mediation)	Supported

H12	HI > PI > P	indirect-only mediation (full mediation)	Supported
H13	IT> WOM>Cog>PI	Complementary mediation	Supported
H14	IT> AD>Cog>PI	Complementary mediation	Supported
H15	HI>WOM>Cog>PI	Complementary mediation	Supported
H16	HI>WOM>Cog>PI	Complementary mediation	Supported

The following qualitative phase of the research will be used to test the reliability, validity and generalising of the findings.

5.4.6 Analysis and interpretation of structured interviews

With 'IT innovation', 'Health issues', 'WOM', 'Advertising', 'Cognition', 'purchase intention', and 'purchase' all reached significance statistically. They have been acknowledged as the key constructs of the decision-making process in the WSTP market. Drawing from aforementioned observations made considering the benefits of triangulation, a final phase was undertaken by structured face-to-face interviews. During phase 4 of the research, each interview was managed and informed with the significant role responsible for completing a questionnaire. A standard set of questions was applied in each interview. During the SEM-PLS process, obtained from the items which had loaded on each construct and their common thoughtful of relationships between motive,

marketing communication strategy, cognition, purchase intention, and actual purchase behaviour in the WSPT market, the participants were asked to answer the certain questions. An analysis of each interview is presented below. The reader's more interest is drawn to the decision-making process in the WSPT market, then presented in Part 4 of this study.

5.4.6.1 interview 1

IT innovation- the interviewee agreed that the IT innovation of WSTPs could make life easier than carrying a smartphone with you. The advantage of wearing WSTPs is not only easy to carry but also connecting with multi-functions. As such, the interviewee thinks WSTPs will replace some technology within a single function in the future.

Health issues-the interviewee identified that we are living in technology and the modern world which leads us to become lazy and inactive nowadays. Wearing WSTPs can assist in reminding the frequency of activities you are taking and the period of sitting you are involving, that help to develop the regular activities in order to diminish the many diseases caused by inactive, for instance, high blood pressure, diabetes, and so on. Through WSTPs monitoring the activities, the interviewee therefore enables to build a regular exercise, which will make the life healthier.

“I guess, so it’s possible that WSTPs can help people to identify when you had started the problems though, so being an awkward position before they came from.”

WOM-as the definition of WOM and e-WOM had been given after the question, the interviewee agreed that consumers are very interested in other buyers’ experience and also valued the actual experience they had, especially in these kinds of products. To search for the information and review the online review are the trend before the consumers are willing to buy a product.

“I might look at online reviews and start to get more information from those; this is always quite interesting to see how individual people using something the actual experiences they had.”

Advertising-it is always to catch the consumer’s eye at the beginning of launching a novelty product by advertising. The interviewee acknowledged that consumer might not know what they need until they see the advertising to remind their needs. Specifically, a product which is new and never showed around the world they are living is introduced by advertising easier for the consumers to obtain the information and be able to have an initial impression.

“Sometimes, you don’t have the needs until you see the advertising, you know you may not know that you have particular problems until you see something around the advertising.”

Cognition-the interviewee believed that using WSTPs will be able to improve the physical conditions. Moreover, the interviewee thought that people gain various chronic diseases because of inactive daily lives. As a result, people should be aware that the result of inactive may cause and also lead to chronic diseases. The more activities you take, the more benefits of health you get, for instance, a healthier person may recover from flu rapidly. The interviewee concerned that people might have some bad problems when people are getting old. For this purpose, the WSTPs will be able to bring benefits to our health.

“So, I can see it’s meeting my needs and also might improvement in everybody’s lives.”

Purchase intention-the interviewee recognised that WSTPs could replace some products likely in the future, for instance, smartphone. As long as it becomes reliable and has a reasonable price, the interviewee would like to buy WSTPs in the future. What the interviewee believed is that WSTPs will bring benefits to our daily lives.

Purchase- as WSTPs combined multi-functions become a very attractive product, the interviewee distinguished that it would be taken into account. However, the interviewee recognised that the earlier adopter may be costly as long as the price is reasonable, WSTPs will be purchased in his budget.

5.4.6.2 Interview 2

IT innovation- if WSTPs are able to deliver novelty which owns the better function as well as bring the benefits to the daily lives than other products, the interviewee corresponded to try.

“I would like to try something new if it is helpful.”

Health issues-the interviewee distinguished that the purpose of wearing WSTPs related to the health issues is to keep fit in order to stay young. Through WSTPs may help the interviewee controlling the body weight and the sleeping condition. For a long period of time, the interviewee has an obstacle with the sleeping problem. Therefore, the interviewee thinks that WSTPs might solve the problems.

WOM- the interviewee always searches for the related information of WSTPs online, particularly in online review firstly. Secondly, the interviewee asks friends who had bought WSTPs and required their experience from the social network. To buy this kind of products, the interviewee relies on the online review and the other users' experience. After searching the information, the interviewee tries to go to the shop and assess it.

“I like to search for the information from the online review, and my friends who had the same experience. And I quite like to use Facebook for the specific group in which someone might share their real experiences.”

Advertising- the interviewee admitted that many advertisings might contain various extradayentary elements which are not applicable in the real world in the advertisement in

order to catch the consumer's eye. Thereby, the interviewee always avoids watching advertising nowadays.

Cognition-wearing WSTPs will be able to bring some benefits to the users' life the interviewee therefore supposed that would be to increase the physical conditions.

Purchase intention-if WSTPs could monitor the physical condition during the period of workup and also inspect the sleeping circumstance, which allows the users to mend their wellbeing. The interviewee agreed that will motivate her to purchase it.

Purchase- the interviewee concerned about the price of such novelty product could be pricey. Thus, the interviewee would search for the alternative methods replacing WSTPs and keep it in mind and wait for the price down.

"I will buy it when someday the price goes down."

5.4.6.3 Interview 3

IT innovation- as WSTPs provide accurate monitor data for the user and also gives a reasonable price for the consumer, the interviewee recognised that is the most issue of the WSTPs currently.

Health issues-the most issue related to the health the interviewee cares about is blood pressure at the moment. The interviewee also pointed out that as long as WSTPs can develop accurate monitor data as a reliable product helping people's health for the long term, specifically on the blood pressure.

"If the product can give accurate records of the blood pressure for the long term, for example, I will consider it."

WOM- the interviewee disagreed that WOM is reliable or trustable. The interviewee values the individual's experience he had. The interviewee would like to go to the shop instead of believing online review or WOM.

"I don't like online reviews or online forums."

"I might go to the shop and talk to someone for more advisors."

Advertising-the interviewee even doesn't trust the advertising in which the interviewee might not involve in the field of product. However, if the advertising just revealed at some points, the interviewee might receive the information by the advertising trying to be given.

"I would not probably search for any advertising related to WSTPs, unless it becomes a well-known product, like Apple watch."

Cognition-the interviewee would like to talk to someone in person rather than just searching the information for the internet.

Purchase intention-the interviewee acknowledged that he will purchase WSTPs in the future.

Purchase-although the interviewee showed the interested in WSTPs, the price is only concerned. Because WSTPs are still on the early stage, which leads to a higher price. If the price can lower to a reasonable level, the interviewee then considers buying one in the future.

"I will probably buy it in the future depends on the price."

5.4.6.4 Interview 4

IT innovation-if the IT innovation functions of WSTPs can meet the interviewee's need and also with fashionable design, the interviewee would like to pay attention to it and purchase it in the future. The interviewee agreed that technology helps us and make our life become easier and simple, that is a trend to purchase the technology products.

“The technology would help us to understand not just our body but health condition as well, the IT innovation come up with something look like a new gadget and also fashionable. I'll check this kind of products, and I will buy them.”

“It's the trend that the product adds the value to help our life simpler.”

Health issues-the interviewee corresponded that technology is able to bring a healthy life for us, for instance, heart rate, heartbeats, and the data of the exercise has been taken. The data gathered from WSTPs make us know how to improve our health. Thus, health issues are very important to our life; the interviewee responded. Having a technology to aid and improve our health can let us know how the current condition of our body is and then we are able to prevent it in advance. For instance, monitoring the sleeping condition could be vital because if someone who doesn't have an enough or good quality of a sleep that might lead to an unpleasant life as a result.

WOM-as the definition of WOM had been given after the question, the interviewee said that the user's experience and people's interaction is exact vital subject during the decision-making period, for instance, the Q&A, the buyer can gain the answer easier form the previous users. The interviewee would like to rely on the users' experiences. The positive assessment might motive the interviewee's willing to purchase WSTPs.

“If the people are talking to me about their experience how they use it, I will listen to them. Because they know what they are talking about.”

Advertising-the interviewee will search for more information online through the advertising because the interviewee thinks that the advertising reveals some information which might not be discovered by consumers. In addition, the interviewee pays attention to the advertising of WSTPs due to such product meets the need. Accordingly, the interviewee might search the related information through the advertising before the decision made.

“If the advertising can make me be touching and also meet my needs, but sometimes, we are buying things that we don’t really need it, we just feel it how it can help our body.”

“But advertising has no interaction. I prefer to ask people.”

Cognition-the interviewee responded that the benefits of WSTPs provided exactly meet his needs, specifically in health monitoring, such as heart rate and sleeping pattern. That would keep a healthy lifestyle in order to maintain our life longer and healthier.

Purchase intention-the interviewee admitted that he definitely would buy WSTPs in the future as long as more functions adding to it. The interviewee said that it worth to keep in mind to look for any update information of WSTPs because it is related to the health. But it is also important to look at the price, which should be reasonable.

Purchase-the interviewee acknowledged that there are several things to influence the decision-making on purchasing a WSTP: 1) promotion, 2) WOM, 3) reasonable price.

5.4.6.5 Interview 5

IT innovation-as long as WSTPs can present accurate data to help how to improve health and physical conditions. Moreover, the interviewee mentioned that the more precise details of physical conditions a WSTP can provide the more improvement the user can modify. Thus, the interviewee agreed that she is the person who would like to try a newness thing rather than her peers.

“I think that they are accurate and giving more details that I wouldn’t know it on my own without it.”

Health issues-the interviewee agreed that WSTPs are able to monitor our health conditions, including heart rate, well-being and make us keep fit or in good shape. To have a healthy life is vital nowadays because life expectancy is getting longer. Most of us want to see and stay with your children and grandchildren together; it is therefore better to keep health. The interviewee would like to live as long as she can.

“It can be increasing my target all the time to improve my physical well-being.”

WOM- as WOM provides the information which is shared by the users the interviewee thought that is helpful for making the decision. The interviewee also would like to search the information online to explore the product, whether it is certainly the right one. But the interviewee noted that the influence of WOM is able to make people trust it, which leads to dominant the buyers’ mind. The interviewee would like to trust the experience sharing by someone who is she knew more than the information just demonstrated online.

” I think WOM is really good because people can share their experiences, how the product works to them.”

“I will read a lot of online reviews to see what the people have to say about this product.”

“I think WOM is more reliable, people have used it had more experiences, rather than the advertising said.”

Advertising-a good advertising could draw your eyes in; nevertheless, the information revealed in the advertising is not sufficient sometimes. The interviewee reflected if the content of the advertising presented just an image, and then the interviewee would search more information further in order to discover whether WSTPs meets her needs or not. The advertising therefore is very important for the interviewee as well.

“A good advert might draw your eyes to know more about it.”

Cognition-if someone who the interviewee knew recommends WSTPs, and then the interviewee is willing to buy and try it.

“If I bought it from the other person’s recommendation, I think I will try it.”

Purchase intention-the interviewee stated that wearing WSTPs make people aware of what they are doing and achieving related to their health.

“Definitely, I will buy it in the future.”

Purchase- the interviewee admitted that WSTPs could meet her needs and then absolutely buy it no matter of the price. However, if there is the promotion of WSTPs, that would be better for interviewee decision-making. As the functions of WSTPs works great for the interviewee, she will definitely buy it again for the partner as a gift.

“If it works really good, I will definitely buy it and also for my partner.”

5.4.6.6 Interview 6

IT innovation-as we are living in the IoT age, people pursue technology in helping our life. Comparing with a decade ago, people now are doing more exercise, so IT innovation could benefit people who like sports including WSTPs.

“I think it is important that these functions can bring benefits for those sporty people.”

Health issues-the interviewee mentioned that he has a regular workup at the gym without wearing any kind of WSTPs. Yet, the interviewee recommended someone who has a regular exercise as he does can wear WSTPs in order to monitor the period of exercise.

The interviewee was concerned about blood pressure related to health, which is the main reason to wear WSTPs for the interviewee.

“I will suggest that if some people are sporty, they can wear one of the WSTPs.”

WOM-the interviewee acknowledged that WOM is the most issue to lead to making a decision, which is not involved in the online review. Because the interviewee mentioned that he had some unpleased experience from believing the online review. The interviewee always relies on what his friends recommended to him. Therefore, if his friends suggest one of WSTPs for him, he will definitely buy it.

“Yes, I will prefer WOM rather than searching for more information by myself.”

“But I would like to believe someone I knew to recommend me, because some online reviews are not reliable now.”

Advertising-the interviewee concerned that more and more advertising hides something to lead people in the wrong way, which make the interviewee doesn't believe advertising nowadays. Even the interviewee still pay attention to the advertising, on the other hand, that might not be the reason to persuade the interviewee making a decision.

“Advertising is important, but don't cheat the consumers.”

Cognition-as the interviewee had no experience of wearing WSTPs, he could not recognise whether he will buy WSTPs or not in the future.

Purchase intention-if WSTPs could bring benefits to the interviewee's health, the interviewee supposed that purchasing WSTPs is entirely on his shopping list.

“Yes, I will buy it, depends on what I really need for my body and health.”

Purchase- the interviewee confirmed that the most significant reason for buying WSTPs is that WSTPs meet his needs and that is not about the price or any promotion. If WSTPs can improve his health, the interviewee will purchase it positively.

“I will buy it when it really suits me, which is nothing about price or promotion.”

5.5 Summary of results

Resulting in the SEM-PLS, seven constructs were acknowledged, after being coded and interpreted, and were taken for the following analysis using SmartPLS. This held IT innovation and health issues as the independent variables and WOM, advertising, cognition, purchase intention, and actual purchase as the dependent variables. Results drawn from this analysis denote that two variables (IT innovation and health issues) have a statistically significant relationship with the dependent variables. The standardised path coefficients figure for each of these variables is represented in Table 18 (p. 181). In terms of the variables of alternative purchase and no buy in the initially hypothesized model, they have not been confirmed by this study using SmartPLS and are thus identified as resulting in the determinant of purchase behaviour. In light of statistical testing, Hypotheses 1, 2, 3, 4, 5, 6, 7, 8, 9, and 10 have been confirmed by this study. Following the statistically significant on each path relationship, we further explore the relationship of mediation between endogenous and exogenous. Even though the previous research has merely demonstrated that “attitude” is a mediator in several models, we expect that the hypotheses should be revealed more mediating effects by applying Zhao et al. (2010)’s research, and thereby we consider that the difference between direct, indirect effects, specific indirect effects as well as total effects test meditating effects and all standard model evaluation criteria. Furthermore, using bootstrapping instead of the Sobel test, we can find out whether the indirect effects are significant in cases where the 95% confidence intervals do not include zero. The result of findings delivers empirical support for the mediating effects in the hypothesized model adopted by WSTPs.

In order to fit with a statistical settlement, the data for interviewees was integrated to support the SEM analyses still to take place. The interviews were undertaken, resulting in the confirmation of the hypothesis (shown in Table 24, p. 189). The analysis of findings reveals that there are both consistencies and inconsistencies within and between interviewees. As such, one may find, for instance, one interviewee may be categorised by some similarities between the interviewees whilst another interviewee may be characterised by the differences. A general statement about the common characteristics of interviewees cannot therefore be made. The specific differences between interviewees are not noted.

5.6 Conclusion

Informed by the scale reliability, seven determinants were identified as accounting for the variance in the model proposed in this study. The next step is to analyse the preliminary data applied with the SPSS and SEM SmartPLS in order to determine the reliability and validity, as well as the correlation path in the model. This denotes how exact the proposed model was, particularly given the confirmation of seven of the original nine variables integrated into the survey instrument.

In this study, a PLS-SEM model was applied in two stages: 1) the assessment of the measurement model which specifies the relationships between the unobserved variables and their observed indicators; 2) an assessment of the structural model which tests the paths in the hypothesized model in which seven of nine latent variables were identified. For both the indicators and constructs in this study, the validity and reliability are evaluated to assess the measurement model. The reliability of all the constructs was above the minimum requirement; only Cronbach Alpha on Cog is 0.685, which is acceptable in the marketing research. The convergent validity and discriminant validity were tested with a view to evaluating the constructs, expecting the value of HTMT on Cog to be higher than the suggested threshold but still adequate to be retained. Then, hypotheses were then tested by shifting the measurement model to the structural model. Assessment

of the results of the structural model determines how well empirical data supports the concept; it being critical that the q^2 effect size of Cog on PI, IT on PI, and HI on PI can be considered as no effect. At the same time, the Q^2 value of all path relationships which are greater than zero, characterises the analysis of predictive relevance. By cautiously evaluating all the criteria of the model structure, the result decides whether the hypothesized model is confirmed.

Following the mediation effect, six mediated paths were established. The first two cases, full mediation was acknowledged. The latter four paths, this shows statistical verification for four of the relationships of complementary partial mediation. Although there are many advantages to using SmartPLS, one of the limitations of PLS-SEM is that it does not denote the complete consistency in scores on latent variables, which may result in biased loadings and path coefficients.

The order of phases, from quantitative to qualitative, reflects the sequence of procedures used in this study. As 301 responses were obtained during data collection, this response rate meets the '10X Rule' for processing data in the SmartPLS statistical software package. As a result, a path model was presented. A final stage of interviews was then undertaken, related to the known basics for triangulating methods. This assisted in a more complete interpretation of findings and also confirmed the challenges to validate each construct. The more detailed and deeper the investigation of constructs predicted by the model, the more they have to perform to cover a multitude of differences between and within each interview, the consequences of which are explicated in the next chapter. However, one specific is that different interviewees have varying motivations to purchase WSTPs. Consequently, the results of the interviews were verified in the conceptual model, which means that they are willing to buy WSTPs in the future.

PART 4. CONCLUSION AND RECOMMENDATION

CHAPTER 6 IMPLICATION OF THE STUDY AND CONCLUSION

6.1 Overview of chapter

The chapter aims to convey the implications of this study and the findings of both qualitative and quantitative research. The study theories were recognised by discussing the enormous correlations to the proposed structure. The proposed model, verified empirically in the previous chapter, shows a deep understanding of how to motivate consumers to purchase WSTPs, and the results of the data analysis performed was able to identify a set of fundamental constructs. This chapter helps to emphasise the contribution this study makes to the implicated hypotheses testing allied to the existing literature and the findings that manage the research objectives by providing answers to the research questions. A final concluding statement is delivered underlining significant characteristics both of the chapter and the study.

6.2 Introduction

This study introduces the hypothesized model of motives, marketing communication strategy, cognition, purchase intention, and actual purchase behaviour to develop a more comprehensive model which focuses on the determinants and outcomes of the consumers' decision-making in the WSTP market rather than the existing theoretical models: the TAM, the TRA, the TPB, the UTAUT, the S-O-R, and the TRAM.

Few studies have addressed the motives in the consumer decision-making process, particularly in the context of the WSTP market. The study addresses motives in relation to marketing communication strategy through to the process of decision-making, ending in actual purchase behaviour and at the same time highlighting the determinants. Unlike other studies that consider WSTPs, as well as adoption associated with IT innovation or actual use, the implication of this study is reflected in a proposed new path of understanding consumer decision-making, giving weight to the relationship between technology adoption and purchase intention highlighted in the existing literature. This research recommends a more comprehensive view to examine the outcome of purchase intention in the WSTP market.

The final reviewed model contains seven constructs and ten significant relationships, as demonstrated in Figure 3 (p. 18). The results reveal that consumers evaluate some sets of motives upon marketing strategies to enlighten their cognition when they purchase WSTPs, which informs their buying behaviour. No significant impact is observed directly between IT innovation and actual purchase behaviour, health issues and actual purchase behaviour. It is therefore of value to indicate that the conceptual model generated from the qualitative study confirmed seven constructs. It is expected that this study will contribute to both academic and marketing literature.

6.3 Implications for consumer behaviour literature

The conceptual model in the research, and the subsequent results, prove that WOM and advertising are significantly impacted by IT innovation. This correlates with the existing results attributed to Lee and Lee (2018), who found that IT innovation has a significant influence on the purchase intention of adopting WSTPs. Li et al. (2015) also revealed that if an IT innovation product is well-matched with a consumer's needs, they have a higher intention of purchasing it. This is not only confirmed in the results of the quantitative data but is also reflected in how the interviewees value IT innovation on WSTPs, which they believe will help them in their lives.

“I would like to try something new if it is helpful.” – Interviewee 2

From the interviews and theories, WSTPs are classified under the heading of IT innovation. The IT innovation topic includes consumers who have a high association with technology innovation, which motivates them to be knowledgeable about new technological products. This in turn generates new categories in which consumers recognise familiarity to a varying degree, leading to possible differences in the decision-making process. In the modern age, businesses utilise IT innovation to motivate consumers' purchase intention in order to increase profits. The interviews indeed indicated that consumers are attracted by the factors of innovation and novelty.

“The technology would help us to understand not just our body but health condition as well, the IT innovation come up with something look like a new gadget and also fashionable. I'll check this kind of products, and I will buy them.”- Interviewee 4

An enormous majority of the existing literature, in both marketing and social science, focused on the inspects phenomena of consumer behaviour, which also revealed the interaction between consumers and manufacturers during the purchase stage. In order to satisfy consumers' needs, the marketers demanded to understand not only why consumers are willing to try or pay for the new products, but also how to prompt consumers' action.

Engel, Kollat and Blackwell developed a consumer decision-making model (EKB model) in 1968, followed by Maslow's hierarchy. Consumers pursue different products and services because they have different needs. In the subsequent process of decision-making, the consumers go through the stages of cognition, information gathering and purchase behaviour to meet their individual goal. Finding out the most significant factors of external searching for businesses, particularly in the competitive environment of technology, can create stimulus and encourage a consumer to buy and use their products, such as WSTPs. The nature of this dominant research outline is replicated in much of the consumer behaviour related to WSTPs; explanations consistently adopted by researchers

in which objectives and outcomes are explicit. Many existing literatures related to WSTPs have discussed in various theories including the TRA, the TPB, the TAM, the TRAM, the S-O-R, and the UTAUT, in which they are discussed in terms of consumer acceptance of technology adoption theories. It highlights that some existing research explored WSTPs in the early stage, but consumers have different views on adopting WSTPs nowadays. As a result, the study investigates a comprehensive view of WSTPs. Health issues have been included in one of the constructs of the motives which will be one of the issues influencing consumer purchases.

Over the last few decades, many researchers have developed various theories on consumer behaviour and on the relationship between purchase intention and actual behaviour, especially in the technology acceptance theory. From Fishbein and Ajzen (1975), who proposed the TRA, to the TPB (Ajzen, 1985, 1991) and the TAM (Davis, 1989), followed by the TRAM (Lin et al., 2007) and the UTAUT (Venkatesh et al., 2003), researchers applied those theories to adopt WSTPs. On the one hand, technology is indeed an issue that causes consumers to be willing to purchase WSTPs, while some studies reveal that health-related issues could be the other constructs of purchase intention (Meyer et al., 2016). On the other hand, they have failed to use integrated the TPB and the TAM when investigating the adoption of wearable technologies (Turhan, 2013). This is not, however, the case with this example; the consumer behaviour and decision-making literature stays rather split and is debatably a limited body of work.

So it is that this study declares that the process of a relationship of decision-making, applied in the WSTP market, is central to actual purchase behaviour, because it associates with components of the literature which play to objectives and outcomes while increasing the analysis of consumer behaviour into new ranges; the decision-making process, marketing communications and a relationship of actual purchase behaviour. Many researchers seem to have taken a limited view of the consumer behaviour applied to WSTPs. Thus, one of the key aims the research outline has established is the way that it is generally believed that technology is just one of the reasons associated with the motives

of the decision-making and the marketing communications. Moreover, many consumers have purchased WSTPs as a health-related wearable.

