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Applying an extended theory of planned behaviour model in the context of green personal care products purchase:

Impacts of environmental consciousness and health consciousness on consumers' attitude towards and purchase intention of green personal care products

Master Thesis

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Abstract

Current unsustainable production and consumption patterns play a major role in severe environmental degradation. Thus, it has become pressing to switch to more sustainable (greener) alternatives and investigate the motivational drivers of sustainable consumer behaviours. This study focuses on the product category of *green personal care products* (GPCPs), as these products are used on a daily basis exerting significant effects on both the environment and consumers´ health. Furthermore, research concerning this product category is scarce. Thus, the aim of this paper is to examine the determining factors as to why consumer (intend to) purchase GPCPs taking into consideration consumers´ increasing environmental consciousness (EC) and health consciousness (HC) in Denmark. The primary aim of this paper is to study the influence of environmental consciousness (EC) and health consciousness (HC) – *as consumer values* – on consumers´ attitude and intention (as well as behaviour) towards purchasing GPCPs. These values were integrated into *The Theory of Planned Behaviour (TPB)* by the two authors, resulting in an extended theoretical framework. This way, not only the influence of these consciousnesses on attitude, behavioural intention (and actual behaviour) but also the usability/efficacy of the extended TPB model in explaining consumers´ intention to purchase GPCPs is explored in its entirety considering these additional aspects. The authors conducted a quantitative study based on an online questionnaire with 316 participants all over Denmark. Structural Equation Modelling (SEM) was utilized to analyse the collected data. The results indicate that - though consumers express both high EC and HC which positively affect their attitude towards GPCPs – EC has a significantly greater impact on consumers´ attitude as well as intention towards GPCPs purchase. Among the conventional TPB constructs, attitude is the most prominent antecedent of GPCPs purchase intention followed by perceived behaviour control, whereas subjective norms are insignificant. Added to that, the initially proposed TPB model included actual purchase behaviour as a factor quantitatively measurable via a questionnaire. Nevertheless, this study confirms that behaviour cannot be measured via such design, as behaviour in its expressed form, cannot be differentiated from intention. Based on these findings, implications for academics, marketers and policy-makers were proposed.

Key words: Green personal care products (GPCPs), The Theory of Planned Behaviour (TPB), Structural Equation Modelling (SEM), green/sustainable consumption, sustainability, green purchase intention/behaviour, attitude, environmental consciousness (EC), health consciousness (HC)

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Chapter 1: Introduction

1.1 Research area

"Sustainability plays a fundamental role in the cosmetics and personal care industry of today. Thinking and acting sustainably is an unquestioned priority for our future" (Bertil Heerik; Sahota, 2014)

Severe environmental sustainability issues such as climate change, water, and air pollution, the depletion of natural resources and waste generation, among others, are putting the quality of the environment, people's health as well as sustainable development at risk (J. Liu et al. 2010; Liobikiene and Dagiliute 2016; Tukker et al. 2010).

Consumers' current unsustainable consumption patterns play a major role in environmental degradation (Rebecca Elliott 2013; Ritter et al. 2015; Zhao and Zhong 2015). Thus, understanding the motivational factors that affect consumers' green product purchases is of paramount importance. Following on from that, numerous studies have attempted to explore the determinants of green purchase intention and behaviour (S. Kim and Seock 2009; Jaiswal and Kant 2018; Nguyen, Nguyen, and Hoang 2019; Kautish, Paul, and Sharma 2019; Wei et al. 2017; Hsu, Chang, and Yansritakul 2017; He et al. 2015; Chekima et al. 2016; Akehurst, Afonso, and Gonçalves 2012). Such studies point out that it is imperative to shift from a conventional consumption pattern to sustainable consumption (or green consumerism). This can be achieved through, for example, incentivizing the purchase of environmentally-friendly (or eco-friendly) alternatives, that is, green products (Rebecca Elliott 2013; Ritter et al. 2015; Zhao and Zhong 2015). On the other hand, besides purchasing eco-friendly alternatives, "deep" green consumers also "seek to reduce their overall level of consumption" (Goodwin et al. 2019, 202).

Regarding the product category from a broader perspective, it must be noted that there is a considerable difference between the purchase of durable versus necessity goods. The purchase of durable goods (e.g. a car or electronics) is not frequent and reflects a fairly complex decision-making process (high-involvement). On the contrary, necessity goods (e.g. detergents and personal care products) are consumed on a daily basis, have a short shelf life and often reflect routine purchase decisions, and are considered to be low-involvement products. Added to that, most studies take a general approach to green consumption, which could lead to confusion, since the purchase of different product categories is determined by distinct factors. Moreover, green consumers are apt to be concerned about different product categories. Consequently, it is confounding to lump together all product categories, regardless of their differences (Liobikiene, Mandravickaite, and Bernatoniene 2016). This generality in green consumption research might hinder the efficacy in revealing the real determinants of product-specific attitude as well as purchase and behaviour (Liobikienė & Bernatonienė, 2017). For example, consumer preference over eco-friendly products (Almossawi 2014; Majumdar and Swain 2015) and consumer

familiarity with environmental information (Bernard, Bertrandias, and Elgaaied-Gambier 2015) are found to be different across product categories.

In this paper, attention is paid to the product category of green cosmetics. Cosmetics can be divided into two product groups: colour (i.e. make-up) and styling cosmetics, which are usually seen as luxury products reflecting consumer status; and personal care products (e.g. shampoos, soaps, toothpaste, fragrances, etc.), which are necessity goods and are strongly related to people´s health (Y.-L. Wu and Chen 2012), as they "serve the basic needs of hygiene and cleanliness" (Sahota, 2014, p.3). This study focuses on the latter sub-category of green cosmetics, that is, *green personal care products* (henceforth: GPCPs) for three major reasons. First, this product group deserves ample attention, as GPCPs are used on a daily basis and play a vital role in protecting consumers' health, improving their well-being and boosting their self-esteem (Kim & Chung, 2011). Second, harmful chemicals are usually present in conventional cosmetic products causing environmental degradation and threatening consumers' health. Consequently, producing and encouraging the use of eco-friendly alternatives has become particularly important (Cosmetics Europe, n.d.) Third, this product category has been scarcely analyzed (S. Kim and Seock 2009). Through their literature review of researches from 2011 to 2017, Liobikienė and Bernatonienė (2017) also highlighted that currently there is an imbalance between the growing use of green cosmetics and the limited attention from researchers to this product category.

What is more, as public interest in ethics and sustainability intensifies, consumers are increasingly demanding cosmetics with natural, organic, and sustainable ingredients, that is, *green* cosmetics (Moisander 2007; Acme-Hardesty 2020). This is because consumer awareness is raising regarding the direct impact purchasing decisions (purchasing power) are having on the environment and social communities. Although this trend is believed to be mainly motivated by *egocentric* (meeting health and wellness needs as well as safety concerns) factors, *eco-centric* (care for the environment and protecting biodiversity) concerns are also coming to the fore when consumers purchase 'green' cosmetic products (McEachern and McClean 2002; Sahota 2014). Therefore, the overall aim of this study is to contribute to the academic discussion about this increasingly popular consumption trend. The specific purposes of the current study are described in the following section.

1.2 Purpose of the study and research questions

As stated above, despite the fact that cosmetics/personal care products are used daily and the there is growing interest in 'green living' coupled with consumers' increasing environmental consciousness and health consciousness, little research has been done to investigate how environmental- and health consciousness influence consumers' attitudes and behavioural intention as well as actual behaviours towards green personal care products. Thus, literature on organic food consumption will also be considered, since both product categories are directly related to human health as well as environmental issues (Liobikienė & Bernatonienė, 2017). This is due to the ingredients and packaging used, production processes, and disposal (Sahota 2014). To the best of the authors' knowledge, only one similar study has been conducted by Kim and Chung (2011), which investigates the roles of EC and HC as *consumer values* in the product category of organic personal care products. In a similar vein, the primary objective

of this study is to investigate how EC and HC – *as consumer values* – affect consumers' attitudes towards and purchase intention of GPCPs in Denmark based on an *extended Theory of Planned Behaviour* (TPB) model. The TPB model was chosen as this theory is the most commonly applied attitude theory and provides a comprehensive and flexible conceptual/methodological framework to understand, explain and predict behaviour and its determinants (Miller 2017) as well as effective implications for researchers, marketers and policy-makers (Ajzen et al. 1980; Ajzen 2015a). The flexibility of the theory allows for incorporating additional predictor variables (Ajzen 1991). Miller (2017) argues that this flexibility should be utilized by researchers to better understand behavioural intentions and behaviour in a variety of behavioural contexts.

Based on the above, the purpose of this study is to:

(1) Explore the usability/efficacy of the extended theory of planned behaviour model in the context of green personal care products purchase behaviour considering the effects of environmental and health consciousness (additional variables in the TPB model) – *as consumer values* – on attitudes and purchase intention (as well as behaviour).
(2) Investigate the relative importance and impact of the motivational drivers of green personal care products purchase considering the effects of the additional variables, i.e. environmental and health consciousness on attitudes and purchase intention.
(3) Relying on the findings, offer implications for academics, marketers, and policy-makers.

1.3 Thesis structure

This section serves to provide the reader with a comprehensive preview of the structure of this paper. The thesis was divided into the following eight Chapters:

1. Introduction
2. Research background
3. Theoretical background
4. Literature review and hypotheses development
5. Methodology and limitations
6. Analysis and results
7. Discussion and implications
8. Conclusions and suggestions for future research

The *Introduction Chapter* intends to provide the reader with a basic understanding of the research topic, research purpose, and research questions regarding green personal care products (GPCPs) purchase.

The *Research background Chapter* explains consumer behaviour and green consumerism, and describes the green consumer and defines green cosmetics and personal care products. Apart from that, the relevance of sustainability in the cosmetics industry is addressed.

The *Theoretical background Chapter* describes the major theoretical approaches according to six individual-level dimensions (values and knowledge, beliefs, attitudes, intentions, motivations, and social dimensions) to provide a comprehensive picture of the field of green consumer behaviour research. Then, the predecessors of the *Theory of Planned Behaviour* – which provides the theoretical foundation of this study – are briefly addressed and the TPB theory itself is discussed in detail. Finally, the limitations of the TPB theory are discussed.

The *Literature review and hypotheses development Chapter* is based on the theory of planned behaviour model in the domain of green consumer behaviour, more specifically, general green consumption, organic food, and green cosmetics purchase. Based on the latter two domains, which are strongly intertwined, hypotheses are developed and an extended conceptual framework – including environmental and health consciousness, which are considered to be specific to the context of green personal care products – is proposed.

The *Methodology and limitations Chapter* elaborates on the adopted research approach and analytical method used. The current study adopts a positivistic approach, and as such utilizes a survey-based design. Additionally, *Structural Equation Modelling* (SEM) is adopted to model analysis.

The *Analysis and results Chapter* applies Structural Equation Modelling (SEM) to analyze the results based on an online questionnaire following a two-step model: the measurement model (which operationalizes the theory) and the structural model (which represents the theory by hypotheses testing).

The *Discussion and implications Chapter* discusses the efficacy of the proposed extended TPB model in the context of green personal care products purchase. Investigate the relative importance and impact of the motivational drivers of green personal care products purchase considering both the conventional TPB constructs and the effects of the additional variables, i.e. environmental and health consciousness on attitudes and purchase intention. Based on these findings, theoretical, marketing, and policy implications are proposed.

The *Conclusion and suggestions for future research Chapter* summarizes the findings, answers the proposed research questions, and provides suggestions for future research based on the *Analysis and results Chapter* and *Discussion and implications Chapters*.

Chapter 2: Research Background

2.1 Consumer behaviour and green consumerism

Numerous scholars have claimed that a group of ´aware´ and ´ethical´ consumers has appeared (e.g. Harrison et al., 2005; Shaw & Clarke, 1999; Strong, 1996). More importantly, the concepts of ethical consumerism and green consumerism are intertwined to a great extent. Cowe and Williams (2000) note that ‘‘shoppers are highly aware of ethical issues and many are ready to put their money where their morals are’’ (p.2). This “ethical shopping basket” is related to individual/household consumption “in the areas of food, household goods, cosmetics and toiletries, energy, housing, transport, leisure and charity” (Freestone and McGoldrick 2008, 445). This study focuses on cosmetics, and more specifically *green personal care products (GPCPs)*. GPCPs purchase belongs to the realm of ethical/green consumerism. In general connotation, green consumerism can be described as an extremely complex form of consumer behaviour (Moisander 2007). Thus, it is crucial to first discuss what consumer behaviour is and what it entails.

Consumer behaviour can be understood as the decision-making process of purchasing specific products and/or services. Purchasing decisions are observable behaviours and has been extensively researched as individuals´ motivational tendencies (Moisander 2007). The term ´motivation´ usually designates why a specific behaviour occurs. Atkinson (1967) defines ´motivation´ as the problem of accounting for direction, vigour and persistence of behaviour (Atkinson in Moisander, 2007, p. 404). Motivation is usually defined in terms of two components: 1) intensity and strength of the motivations and 2) direction, which determines which behavioural alternative is chosen from all available possibilities and why. Furthermore, in the cognitive approach of consumer behaviour research, it is assumed that consumer behaviour is purposive, as “people aim to satisfy needs or attain some goals” (Moisander 2007, 405). What is more, motives can be primary and selective (Wilkie 1990, 175). Primary motives are about the purposes regarding consumers´ decision to engage in a behavioural category. In this connection, Ajzen and Fishbein (1980) pointed out that “environmental-friendly consumption constitutes a behavioural category” (p. 31). This primary motive can be expressed with multiple selective motives, which are purposes of consumers´ decisions as to which particular behaviours consumers intend to engage in. People deem different specific behaviours important to express their ecologically responsible consumption based on their value judgments and the information available (Wilkie 1990). This also impacts upon their product choices, as consumers´ concerns vary to a great extent, and thus, they likely “prioritize their own ethical concerns when making product choices” (Shaw & Clarke, 1998, p. 163).