For some consumers, this is both an IT innovation and health-related device, possibly due to there being a robust framework with precise influences, which means that a motive is demonstrated to be the casual correlation for a consumer's intention to act. In the context of existing literature, WSTPs are also categorised as healthcare wearable devices and where consumers' adopted theories are discussed. In the light of motives influencing the decision-making process, the field has become a study of consumer behaviour. For example, a consumer has a need which might be linked to health issues, and so obviously recognising the reason why consumers pursue their individual needs. In addition to this, it may be unexpected factors of WSTPs. Even though WSTPs had initially been developed for sports with technology, consumers pursued specific products adapted to their needs, which in turn led to a new area of WSTPs.

Once a consumer has a need and a motive, marketers make the marketing strategy which might change consumer thinking and increase their desire to adopt the product. The consumer decision-making process is therefore a vibrant innovative opportunity for marketers to connect consumers with the process. Numerous marketing communication strategies can be used for the WSTP industry to inspect how external influences deliver fundamental information to a consumer during this period. Indeed, suggestions from the broader literature revealed that marketing communication is an influential tool in distributing information to consumers. Hence, while this study investigated the constructs of the communications from the original interviews, to support that two main factors could play a major influence on a marketing communication strategy. The nature of a framework is that there are particular issues facing marketing communication which might be such that it is clearer for those involved to accept a strong direction. For researchers, this means having to examine motives and marketing communication in the WSTP market in order to evaluate both the degree to which a specific direction has been embraced and what the results of this might be. As a result, this illustrates a case for

qualitative data collection in order to understand the nature of context-specific issues through a post-positivist perspective. Compounding the demand for such a pragmatic understanding is the whole absence of any existing literature, which is only discussed when applied in the WSTP market by motivating through either the technology aspect or health issues; there is a lack of follow-up communication constructs.

Nevertheless, the theories adopted by WSTPs, as to the nature of consumer behaviour, is to form the purchase intention which may lead to actual purchase behaviour. It supports either IT innovation or health issues in cases where there are frameworks of exact stimuli upon consumers to facilitate purchase intention. However, based upon the findings of this study, it is now debatable whether there is a mass influence on decision-making in the WSTP market, for IT innovation is a much greater influence than the health issues, as recognised by the literature. One key aim of this interpretation is to show that IT innovation has been adopted by various theories as the initial decision-making process. For most interviewees, health issues are the most common reason for their purchase of WSTPs, followed by IT innovation. A second reason is that “wearable” refers to WSTPs remaining in the first image, which initiates the prospect of buying such a product. In this sense, even IT innovation is an acknowledged construct, yet health issues are also another construct which has been discussed. This implicates a decision-making process through which an association is developed, and interpretation is settled. It might look like a slightly semantic idea, but rather than exchange information regarding perceived ease of use or perceived usefulness, it appears more appropriate to characterise the decision-making process as retaining key consumer behaviour. With these terms, Lee and Lee (2018) claim that even though WSTPs are a health-related device, a consumer who is not so interested in health can choose to buy one if they are IT innovative.

Having identified IT innovation and health issues as constructs of motives, and WOM and advertising as constructs of marketing communication, this has implications for the assessment of consumer decision-making achievement. Since it is usually associated with either IT innovation or health issues, for example, applied IT innovation on the UTAUT

to examine WSTPs means that even with consumers who have needs and intentions to buy, there is no obvious evidence to distinguish which communication would be the most effective channel to influence them. The outcomes of this research show that assessment methods must be rather more restrained and demanding in the way they rely on actual purchase returns and the value added by a communication channel with either WOM or advertising. Even in constructs which form a motive followed by cognition, purchase intention, and then actual buying, measuring and calculating the financial returns is a satisfactory way to evaluate decision-making process effectiveness, but it might just be too simple. In a decision-making process in which a consumer initiates a need and has ended in them making a purchase, this demands a more sophisticated assessment of communication return. Undoubtedly, the task for future researchers will be how to find and measure the returns from constructing relations with marketing differentiation or building strategic ability across communication channels.

Despite these observations, one of the major outcomes of this study is that forming a need by varying methods, through communication and then recognising the need, may lead to a purchase intention, ending in an actual purchase. However, as discussed in other studies, there are only a few constructs with weaker common foundations. This study debates the latter form of the decision-making process and offers the mediation effect despite the fact that there is reason to consider that purchase intention might mediate through both IT innovation and health issues. Those involved should address the decision-making framework of consumer behaviour measures. On one level, this requires an interesting research question, that is: whether IT innovation or health issues are more likely to be effective in delivering purchase intention through communication and cognition as a mediator to actual purchase. Some existing studies appear to be locked into the adopted models of consumer behaviour management. While this approach is valuable, for reasons previously stated, a stronger relational direction could build, and may enhance, the purchase intention. Two potential inspirations for following research and management practice development are: 1) start with how consumers can be motivated from a need to develop an interactive observation of the decision-making process, which might currently

be merely discussed for IT innovation and health issues; 2) consider how consumers make the decisions in the WSTP market and how that this is a proper method to relate to a novelty product and on what basis it might be decided on in the future.

The supreme outcome of this research is the observation that many studies examined IT innovation or health issues as a majority construct when a consumer needs to make a purchase decision on WSTPs. At its most basic level, this involves those two constructs in the conceptual model. Furthermore, the study adds real value in finding out how a consumer chooses the form of communication to develop more information and form the cognition to purchase. When a motive or a need is created, purchase intention can mediate the relationship between the motives and actual purchase behaviour.

6.4 Implications of Hypothesis

This study indicates the primary assessment of the decision-making process in the WSTP market whereby the determinants and then the hypothesis, have been examined. Although other published findings highlight that the consumers' adoption intention has focused on technology and health (Zhang et al., 2017), there are no other current studies focusing specifically upon IT innovation and health issues. This study, however, obviously supports and integrates the concepts that consumers perceive and process WSTPs on two constructs of motives: IT innovation and health issues, as suggested by prior research. This is not especially uncommon because related determinants of motives have been stated in other studies of WSTPs, although the nature of decision-making in this study differentiates it from others which have required the creation of determinants on only one side of the decision-making process. Using structured interviews, followed by the use of quantitative approaches, has delivered a unique and balanced view.

The differing impact that each motive and communications determinants have upon the decision-making process have been examined and two motives are proposed for discussion: IT innovation and health issues, as shown in Table 29 (p.226). From Table 29,

5 articles simply applied the TAM, while 4 articles used the TRA, the TRAM, the UTAUT, the UTAUT2, the HBM, and the SWAM as the adopted theory. Though there are a wide variety of adopted theories in the literature, a precise explanation of the motive has yet to be offered. While other definitions may have various relevance to either IT innovation or health issues within WSTPs, this study, having indeed integrated the TAM, the TRA, the UTAUT, and the S-O-R model, show that the specific nature of decision-making within WSTPs commands that a new explanation is found. As a result, this study confirms the support of the conceptual model of the decision-making process. This model is intended to contain two key constructs which have been developed from this study.

Table 29. Adopted theory from existing studies

Existing Literature	Supported Variables	Unsupported Variables	Adopted Theory
Kim and Chiu (2019)	optimism (OPT)/ Innovativeness (IN)/ Insecurity (INS)/ Discomfort (DIS)/technology readiness (TR)/ perceived usefulness (PU)/ perceived ease of use (PEOU)/ intention to use (INT)		TRAM
Chuah et al. (2016)	Perceived usefulness (PU)/ perceived Ease of Use (PEOU)/ Visibility / Attitude towards Using/ Adoption Intention	PEOU-ATU/ PU-AI	TAM

	(AI)/ PU- ATU- AI/ V-ATU-AI/V-ATU/ V-AI		
Seol et al. (2017)	PTR-SI (Social Influence Positive)/ PTR-PE (Performance Expectancy)/ PTR (Positive Technology Readiness)-EE (Effort Expectancy)/PTR- FC(Facilitating Conditions)/NTR- SI/NTR-PE/NTR-FC	NTR-EE	TR & UTAUT
Kim and Shin (2015)	AT (Attitude) -IU (Intention to continue to use) /PU-(Perceived usefulness)-AT/PE (Perceived ease of use)-AT/PE-PU/AQ (Affective quality)- PU/RA (Relative advantage)-PU/MB (Mobility)-PE/AV (Availability)- PE/SA(Subcultural	PU-IU	TAM

	appeal)- AT/CT(Cost)-IU		
Health issues			
Li et al. (2019)	Intention to Use (IU) /Perceived Ease of Use (PEOU) /Perceived Usefulness (PU) /Facilitating Conditions (FC) /compatibility (COM) /Social Influence (SI)/ Perceived Social Risk (PSR) /Performance Risk (PR)/ Self-reported Health Conditions (Health)/ FC-PEOU/ FC-IU/ COM-PEOU/ COM-PU/ COM-IU/ SI-PU/ HEALTH- PU/ HEALTH-IU/ PR-PU/PEOU-PU/ PU-IU	FC→PU /SI→PEOU/SI→IU/ Health-PEOU/PSR- PEOU/PSR-PU/ PSR-IU/PR-PEOU/ PR-IU/ PEOU-IU	SWAM (smart wearables acceptance model)
Zhang et al. (2017)	PC (perceived Convenience)-PU (Perceived Usefulness)/ PI	HB-PU (M)/PI- PU(F)	TAM +HBM (Health Belief Model)

	(Perceived Irreplaceability)- PU/PC (perceived Capability)-PU/ PU-AI (adoption Intention)/ CI (Consumer Innovation)-AI(Adoption Intention)		
Lunney et al. (2016)	PEOU (perceived ease of use)- WFT use/SN (Subjective Norm)-WFT use/ PU (perceived Usefulness)- Attitude toward WFT/ PU-WFT use	PEOU-attitude toward WFT/ Attitude toward WFT- WFT use/	TAM
(Wang, White, et al., 2015)	PE (Performance Expectancy-BI (Behavioural intention) /HM (Hedonic motivation) -BI/EE (Effort expectancy) BI/FC (Functional congruence) -BI/SE		UTAUT2 +PMT (protection motivation theory) +privacy calculus theory

	(Self-efficacy) - BI/SI (Social influence) -BI/PV (Perceived vulnerability) - BI/PS (Perceived severity) -BI/PPR (Perceived pricy risk) -BI		
Purchase intention			
Wang and Yu (2015)	Positive valence WOM-PI (Purchase intention)/ Negative valence WOM- PI/content of WOM- PI/Observing consumer prior purchases-PI/ PI-P (purchase)/ PI-post P		TAM+TRA

Firstly, many studies involved with WSTPs apply the TAM from the perspective of technology. Secondly, the TPB, the TRA, and the UTAUT contain two constructs: behaviour intention and actual behaviour. Lastly, the HBM has also adopted WSTPs as a health issue construct. Consequently, based on a qualitative method from the interviews, the study integrates the two constructs (IT innovation and health issues) as the motives and two constructs (WOM and advertising) as the communication marketing. It also emphasises the significance of a need recognition foundation for the decision-making process. Initially, it was classified as the actual purchasing behaviour with three

constructs: buy, no buy, and alternative. As a result, no buy and alternative did not have a significant impact. The final reviewed model, therefore, includes seven constructs, and 10 significant relationships, and 6 mediation effects, as illustrated in Table 24 (p. 189) and Table 28 (p. 203). It is implicit within this that there will be consumer behaviour between those engaged in the decision-making, and that marketers will be seeking to achieve benefits from these constructs.

This study's context, the WSTP market, is a new domain, which involves a high-level analytical power of cognition. As such, we integrate various marketing strategies based on the literature, interviews and observations as external outputs, enabling us to select four critical determinants as motives within our hypotheses. The following sections will answer the research questions and inform an understanding of the determinants of motives.

6.4.1 Research Question 1

Question 1: What changes in the nature of consumer behaviour significantly affect the decision-making process when adopting WSTPs?

This section answers this question by looking at what consumers are affected by in the decision-making process when adopting WSTPs, and also provides the interviewees' viewpoint to implicate each determinant. The findings also accord with earlier observations, which showed that two determinants of motive have a significantly positive relationship with marketing communication, as well as purchase intention, in the decision-making process.

6.4.1.1 IT innovation

The theoretical model in the research and the subsequent results confirm that the consumers who adopted in the WSTP market are significantly affected by IT innovation.

This correlates with previous results concerning the purchase of WSTPs related to a health matter (Lee & Lee, 2018), or a fashion product (Choi & Kim, 2016). In addition, consumers who have more traits of IT innovation will be willing and intent on adopting WSTPs (Shaw & Sergueeva, 2019).

As aforementioned, WSTPs are unique, on the one hand, consumers wear them to record the physical performance through innovative technology (Bonfiglio & De Rossi, 2011; Jeong et al., 2017; Lee et al., 2016; Nasir & Yurder, 2015; Yang et al., 2016), and also share such data with a group whilst the consumer is taking exercise (Karapanos et al., 2016). WSTPs consumers are not merely technology users; they share their data with their friends who also become part of a social network (Thakur & Srivastava, 2014; Yu, 2012). The existing studies adopted several models which also identified that IT innovation indicated a significantly positive relationship with perceived ease of use and partial influence with perceived usefulness (Choi & Kim, 2016).

“I think it is important that these functions can bring benefits for those sporty people.”-
Interviewee 6

On the other hand, WSTPs are complicated. The research has been examined the adoption of several electronic products from the perspective of IT innovation (Ho & Wu, 2011; Jeong et al., 2017). In addition, several studies have assessed IT innovation in the WSTP market with numerous theoretical models, including the TRA (Hsiao & Chen, 2018), the TPB (Lunney et al., 2016), the TAM (Choi & Kim, 2016; Chuah et al., 2016; Jeong et al., 2017; Kim & Shin, 2015), the TRAM (Kim & Chiu, 2019), and the UTAUT (Hwang et al., 2016; Seol et al., 2017), also see on Table 29 (p. 226). Undoubtedly, IT innovation is a construct related to this research. Drawing from Jeong et al. 's (2017) recommendation that investigating the acceptance of WSTPs should be reflected in relation to several aspects, we therefore developed the comprehensive view of IT innovation in the hypothesized model, including communication, cognition, purchase intention and actual purchase behaviour.

Additionally, this result is consistent with the majority of research establishing that consumers seek IT innovation as a motive either through communication to obtain more information or positive influence purchase intention. Even consumers who have a strong acceptance of innovative products may occasionally fail to adopt the latest development and tend to reject it (Seol et al., 2017). Nevertheless, Lee and Lee (2018) reveal that a consumer who may not be interested in health-related WSTPs, might prefer to adopt one if he or she is IT innovative. Consequently, it indicates that IT innovation significantly motivates consumers to purchase WSTPs.

6.4.1.2 Health issues

A consumer interested in health has a boosted purchase intention of adopting WSTPs, which indicates that interviewees believed that WSTPs could be helpful in increasing their health status. This result means that if the health benefits by using WSTPs, and they are more widely accessible, then those who are interested in health issues would embrace such a product. The results of the analysis discovered that consumers' interests in health issues were found to significantly motivate them to adoption purchase intention. Furthermore, the findings of this study are consistent with a number of researchers in its aim of investigating the influence of consumer behaviour in the WSTP context, which can involve exclusive characteristics of the behaviour of interest (Lee & Lee, 2018).

“I guess, so it’s possible that WSTPs can help people to identify when you had started the problems though, so being an awkward position before they came from.”-Interviewee 1

“It can be increasing my target all the time to improve my physical well-being.”- Interviewee 5

The results also reveal that IT innovative products are as much related to consumers' adoption behaviour, as WSTPs to health issues. It can be considered that when consumers' health belief is stronger, their perception of the expediency of WSTPs to

improve their health is greater (Zhang et al., 2017). As investigated by Gao and Lai (2015) and Zhang et al. (2017), WSTPs possess both characters of IT innovation and health issues, which may convince consumers to purchase and adopting WSTPs. Thus, even though WSTPs were initially established for sports and fitness perception, in turn, consumers with health issues adopted it so that it became a fundamental base for determining a purchase (Kim & Chiu, 2019).

At present, WSTPs provide a new platform in which through which collecting accurate data for physicians and specialists increases the state of health (Bonfiglio & De Rossi, 2011, p. 81; Kim & Chiu, 2019; Lee et al., 2016), including managing stress (Wright & Keith, 2014), improving sleep quality (Swan, 2012), well-being (Karapanos et al., 2016; Xu, 2015), increasing productivity (Piwek et al., 2016; Swan, 2012), and for adoption by the elderly (Li et al., 2019). As such, WSTPs are expected to be purchased by consumers who are willing to lead a healthy lifestyle and want to ensure they measure their progress (Piwek et al., 2016). That said, if WSTPs are to be the solution, the consumers might need to create lasting habits, revolving external motivations into internal ones. This condition of sustained behaviour change is a key task for adopted WSTPs. Undoubtedly, the proposed model in this study takes into account motivation, as confirmed by the interviews.

“If the product can give the accurate records of the blood pressure for a long term, for example, I will consider it.” – Interviewee 3

Despite the fact that WSTPs develop these astonishing technologies, for marketers it is still an issue of how to attract and keep consumers. Thus, this study is going to fill this research gap by proposing an integrative model to explain an individual’s adoption of WSTPs from multiple perspectives. By classifying the different consumer behaviours adopted by WSTPs into different categories, it is anticipated that practitioners and researchers will be able to foster a greater understanding of why and how consumers make a decision and then improve the decision-making process. It is therefore planned

that this research will help as an analytical method which focuses on the foundations upon which a motive could be formed, and on what basis an actual purchase can be expected as the end result. This study is also supported by the detailed answers of main participants who contributed to the structured interviews and answered standardised questions regarding motives. In turn, these were drawn precisely from the questionnaire items of the constructs found to be statistically significant determinants of motive. The findings reveal that consumers interested in health-related products had an increased intention of adopting WSTPs, which suggests that consumers who thought that WSTPs could be helpful to improve their health status are more likely to embrace them.

6.4.1.3 IT innovation upon WOM

In the context of communication marketing, WOM is a channel from which the consumers obtain the information in terms of the products, and then make a purchase decision. The existing researches show that WOM, as a determinant, has an impact on purchase intention (Chan & Ngai, 2011; See-To & Ho, 2014). Gupta and Harris (2010) and Kabadayı and Alan (2012) even think that WOM could be a strong influence on the process of decision-making. In the WSTP market, consumers rely on other users' suggestions because this kind of products is still new to them. Based on the theoretical background and interviews, WOM is taken as a determinant of communication marketing in the hypothesized model.

Accordingly, WOM is also considered as the adoption of communication for making a purchase decision (Cheung & Thadani, 2012). Once consumers have purchased the products to fulfil their desires, they spread news associated with the products through WOM (Li et al., 2015). Park and Kim (2008) have also found that consumers with different levels of knowledge prefer different types of WOM which are based on the cognitive fit theory leading to purchase intention. This outcome could be recognised as the statement that consumers who decide to purchase WSTPs will rely on WOM to gain the information. Consequently, it shows that the path coefficient of the relationship

between constructs of health issues and WOM (HI> WOM: 0.406) is larger than the relationship of IT innovation and WOM (IT>WOM: 0.318). This indicates that the health issues construct plays an important role in explaining the variation in the dependent variable WOM, which also means that among the independent variables, a motive of the consumer towards WSTPs through the WOM channel is a factor that applies the most significant influence on the consumer's intention to adopt WSTPs. This result is supported by the high path coefficient between these two constructs, shown in Table 24 (p.189).

However, Lee and Lee (2018) debate that the consumers do not much care about how many others close to them have adopted WSTPs, in turn, those who have negatively adopted WSTPs do not influence the consumers' adoption intention. Thus, "interviewee 3" debates that WOM cannot be the factor to influence the purchase decision if he needs to search for more information. Thereupon, when the construct of WOM is taken as a consideration, if the consumer has had recommendations from his/her friends who have adopted WSTPs, or the consumer has read an online review, they would tend to have a higher intention to accept WSTPs.

"I don't like online reviews or online forums." – Interviewee 3

"I might go to the shop and talk to someone for more advisors." – Interviewee 3

6.4.1.4 IT innovation upon advertising

In this hypothesis it is expected that advertising has a significant influence on the overall decision-making process. Advertising delivers products detailed information to consumers, which supports consumers by simplifying their purchase decisions (Mir, 2014a). As the prior studies stated, advertising can make consumers notice the benefits when a new product is announced (Kim & Han, 2014; Shaw & Sergueeva, 2019), and when consumers who show their favourable attitude to a product it will increase the purchase intention (Kim & Han, 2014; Shaw & Sergueeva, 2019). It is now known that

the main goal of advertising is for consumers to gain product information and to form a cognition factor (Kim & Han, 2014). For example, Dehghani and Tumer (2015) discovered that a brand image on Facebook advertising significantly affects consumers' purchasing intention. Thus, marketers are now well aware of the advantages of advertising, which may reinforce customers' cognition to increase purchasing intention.

The results show that both the path coefficient of the relationship between the exogenous of IT innovation and health issues, and the endogenous of advertising, are equally significant. This denotes that advertising also plays a vital part of communication. Accordingly, this study explains that the advertising of communication marketing is not a stronger determinant than WOM, which, in turn, is still the key determinant of marketing communication. This finding can be qualified by the nature of communication marketing.

“A good advert might draw your eyes to know more about it.” – Interviewee 5

“I would not probably search any advertising related to WSTPs unless it becomes a well-known product as Apple watch.”- interviewee 3

6.4.1.5 IT innovation upon purchase intention

As mentioned above, this model shows that existing theories that the TAB, the TAM, the TRA, the TPB, and the UTAUT all contain the behaviour intention (Choi & Kim, 2016; Chuah et al., 2016; Kim & Shin, 2015; Seol et al., 2017). Lee and Lee (2018) applied the TAM to adopt WSTPs and discovered that IT innovation had a statistically significant association with intention. This might denote that the participants noticed the device as an IT innovation, showing that consumers with higher perceived IT innovativeness had high intentions of adopting WSTPs. This finding is consistent with previous studies of adoption of IT innovation devices in which IT innovativeness was a key determinant.

In contrast, Li et al. (2015) argued that IT innovative as a motive does not have a direct relation to adopting intentions, which is related to results of previous studies in which consumer characteristics had only a weak effect (Langley et al., 2012). From the findings, IT innovation has a significant positive effect on purchase intention and that the path coefficient of the relationship between IT innovation and purchase intention (IT>PI: 0.410) is more significant than health issues and purchase intention (HI> PI:0.207). This indicates that IT innovation can influence consumers' decision-making as a more accurate measure than health issues in forming their purchase intentions. Even though IT innovation has a direct relationship to purchase intention, it also has an indirect relationship through WOM or advertising and cognition to purchase intention, which contains the mediation effect which we will address later.

6.4.1.6 Health issues upon WOM

The WSTPs have succeeded in new innovative and health-related products associated with consumer's adoption behaviour (Gao & Lai, 2015; Zhang et al., 2017). This empirical study is the first to investigate the influence of health issues on WOM in the WSTPs context. Zhang et al. (2017) identified that sharing the information related to the health issues of WSTPs through WOM, for instance, via social media, could be a good option to boost their adoption intention. Thus, the findings are considered crucial in analysing the key relationship between health issues and WOM, which are statistically significant (HI> WOM:0.406). According to our theoretical model, the relationship between health issues and WOM is much stronger than the relationship between IT innovation and WOM (IT>WOM: 0.318). That is, a consumer adopts WSTPs through WOM for more information conducting by health issues more than IT innovation, which is also confirmed from the interviewees.