Apart from motivation, another determining factor in consumer behaviour is consumers´ ability to perform a behaviour (Pieters 1991; Thøgersen 1994). Ability encompasses internal (necessary personal resources to perform the behaviour – also termed self-efficacy) and external (opportunity

determined by aspects of the immediate environment that either facilitate or impede the behaviour) factors. In this connection, consumers´ perceived ability (i.e. degree of behavioural control) affects "both the strength and direction of their motivation to engage in a given behaviour" (Moisander 2007, 405). Put differently, if people lack the necessary resources and opportunities, then it is unlikely that they would engage in a given behaviour. On the other hand, however, strong motivations are likely to boost consumers´ abilities and their perceived control over their behaviour (Moisander 2007).

2.2 The green consumer and green products

Green consumers can be defined as individuals who only engage in purchasing and consuming products that exert the least impact on or do not cause any harm to the environment (Roberts 1996). Green consumers refuse to purchase products that might be detrimental to their own or others´ health and/or cause environmental damage during production, use or disposal, consume an excessive amount of energy, and contain ingredients from endangered species and habitats; or involves animal cruelty. Instead the green consumer opts for purchasing and using environmentally friendly, that is, green products (Hailes 2007).

In this regard, however, there is a lack of consensus about what exactly constitutes a green product. The term ´green´ can be understood as eco-friendly, environmentally-friendly, or sustainable (Han et al. 2011; Laroche, Bergeron, and Barbaro-forleo 2001; Pizam 2009). Ottman (1998) provides an early and fairly comprehensive definition of green products: "green products are typically durable, non-toxic, made of recycled materials, or minimally packaged. Of course, there are no completely green products, […] as green is relative, describing products with less impact on the environment than their alternatives." (p. 89). Apart from that, green product definition might vary according to its environmental and/or health focus. For example, in the health sector, a green product is oftentimes understood as reducing impacts on human health, whereas in manufacturing businesses, the aspects of economic development and environmental protection are highlighted (Saha and Darnton 2005). The following definitions address this complexity by including both environmental and health aspects. Nimse et al. (2007) argued that green products may be defined as products that "contain recycled materials, reduce waste, conserve energy or water, use less packaging, and reduce the amount of toxins disposed or consumed. These products are less harmful to humans and the environment compared with the traditional products in use, and are more socially, economically, and environmentally viable in the long run" (p. 131). Sdrolia and Zarotiadis (2019) pointed out the "relativeness of greenness", meaning that there are no entirely green products.

What is interesting to note is that almost every definition stated above establishes a comparison between that of 'green' products and their conventional alternatives/counterparts. Comparisons like 'less/lower/decreased impact than', 'superior to that of' all point out the 'relativeness of greenness', implying the relativity of greenness, and thereby supporting the same line of reasoning. Evidently, as the cosmetics/personal care industry is strongly related to the health sector, both environmental and more self-interested health factors are important aspects. Moreover, the problematization of the

relativeness of greenness is also present in the cosmetics industry. In this regard, the definition of green cosmetics/personal care products is discussed in the following section in a similar vein.

2.3 Green cosmetics and green personal care products

The conventional cosmetics industry uses a variety of chemicals like, among others, petrochemicals, parabens, sodium lauryl sulphate, preservatives, and artificial colors, which act as endocrine disruptors. Long-term exposure to such chemicals is likely to result in health-related problems: allergies, dermatitis, and cancer, etc. In this regard, health-conscious consumers are apt to avoid exposure to such synthetic ingredients, and thus are more likely to purchase and use green cosmetics.

In academia, it is expected from green cosmetics that ingredients are environmentally friendly, that is, "grown without pesticides, synthetic fertilizers, toxic materials, genetically modified organisms or ionizing radiation" (Liobikienė & Bernatonienė, 2017, p.114). Green cosmetics avoid using excess and plastic packaging to reduce environmental pollution (Sahota 2014). Therefore, green cosmetics ensure environmental protection along the entire supply chain as well as utilize "natural materials of superior ecological quality for better health" (Liobikienė & Bernatonienė, 2017, p.116).. Nevertheless, from the perspective of the consumer, these definitional criteria might remain vague in practice, as it is difficult to evaluate the "greenness" of these products. To ease consumers´ choices, eco-labels might serve as indicators of product greenness (Moisander 2007). Consumers, however, must be familiar with such labels and possess thorough knowledge as to what is behind the different labels.

For practitioners, green cosmetics are defined by standards and regulations from certification bodies and institutions. For instance, COSMOS presented the principal rules that organic and natural cosmetics, with a "green philosophy" in mind, should aim to adhere to organic agriculture, respectful use of natural resources, clean processing and manufacturing, and green chemistry (COSMOS-standard AISBL 2013). Hence, from these rules, one can confidently distill that the implication of green cosmetics pertains to the entire chain of production. Although the current study does not revolve around certification and labelling, technical implications of 'approved' or 'certified' green cosmetics products may enable a better understanding of the pragmatic issues around green cosmetics. The COSMOS certification system built around green cosmetics includes not only certification of products, but also certification of raw materials, base formulas, and approval of non-organic raw materials that can be used in certified products (COSMOS-standard AISBL 2013). Many frequently discussed concepts in green cosmetics are already technically defined by industrial standards and regulations despite that some of them may be quite different compared to their implied meanings in marketing programs. Under its general rule for COSMOS organic certification which suggests labelling and communication must be clear and must not mislead consumers, COSMOS-standard AISBL (2013) elaborated: "The product must not be called 'organic', for example, 'organic shampoo', unless it is at least 95% organic, measured as a percentage of the total product (p.23).

2.4 The relevance of sustainability in the cosmetics industry: biodiversity loss and raising consumer awareness

There is no single agreed-upon definition of sustainability. A widely accepted definition was proposed by the Brundtland Commission of the United Nations entailing the concept of sustainable development: "meeting the needs of the present without compromising the ability of future generations to meet their own needs" (United Nations General Assembly 1987). Sustainability is often described by the Triple Bottom Line including three pillars or dimensions: *social*, *economic*, and *environmental*. The *environmental dimension* states that natural capital should remain unharmed. Consequently, the extraction of renewable resources should not exceed the rate at which they are regenerated. The extraction of non-renewable resources should be reduced and occur within the agreed strategic levels. The *social dimension* underpins the headway of society. Furthermore, "individual needs such as those for health and well-being, nutrition, shelter, education, and cultural expression should be met" (Sahota 2014, 3). The *economic dimension* refers to the financial feasibility of sustainable social and environmental development (Sahota 2014).

Today, sustainability is seen as the core driver of the cosmetics and personal care industry. This is because there is a growing scarcity of the planet´s finite natural resources (loss of biodiversity) due to human activities and increasing ethical consumerism. The cosmetics industry is dependent on biodiversity as it is a source of raw materials and the opportunity for innovation. Biodiversity loss leads to the decline of both the quality and quantity of the raw materials that are essential to the cosmetics industry. The three biggest challenges in the cosmetics industry are: the scarcity of natural resources, sufficiently reducing the damage regarding biodiversity, and the development of resource-efficient product life cycles. Thus, ethical sourcing practices must be ensured. Ethical sourcing at a local level might contribute to social and economic development and encourage conservation efforts. Thus, the traceability, soundness, and sustainability of supply chain management must be improved. Company policies should underpin sustainable sourcing practices and thereby the conservation of biodiversity (Sahota 2014).