"Yes, I will prefer WOM rather than searching for more information by myself."
Interviewee 6

“I think WOM is more reliable, people have used it had more experiences, rather than the advertising said.” - Interviewee 5

6.4.1.7 Health issues upon advertising

Advertising value is the perceived decision of customers on the advertisement. The proposed model, which is retained for the advertising construct, is associated with the TRA (Fishbein & Ajzen, 1975; Lee & Tsai, 2006) and TAM (Kim & Han, 2014; Zhang & Mao, 2008). Whilst previous studies supported the positive relationship between advertising and purchase intention (Hsiao & Chang, 2014; Yang, 2015), few studies assessed the relationship between perceived advertising value and purchase intention. It is uncommon to explore the relationship between health issues through advertising in the WSTP context. The result shows that when customers perceive advertisements of WSTPs to be useful, important, and valuable, they are positively associated with health issues. Though advertising is a well-known determinant of communication marketing, a direct link between this construct and health issues is supported in the present study. Interviewee 4 has recognised the result. As Table 24 (p.189) shows, the path coefficient of the relationship of health issues and advertising (HI>AD:0.356) is similar to the relationship of IT innovation and advertising (IT>AD:0.355). This result can also be recognised in the fact that a consumer is motivated either by IT innovation or health issues and that, through advertising, they can gain more information equally on both.

“If the advertising can make me touch and also meet my needs, but sometimes, we are buying things that we don't really need it, we just feel it how it can help our body.” - Interviewee 4

6.4.1.8 Health issues upon purchase intention

The conceptual model is constructed according to the hypothesis that the favouring towards WSTPs are shaped by health issues and purchase intention. Testing the

hypotheses provides findings, which support the positive significant relationship between health issues and purchase intention in the WSTP context. Moreover, new findings contribute to the explanation of how consumers formulate their preference for WSTPs.

The research findings also support, along with the marketing literature, that health issues have a crucial role in the construct of future behavioural intentions and relationships (Li et al., 2019; Wang, White, et al., 2015; Zhang et al., 2017). Therefore, statistically, it supports the relationship between health issues and purchase intention, although it is lower than the relationship between IT innovation and purchase intention. In other words, a consumer may have the purchase intention due to IT innovation more than the health issues in the WSTP market.

Regardless of the fact that the construct of health issues has no direct relationship with actual purchase behaviour, it still has an indirect relationship through purchase intention as a mediator, which will be discussed later. The effect of health issues upon purchase intention contribute extensively to building a strong consumer purchase link (Li et al., 2019). In fact, Mintel (2018) identified that four out of ten people are interested in using WSTP for health issues, making it the most popular application, which is indicated by our findings from the interviewees 2, 4, 5, and 6 that health issues influence their purchase intention in the WSTP market.

“Yes, I will buy it depends on what I need for my body and health.” - Interviewee 6

6.4.2 Research Question 2

Question 2: In what sequence does marketing communication influence consumers in forming their cognition?

By answering this question, from the semi-structured interviews and existing theories and literature, it addresses two determinants of marketing communication related to cognition. The overall response to this question was very positive.

6.4.2.1 WOM upon cognition

The third part of the decision-making process for the present study is cognition. The importance of this association supports the insight of Park and Kim (2008) that the consumers' cognitive level is more important for decision-making. Consumers with a high motivation to process information were affected by WOM; they are expected to select the best product decision. Possibly WOM served as valuable information regarding the experience features associated with the product. Thus, consumers seem willing to pick a recommended product, and they value the belief of a WOM recommendation on an experienced product over their individual aspect (Gupta & Harris, 2010).

While WOM is a construct that can have an impact on customers' cognition on purchase intention, cognition has been involved in significant studies to show why consumers might choose the recommended products. Thus, the strategies of publishing WOM, which help to confirm that choice, and by decisions made by the need for cognition consumers will be more likely to achieve a result in their future purchase with WSTPs.

"If I bought it from the other person's recommendation, I think I will try it." - interviewee
5

Principally, this study examines the relationship of WOM toward cognition during the decision-making process. On the one hand, the results show that if consumers believe the content of WOM and have a positive attitude toward it, they will form the cognition and then even forming the intention to purchase WSTPs. Accordingly, the WOM affects consumers' cognition to purchase WSTPs (Bouhleb et al., 2010; Lu et al., 2014). Lu et al. (2014) also confirmed that positive WOM absolutely influences consumers' purchase

intention. Sun et al. (2013) suggest that marketers should apply WOM to consumers, especially for the early adopters. Conversely, in the IoT era, the information power of the negative WOM on consumer behaviour is greater than in a traditional situation, that could be even much stronger (Xiaoping & Pinghua, 2010). This is because consumers can use the virtual character on the online review and more directly show how they feel and add complaints and dissatisfaction on it without displaying their faces strictly in reality (Xiaoping & Pinghua, 2010). As such, negative WOM leads to the strongest negative effect on purchase intention (Reimer & Benkenstein, 2016).

On the other hand, the peripheral route viewpoint could represent the significance of WOM (online reviews) for consumers who have low cognitive demand (Obiedat, 2013). In fact, nowadays, consumers spend much time on the internet. Firms offer interactive features, for instance, 3D models for clothing, which might notably increase the interactive experience and make the consumer feel confident that this is the correct decision (King et al., 2016). Interviewee 4 also revealed this. This study may deliver the implication for the companies to create a better feature of WOM with consumers.

“But the advertising has no interaction; I prefer to ask people.”-Interviewee 4

Although, WOM and purchase intention have no direct relationship in the present study, the results indicate that the need for cognition is playing a mediating role in this relationship and will be explained in the mediation effect section.

6.4.2.2 Advertising upon cognition

As consumers value the advertising positively, their attitude to products would become positive (Kim & Han, 2014). The goal of advertising is to update consumers about new products (Kim & Han, 2014; Kotler, 2016; Mir, 2014b), and to offer consumers consciousness of the differences of products (Kim & Han, 2014). Thus, the present study highlights the important association between advertising and cognition to purchase

intention, which is in line with the results of Wang and Chang (2013), whilst previous studies supported the positive relationship between advertising and purchase intention (Kim & Han, 2014; Yang, 2007). As a result, the model confirmed the idea that advertising can generate a cognition of a consumer who had a positive attitude toward advertising in the WSTP context.

Furthermore, Kim and Han (2014) confirm that advertising plays a key role in facilitating customers with flow experience when receiving advertisements (e.g. the Smartphone) and forming purchase intention. Despite advertising having no direct relationship with purchase intention on the model, cognition mediates those two constructs. As interviewees 1,3,4, and 5 confirmed, advertising could stimulate their need for cognition to purchase WSTPs. However, interviewee 6 disagreed with this.

“Advertising is important, but don’t cheat the consumers.” -Interviewee 6

As Table 24 (p.189) showed, both the path coefficient of WOM upon cognition (WOM>Cog:0.354) and advertising upon cognition (AD>Cog: 0.308) are approximately similar; this view can be justified when a consumer perceives that information from WOM and advertising to cognition will be manipulated equally. These findings are consistent with the results of this study in terms of the significant positive impact of advertising on cognition. Overall, the value created by the communication strategy plays a fundamental role in forming cognition that boosts purchase intention.

6.4.2.3 Cognition upon purchase intention

The intention to purchase represents the decision made by consumers about their purchasing behaviour towards WSTPs. The desire of consumers to buy them may stimulate the need of cognition as a step towards actual buying. The conceptual model is constructed according to the hypothesis that the cognition towards WSTPs is shaped by communication marketing and purchase intention. Testing the hypotheses provides

findings, which supports the positive significant relationship between cognition and purchase intention.

The research findings are also in line with Wang and Chang (2013) and Lunney et al. (2016), showing that cognition plays a vital role to purchase intention. Therefore, cognition has been identified as important in the decision-making process. Hence, cognition contributes extensively to shape a closer measure informing consumers' future purchase intentions. These new findings contribute to the explanation of how consumers formulate their cognitions for WSTPs.

6.4.3 Research Question 3

Question 3: What are the features of WSTPs that are perceived as opportunities for developing marketing strategies, based on consumers' perspectives, resulting in the act of purchasing a WSTP?

In response to question 3, most of those surveyed indicated that purchase intention is positively significant in purchasing a WSTP, and so the interviewees certainly support such a response. However, mediation effects to this question should be also included in answer to this question.

6.4.3.1 Purchase intention upon actual purchase behaviour

Based on the TAM, the TPB, the TRA, and the UTAUT model, the construct of purchase intentions have a positive relationship with actual purchase behaviour, which has been identified by existing studies (De Cannière et al., 2010; Kumar & Venkateshwarlu, 2017; Wu & Chang, 2016). The result shows that purchase intention has a positively significant relationship with actual purchase behaviour. The path coefficient of the relationship between purchase intention and actual purchase (PI>P: 0.860) is statistically significant.

That is, the intention to purchase increases when consumers show an intention to buy WSTPs, as interviewee 5 confirmed.

“Definitely, I will buy it in the future.”- Interviewee 5

In contrast, some findings have verified that the intention is not a good predictor of actual behaviour (Agudo-Peregrina et al., 2014; Nistor, 2014). The present study demonstrates coherence with previous research debates, which show that behavioural intention is a reasonable representation of actual behaviour. The probable reason for these other findings is that these studies emphasize on educational background, which denotes a passive intention. WSTPs, however, are personal wearable technology, so the intention to use them is more intensive, which more easily causes actual purchase behaviour more easily.

6.5 Implications of mediation effects

Mediation effect has been distinguished increasingly in marketing and consumer science (Memon et al., 2018; Pieters, 2017), social psychology (Bullock et al., 2010; Rucker et al., 2011), social and behaviour sciences (Kenny & Judd, 2014), strategic management (Aguinis et al., 2017), as well as gaining the support of mediation analysis in academic research (Memon et al., 2018). But, Rungtusanatham et al. (2014) found that there were a high percentage of mediation articles (75%) which did not hypothesise mediating effects despite applying the mediation process into the context (Memon et al., 2018). In addition, Aguinis et al. (2017) surveyed a total of 315 articles published in the Strategic Management Journal and 385 articles published in the Organisation Science for the initial search, and then manually searched these articles resulted in 62 articles, including 24 in the Strategic Management Journal and 38 in the Organisation Science, that actually conducted a mediation analysis. Memon et al. (2018) and Wood et al. (2008) dispute these findings and claim that their research with mediation effect results was frequently inefficient and inadequate. Specifically, Memon et al. (2018) also claim that some

postgraduate researchers may be unclear about the requirements for analysing a mediation context. This can explain why only a few studies examined mediation effect when they applied it to the TAM, or the TPB or the UTAUT or the TRA. Rungtusanatham et al. (2014) suggest that it is important “ to examine complex models involving mediation effects which are appropriately aimed at increasing the precision of theoretical explanations as to how X influences Y through one or more mediation processes” (Edwards & Berry, 2010).

Nevertheless, we assessed the mediation effects of IT innovation and health issues upon actual purchase behaviour, and IT innovation and health issues upon purchase intention on the consumer decision- making process. The resulting model is more explanatory than previous studies because we consider how a consumer’s decision- making process involves communication marketing and the cognitive system while he or she processes information about WSTPs and sources of WSTPs information, resulting in actual purchase.

6.5.1 Purchase intention fully mediates the relationship between IT innovation and actual purchase behaviour

This study is not the first to investigate whether the intention mediates actual purchase behaviour (Jackson et al., 2013). Bashir and Madhavaiah (2014) confirmed that intention mediates their actual use behaviour. However, in the WSTP context, this is one of few to test the mediation effect during the decision-making process. Therefore, these findings are considered essential in analysing the three key constructs.

IT innovation has no direct relationship with actual purchase behaviour, but by testing the hypothesis, the findings confirm that the indirect effect is positive and significant. According to our theoretical model of the relationships between IT innovation, purchase intention, and actual purchase behaviour, full mediation effect has been established (see Table 28, p.203). That is, purchase intention fully mediates the line between IT innovation

and actual purchase behaviour. In other words, the consumers do not purchase WSTPs because of IT innovation unless they form their purchase intention. Interviewee 4 has proved this.

“The technology would help us to understand not just our body but health condition as well, the IT innovation come up with something look like a new gadget and also fashionable. I’ll check this kind of products, and I will buy them.”- Interviewee 4

6.5.2 Purchase intention fully mediates the relationship between health issues and actual purchase behaviour

Even the existing WSTPs studies related to health issues adopted the TAM, the UTAUT, and the SWAM model which confirmed the positive relationship between the health issues and intention as Table 29 (p.226) shows. However, these studies lacked being adopted into the WSTPs context but discussed the mediation effect between health issues and purchase intention or actual behaviour. Despite this, it can obviously be discovered through the mediation effect on the model of the TAM, the TRA, the TAB, and the UTAUT according to Hair Jr et al. (2017); Memon et al. (2018); Zhao et al. (2010). There were only a few studies that discussed attitude as a mediator on the TAM and the UTAUT, which emphasises that attitudes towards behaviour are generally accurate predictors of a consumer's behavioural intention (Bulut & Karabulut, 2018; Lee & Lee, 2018). Specifically in the WSTP context, Hsiao and Chen (2018) found that a positive attitude and emotional value mediate the intention. Lee and Lee (2018) proposed that ‘attitudes’ mediates the effects of the ‘innovativeness’, ‘health interest’, ‘interpersonal influence’, and ‘perceived expensiveness’ variables on the intention. Therefore, there is no direct relationship between health issues and actual purchase behaviour, yet health issues have an indirect effect on actual purchase behaviour through purchase intention. Purchase intention fully mediates the relationship between health issues and actual purchase behaviour. That is, consumers would like to purchase WSTPs due to the health issues and it is through this that he/she is forming the purchase intention as interviewee 6

concurr. Consequently, this study confirms that health issues creates consumers' favourable tendency towards actual buying.

"Yes, I will buy it, depends on what I really need for my body and health."- Interviewee 6

All in all, purchase intention plays a fundamental role in mediating the relationship between IT innovation or health issues and actual purchase behaviour. Additionally, this role offers new insights into existing knowledge: firstly, it suggests that the path from IT innovation to actual purchase behaviour could not occur unless it concurs with consumer's purchase intention. Therefore, purchase intention can be viewed as an assessment of beliefs resulting in the decision-making process; thereby a consumer forms by a motive, IT innovation or health issues, translating into the consumers' intentions to buy WSTPs. Secondly, according to the findings, purchase intention could be regarded either as a tie either between the IT innovation and actual purchase, or health issues and actual purchase, and can be a sign of consumer intentions to buy WSTPs in the future. The findings generate evidence of the significant association between either IT innovation or health issues and a consumer's purchase intention to buy it. This outcome supports the fundamental role of purchase intention by encouraging the consumer to actually buy WSTPs.

6.5.3 WOM and cognition partially mediate the relationship between IT innovation and purchase intention

This empirical study is the first to investigate the decision-making process through the motives on communication to cognition and then build purchase intention in the WSTP context. The findings are considered fundamental in analysing the four key constructs. According to the theoretical model of the relationships between IT innovation and purchase intention, IT innovation has a direct relationship with purchase intention and also a strong positive indirect relationship with purchase intention through WOM and cognition. These findings are similar to those of other studies, in which Bulut and

Karabulut (2018) found that e-trust has a complementary mediation effect in the association between two receiving eWOM aspects and online repurchase intention, and Jackson et al. (2013) revealed that the effect of IT innovation on behavioural intention was fully mediated through the alternative models. Obiedat (2013) also shows that a high level of cognition will affect the purchase intention while the need for cognition plays as a moderator. That is, consumers who have high cognitive take the central route to frame the purchasing intention (Obiedat, 2013).

Furthermore, as shown on Table 26 (p. 201), the finding is that IT innovation is a solid exogenous of decision-making process with its direct effect, and is partially mediated by WOM to cognition, which delivers a strong indication of the hypothesized model. Drawing from Memon et al. (2018), we should estimate specific indirect effects instead of total indirect effects using a model with multiple mediators. The specific indirect effects on path IT>WOM>Cog is 0.113 and path IT>WOM>Cog>PI is 0.037, which show positively significant. Therefore, the results indicate the finding that WOM and cognition are complementary mediates in the relationship between IT innovation and purchase intention. In other words, consumers will form the purchase intention from IT innovation, which partially mediates by WOM and cognition. The hypothesized model provided the most comprehensive understanding of the causal pathways through which IT innovation accomplishes its influence on purchase intention.

6.5.4 Advertising and cognition partially mediate the relationship between IT innovation and purchase intention

As mentioned before, within the theoretical model of the relationships between the IT innovation and purchase intention, IT innovation has a strong positive indirect relationship with purchase intention through advertising and cognition, whilst it has a direct relationship with purchase intention. The result shown in Table 26 (p. 201) reveals that advertising and cognition are complementary mediates in the relationship between IT innovation and purchase intention. Memon et al. (2018) and Hayes (2015) suggest that the

researchers should observe specific indirect effects with a model with multiple mediators. The specific indirect effects on path IT>AD>Cog is 0.109 and path IT>AD>Cog>PI is 0.035, which indicate that they are statistically significant. The specific indirect effect on path IT>AD>Cog and path IT>AD>Cog>PI are similar to the path IT>WOM>Cog and IT>WOM>Cog>PI. That is, consumers will also form the purchase intention either from IT innovation or where it partially mediates by advertising to cognition. The result is similar to the existing study. Dehghani and Tumer (2015) suggest that the nature of online advertising significantly affects consumers' purchasing intention, with which interviewee 1 agreed.

"Sometimes, you don't have the needs until you see the advertising, you know you may not know that you have particular problems until you see something around the advertising."- Interviewee 1

6.5.5 WOM and cognition partially mediate the relationship between health issues and purchase intention

Despite the fact that the relationship between health issues and the consumer's purchase intention applied in the WSTP context, has been studied in the related literature, this study adds to this growing body of literature by investigating the direct and indirect associations between the two paths of health issues and purchase intention, and health issues across WOM to cognition on purchase intention. Initially, the study assessed the association between health issues and purchase intention, and found that two constructs have a significant direct effect. Next, a positive influence was found in the indirect effect between health issues and purchase intention across WOM to cognition mediators. Although, Wang and Yu (2015) highlight that WOM has positive significance with purchase intention, there is a lack of research to discuss the mediation effect on the relationship between health issues and purchase intention, as specifically applied in the WSTP context.

Nevertheless, the results of the hypotheses indicate that health issues have an indirect effect on purchase intention through the mediation of WOM and cognition. Thereby, health issues can be said to have a positive effect both directly on purchase intention and indirectly by WOM across cognition on purchase intention. Further, the finding is that health issues are partially mediated by WOM to cognition on purchase intention (see Table 26, p. 201), which is uncommon to discover in the existing literature. Precisely, we also examined the specific indirect effects on path HI>WOM>Cog and found that it is 0.144, and path HI>WOM>Cog>PI is 0.047, which indicates that they are positively significant (Hayes, 2015; Memon et al., 2018). The results are clear from the existing studies (Hair Jr et al., 2017; Memon et al., 2018; Nitzl et al., 2016; Rungtusanatham et al., 2014), that health issues should also consider communication marketing: WOM and cognition, two constructs on the relationship path. As a result, WOM and cognition partially mediate the relationship between health issues and purchase intention. Accordingly, the research findings confirm that health issues are one of the motive dimensions affecting consumers' purchase intention in the WSTP market.

Advertising and cognition partially mediate the relationship between health issues and purchase intention Table 26 (p. 201) shows that the direct effect on the path between health issues and purchase intention and indirect effects on the path of health issues across WOM to cognition on purchase intention, are statistically significant. In light of Zhao et al. (2010), Hair Jr et al. (2017), and Nitzl et al. (2016), the study first measured the direct relationship between health issues and purchase intention to see if it is positively significant. Following this, the indirect effect between health issues and purchase intention across the advertising to cognition was examined, and the total effects on the path HI>AD>Cog>PI was found to be statistically significant. To be more accurate, we also inspected the specific indirect effects on path HI>AD>Cog and found them to be 0.110, and path HI>WOM>Cog>PI to be 0.036, which confidently indicates that they are significant (Hayes, 2015; Memon et al., 2018) and also signifies that the minor is smaller than the path HI>WOM>Cog and HI>WOM>Cog>PI. The results clearly indicate the vibrant effect on the purchase intention when considering that adopted WSTPs with

health issues can be mediated by advertising and cognition. Interviewee 4 therefore reflects that a consumer does not really need WSTPs, but it is another scenario if the product keeps us in good health. As a result, advertising and cognition partially mediate the relationship between health issues and purchase intention.

“If the advertising can make me be touching and also meet my needs, but sometimes, we are buying things that we don’t really need it, we just feel it how it can help our body.”-

interviewee 4

6.5.6 Summary of mediating effects

With online mediation effects, in the hypothesis six mediation effects are added. Two full mediation effects between IT innovation, health issues, and purchase intention answer the research questions 1 and 3. One of the issues that emerges from these two full mediation effects is that to enhance the motives significantly affects actual purchase through purchase intention. Four partial mediation effects reflect all three research questions. It can therefore be assumed that marketing communication and cognition play the significant role in the relationship between motives and purchase intention.

6.6 Implications of research methods

Having duplicated the methods, scales and techniques applied in previous studies of the TAB, the TAM, the UTAUT and the TRA, this study was integrated and developed based on solid fundamentals. The strategy employed a variety of methods integrating the components of replication and triangulation, which were not obvious in published studies of the motives and outcome of the decision-making process in the WSTP context. In progressing from a consideration of a motive through to an examination of actual purchase behaviour, the study establishes the relevance and value of adopting a consistently complete approach to relationship research and delivers pioneering evidence of the mediation effect.

As a basis for the subsequent development of a wider study, the preliminary use of documentary evidence and marketing strategy was demonstrated to be valuable. This integrates a variety of research strategies and philosophies, which are associated with the data collection and analysis methods applied.

As the sales of WSTPs rise, consumers are frequently informed about the variety of WSTPs, delivering a standard narrative which is at once both rhetorical and a strong reflection of the basis upon which a consumer is formed by a motive and how to make a decision on the process. Understanding the narrative of these reports is a potentially prosperous source of data for marketing researchers seeking to adapt to the WSTP context. Though the rigorous examination of published studies was not a priority of this study, it set a future target for a more detailed inspection of a potentially important resource.

The verification of the mediation effect is not obvious in any other published study of those models from which the hypotheses were integrated; this study apparently being the first to apply this effect. The probable key reason for this is that it is uncommon to use it in analyses of the nature of consumer behaviour, especially in the case of decision-making adopted in the WSTP context. Nonetheless, it proved to be an excellent technique for analysing the quantitative data and not only follows the existing research but also confirms the rigorous results. Although this study breaks convention, the helpfulness of the technique was nevertheless comprehended through the development of a set of constructs which were subsequently assessed using other methods.

In triangulating the research outcomes, the one pilot test and six interviews aided the translation of the standardised output from the quantitative phase back into a narrative understandable to consumers engaged in the WSTP market. This is not only good methodological practice, because it accredits meaning to measured connections, but it also confirms that academic research of this nature is comprehensible to multiple constituencies as interest in the results of this study proves. A further advantage that has

been achieved is that it shows that structured confirmatory interviews can be powerful tools and also validated the quantitative data and mediation effect.

6.7 Conclusion

In being one of the few studies to address the issue of consumer decision-making, specifically in the context of the WSTP, this study can fill gaps in the literature considering a motive forming to behavioural intention and purchase of WSTPs, the purchase intention relating to their actual purchase, and the mediation effect of the consumer decision-making process. From the practical perspective, the findings of this study could help marketers decide their strategy in the WSTP context, and generates a comprehensive insight from the results. This study attempted to provide early empirical support for a model that examines the determinants of consumers' adoption of WSTPs in the decision-making process. Drawing from the existing theories, we developed a model suggesting that in addition to the impacts of motives, marketing communication, cognition, and purchase intention on actual purchase behaviour adoption of WSTPs, the actual purchasing by consumers is determined by IT innovation, health issues, WOM, advertising, and cognition. Consumer's purchase intention is directly influenced by IT innovation, health issues, and cognition. The proposed conceptual model was empirically verified through a survey. It is expected that this study will be a contribution to both the academic and practitioner literature. The study immediately addresses the decision-making process of the seven constructs ranging from motives and marketing communication to cognition, and purchase intention towards to actual purchase, emphasising both its hypothesized model and determinants respectively. By focusing only upon one aspect of the adoption of IT innovation or health issues, the study supports our understanding of the total process of consumer decision-making, however. Unlike other studies of adopted technology, which illustrate the technology acceptance or perceived ease of use as the key determinants, the contribution of this study is that it is more comprehensive. This is replicated by the offer of a new explanation of consumer decision-making with the emphasis placed on the relationship between motives and actual purchase

behaviour. The conclusion of this study is drawn from the basis of its purpose and process was as follows:

First, the overall implication of the study is that the ten positive effects on the significant role of the consumer decision-making process have been confirmed. It suggests that if either one of the motives, IT innovation or health issues, towards purchase intention for buying a WSTP could be changed, then there would be more people who actually purchase a WSTP. The study goes against the stream of research showing no significant direct impact of alternative models, and initially no buying or actual purchase behaviour. However, it has identified the construct that “actual purchase behaviour” is established in the decision-making process by using SEM-PLS techniques, serving to emphasize evident important aspects of actual behaviour. A consumer's purchase intention towards a particular product denotes the information that the person was willing to buy the product. Although it can be easily recognised that purchase intention is an important aspect for the widespread adoption of WSTPs, solid evidence is still lacking, especially in mediation effect. This implies that a consumer's purchase intention towards a WSTP can be changed by motivating from an IT innovation or health issues point of view.