Consumer awareness of environmental and social issues is rising, as consumers are realizing that their purchase decisions have direct impacts on the society and environment at large. Consumers demand for organic foods is spilling over onto the cosmetics industry. When it comes to purchasing cosmetics and personal care products, consumers usually prioritize their health (safety of cosmetics ingredients) and wellness needs (*health consciousness*). However, other ethical and *environmental concerns* are coming to the fore. Furthermore, since cosmetic products are used every day, manufacturers must think and act sustainably regarding their sourcing and production processes as well as the use of their everyday products. Consequently, the Triple Bottom Line must be at the heart of companies' business model. Regarding environmental sustainability, Life Cycle Assessment (LCA) is essential to evaluate the environmental impact of products (Sahota 2014). LCA takes into account "manufacturing, product formulation, packaging, distribution, the product consumption phase and the product post-use phase" (Sahota 2014, xvii).

Chapter 3: Theoretical background

3.1 Theoretical approaches to green consumer behaviour research

Green consumption studies usually include and describe the links between demographic, psychographic, socioeconomic, and behavioural factors (A. Sharma and Foropon 2019). Extant green consumer behaviour theories have very different disciplinary origins although they aim to capture the same phenomenon. Groening, Sarkis, and Zhu (2018) systematically grouped individual-level green consumer behaviour theories into six types: values and knowledge, beliefs, attitudes, intentions, motivations, and social dimensions. This categorization is useful and comprehensive in presenting the profile of extant green consumer behaviour theories.

Theories revolving around values, beliefs, and attitudes (VBA) are often classified as theories based on personality factors by researchers (Groening, Sarkis, and Zhu 2018) and they emphasize consumers' subjective knowledge. Examples of VBA theories can be Theory of Reasoned Action (TRA) (Martin Fishbein and Ajzen 2011; Osterhus 1997), Value-Belief-Norm Theory (Stern, Dietz, and Kalof 1993), Locus of Control (Kalamas, Cleveland, and Laroche 2014), Social Dilemma Theory (Gleim et al. 2013), Perceived Consumer Effectiveness (Roberts 1996; Balderjahn 1988; Lee et al. 2014).

Differently, intention-based theories describe the process by which consumers arrive at their product choices and they tend to formulate consumer behaviour as 'contingent valuation' supported by various cognitive schemas (Gowdy and Mayumi 2001). These theories often take the cognitive approach according to which "consumers' behaviour is based on information-seeking and usually directed by a specific goal" (Liu et al., 2012, p. 295), for example, Consumer Choice Theory and Rational Choice Theory (He et al. 2015; Torres 2013), and acquisition- transaction utility theory (Thaler 1983).

Built on similar cognitive perspectives of intention-based theories, motivational theories further incorporate intra- and inter-individual characteristics that influence intention and potentially also influence the relationship between intention to behaviour (Coad, de Haan, and Woersdorfer 2009). Examples of this kind can be Theory of Planned behaviour (Ajzen 1991) and Adaption-Innovation Theory (Bhate and Lawler 1997; R. and Seema 1993).

Lastly, social confirmation theories are inclined to interpret consumer behaviour as social behaviour that is primarily subject to societal factors such as individual/collective identity, network, and social dynamics (Sih, Hanser, and McHugh 2009). Examples can be Consumer Culture Theory (Arnould and Thompson 2005), Role Theory (Biddle 1986), and social practices model (Shove and Walker 2010; Spaargaren 2003).

The different green consumer behaviour approaches are not prescriptive; they sometimes are compatible and complementary. Several papers use a multi-theoretic approach to address green consumerism related issues (Zepeda and Deal 2009) and combine different types of variables (for

example, values, beliefs, and attitudes) that serve to measure consumer behaviours on a common predication chain (Thøgersen and Ölander 2002). Schaefer and Crane (2005) addressed this multi-theoretic approach as a notion where consumers could move through several discrete cognitive and behavioural stages. In this connection, the current study also participated in this multi-theoretic approach by introducing two value variables (Health Consciousness and Environmental Consciousness) to a motivation-based model (Theory of Planned Behaviour). It is believed by the two authors that this multi-theoretic approach could serve to enrich green consumer behaviour theories and contribute new insights in how theoretical approaches regarding green consumer behaviour could be efficaciously integrated to better capture the complexity of related behaviour.

3.2 Predecessors of the Theory of Planned Behaviour: social-psychological consumer behaviour theories

Consumer behaviour can be explained via the concepts, theories, and findings of psychology, more specifically social psychology, as consumer behaviour is no different from other aspects of human behaviour (Bagozzi, Gurhan-Canli, and Priester 2002; Simonson et al. 2001). In the following sections, the most relevant approaches of social psychology will be revisited and a comprehensive theoretical framework – the theory of planned behaviour – will be discussed in the context of green personal care products purchase.

3.2.1 The multi-attribute decision model and the subjective expected utility model (SEU)

The multi-attribute decision model is an often-used approach concerning consumer behaviour stems from behavioural decision theory (for review of this literature, see Goldstein & Hogarth, 1997; Shafir & LeBoeuf, 2002). According to this approach, consumers are understood as rational decision-makers (Peterson and Beach 1967). The theory also proposes that when consumers must choose between different brands or products, they first identify decision-relevant attribute dimensions. Then they evaluate each option based on these attribute dimensions and base their decisions on an overall evaluation of the product and brand categories. This evaluation occurs as follows: first, each attribute dimension is given a weight, which is in line with the subjective importance (subjective values and utilities) the decision-maker assigns to it. Then the weighted attribute utilities are summed, and the product or brand with the highest overall evaluation gets selected (Edwards and Fasolo 2001).

Nevertheless, it must be noted that researchers tend not to take into account attribute utilities and importance weights. As an alternative, inferences are made about the decision process "by varying the values of the attributes associated with choice alternatives or the conditions under which the decision is made (e.g. under time pressure)" (Ajzen 2015a, 122). What followed from this are several issues restricting the viability of the theory: (1) When the attributes of the decision alternatives are selected, an unrealistic choice dilemma might be the result. (2) Added to that, the researcher is likely to leave out

important information associated with attributes that consumers might consider during the overall assessment of the products in question. (3) the theory solely considers product attributes disregarding the complexity of the decision-making process. (4) the assumption that the attributes of each choice alternative are known with certainty is faulty because such attributes and the outcomes of decisions cannot always be identified in advance (indicating uncertainty) (Ajzen 2015a). The subjective expected utility model (SEU) offers a solution to the uncertainty issue mentioned in the multi-attribute model. This is because the SEU model accepts uncertainty concerning the consequences of a decision (Edwards 1954). Similar to the multi-attribute model, there is an overall evaluation (or subjective expected utility) taking place in relation to the products in question after which the decision-maker selects the products with the highest subjective expected utility. What is different in this model, however, is that subjective probabilities are used instead of importance weights (Ajzen 2015a).

3.2.2 Attitudes and the expectancy-value (EV) model

3.2.2.1 Conceptualization of Consumer Attitude

Consumer attitude is a diversely conceptualized term. To differentiate attitude from other preference-related terms and to deconstruct attitude into measurable items, one needs to examine the discussion over this concept regarding its essence and formation process. Researchers have refined the definitions and relations of attitude, affect, and emotions along the continuous discussion of the above-mentioned perspectives. Affect is an umbrella term for emotions and moods, and possibly attitudes (Bagozzi, Gopinath, & Nyer, 1999; Schwarz & Clore, 2003). Attitude is different from affect and emotion in that attitudes have objects while affects and emotions do not (Bagozzi, Gopinath, and Nyer 1999). The most frequently discussed theoretical distinction in this field is the difference between functional and constructive perspectives of attitude.

3.2.2.2 The functional/constructive debate on attitudes

Functional theory supports that attitudes are stored in memory in the form of stable object-related associations, and they are evoked when needed (Argyriou and Melewar, 2011; Fazio, 1990; Katz, 1960; Shavitt, 1990) to serve human psychological motivations and needs (Shavitt 1989). Functional theory and the associative model suggest that attitude objects, such as products and brands, emphasize different functions (Shavitt 1989). Therefore, to elicit a favorable attitude from consumers, marketers need to present attitude objects in functionally congruent ways. To understand the variance of attitude among individuals and situations, marketers need to understand consumers' motivational underpinnings (Schlosser 2003). Hence, this view of attitude resonates with TPB in that the motivational drivers are regarded as important factors contributing to attitude formation. Functional theory is intertwined with the cognition primacy on attitude formation where attitudes are conceptualized as affective responses stemming from systematic and deliberative cognitive processing of information about an object (Argyriou and Melewar 2011).

Disagreeing with functional theory on the role of situational cues in the elicitation of attitudes (Argyriou and Melewar 2011), constructive theory supports that consumers, rather than retrieving attitudes from memory, compute on-the-spot attitudes according to their contextual goals (Bettman, Luce, & Payne, 1998; Reed, Wooten, & Bolton, 2002). Constructivists align more with the affect primacy on attitude formation where attitudes are based on elements such as liking, feelings, and emotions generated by perceptual exposure to the stimulus or sheer familiarity with the stimulus. (Vakratsas & Ambler, 1999; Zajonc, 1968; Zajonc, 1980).

Argyriou and Melewar (2011) summarize the common understandings of the two perspectives. Firstly, both perspectives endorse the importance of interpreting consumer attitudinal responses in the situation. Secondly, they both recognize that people tend to minimize cognitive effort by relying on more accessible information. Finally, both adhere to the information-processing perspective, but in very different ways (Argyriou and Melewar 2011). Recent studies have illustrated the difficulty of pinpointing, conceptually and empirically, the functional/constructive and the cognition/affect stances. Baker (2001), Mantel and Kardes (1999), and Yeung and Wyer (2004) propose that the majority of attitudinal responses involve a minimum level of cognitive mediation regardless of their inclusion of attribute-based inference. Argyriou and Melewar (2011) believe that the functional-constructive debate is largely philosophical and cannot be resolved by deciding on one correct process. Moreover, modern theories in this realm, for example, dual cognition (Denes-Raj & Epstein, 1994; Evans, 2003; Sloman, 2014) tend to develop a more unified view of the two perspectives by introducing the notion of situated cognition (Argyriou and Melewar 2011).

3.2.2.3 The stance of the current study

The goal of this study is to not to detect the very mechanism of how attitudes are formed, therefore the discussion over attitude formation merely serve as enlightenments of the term ‘attitude’, and help with the deconstruction of ‘attitude’ so that ‘attitude’ can be more specifically captured and measured. Argyriou and Melewar (2011)’s opinion regarding the two perspectives is consulted in this study to enable a more integrated view of attitudes: attitudes are evaluative judgments measured via categorization on a continuum although their formation may stem from qualitatively different processes (retrieved, constructed, or a combination of both), they involve a minimum level of cognitive involvement.

Upon the divergence of the two perspectives, Argyriou and Melewar (2011) emphasize that studies should carefully specify the conditions under which attitude measurement occurs and the involved variables. The unexplored territory of human brain processes might demand technological advances and research from neuroscience, which is out of the scope of this study. This study is designed to investigate consumers’ associative responses (not the formation process of responses) and therefore takes a more cognitive view in interpreting attitudes. Cognitive perspective views information input as attribute-based inferences which enter judgment deliberatively, in the form of beliefs about the individual attributes of an object (Argyriou and Melewar 2011).

3.2.2.4 The expectancy-value (EV) model

In social psychology, attitude is seen as the most significant construct concerning consumer behaviour (Allport 1968). In general terms, attitude is defined as the tendency to react to an object with a certain degree of favorableness or unfavorableness (e.g. Cacioppo et al., 1986; Eagly & Chaiken, 1993; Osgood et al., 1957). In other words, attitude is an evaluative reaction that is based on consumers´ beliefs regarding the object of the attitude. The most commonly used model of attitude formation is the expectancy-value (EV) model (Dabholkar 1999; N. T. Feather 1982), which explains the relationship between beliefs about an object and attitude toward the object in question (Fishbein & Ajzen, 1975). Beliefs are associated with certain attributes (i.e. the action´s anticipated outcomes). In accordance with the expectancy-value model, the assessments and strength of these attributes and subjective values in relation to a specific product determine consumers´ overall attitude. In this connection, what is important to mention is that only a small number of beliefs affect attitude at a given moment. These are called ´accessible beliefs´ and they are the predominant determinants of one´s attitude (Ajzen 2015b). In a similar vein, the TPB adopts the logic of the EV model.

3.2.2 The theory of planned behaviour in the domain of consumer behaviour

Social psychologists usually hold the view that intentions are the precursors of actual behaviour and that intentions play a mediating role between attitudes and actions (Bagozzi and Warshaw 1990; Bentler and Speckart 1979; Gollwitzer 1993). In the consumer behaviour domain, this causal sequence has been conceptualized as the belief-attitude-intention or value-attitude-behaviour hierarchy (Follows and Jobber 2000; Madrigal 2001; Xianbing Liu et al. 2012); Accordingly, most studies – especially those using the theory of planned behaviour – follow this hierarchical logic, and as such analyze the causal links between values, beliefs, attitudes, intention and action (Beedell and Rehman 2000; Webb and Sheeran 2006; Beckford et al. 2010). As of today, the theory of reasoned action (TRA) and its successor, the theory of planned behaviour (TPB) – the latter was first described in 1985 – are among "the most popular social-psychological models for understanding and predicting human behaviour" (Ajzen 2015a, 125). As has been mentioned before, the TPB model can also be used to understand and predict consumer intention and behaviour (Ajzen 1991; 2012; 2015a). Accordingly, the TPB focuses on "the specific consumer behaviour of interest" (Ajzen 2015a, 125). This, among others, may be the intention to purchase a certain product or service. The goal of TPB is to provide a comprehensive conceptual and methodological framework so that the determinants of consumer behaviours can be understood (Ajzen 2015a). The TPB posits that the immediate antecedents of a specific behaviour are the intention to perform (or not to perform) the behaviour subjected under scrutiny and perceived behavioural control. Perceived behavioural control can influence behaviour both directly, and indirectly by influencing intentions (de Leeuw et al. 2015). The TPB also suggests that behavioural intention, which leads to purchase behaviour, is affected by three antecedents: attitudes toward the behaviour, subjective norms,

and perceived behavioural control (self-efficacy) (Ajzen 1991; 1985). These antecedents are determined by three kinds of readily accessible beliefs.