Second, the additional significant finding is that how a consumer adds the purchase intention by partial mediation effect. That is, a consumer will be mediated the purchase intention deriving from WOM, advertising as well as their cognition partially. This, in turn, should contribute to the overall success of consumer decision-making by highlighting which mediation effect will contribute to the development and growth of relations in the WSTP context.

The identification of motives, communication mix, cognition, purchase intention and actual purchase intention, as key determinants of the consumer decision-making process, makes a distinctive contribution to the consumer behaviour literature. These constructs have formerly been acknowledged as the determinants of several models: the TAM, the TPB, the TRA, the UTAUT, the TRAM, and the S-O-R, and so this study has fulfilled its

purpose of extending observations made in other research. Equally important, this study sheds new light on the full mediating effects of purchase intention and on the association between motive and actual purchase behaviour and also reveals the complementary mediation roles of the communication marketing: WOM and advertising, towards cognition between motives and purchase intention. Regardless of whether decision-making towards actual purchase is little more than an influential element, the implications for managing a buying action are significant. With this object, it is anticipated that this study will assist and encourage other researchers and practitioners concerned with the development of the mediation effect during the consumer decision-making process towards actual buying. In a truly complicated business environment, where marketers try to increase value to the products, and whilst the WSTP market needs create a difference to success, giving consideration to one of the most critical consumer decision-making relationships they are involved in is vital.

CHAPTER 7 RECOMMENDATIONS

7.1 Limitation of the study

Despite the meaningful implications, this study is still with limitations. First, the experimental data used for hypothesis testing is gathered at a single point in time. It needs to be noted that the adoption of WSTPs is still in the early stage and within the short lifecycle in which WSTPs have been recently introduced to the market, thus it should be considered that not many people were aware of WSTPs even though some information about the WSTPs was available. This form of consumer behaviour indicates that firms cannot collect from consumers sufficient longitudinal data to significantly improve the sales of their goods. Thus, a different method to improve this study is to build a longitudinal investigation to attain more substantial reasons related to consumer behaviour towards WSTPs. Moreover, the data collection is merely conducted in the country of the UK, which has not reflected the latent influence of technological and cultural differences found among dissimilar countries. Therefore, testing whether the verified relationships are still retained in other countries would be required, and additional economic effects can also be considered. In contrast, consumers cannot be helped with IT innovation and health consequences of using WSTPs if they do not even wear them for a long period. Having a better understanding of the adoption of WSTPs may give meaningful insights on decision-making practices.

Second, most participants in this study were relatively young (less than 40 years old) and the vast majority of consumers in the WSTP market are adolescents and young adults. In spite of this, an age limit was not arranged while selecting interview participants for this study although it has been acknowledged that younger consumers are the main users of WSTPs (Kim & Chiu, 2019). The insight is that the younger and the healthy consumers usually have more interest to purchase WSTPs because they care more about the technology and benefits than the older and the unhealthy consumers (Schwartz & Baca,

2016). Due to the age group being young, the group's annual income was comparatively low. However, compared to the very early designs of WSTPs, firms now provide diverse lines of products with various designs, one primary company of WSTs, Apple watch, for example, is adding a function for the elderly in order to prevent them falling down. For the older consumers, who are relatively unfamiliar with new technologies, applying the questionnaire with a tablet would be a particular obstacle which should be considered in any future studies. For this reason, the elderly group may have its own exceptional characteristics, and a different annual income may have altered purchase behaviours.

Third, regardless of the hypotheses offer of a significant explanation about consumer decision-making to purchase WSTPs, future studies may merge other constructs in the hypotheses, including perceptions of value and quality of WSTPs in order to more broadly comprehend the marketing strategy involved in the WSTP context.

Fourth, with increasing innovations in WSTPs, many companies have adjusted the original functions to match the health aspects and added more functions, for example, virtual reality. Future studies should also investigate consumer behaviour towards accepting these technologies and to better understand the consumer fundamental needs for WSTPs. As such, actual usage experiences, comparisons with this study and results from inspecting actual users can be assessed to accomplish accurate research outcomes in the future.

Fifth, this study does not identify any direct influence of the mediation effect on actual purchase association with adopted consumer behaviour. This study, however, is established from multi-perspectives and has drawn some meaningful findings. It would be interesting for future studies to investigate other variables mediating the process of decision-making and its interaction with actual purchase behaviour toward repurchase.

Finally, the study's exogenous are the motives in the hypothesized model. This relates to the fact that WSTPs are not yet broadly spread and saturating the market. As the types and

applications of WSTPs become diverse, future researchers may answer more questions. This study advances the understanding of the consumer decision-making process in the WSTP market. The most significant of these limitations is the fact that the study is unable to draw causal relationships among the variables from a cross-sectional survey data due to time limitations. Researchers might be able to examine this conceptual framework with alternative methodologies in the future: longitudinal research design or different target groups, even across-cultures. All in all, the limitations of this study may reveal opportunities for future academic research on the actual buying in the WSTP context.

7.2 Implications for practitioners

There remains a lack of rigid perspective for analysing how a consumer's decision is made along the process, in spite of the prevalence of the WSTP context. WSTPs were initially developed in the sports industry for professional athletes, amateur athletes, fitness consumers. However, the firms must make profits to survive, so expanding its market to general consumers is important. The existing studies have applied various theories to adopt WSTPs in recent years. Most of the studies have an emphasis on IT innovation and few have discussed the health-related issues as a determinant. Yet, new insights into the significance structure behind consumer behaviour have been generated from the results of the present research. The results of this study may provide marketers in the WSTP context certain meaningful recommendations for promoting and marketing.

Strategies for WSTPs marketers are conducted to lead to better strategies to promote the adoption of WSTPs. First of all, all the proposed pioneer constructs from motives, marketing communication, cognition, and purchase intention are demonstrated to significantly affect consumer's actual purchase behaviour to adopt the WSTPs. Marketers and managers therefore should consider all these aspects to increase purchase intention for WSTPs. Next, the study demonstrated that purchase intention mediates the relationship between motives and actual purchase, so that marketers should take advantage of the mediation effect to achieve their business goal. That is, to motivate the

consumers towards eventually buying WSTPs. A concluding point to note about academic research of the natural context in this study is that the existing adopted model of the WSTP framework has not discussed the full mediation effect much nor the partial mediation. Even Memon et al. (2018) explain that some researchers may not be certain of the requests for analysing a mediation effect, and researchers should be encouraged to discover the mediation effect applied in the consumer behaviour context. To this end, marketers should stay to foster purchase intention through the motives and marketing communication methods, including WOM and advertising. Thus, this study will be able to enrich research in the WSTP adoption behaviours.

These research questions were initially built in 2016, at that time WSTPs were in the early stage. Mintel (2015) showed that “wearable technology only has a fair niche appeal and adoption of wrist-worn devices remains limited to 9% of UK adults” and less than 10% of consumers owned WSTPs. WSTPs started mainly with a fitness angle, highlighting tracking speed, distance and calories; and then moving on to more sport-specific functions (Mintel, 2018). Whilst interest in WSTPs was driven by health and sports-related applications at the beginning, six in ten of UK adults disclosed that they would be truly interested in some sort of information attentive through WSTPs (Mintel, 2015)

Nevertheless, in 2018, as WSTPs became more effective and larger ranges of functions were enhanced, WSTPs had the opportunity to boost physical health further (Mintel, 2018). Over 70% of owners of wrist-worn WSTPs say that their WSTPs have helped improve their physical health, highlighting that WSTPs are a motivational tool (Mintel, 2018). For example, the release of the first generation of the Apple Watch was in 2015, in which the purpose of the Apple Watch was to supplement an iPhone and insert some new functions (Whitney, 2015). Despite this, from November 2017 to July 2018, Apple gave Apple Watch users the opportunity to take part in a voluntary heart study, which resulted in nearly 420,000 participants. It turns out that the objective of the Apple Watch was to put heart health at the centre (Neely, 2019). In other words, the function of health and sports monitoring within WSTPs attract most interest (Mintel, 2018). As a result, Apple

has expanded Apple Watch to health capabilities with features like the ECG app and fall detection (Neely, 2019).

As mentioned above, this study the marketing strategy in the WSTP market has validated the current marketing the marketing strategy in the WSTP market has validated the current marketing strategy in the WSTP market. This study is increasing a better understanding of the decision-making process of consumers to adopt WSTPs and also attempts to carefully consider the recent developments about these concerns in consumer behaviour and psychology literature. The outcome of this study evidently symbolises one of the first few efforts to identify the constructs of the decision-making process of adopted WSTPs and it creates a development for consumer behaviour literature. Nevertheless, it is unsurprising that further work is required in order to improve and foster the assumptions made. One of the astonishing parts of this study's findings is the success in creating a strong connection between motives and actual purchase intention. The connection of mediation effects is not particularly evident in other studies and following analyses of adopting WSTPs might require re-assessment of the association. Further studies, which take these constructs into account, will need to be undertaken. Cross-sectional or longitudinal components would then be presented into the following extensions.

Moreover, through these study expressions we are implying that the complementary mediation effects and mediators are more or less likely to be reached. This means that to raise the purchase intention to increase the motives, enhance marketing communication and cognition could be another path to reach the target. Therefore, companies making WSTPs need to put in more effort to enhance consumers' purchase intention toward buying WSTPs. For the researchers, this is an opportunity for validating factors to be employed for applicable practitioners, as this study debates, of the value added by the consumer decision-making process. The standard for this would act to be creating bottom-line returns. This repeats the fact that the further development of this study should try to create the mediation effect between the decision-making process and the success of consequences.

As has been said, a business proposal has requested that particular sections be written based into it. In addition, not only have two academic conferences accepted presentations by the author, but also a firm of WSTPs has requested the outcomes of the study. It is expected that the study will shape the basis for journal publications in the future. Therefore, as already discussed, the fact is that this study is valuable to both the practitioner and academic.

7.3 Implications for future research and recommendations

The principal use of an obstructive transactional observation of consumer behaviour, connected to this study and other existing studies, is to emphasise obvious occasions for adopting an opinion associated with consumer behaviour in the WSTP context. Though this study has clearly dealt with issues relating to consumer behaviour, further research might examine the process of decision-making between marketing strategy and purchase intention. This could draw from existing consumer behaviour, marketing strategy, and decision-making studies underlining the relevance of extension. With this objective, the point to which future consumer behaviour research reflects the hypothesis modification is obvious in the expanding marketing literature, which will be an exact indication of advances under consideration.

One of the most meaningful outcomes of this study is the view of mediation effects that mediators either with full mediation or partial mediation represent a paradigm of the decision-making process. Accordingly, the additional features included in the model were found to increase the explanatory power of the hypothesized model for decision-making to adopt the WSTPs. On the one hand, the results of the full mediation effect suggest that when explaining from a motive to purchase WSTPs, in which purchase intention mediates the causal relationship between motives to actual purchase behaviour, they are likely to have the most predictive power for the decision-making process. On the other hand, despite the adopted model being used in the TAB, the TAM, the TRA, the UTAUT, or the S-O-R, the existing literature merely discussed that a mediator “attitude” can be found. A

comprehensive discussion which strongly creates a relational interpretation of the mediation effect could be added, along with suggestions that would give meaningful support to the adopted model of consumer behaviour literature. One of these could consider the relevance of other perspectives involved in the mediation effect adopted models. This might look like a progressive phase, specifically in light of observations made formerly in this study that numerous consumer behaviour journals involve various models, but without thoughtful analyses of the mediation effect. This study actually signifies one of the first challenges to this situation by identifying the full and partial mediation effects of the consumer decision-making process.

Lastly, numerous studies have attempted to explain customer involvement in new product development (Cui & Wu, 2016; Feng, et al., 2016; Menguc, et al., 2014; Lagrosen, 2005), but far too little attention has been paid to customer involvement in the WSTP market. As a WSTP is an innovative technology product, researchers as well as practitioners may consider “customer involvement” as a determinant in the future research.

Appendix 1. Codes for determinants

Code	Illustrative Quotes
IT innovation	It has nothing to do with price, and I will buy WSTPs for fun and innovation -interviewee1 I like to try something new. If WSTPs are very interesting, I would like to try. – Interviewee 4
Health issues	For example, WSTPs are very useful for surgeons when they want to take pictures during surgery. -Marketer3 I want to control my body weight. – interviewee7 I hope that wearing WSTPs can receive messages at any time and remind yourself to exercise. -interviewee 11
WOM	I like to be recommended by friends. - Interviewee 8 Before I buy WSTPs, I will take a look at online reviews. - Interviewee 5
Advertising	Advertising can give me more information about WSTPs. - Interviewee 11
Cognition	WSTPs make life easier. - Interviewee 8. If WSTPs become more accurate, I will buy it. -Interviewee 3
Purchase intention	I will definitely buy it. - Interviewee 6
Actual purchase	If I can get the benefits related to my health, I will consider buying WSTPs. - Interviewee 3
Alternative purchase	The company wants to expand the sports products; therefore, they prefer to design an APP instead of WSTPs, which needs to connect a smartphone and then they can promote the relevant products via an APP.-Marketer 1 They think that everyone owns a smart phone and do not need to buy an extra device for recording the record of physical conditions. -Marketer 2

No buy

Some WSTPs are weird to wear and cannot be integrated into life. One of the disadvantages of WSTPs is that they consume too much power and need to be charged in less than a day. -Marketer 3

Appendix 2. Questionnaire

Pre-purchase consumer decision-making in the WSTP market

WSTP questionnaire

Dear all,

I am a researcher at the University of Salford Business School, examining consumer decision making in the wearable sports technology products (WSTP) market. I would appreciate it if you could complete the following survey.

The aim of the research is to understand the underpinning motives and outcomes of pre-purchase consumer decision-making in the WSTP market.

This survey includes 46 questions and will take approximately 15 minutes to complete.

Your responses are important for this research.

Thank you very much indeed for your help.

Chia-Chan Chang

If you have any queries, please do not hesitate to contact me. (c.c.chang@edu.salford.ac.uk)

An anonymous questionnaire is used to gather information in this survey and every step will be taken to ensure anonymity and confidentiality. The responses will not be identifiable as being yours, as a result of which this survey does not require you to provide your name or any other

information which will identify you. This survey will ask you for some biographical details [e.g. Gender, age, subject area], but these will not be used in any way that might disclose your identity.

As an expression of appreciation, each participant has the chance to win a prize of £25 Amazon voucher by completing the questionnaire. A prize will be drawn from a lottery by the supervisor of the draw, after the online survey is closed.

The winner will be contacted by email. If there is no any response within 7 days, a second winner of the draw will then be allocated (and so forth). Please note: the voucher can only be sent to the UK address.

Consent form

Section 1: Consent form- Before you start to answer the questionnaire, please read the consent items in advance. Please note that only over-18s are permitted to complete the questionnaire.

I agree to take part in the questionnaire. * *Required*

- Yes
- No

Consent form 2

I confirm that I have read and understand the information sheet dated for the above study. *
Required

- Yes
- No

Consent form 3

I understand that any information given by me may be used in future reports, articles or presentations by the research. * *Required*

- Yes
- No

Consent form 4

I understand that my participation is voluntary and that I am free to withdraw at any time, without providing a reason. * *Required*

- Yes
- No

Consent form 4

I understand that my participation is voluntary and that I am free to withdraw at any time, without providing a reason. * *Required*

- Yes
- No

Consent form 5

I understand that my name will not appear in any reports, articles or presentations. *

Required

Yes

No

Consent form 6

I understand this study is designed to further scientific knowledge and has been approved by the University of Salford Ethics Committee. * *Required*

- Yes
- No

Section 1 : Background Information

In this section, you will be asked about....

My gender is * *Required*

- Male
- Female
- Other
- Prefer not to say

My age is between * *Required*

- 18-24 years old
- 25-34 years old
- 35-44 years old
- 45-54 years old
- 55-64 years old
- 65-74 years old
- over 75 years old

The highest degree or level of school I have completed is * *Required*

- less than high school
- High school graduate, diploma or the equivalent
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree

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My total annual income level is * *Required*

- under £ 10,000
- £ 10,000-£20,000
- £20,001-£30,000
- £30,001-£40,000
- £40,001-£50,000
- £50,001-£60,000
- £60,001-£70,000
- £70,001-£80,000
- £80,001-£90,000
- £90,001-£100,000
- above £100,000
- Prefer not to say

Your profession is * *Required*

[+ More info](#)

- Administrative
- Computing
- Engineering
- Finance
- General Management
- Legal
- Logistics
- Manufacturing
- Marketing
- R&D

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- Sales
- Technical
- Personnel
- Student
- Other

If you selected Other, please specify:

My current marital status is * Required

- Single/never been married
- Single with a partner
- Married
- Separated
- Divorced
- Co-habiting
- Prefer not to say

The following best describes the area you live in is * Required

[+ More info](#)

- Urban
- Suburban
- Rural
- Other

If you selected Other, please specify:

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Which region of the UK do you live in? * *Required*

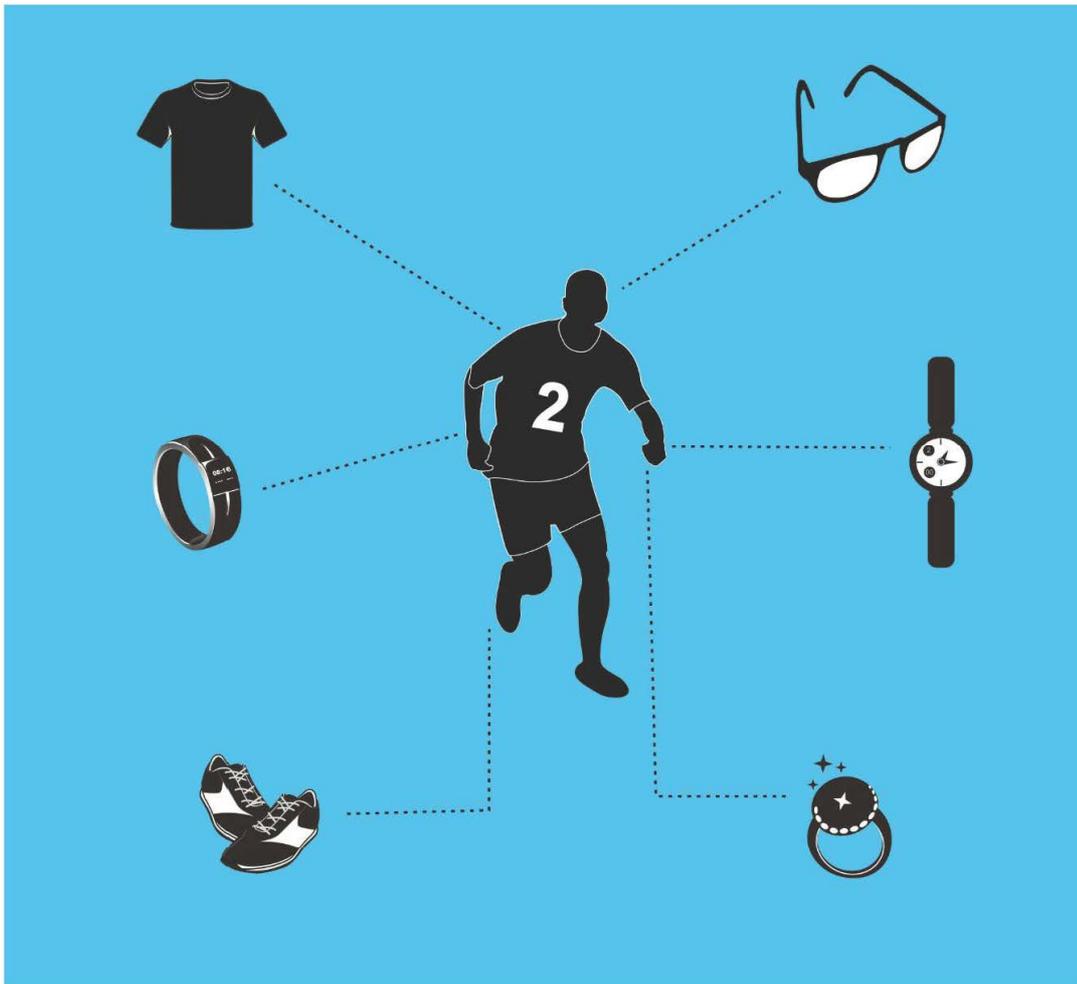
- England
- Scotland
- Wales
- N.Ireland
- Other

If you selected **Other**, please specify:

Information about WSTP

What is a wearable sports technology product (WSTP)?

WSTPs are defined as small, wearable computers that users can wear on parts of their bodies, such as glasses, wristbands, smart watches, jewellery, shoes, and smart clothing.



Do you own or have owned any one of WSTP? * *Required*

- Yes
- No (jump to section 2)

If yes, what kind of products do you have? *Optional*

- smartglasses
- wristband
- smart watch
- jewellery
- smart shoes
- smart clothes
- Others

If you selected Others, please specify:

Section 2 : The motives and outcomes of decision-making in the WSTPs market

In this section, you will be asked about.....

If I heard about a new WSTP, I would look for ways to buy it. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

I am usually the first to try out new WSTPs among my peers. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

In general, I like to experiment with new WSTPs. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

It is likely that I will purchase a WSTP in the future. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

I will normally buy a WSTP because an online review of it is positive * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

I rely on online reviews when I purchase WSTPs. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Online reviews normally affect my decisions to purchase WSTPs. * Required

- Strongly agree
- Agree

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- Neither agree nor disagree
- Disagree
- Strongly disagree

My general opinion of the way in which WSTPs are advertising is favourable. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Overall, I consider the advertising of WSTPs to be a good thing. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Overall, I like the way in which WTSPs are advertised. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Using a WSTP would improve the access I have to my health information. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Using a WSTP would improve my ability to manage my health. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Using a WSTP would improve the quality of my healthcare. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

I will definitely purchase a WSTP. * Required

- Strongly agree
- Agree

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- Neither agree nor disagree
- Disagree
- Strongly disagree

I would rather use a WSTP than another type of product. (e.g. using smart glasses with camera which shows heart rate, mapping data and other information can offer action-cam style footage and photos of hands-off instead of tablet, computer, camera and smart phone.) *

Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

I believe that the benefits provided by WSTPs meet my needs. * *Required*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Given the chance, I would consider purchasing a WSTP in the future. * *Required*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree

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Strongly disagree

I intend to purchase a WSTP. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

I will purchase a WSTP as soon as possible. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

It is highly likely that I will purchase a WSTP. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

I will purchase a WSTP in the near future. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

I will definitely purchase a WSTP in the future. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

WSTPs are not for me. * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

I'm likely to be opposed to purchasing WSTPs. * Required

- Strongly agree
- Agree

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- Neither agree nor disagree
- Disagree
- Strongly disagree

I'm likely to be opposed to praising the benefits of WSTPs. * *Required*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Using alternatives to WSTPs is more beneficial to me. * *Required*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

I can get better functions from alternative products than I can from WSTPs, eg. Free app. * *Required*

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Alternative products choices provide me with more benefits than WSTPs * Required

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

Thank you for completing the questionnaire.

Responses from completed questionnaires will be collected for analysis and the completed questionnaires will be stored in a locked USB file.

Please note that none of your data or your responses will be shared with anyone else, nor will they be used for any other purpose.

Once this research project has been successfully completed, the original questionnaires will be destroyed.

If you have any concerns regarding this survey, please contact me (c.c.chang@edu.salford.ac.uk).

Please give your email for the chance of a prize drawing to win £ 25 Amazon voucher. Your email is :

Please enter a valid email address.

Would you be willing to participate in a further interview regarding this research?

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- Yes
- No

If 'Yes', your email is:

If you have any suggestions regarding this study or would like to say about your use or consumption of these products, please write the comment below:

Thank you !

Completed.

Appendix 3. Summary of descriptive statistics

Items	Kolmogorov-Smirnov ^a		
	Statistic	df	Sig.
IT1	0.211	301	0.000
IT2	0.209	301	0.000
IT3	0.212	301	0.000
HI1	0.313	301	0.000
HI2	0.302	301	0.000
HI3	0.267	301	0.000
WOM1	0.263	301	0.000
WOM2	0.256	301	0.000
WOM3	0.273	301	0.000
AD1	0.279	301	0.000
AD2	0.334	301	0.000
AD3	0.256	301	0.000
Cog1	0.253	301	0.000
Cog2	0.296	301	0.000
PI1	0.359	301	0.000
PI2	0.327	301	0.000
PI3	0.238	301	0.000
P1	0.196	301	0.000
P2	0.214	301	0.000
P3	0.229	301	0.000
P4	0.211	301	0.000
P5	0.22	301	0.000

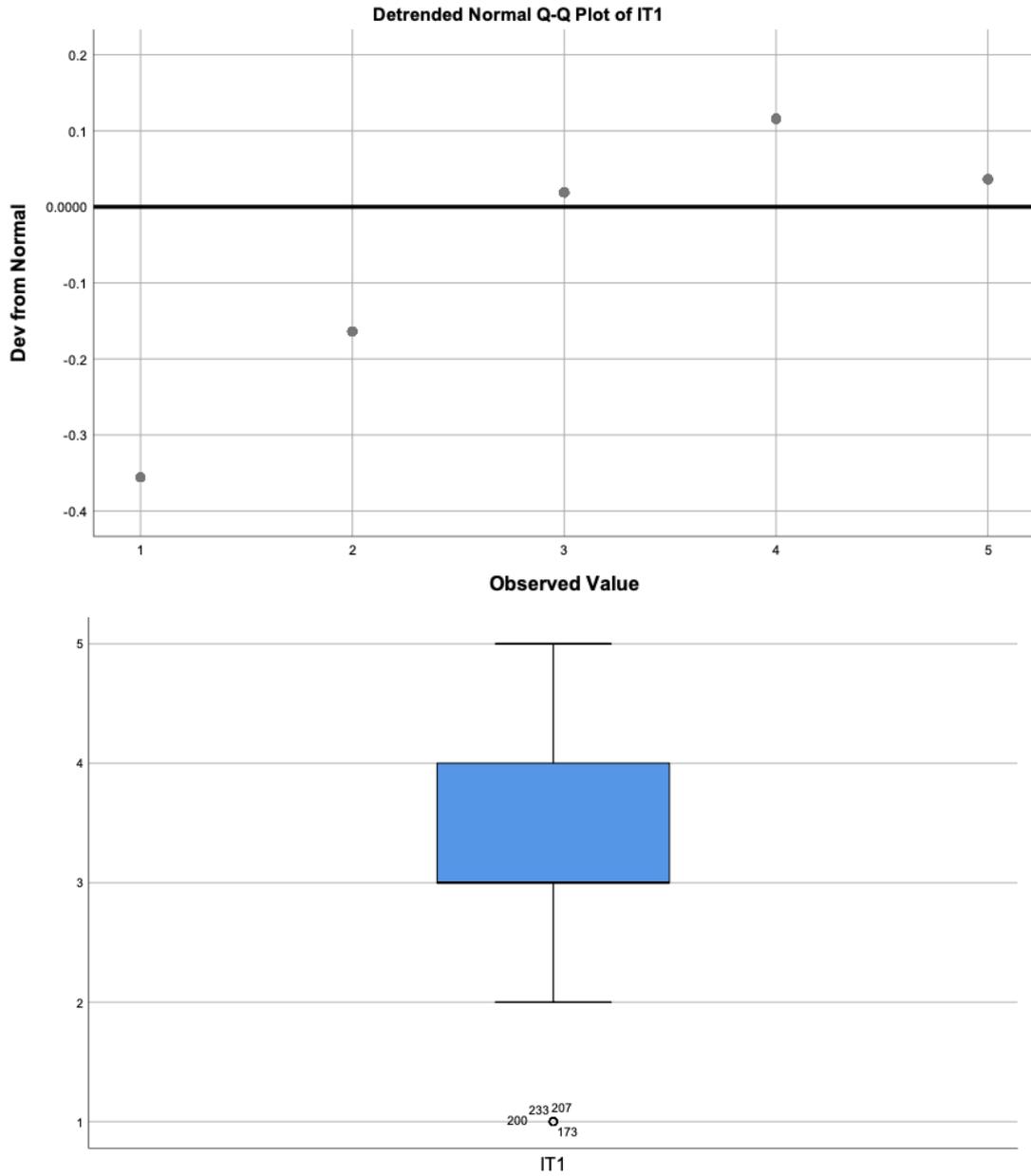
Based on Pallant (2016, p. 63) recommended that in large sample it is common that Sig value is .000. The Kolmogorov-Smirnov Statistic of all items, to verify the assumption of normality as Sig. value are .000.

To examine the normal distribution is to use distribution histogram. Yet, this is not particularly significant.

Normal Q-Q Plot indicates a straight line which means distribution normally. It is also expected that detrended normal plot denotes the line of zero where should be around points collected as no obvious clustering of scores (Tabachnick & Fidell, 2014, p. 115). Boxplot is the distribution of two groups in which if the points extend more than 1.5 box-length from the edge of the box defined as an outlier. The scores are those that encompass more than three box-lengths from the edge of the box as the extreme scores (Pallant, 2016).

Distribution histograms, detrended normal Q-Q plots, normal Q-Q plots, and box plot of each determinant show normal, which are not offered due to economic reasons.

IT1

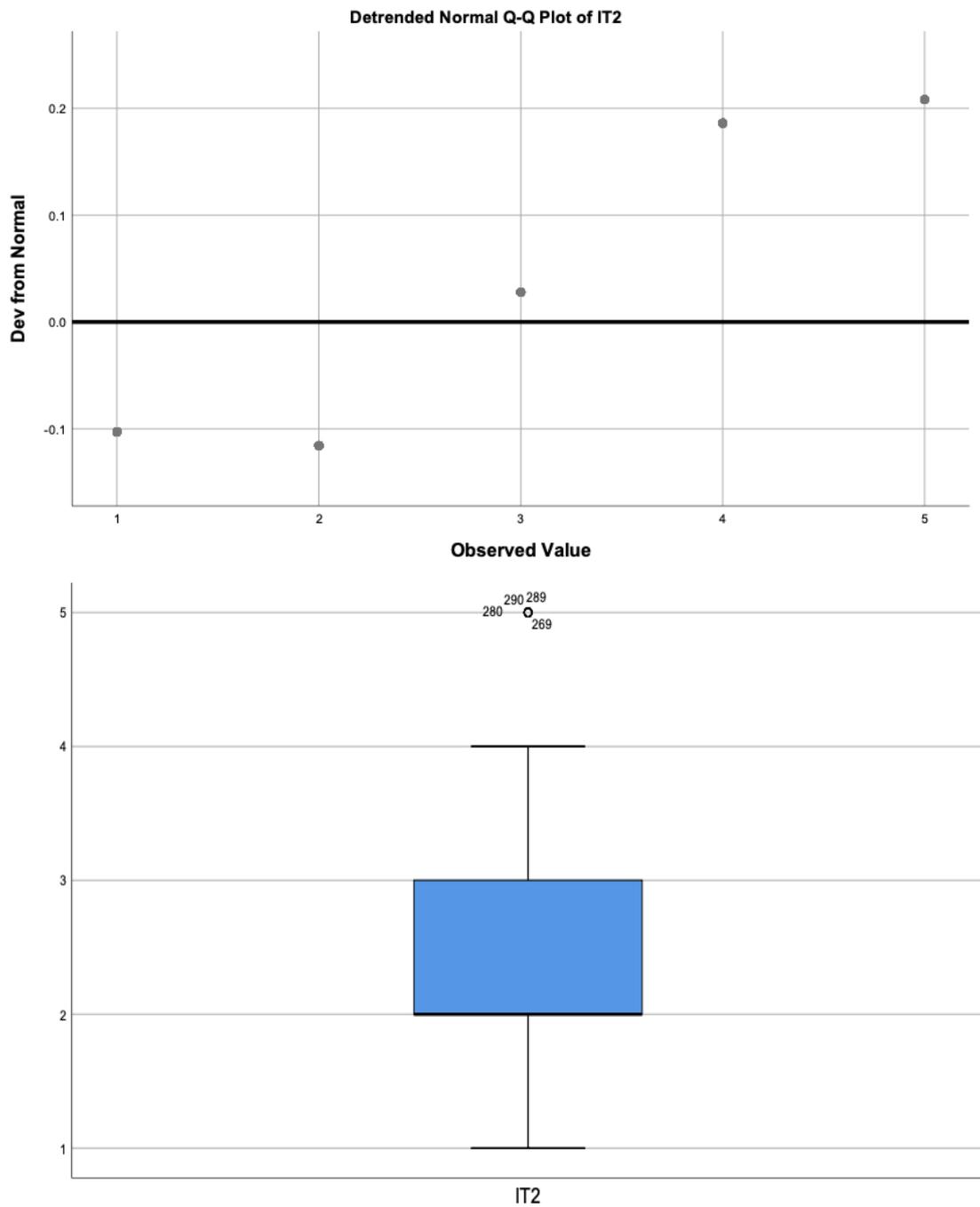


In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

The plot indicates that no outliers exist in above figure means that there are no scores more than ± 0.32 standard deviation away.

Box plot shows four outlying scores which, ID numbers 173, 200, 207, and 233, are kept as they are not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

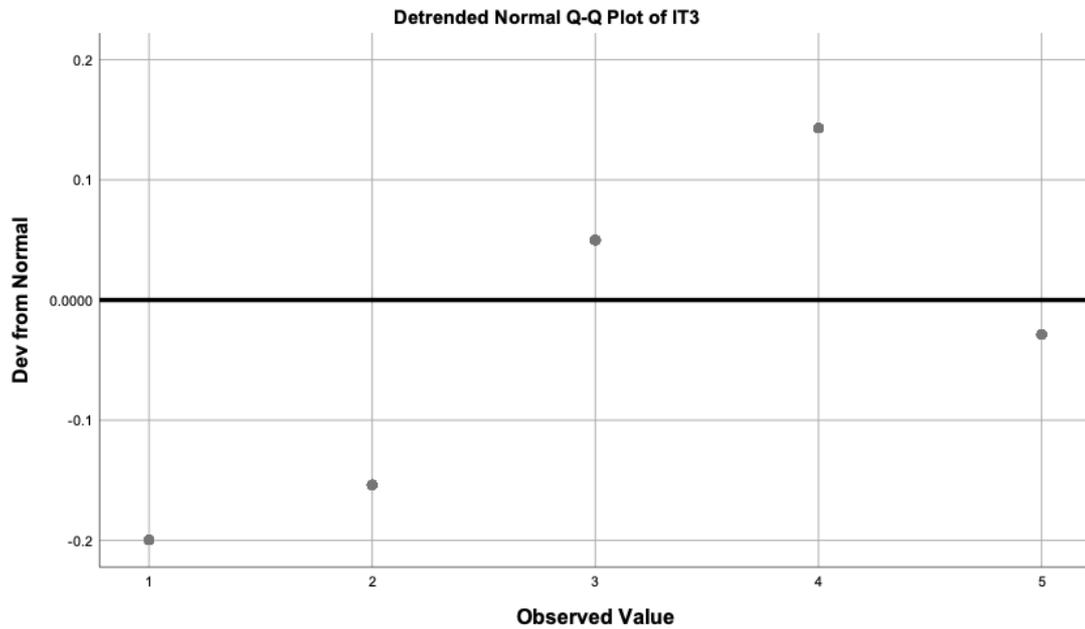
IT2



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

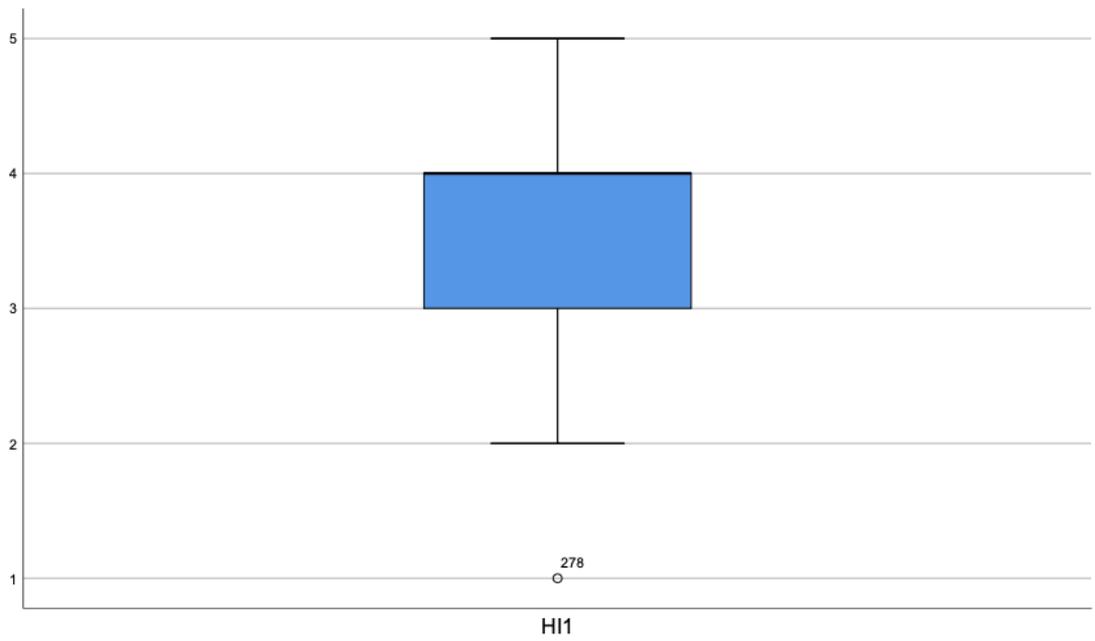
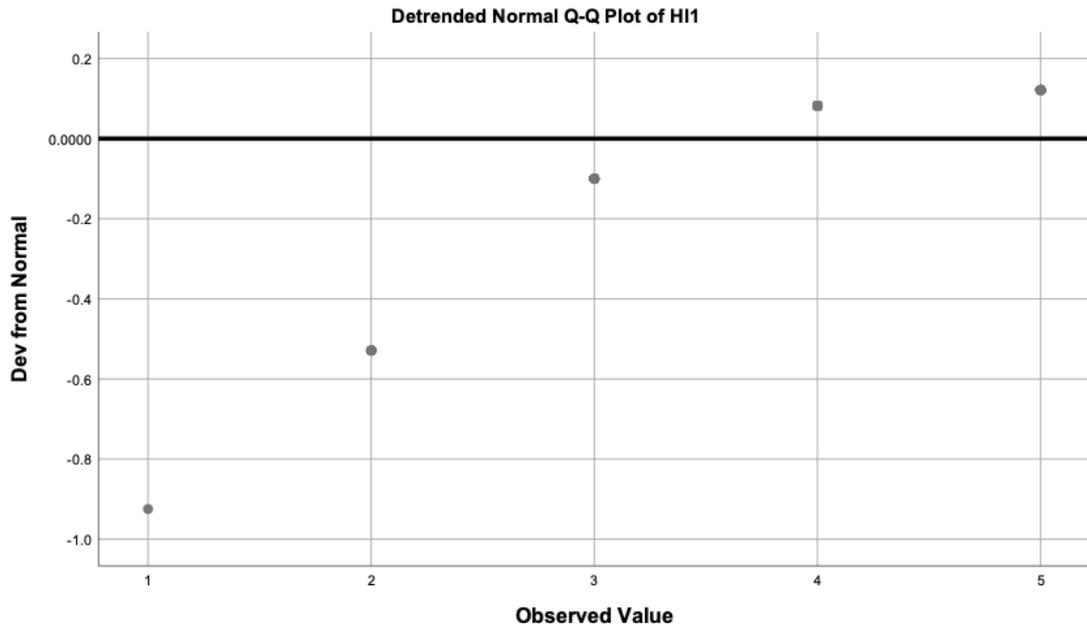
Box plot shows four outlying scores which, ID numbers 269, 280, 289, and 290, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

IT3



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

HI1

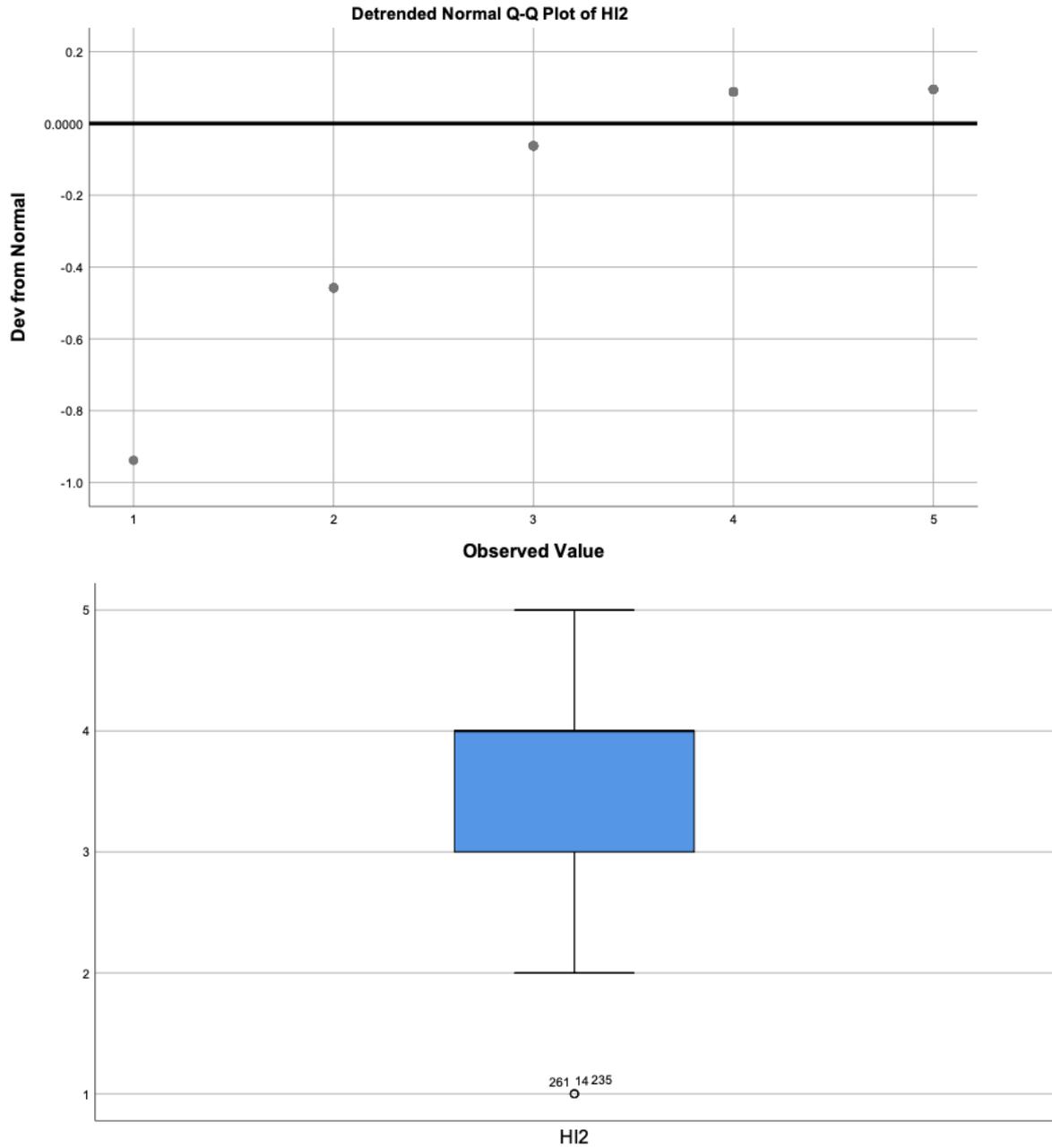


In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Yet, there is a score nearly -0.9. Scores more than ± 1.96 standard deviations away are outliers at the 0.95 confidence level, as suggested by Garson (2012). That is, it is discovered to be normally distributed and following analysis is retained.

Box plot shows one outlying score which, ID numbers 278, is kept as it is within 2 box-length and therefore not an extreme outlier. In other words, in the quantitative data analysis, it is not supposed to make a major influence on the results.

HI2

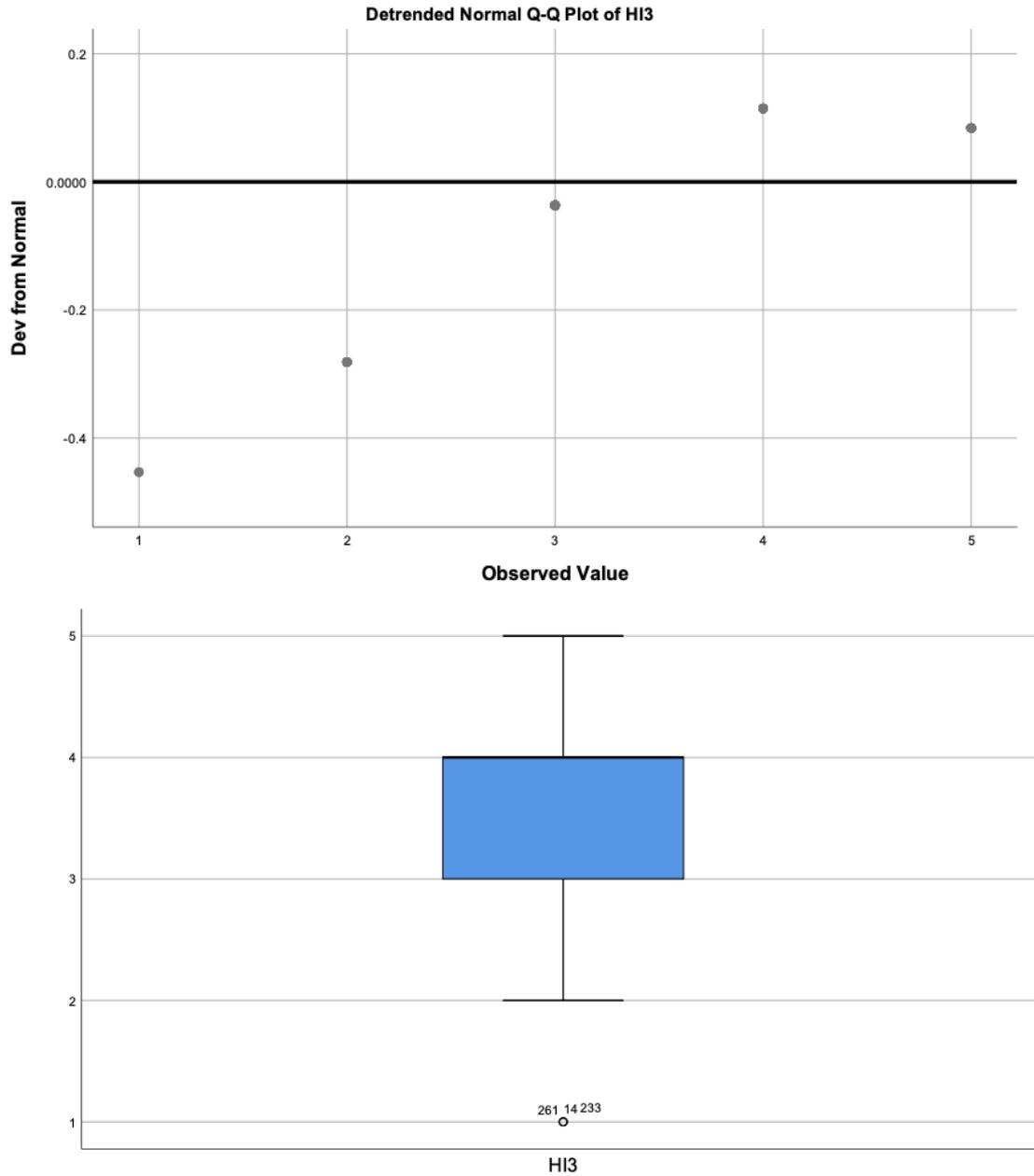


In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure

displays, are gathering near the line of zero and no real clustering of points occurs. There is only one point nearly -0.9 is retained, suggested by Garson (2012).