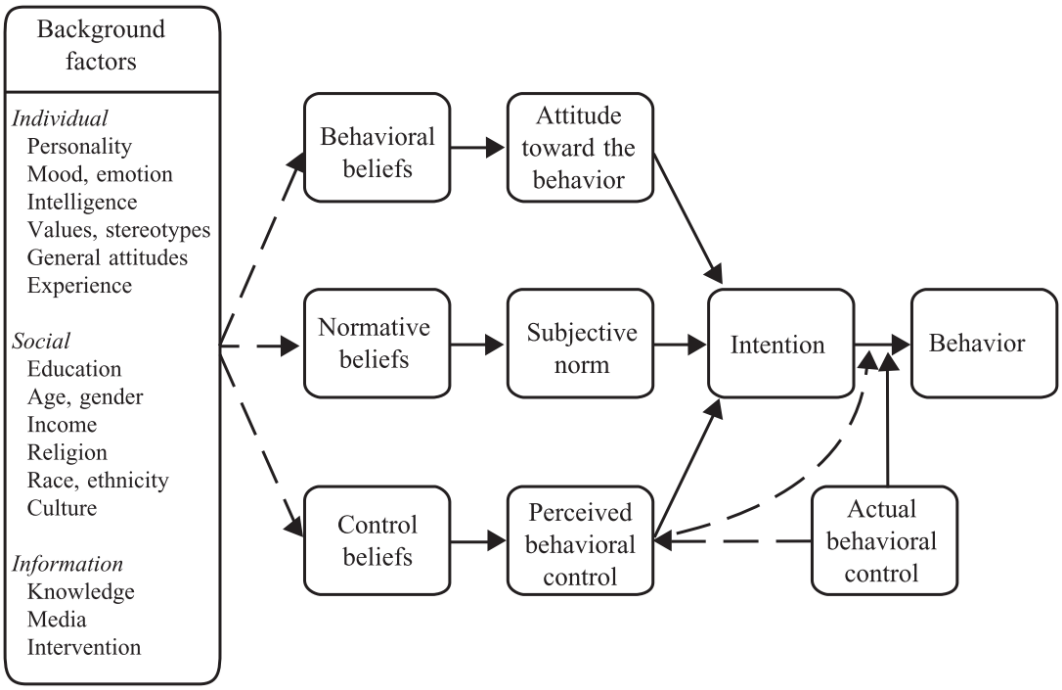
Attitudes towards the behaviour are based on a person's behavioural beliefs, which are beliefs about the possible negative or positive consequences if a person chooses to perform the behaviour in question (the expectancy-value (EV) model) (Ajzen 1991). Subjective norms are based on normative beliefs, that is, perceived expectations and behaviours of important referent others (e.g. close friends, coworkers, one's spouse, professionals) (injunctive normative beliefs), as well as a person's own motivation to comply with such expectations (subjective normative beliefs). Perceived behavioural control (or self-efficacy; Bandura, 1977) is based on control beliefs, which is concerned with the perceived presence of "resources and obstacles that can facilitate or interfere with a person's ability to perform the behaviour" (Ajzen 2015a, 129). When it comes to purchasing decisions, the main issues of control are usually associated with financial constraints and/or product availability (Ajzen 2015b). Although beliefs are integrated in the model and play a crucial role in understanding the factors influencing intention and behaviour, it is important to note that numerous studies based on the TPB model only assess the behaviour´s determinants, as they merely obtain direct measures of attitude toward the behaviour, subjective norm, and perceived behavioural control (Ajzen 2015a). The current study is set out to follow the same trend.

In this connection, the more positive the attitude and subjective norm towards the behaviour, and the greater the perceived behavioural control, the more probable it is that an intention will be developed to perform the specific behaviour. Subsequently, it is assumed that intentions will turn into actual behaviour if people have actual control over the behaviour, that is, if they are capable of performing the behaviour in question. Since in the majority of situations, it is impossible to identify each factor influencing people´s actual control over the behaviour, the measure of perceived behavioural control is usually used "as a proxy for actual control under the assumptions that perceptions of actual control reflect actual control reasonably well" (Ajzen 2015a, 126). In this regard, previous studies have also found that perceived behavioural control has a moderating effect between intention and behaviour (Papies, Stroebe, and Aarts 2008).

Many studies have supported the conceptual distinction of Attitude, SN, and PBC in that they exert different patterns of impact on intention and behaviour, and have investigated their relative contribution to the prediction of intention. Their relative predictive power changes according to the research context, behaviour category, social environment, and even individuals. They are not independent; instead, they are correlated and mutually influenced (the exact pattern depends on the context).

Regarding the relative predictive power of attitude and SN, Ybarra & Trafimow's (1998) experiment (in the context of condom use) indicated that increasing the accessibility of the private self would cause participants to place more weight on attitudes than subjective norms, yet increasing the accessibility of the collective self would cause participants to place more weight on subjective norms than on attitudes. Past researches have often reported strong correlations between attitudes and subjective norms (Ajzen 2001).

Figure 1 The Original Theory of Planned Behaviour Model



Beyond the constitutive factors of the theory, the TPB acknowledges that other variables might be of prospective importance. Such variables include "demographic characteristics (e.g. age, gender, education, income, race, religion), personality traits, general attitudes and life values, intelligence, emotions, etc." (Ajzen 2015a, 126). These variables can be incorporated into and examined as background factors in the TPB. Background variables might impact (i.e. have a mediating effect) intentions and behaviour indirectly via their influences on behavioural, normative, and control beliefs (Ajzen 2015a).

Regarding the sufficiency and extensions of TPB constructs, Ajzen (2001b) recognized that although many studies have included measures of additional variables to improve the prediction of intentions or behaviour, their improvements were relatively minor on the basis of extant TPB constructs and their generalizability to other behavioural domains has yet to be demonstrated. For example, Harland, Staats, & Wilke (1999) demonstrated how personal or moral norms improved the predication of environmentally related behaviour. Similarly, Manstead (2000) indicated that moral norms can sometimes account for unique variance in behavioural intentions above and beyond that accounted for by attitudes and subjective norms. Moreover, measures of personality traits are proved by Courneya, Bobick, & Schinke (1999) to be an improvement of prediction in the exercise domain.

3.2.3 Limitations of the TPB, their compensations and some misconceptions

It is important to clarify some major issues the TPB has received criticism for. Firstly, despite the suggestion that behaviour is reasoned or planned, the TPB does not assume that decision-makers are rational. This is because beliefs affecting attitudes, subjective norm, and perceived behavioural control

might reflect so-called irrational (or non-cognitive) processes and elements like unconscious biases, self-serving tendencies, emotions, compulsions, etc. (Armitage, Conner, and Norman 1999; Gibbons et al. 1998; Richard, Vries, and Pligt 1998; Ingham 1994; Morojele and Stephenson 1994). Accordingly, such non-cognitive elements do have a place in the model, as the TPB only suggests that people's intentions and behaviours follow from their beliefs regardless of how these beliefs were developed (Ajzen 2015a).