Box plot shows three outlying values which, ID numbers 14, 231, and 265, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

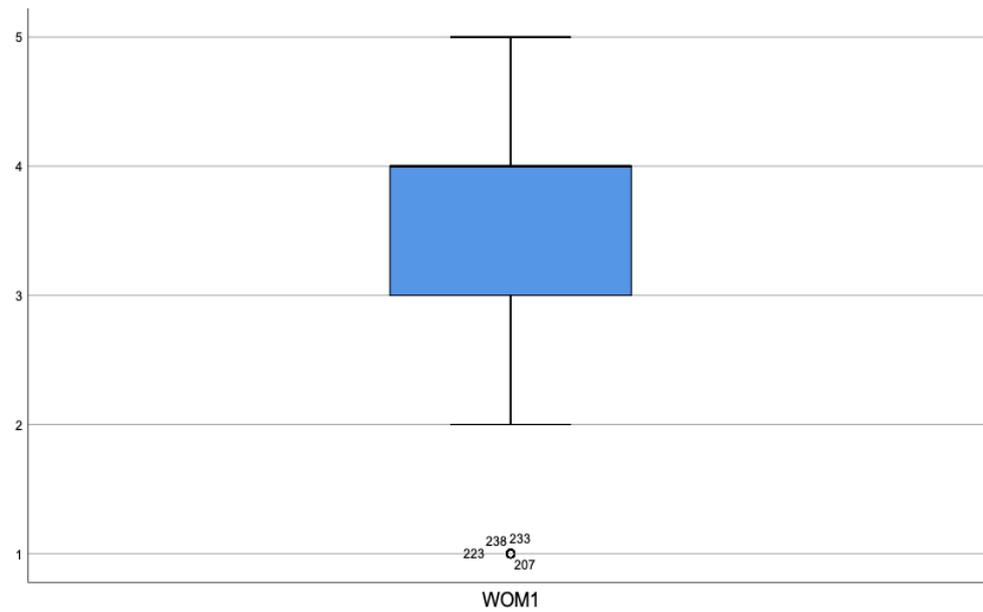
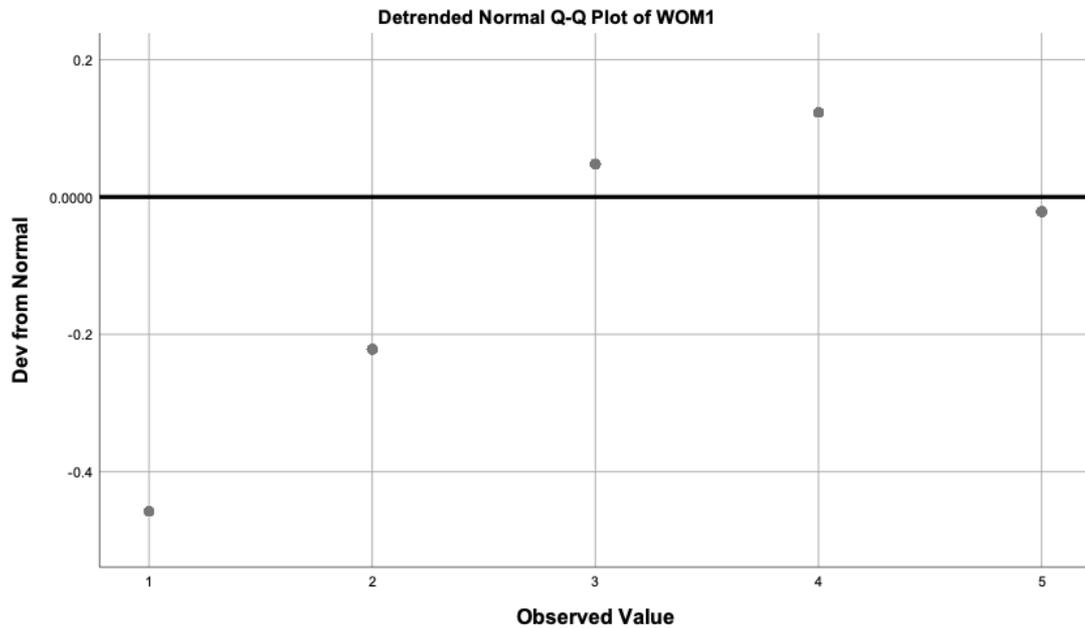
HI3



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Box plot shows three outlying values which, ID numbers 14, 233, and 261, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

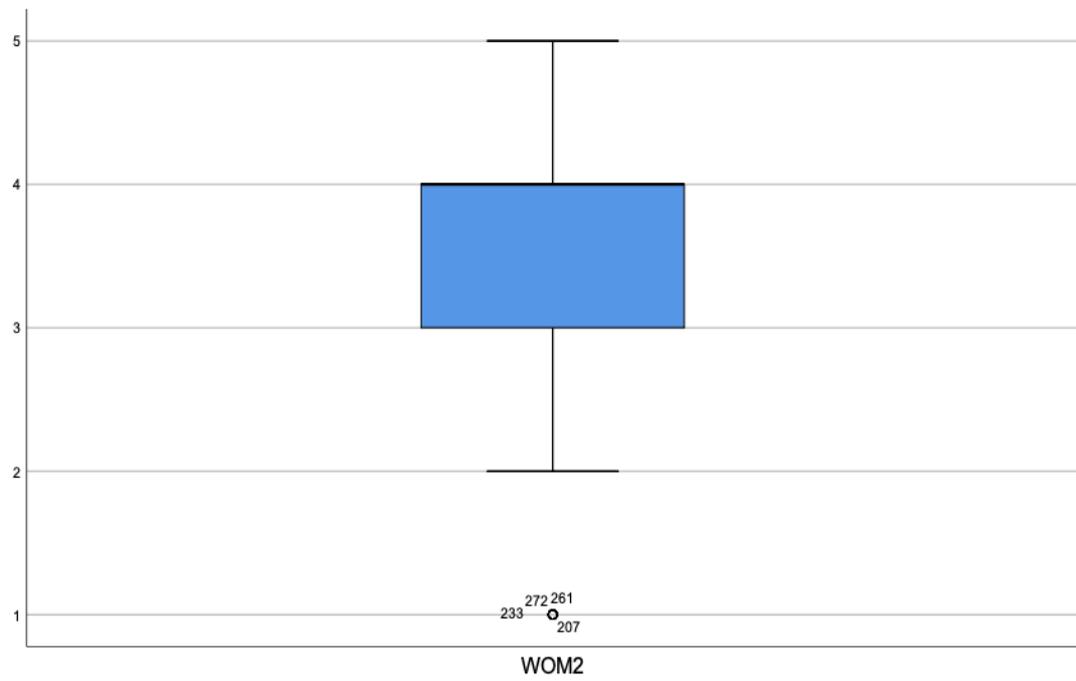
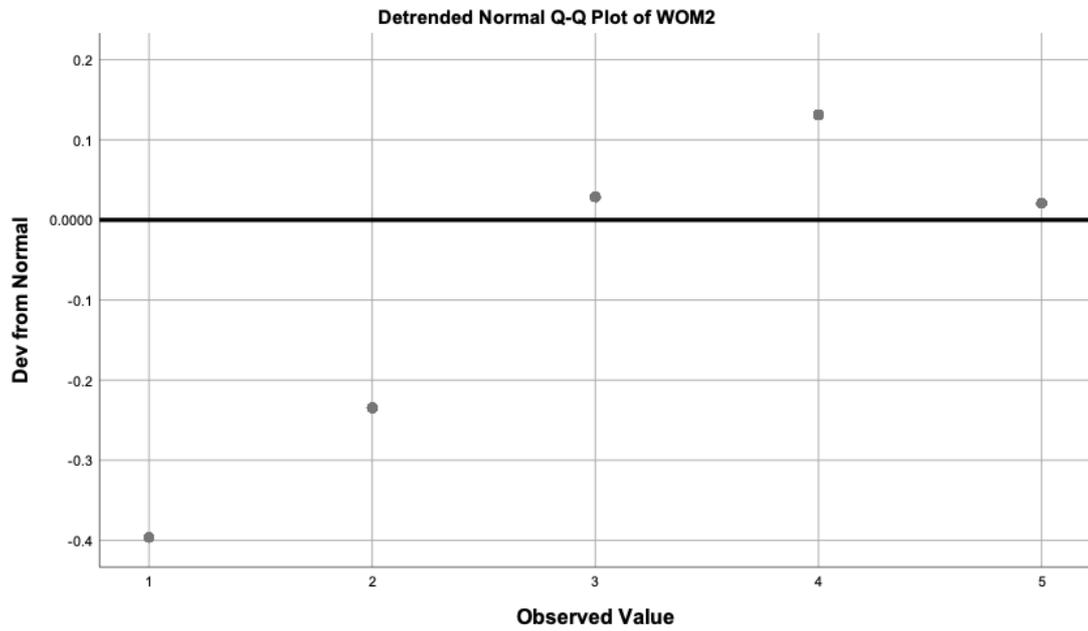
WOM1



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Box plot shows four outlying scores which, ID numbers 207, 223, 233, and 238, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

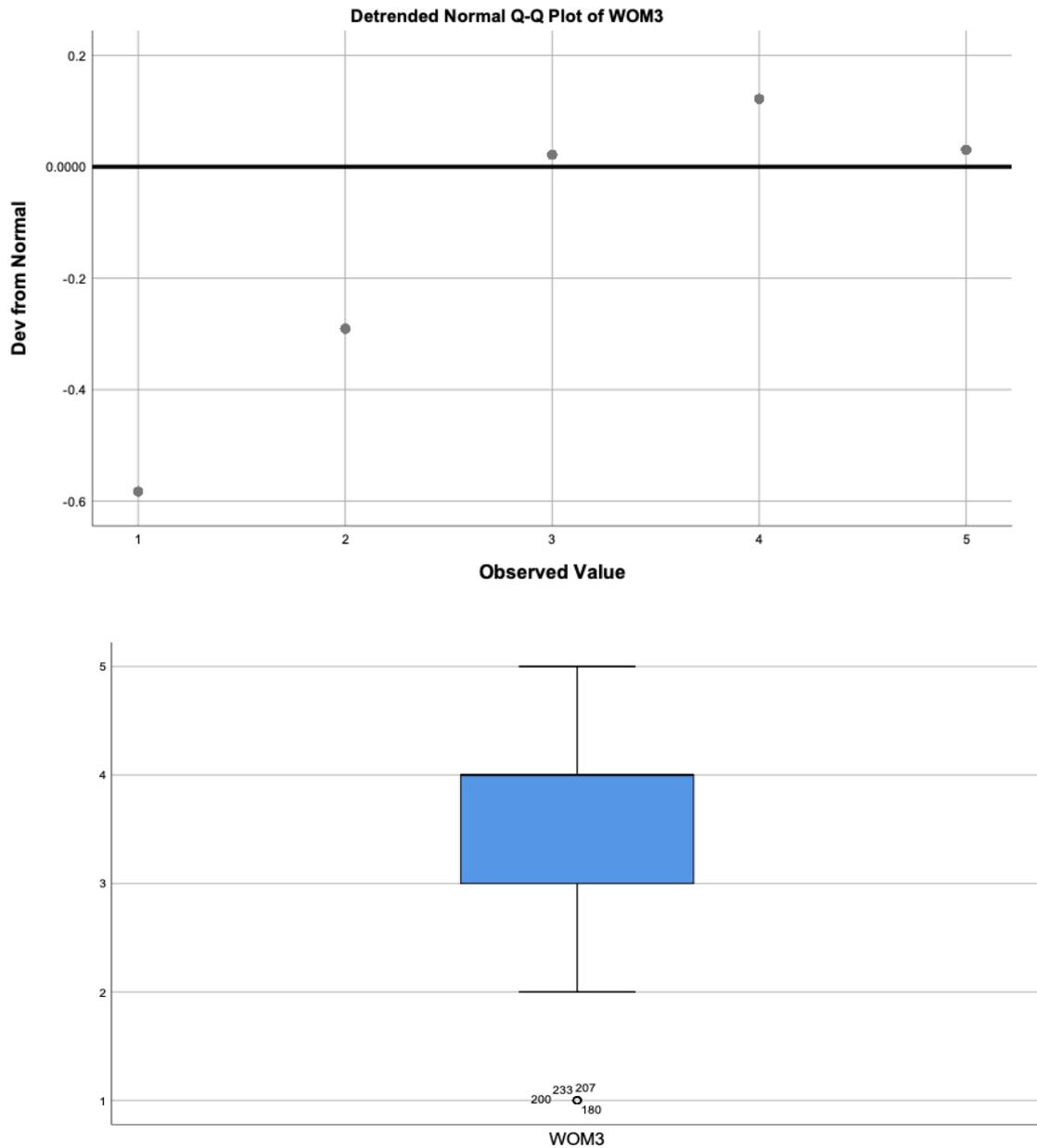
WOM2



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Box plot shows four outlying scores which, ID numbers 207, 233, 261, and 272, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

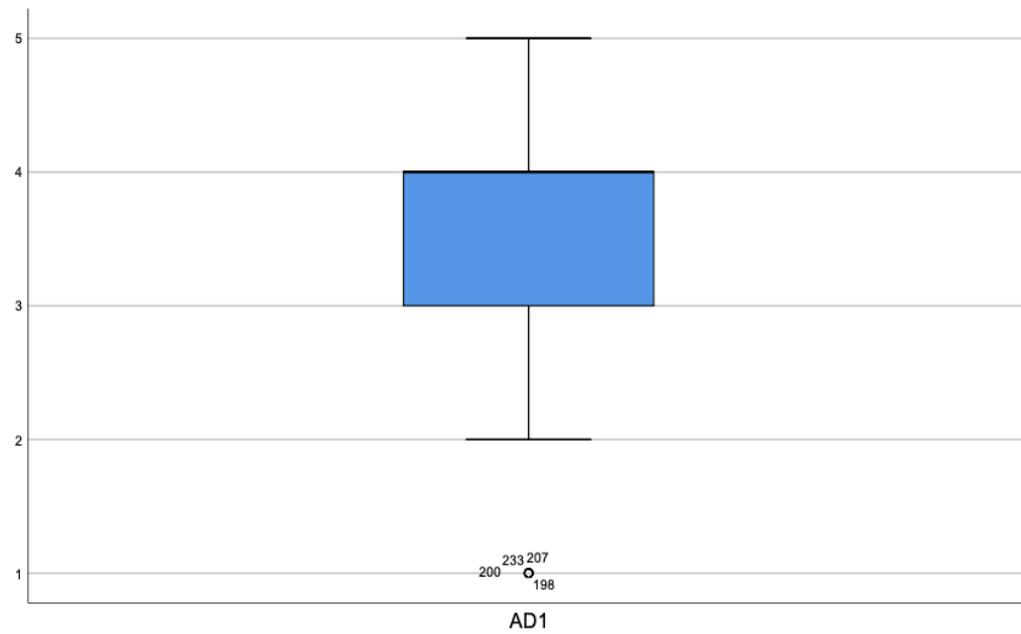
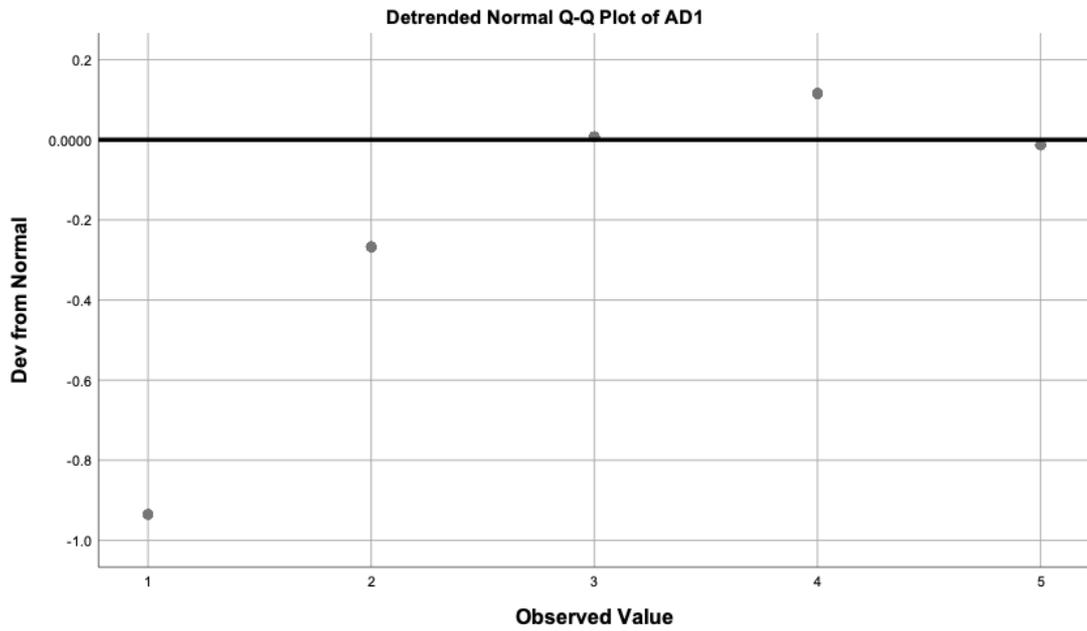
WOM3



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs. There is only one point nearly -0.6 is retained.

Box plot shows four outlying scores which, ID numbers 180, 200, 207, and 233, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

AD1

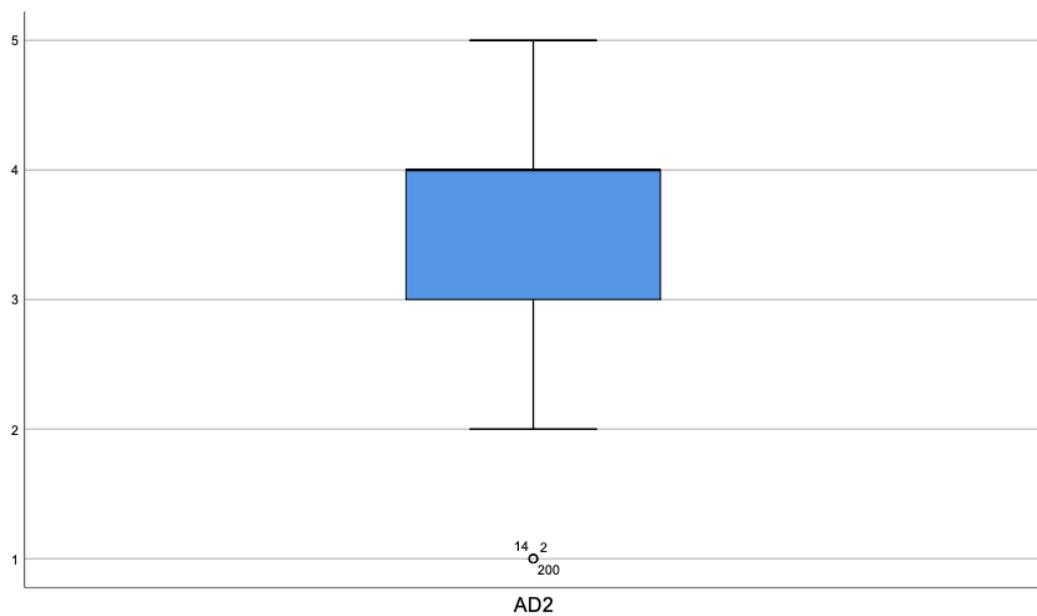
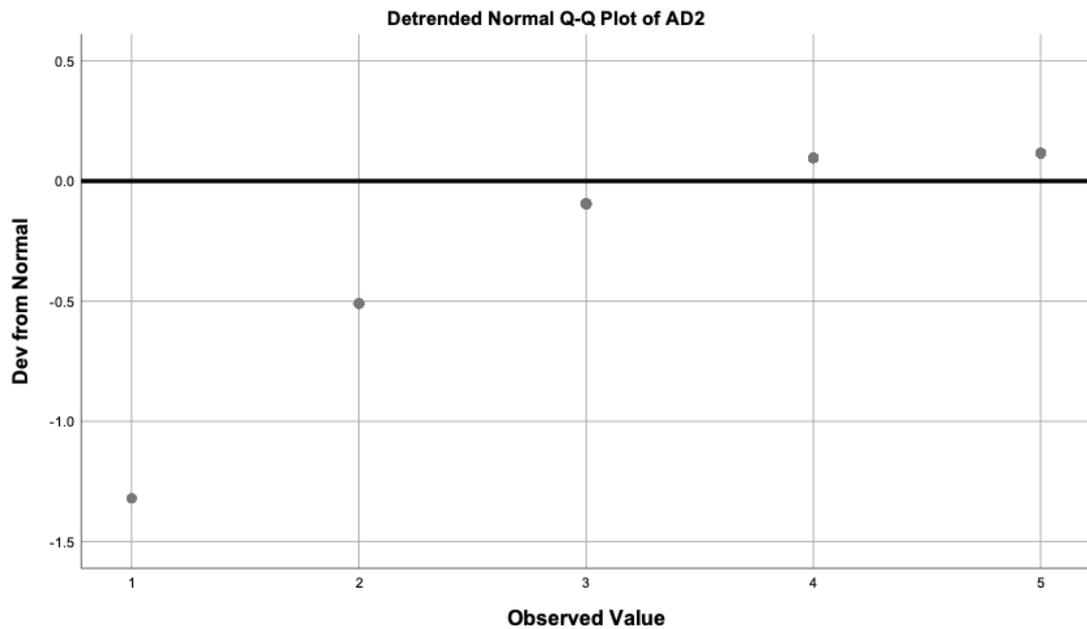


In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure

displays, are gathering near the line of zero and no real clustering of points occurs. There is only one point nearly -0.9 which is retained.

Box plot shows four outlying scores which, ID numbers 198, 200, 207, and 233, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

AD2

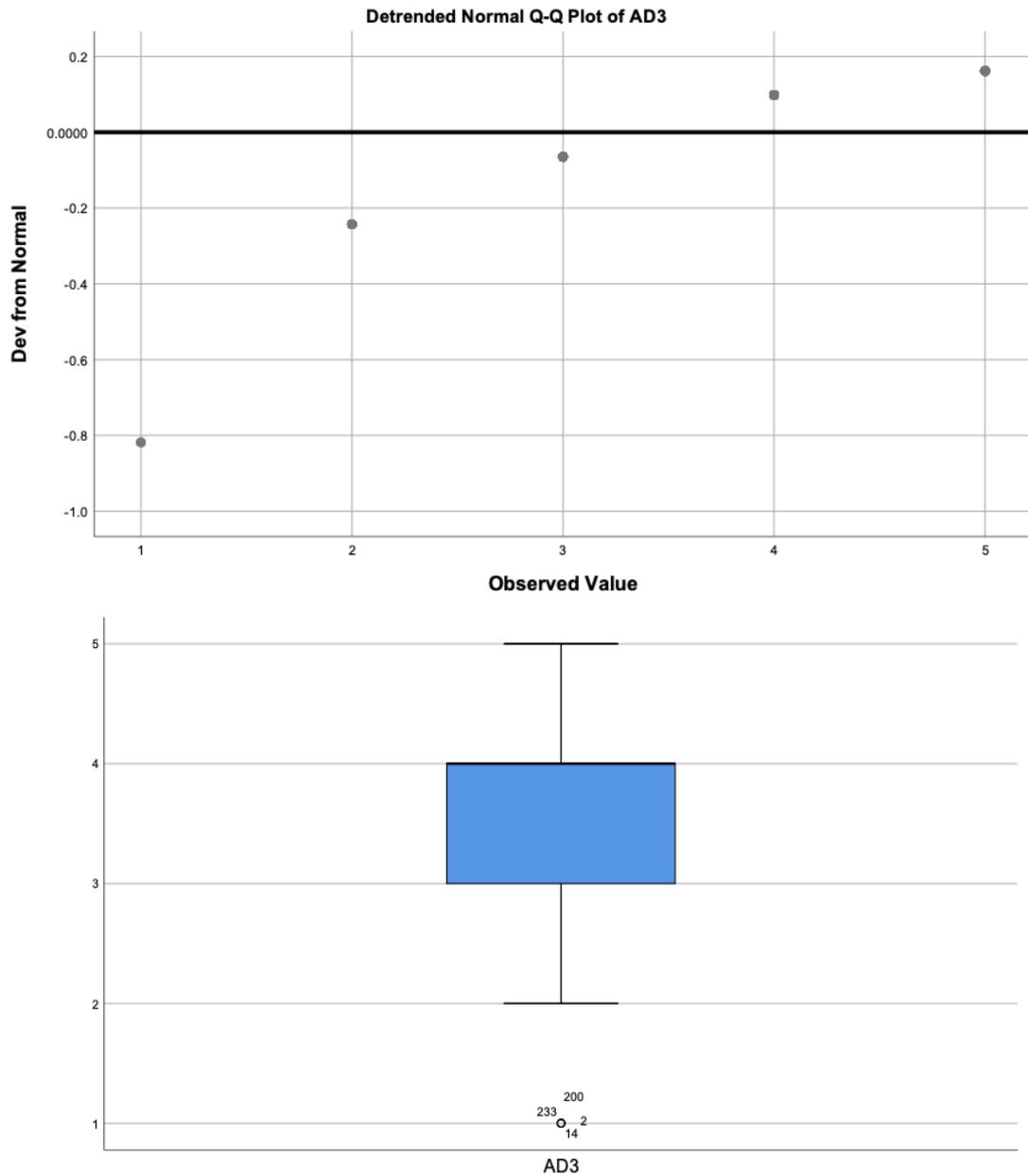


In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs. Although, there is a score nearly -1.3. Scores more than ± 1.96 standard deviations away

are outliers at the 0.95 confidence level, suggested by Garson (2012). That is, it is discovered to be normally distributed and following analysis is retained.

Box plot shows three outlying scores which, ID numbers 2, 14, and 200, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

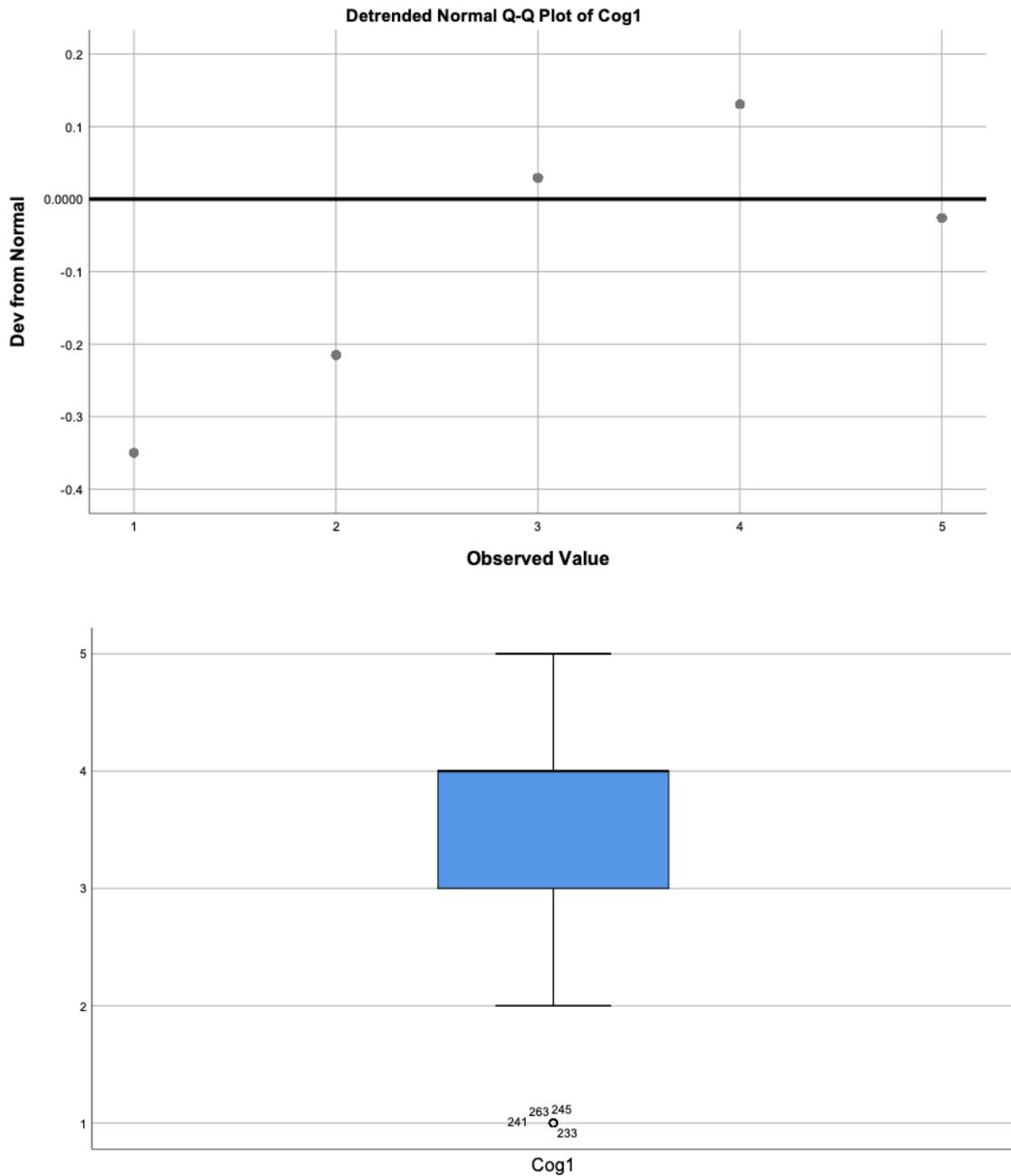
AD3



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs. There is only one point nearly -0.8 which is retained.

Box plot shows four outlying scores which, ID numbers 2, 14, 200, and 233, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

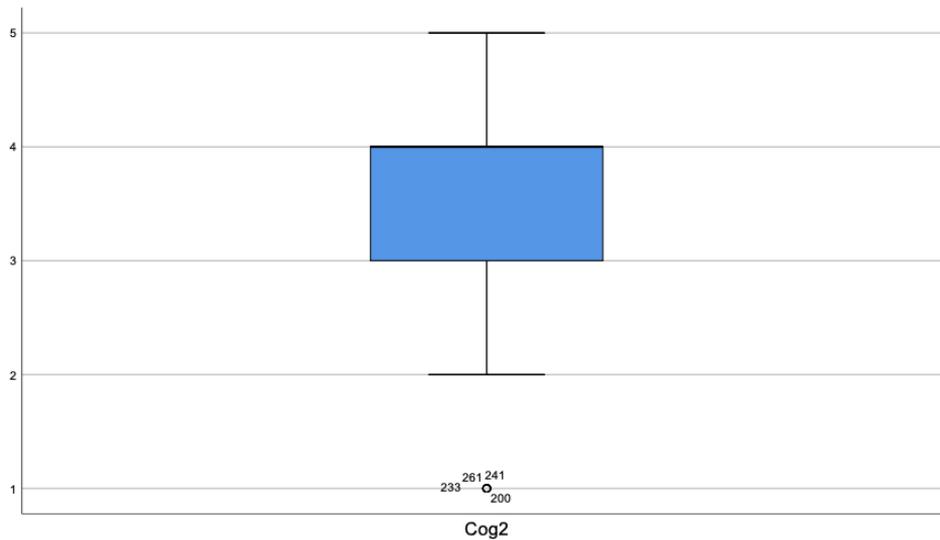
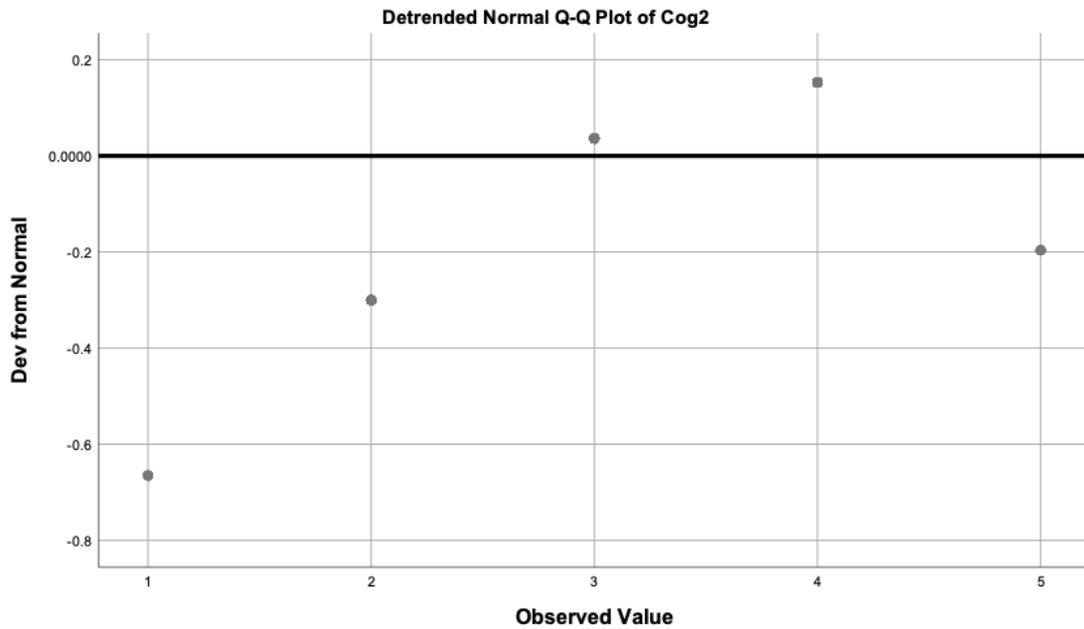
Cog1



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Box plot shows four outlying scores which, ID numbers 233, 241, 245, and 283, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

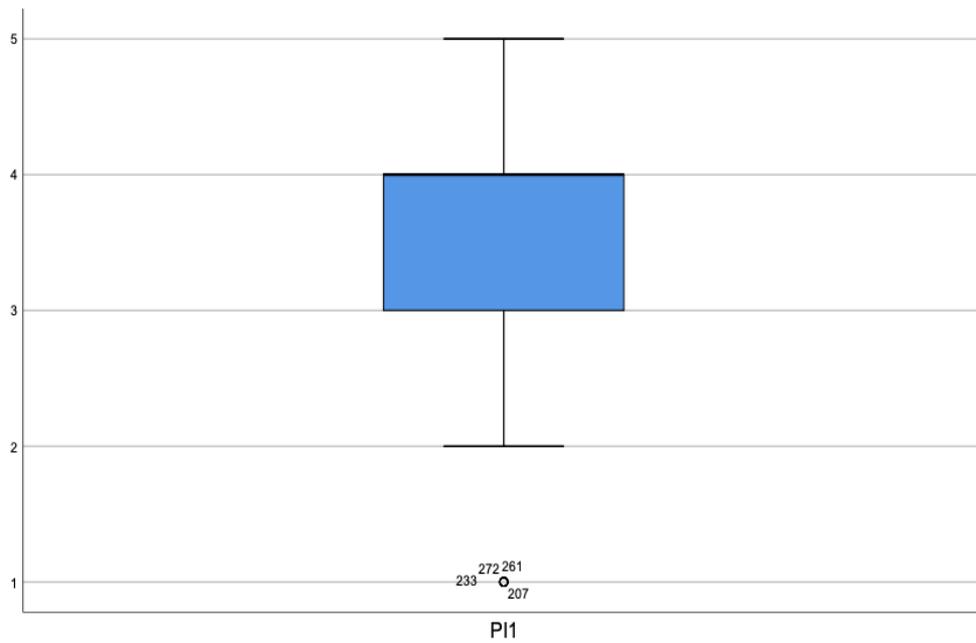
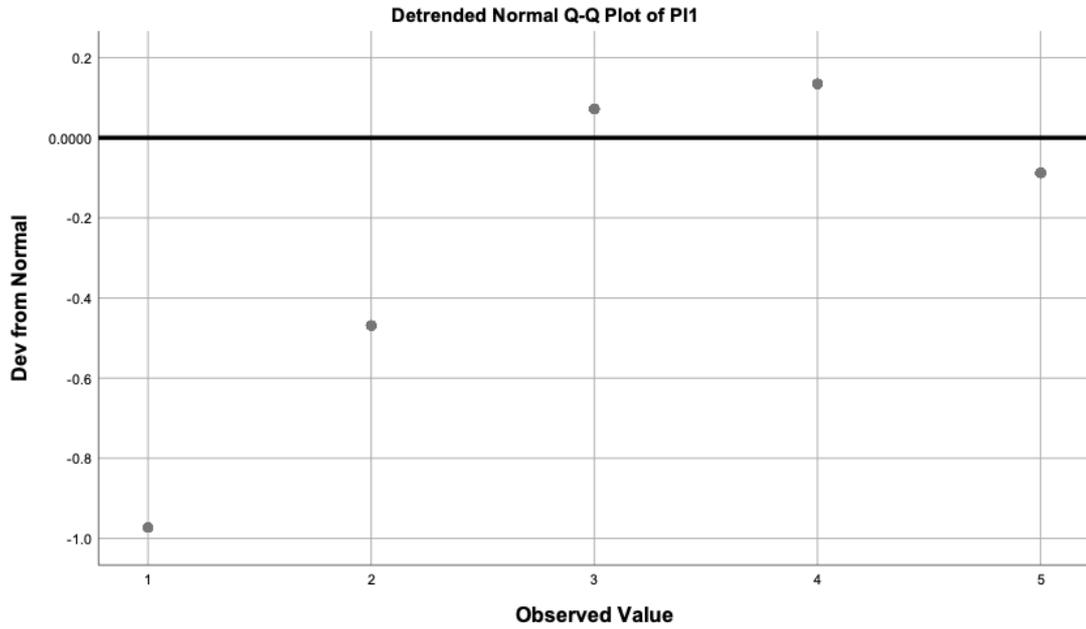
Cog2



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs. There is only one point nearly -0.7 which is retained.

Box plot shows four outlying scores which, ID numbers 200, 233, 241, and 281, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

PI1

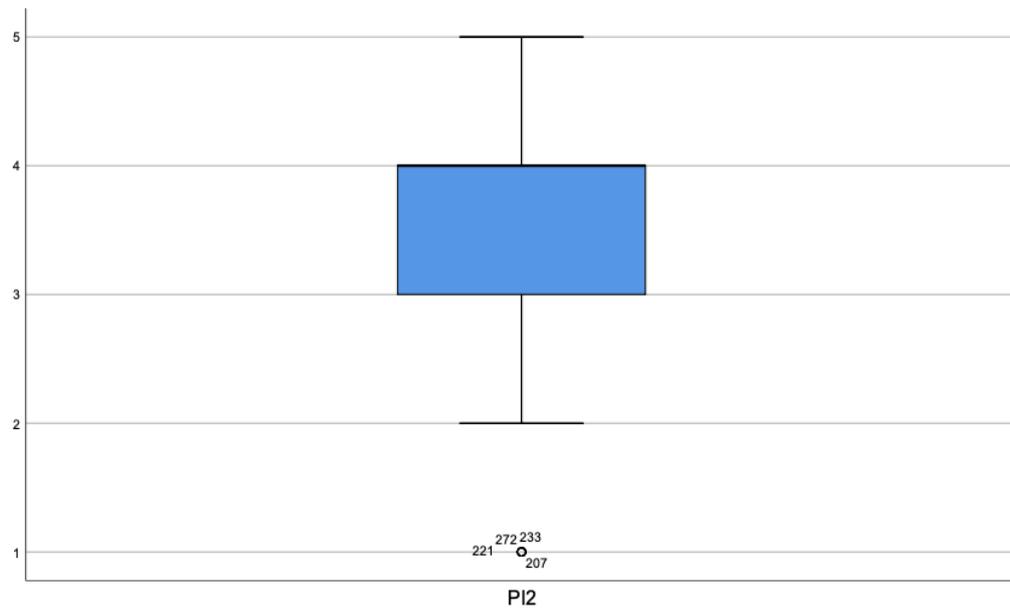
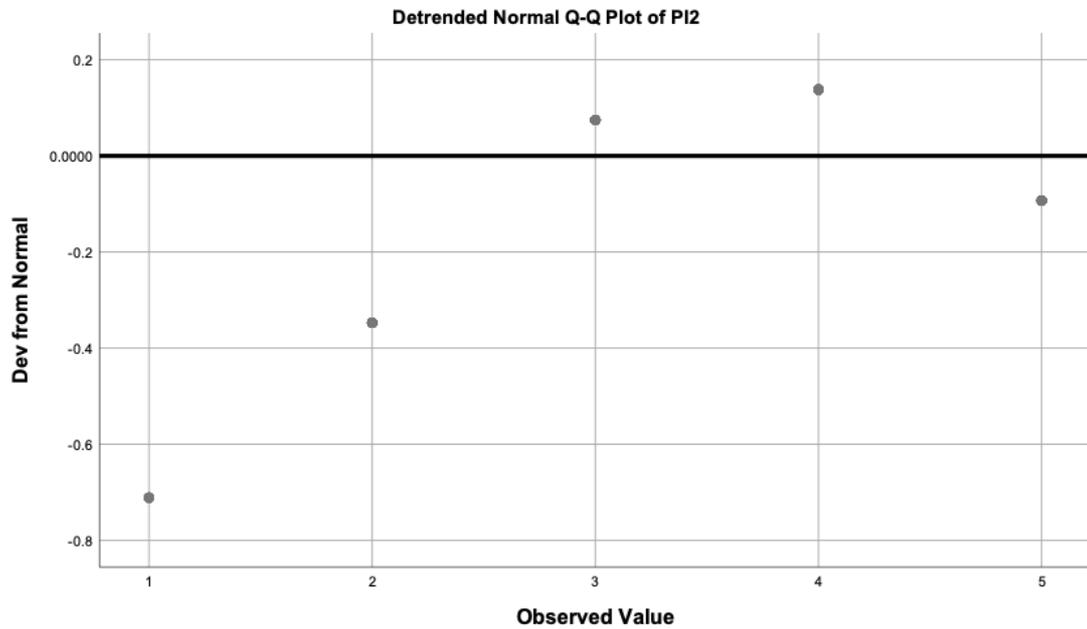


In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure

displays, are gathering near the line of zero and no real clustering of points occurs. There is only one point nearly -0.9 which is retained.

Box plot shows four outlying scores which, ID numbers 207, 233, 261, and 272, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

PI2

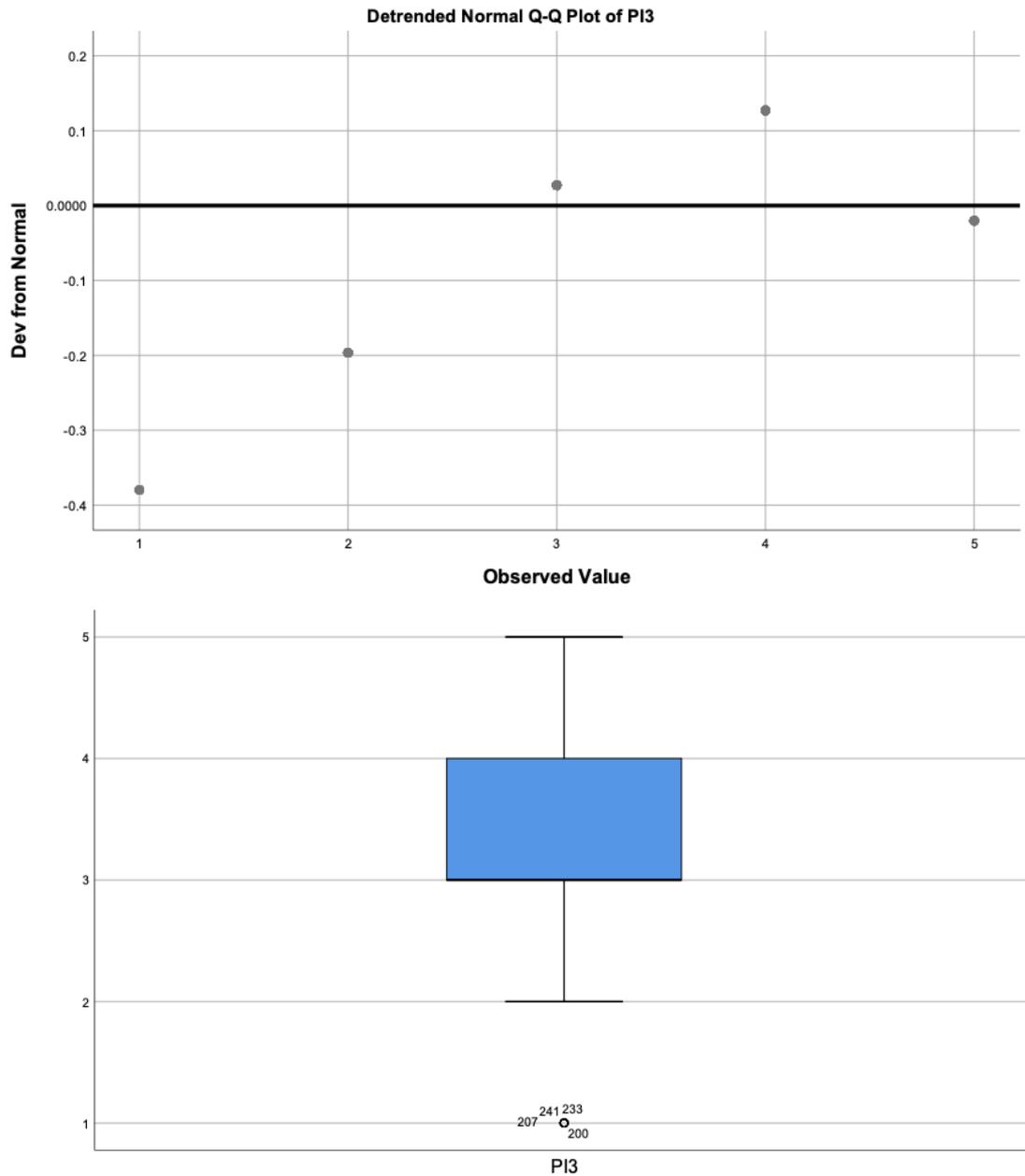


In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure

displays, are gathering near the line of zero and no real clustering of points occurs. There is only one point nearly -0.7 which is retained.