Secondly, some studies have found that frequency of past behaviour influences later behaviour in a way that the behaviour in question becomes only partially mediated by the TPB's predictors (Ajzen 1991; Albarracín et al. 2001; Bagozzi 1981). Thus people do not always go through a thorough process of conscious consideration when it comes to performing a behaviour. This is because, with repetition, behaviour becomes a routine or habit (Ajzen 2015a). However, well-established beliefs and attitudes still determine such a habitual process without much cognitive effort (Ajzen 2015b).

Thirdly, in the literature, it has been pointed out that people oftentimes fail to act according to their attitudes and intentions, which is usually termed as the attitude-behaviour, intention-behaviour or words-deeds gap (Carrigan and Attalla 2001; Richard Elliott and Jankel‐Elliott 2003). The model of dual attitudes might shed light on the attitude-behaviour gap. When attitude changes, the new attitude can override, but not replace, the old one (Wilson, Lindsey, and Schooler 2000). According to this model of dual attitudes, people hold different evaluations of the same attitude object simultaneously – an implicit (habitual) attitude and an explicit attitude. Cognitive capacity and motivation in the specific context are required to retrieve the explicit attitude (Wilson, Lindsey, and Schooler 2000). Ajzen (2001b) reviewed this issue: "the dual attitudes investigations suggest that some apparent discrepancies between attitudes and behaviour may reflect the presence of multiple contexts – dependent attitudes towards social targets (p.29)". It is suggested in the 'future research' section that the A-B gap related discussion may pay more attention to the mediating effects of contexts, extra cognitive support, and extra motivation.

The discrepancy between intention and behaviour might be the result of the following: 1) forgetting: "simply forgetting to carry out an intended behaviour or changing one's mind" (as cited in Icek Ajzen, 2015a, p. 133); 2) low control: intention depends on volitional control, meaning that people must have an adequate amount of control over the specific behaviour so that they can act on their intentions. Yet it is quite challenging to measure people's actual control over a specific behaviour. Correspondingly, it might be that people lack actual control so they are unable to perform the behaviour in question (Ajzen 2015a); 3) hypothetical bias: readily accessible beliefs in the actual behavioural context differ from beliefs accessible in memory when intentions are evaluated. (4) inappropriate measurement issues: incompatibility of the measures of intention and behaviour because the measures differ in their generality or specificity or the scales used for measurement.

Chapter 4: Literature review and hypotheses development

4.1 Integrating additional constructs into the Theory of Planned Behaviour in the context of green personal care products

The theory of planned behaviour (TPB) as a comprehensive framework has been used to explain green consumer behaviour in numerous studies and domains (S. Kim and Seock 2009; Jaiswal and Kant 2018; Nguyen, Nguyen, and Hoang 2019; Kautish, Paul, and Sharma 2019; Wei et al. 2017; Hsu, Chang, and Yansritakul 2017; He et al. 2015; Chekima et al. 2016; Akehurst, Afonso, and Gonçalves 2012; H. Y. Kim and Chung 2011); and empirical results have confirmed that TPB is a valuable methodological framework to investigate the motivational factors behind green consumption (Ceglia, de Oliveira Lima, and Leocádio 2015). In this regard, it is notable that several studies solely focus on the prediction of intentions, whereas others also gather and analyze behavioural data (Ajzen 2015a). Such studies include general green consumption (Chekima et al. 2016; Paul, Modi, and Patel 2016; Jaiswal and Kant 2018; A. Sharma and Foropon 2019; Kautish, Paul, and Sharma 2019; Nguyen, Nguyen, and Hoang 2019; Akehurst, Afonso, and Gonçalves 2012), household recycling (F. G. Kaiser and Gutscher 2003), food consumption (Vermeir and Verbeke 2008), and green cosmetics/personal care products (H. Y. Kim and Chung 2011; Hsu, Chang, and Yansritakul 2017; Askadilla and Krisjanti 2017). The aim of the current study is to enrich the literature with green cosmetics purchase, and more specifically, green personal care products (GPCPs) purchase based on Ajzen's TPB model.

Nevertheless, a study on GPCPs purchase raises two issues: 1) Since research is scarce in the domain of green cosmetics, the current research will take into account literature on not only green cosmetics but also general green consumption as its starting point and organic food consumption. In relation to the latter, it has been stated by authors (H. Y. Kim and Chung 2011; Mueller 2006; Essoussi and Zahaf 2008) studying green cosmetics that there are some similarities between organic food and green cosmetics purchase behaviour. Firstly, both product categories are deemed to be low-involvement, meaning that it takes minimal effort and consideration to purchase such products (Mueller 2006). Secondly, both product categories are directly related to human health as well as environmental issues. 2) To effectively explore the antecedents of green cosmetics purchase, additional constructs will be incorporated into the TPB model. The methodological considerations behind incorporating such constructs is explained in the following section.

To effectively promote green product purchases, it is inevitable to adequately investigate the motives behind green purchase behaviour. This means that multiple factors concerning internal, social, and external ones must be analyzed and included in the proposed theoretical framework. According to Leobikiene and Bernatonienė (2017b), the theory of planned behaviour is a suitable framework to analyze green (cosmetics) purchase intentions, as this theory encompasses 'all these dimensions' (p. 116). For example, focusing solely on internal factors like environmental awareness would not reflect

purchase behaviour appropriately even when consumers´ environmental concern is high because other factors such as consumers´ lack of perceived behavioural control may hinder individuals´ purchase behaviour (Liobikienė & Bernatonienė, 2017). Although comparatively TPB costs more efforts to be applied due to its "context-specific" characteristic, this study extended TPB for its capability of investigating motivations and reasons behind intention and behaviour.

Several scholars have pointed out that there are several domain-specific factors which are not included in the TPB model (Armitage & Conner, 2001; Donald, Cooper, & Conchie, 2014). Nevertheless, the model allows for the integration of such factors. As Ajzen (1991) and Foropon and Sharma (2019) argued, the TPB model can be modified by using additional constructs/factors that fit the specific research context at hand, since such modification not only contributes to better understanding the theoretical mechanisms behind the model but also improves the prediction power for individuals' intention as well as behaviour in the given context. Similarly, it has been noted by several scholars that to investigate consumers' green consumption behaviour, the TPB model can be extended and modified to the specific research setting (Biswas & Roy, 2015b; Hanss, Böhm, Doran, & Homburg, 2016; Peattie, 2001; Perugini & Bagozzi, 2001).

Among all the existing modified TPB models, there is inevitably always a balance of generalizability. Some aim to serve as a model that is applicable across many scenarios, yet this generalizability will leave out particular referents that are important to the contexts (Mathieson, 1991). In this study, the generalizability of the extended TPB model is handled with the idea that context-specific referents are included and emphasized in order to increase the applicability of the extended model to the context of GPCPs. Therefore, it is important to clarify that the purpose of the current research is not to prove the generalizability of the proposed adaption of TPB model to other domains than green cosmetics/personal care products.