Box plot shows four outlying scores which, ID numbers 207, 221, 233, and 272, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

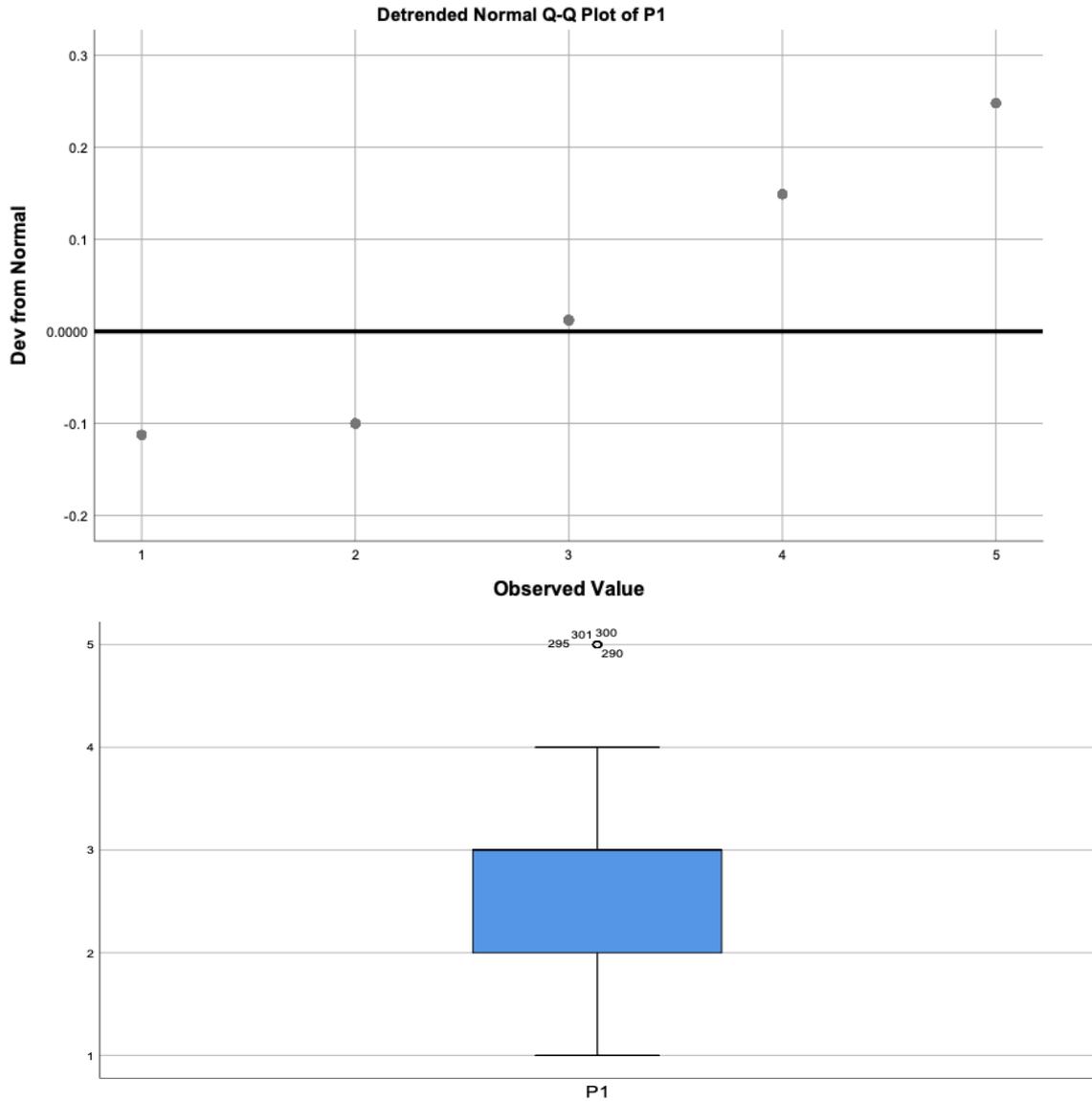
PI3



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Box plot shows four outlying scores which, ID numbers 200, 207, 233 and 241, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

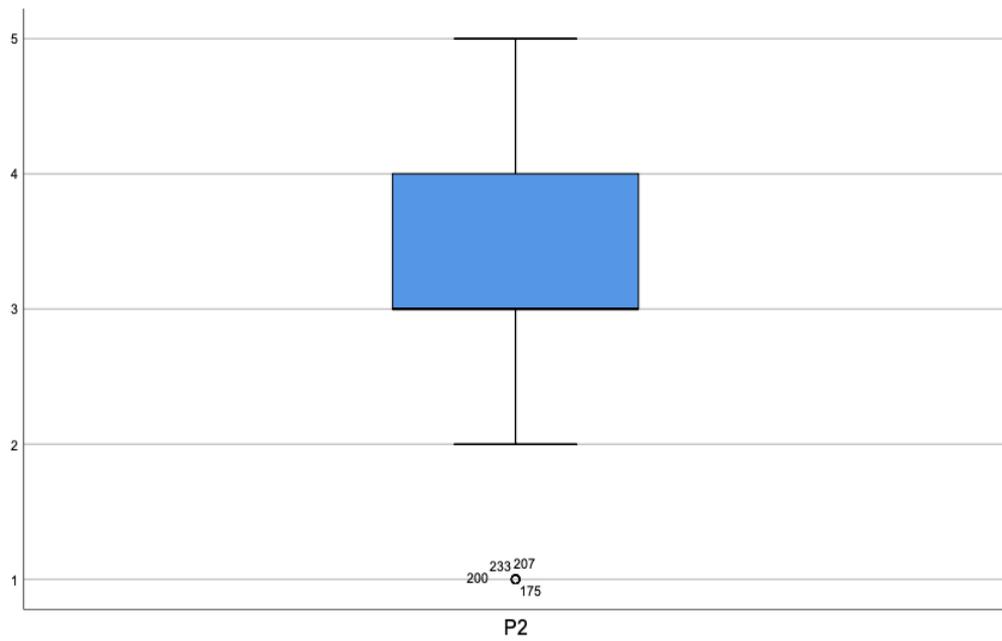
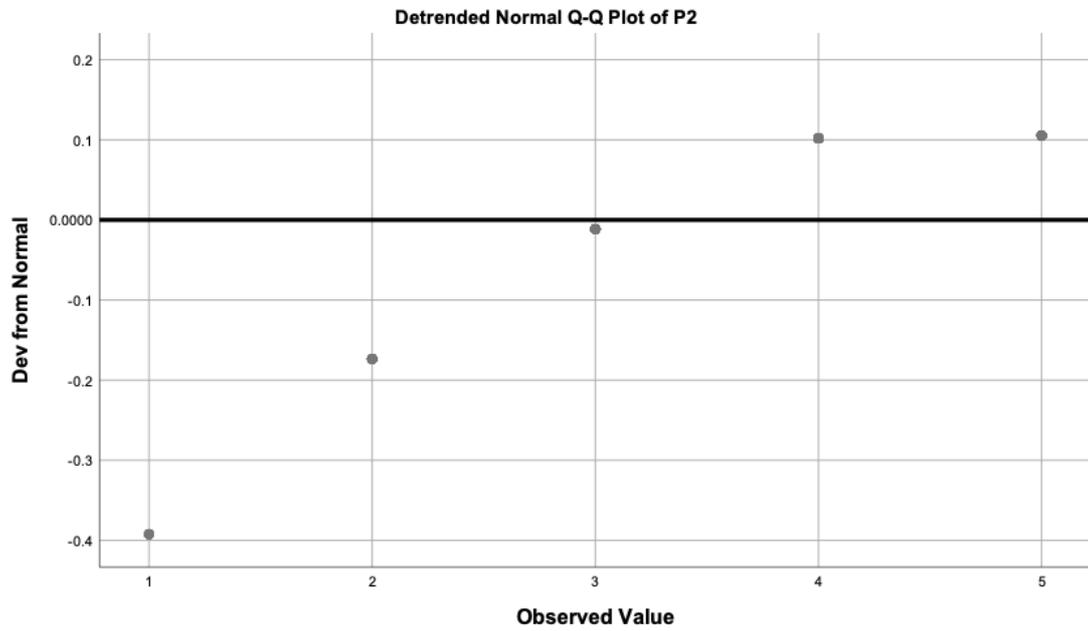
P1



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Box plot shows four outlying scores which, ID numbers 290, 295, 300, and 301, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

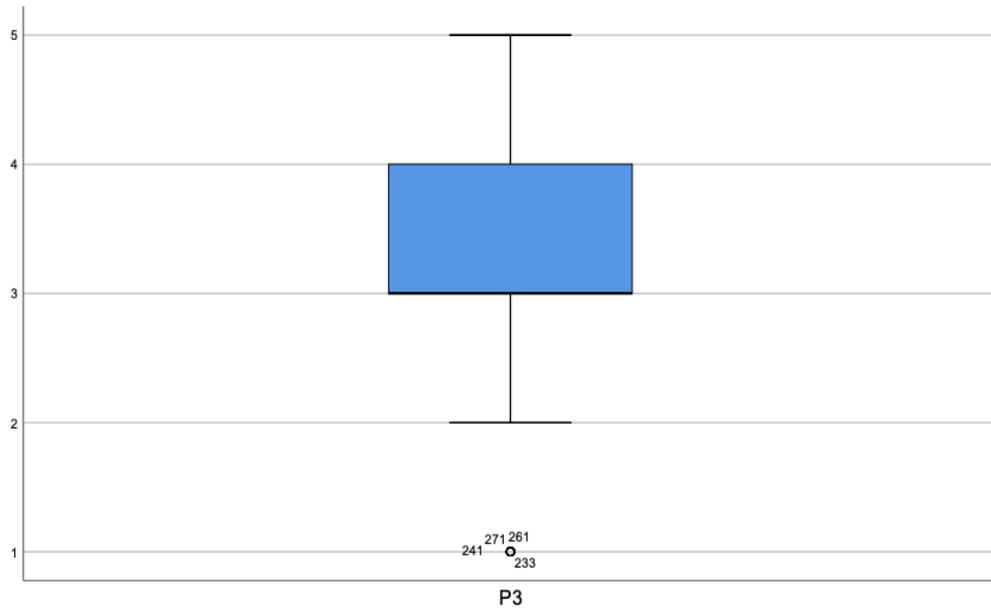
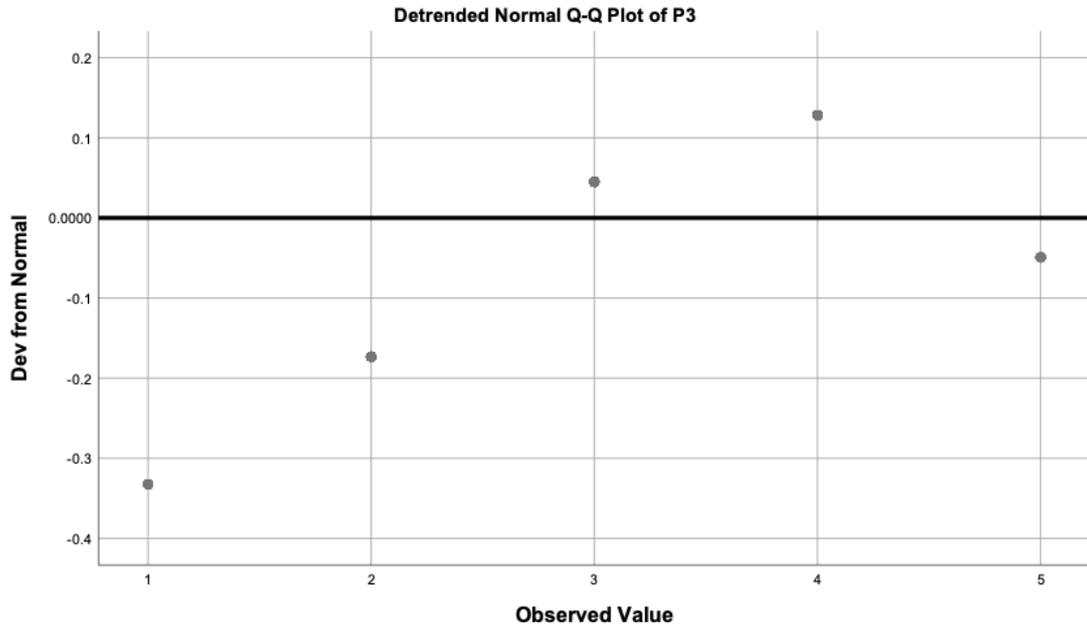
P2



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Box plot shows four outlying scores which, ID numbers 175, 200, 207, and 233, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

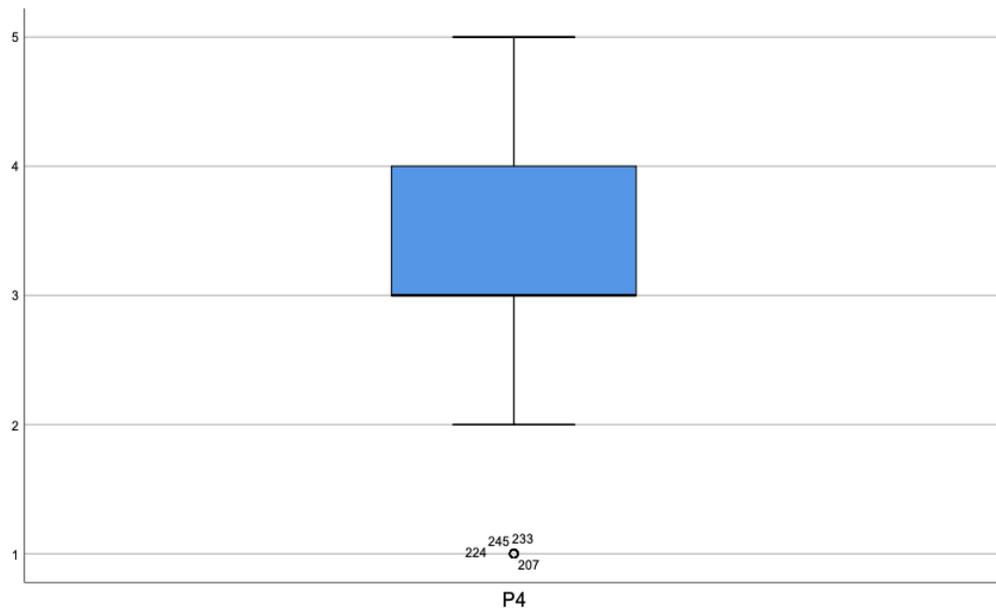
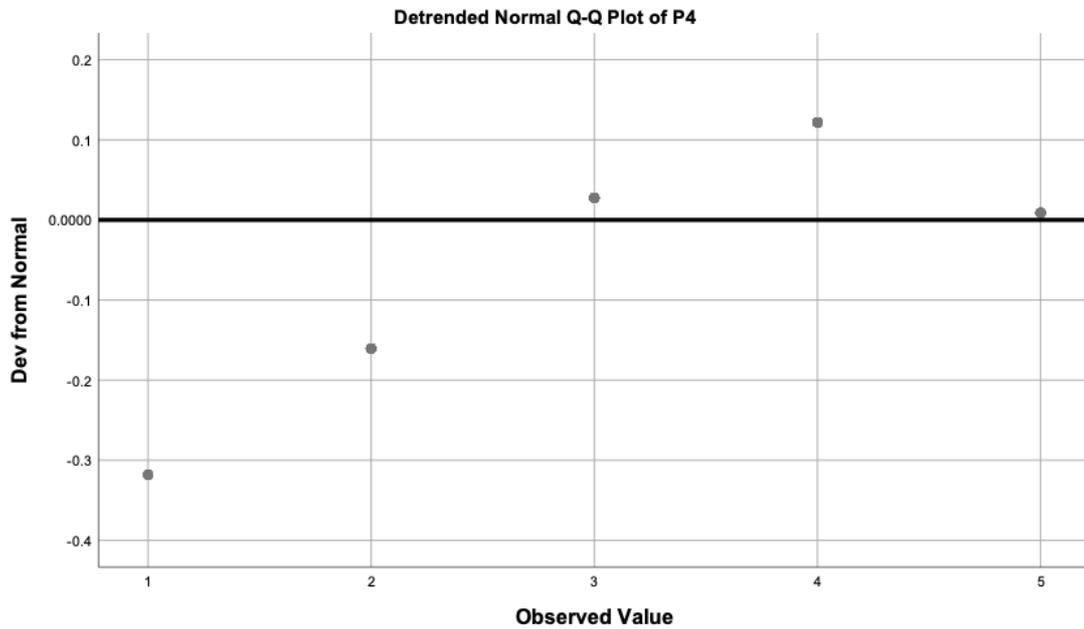
P3



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Box plot shows four outlying scores which, ID numbers 241, 233, 271, and 281, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

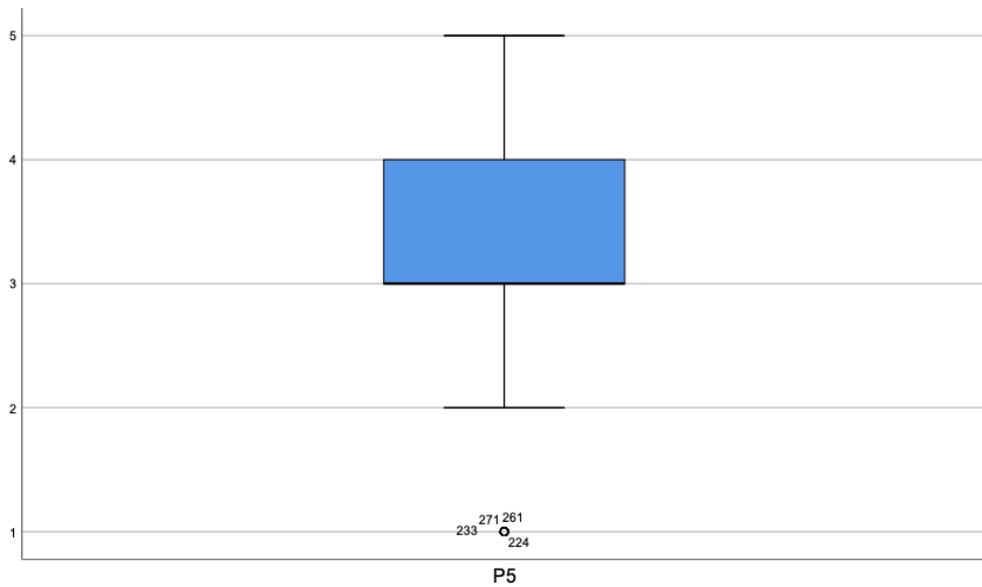
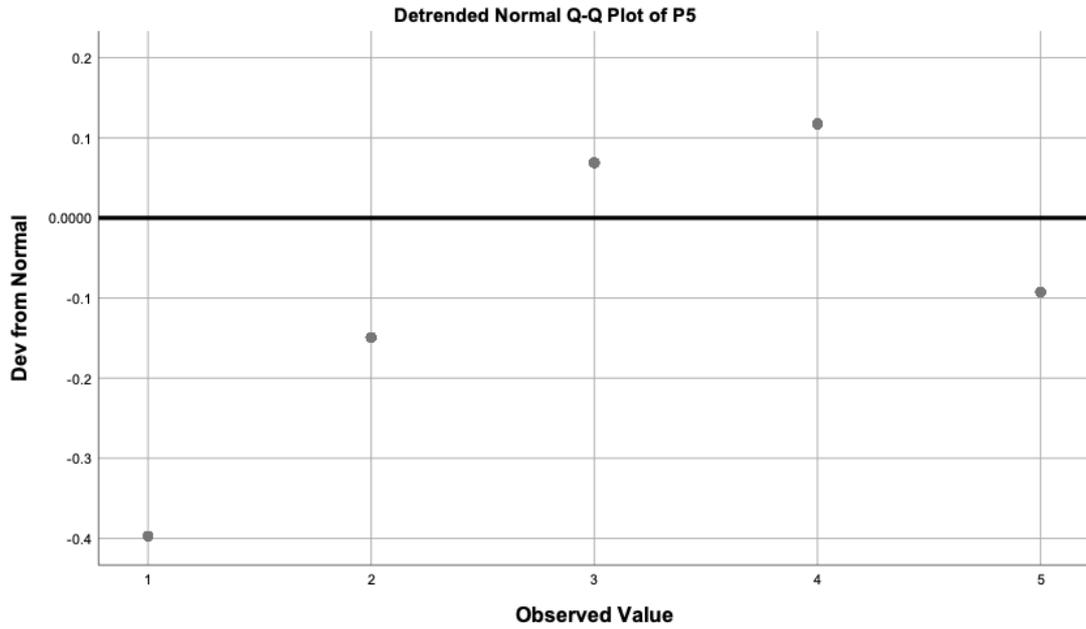
P4



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Box plot shows four outlying scores which, ID numbers 207, 224, 233, and 245, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

P5



In the above figure, detrended normal Q-Q plots demonstrated are gained around the straight line by plotting the actual deviation of the values. Most data points in the figure displays, are gathering near the line of zero and no real clustering of points occurs.

Box plot shows four outlying scores which, ID numbers 224, 233, 271, and 281, are kept as they are within 2 box-length and therefore not extreme outliers. In other words, in the quantitative data analysis, they are not supposed to make a major influence on the results.

Appendix 4. Interview 1

Health issues

To what extent would health issues motivate your decision to purchase a WSTP? Why?

Yes, so I think that interested by WSTPs to sort of monitor my activities and other prospective of my health, possibly blood sugar, blood pressure, maybe even pulse.

1. 2. Why do you think that is important to your health?

I think that is quite easy for people to be lazy, these days, we don't have to move around as much as people in the past, so it's quite easy to sleep to be inactive, having poor eating habits. We all know that can lead the eventually to diabetes, you know diabetes may lead to blood sugar, but sometimes, I guess, so it's possible that WSPTs can help people to identify when you had started the problems though, so being an awkward position before they came from.

IT innovation:

To what extent would IT innovation motivate your decision to purchase one of these products? Why?

2.

I think at the moment, those things are isolated each one concerns to do one or two things, but the beginning sorts of multi-functional, reaching the point when they can take over one thing would be nice having something like WSTPs. The things are you don't have to take your house keep on your jacket or wallet so that they can replace some of these things. I think that will become earlier opinion.

Will IT innovation be able to bring benefits to your life.

Yes, so I can say that it makes life easier, in general, it could be convenient, potential free of time for other activities.

**To what extent would you use WOM to search for more information?
Why?**

3.

Sure, if I would tend to search those kinds of products, I might look at online reviews and start to get more information from those, this is always quite interesting to see how individual people using something the actual experiences they had. I think you can require the idea from one of the particular products.

Do you rely on the online review or eWOM due to you believe the other users' experiences?

Yes.

4.

To what extent would you search for more details through the advertising? Why?

When you see the advertising, you can make you aware something, to begin with, it is a kind to enforce you or make your future didn't know a particular product or wear sure, so it comes more initial about the specific products.

Because advertising catches your eyes? Or the contents in the advertising meet your needs?

Generally, would buy needs, sometimes, you don't have the needs until you see the advertising, you know you may not know that you have the particular problems until you see something around the advertising.

To what extent you would agree that you will use WOM to search the related information when you buy a WSTP more than using the advertising? Why?

5. Yes, I think so, I think you would have the greatest impact on my decision to buy something and also a decision on my decision where is advertising or sort of background, you know you might force my initial brand or something.

Cognition

6. **To what extent would you believe that the benefits provided by a WSTP will meet your needs? Why?**

Yes, I believe that will. For me, I'm quite looking for the quite strength line; you know when the technology comes when the people out wearing

the device around them over time. So I can see it's meeting my needs and also might improvement in everybody's lives.

Is it that you want to improve your health conditions? Physical performance? Sports competition? Manage your weight? Body mass index?

Yes, it's really about physical performance, it's more about being good and also just being healthy, so I think that the more activity you are, the more you getting you goanna recover that's everything from just flu to more serious things that you can catch so being inactive health really, that's positive part, when you benefit from finding out things. I think I just interested in being flexible; I don't get a bad problem in the future.

Purchase Intention & Actual purchase behaviour

If you think a WSTP meet your needs, will you buy it in the future?
Why?

Yes.

7. **What is the most important factor in buying a WSTP? Price? Promotion? Or a gift?**

I think product is quite important to me, I would say it's kind of probably the benefit against the price so the more thing you can do, the more sort of things I can apply you know, which means I need to no longer to take my phone around, that's everything you don't potentially I can replace my

phone by some points of the wearable devices. That's sort of staff I will take into account. That's what sort of reliability, and I would say I am probably not like the earlier adopter, I think I like the people a little bit, then you can see how it's going to work, and you know you get kind of these things generational, and it's more testing.

Do you have any questions or suggestions?

8

Sure, some things are very interesting, like how they are going to make sort of these devices, or conjunctions as well. You know potentially, it's quite good to have something that's to be able to contract they should have more that you are able to find them. I would tend to be more price-conscious because it's quite good of things, that has to be very tough. But that's interesting wearing it's developing.

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