Following this logic, in the current study, the theory is used to explore the antecedents of intention to purchase GPCPs. Besides including the three main elements of TPB, namely attitude, subjective norm and perceived behavioural control, environmental consciousness and health consciousness – *as consumer values* – affecting consumers´ attitudes and behavioural intentions (as well as actual behaviour) are also incorporated into the research framework in order to further examine their effects in the context of GPCPs purchase.

4.2 Hypotheses development in the domain of green personal care products

4.2.1 Consumer values

In the past decade, the significance of consumer values has gained distinct attention in predicting environmentally conscious, that is, green consumer/purchase behaviour (Boeve-de Pauw & Van Petegem, 2013; Cheah & Phau, 2011; Ha & Janda, 2012; Khare, 2014). Values also play a significant role in consumption behaviour, as products and services are selected based on value-related goals in mind (Hofstede & Bond, 1984). There exist numerous definitions of the term 'value'. For example,

Zeithaml (1988) describes value as "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (p.14). This view highlights the worth of using products and consumer benefits. On the other hand, values can also be defined as "concepts or beliefs about desirable end states (i.e. outcomes) or behaviours, that transcend specific situations, guide selection or evaluation of behaviours or events, and are ordered by relative importance" (S. H. Schwartz & Bilsky, 1987, p. 551). This latter definition addresses most of the agreed-upon attributes of values in the literature (Agle & Caldwell, 1999; Grunert & Juhl, 1995; Solomon, 2010). First, as values reflect beliefs about desirable end states, they operate as general predictors for attitudes, intentions, and behaviours (C Seligman & Katz, 1996). Second, unlike behaviour-specific beliefs and attitudes, values are abstract in nature, meaning that they can be utilized as predictors in not only a single specific behavioural context but in almost all other behavioural contexts as well (Ajzen, 1991). Third, whilst values are considered to be relatively stable over time, behaviour-specific beliefs and attitudes are more prone to change (Feather, 1995). Following this line of reasoning, this study also adopts this view.

Vaske and Donnelly (1999) argued that value is the core component of an individual's belief system. Hendarwan (2002) points out that in a green context, "beliefs and values [are] aimed at supporting a greater good that motivates consumers´ purchases" (altruistic). General values, once activated, are assumed to influence people's subjective evaluations of objects and events in specific situations so that, for example, some possible actions and outcomes are seen to be attractive while others are seen to be aversive (Norman T Feather, 1996). Therefore, general value is an important factor that might affect attitude which is essentially the result of subjective evaluation. Correspondingly, values, as one of the building blocks of attitude, may affect an individual's attitude formation by directing the person to search for objects that will be aligned with his/her values (Eagly & Chaiken, 1995; Grunert & Juhl, 1995; Poortinga, Steg, & Vlek, 2004). Homer and Kahle (1988) tested value's position in a value-attitude-behaviour hierarchy regarding natural foods as what is strongly associated with attitudes and then shopping behaviours. Similarly, value's potential in affecting consumer attitudes and then behaviours is also supported by Jayawardhena (2004) and Shim and Eastlick (1998). Consequently, values can be thought of as indirect rather than direct predictors of behavioural intentions (C Seligman & Katz, 1996). Thus, individuals with different value systems are likely to demonstrate distinct behaviours because their values are the guiding principles in their lives (Rokeach, 1973).

In certain contexts, some scholars have found that values related to the environment and health exert influence on consumers' attitudes toward purchasing organic food (Chryssohoidis & Krystallis, 2005; Wandel & Bugge, 1997). These findings are significant because organic food products are similar to green cosmetics, as both product categories embrace the importance of promoting a healthy and sustainable lifestyle and research on green cosmetic products is relatively scarce. Consequently, this study proposes two consumer values that may have an impact on consumers' attitudes toward buying GPCPs: environmental consciousness and health consciousness.

4.2.1.1 Environmental consciousness

Environmental consciousness or concern (EC) is usually defined as one´s awareness of environmental issues and their inclination to participate in solving environmental problems (Chan & Lau, 2000; Dunlap & Jones, 2002). Environmental consciousness also entails, among others, a set of intricate values (Balderjahn, 1988) affective responses (Jansson, Marell, & Nordlund, 2010), attitudinal discourse, and personality characteristics (Cornwell & Schwepker, 1995; B. Kumar, Manrai, & Manrai, 2017; Roberts & Bacon, 1997). Environmental concern is one of the strongest antecedents of attitude towards green products and green purchase willingness (Jaiswal & Kant, 2018) and found to be consistent with previous studies in the domain of green consumer psychology (Mostafa, 2007; Paul et al., 2016; Yadav & Pathak, 2016). Environmental consciousness not only directs individuals to make greener purchasing decisions (Peattie, 2001; Schlegelmilch, Bohlen, & Diamantopoulos, 1996) but is also deemed to be a precondition for green consumerism (Dembkowski, 1998; Mintu-Wimsatt, Polonsky, Winston, & Mintu-Wimsatt, 1995). This also means that to improve the quality of the environment or mitigate environmental damage, environmentally conscious individuals have the tendency to adjust their purchasing behaviours accordingly (Chase, 1991).

In line with the argumentation above, numerous studies found environmental awareness to be a precondition for green purchasing (intention and) behaviour (Ahn, Koo, & Chang, 2012; Y. Chen & Chang, 2012; Dembkowski, 1998; Mishal, Dubey, Gupta, & Luo, 2017; Paladino, 2005; Walker, 2013; Wang, Liu, & Qi, 2014). Bang et al. (2000) and Kim and Choi (2005) noted that consumers who are more environmentally conscious are more inclined to engage in green product purchases than less concerned consumers. However, it should be noted that environmental concern affects some people´s daily lives directing their consumption choices, while others fail to translate such concerns into green consumerism (Hussain, 2000). This is because there is a trade-off between intending to protect the environment and lower prices and/or convenience (i.e. availability), which is usually true in the case of conventional products (Wandel & Bugge, 1997). This indicates that consumers might lack the willingness or necessary actual control, that is, sufficient financial means to engage in purchasing green products.

As regards green cosmetics, it has been found by several authors (Patel, Padhtare, Niwas, Colony, & Road, 2015; Pervin, Ranchhod, & Wilman, 2014; Tamasiro, Silveira, Merlo, & Acevedo, 2014) that environmental concern directs individuals´ preferences to purchase and use green cosmetics, since they believe that the use of such cosmetics contributes to protecting the environment as harmful chemicals (e.g. pesticides, synthetic chemicals) are avoided. Correspondingly, Oude Ophuis et al. (1992a) and Bohlen et al. (1993) both proposed that consumers´ environmental concerns affect their attitudes towards a product and purchase decisions. In a similar vein, Kim and Chung (2011) found that environmental consciousness positively influenced attitudes toward purchasing organic personal care products. Based on the literature review above, the following hypotheses are proposed:

> **H1:** Environmental consciousness will positively influence attitude towards purchasing green cosmetic products.

4.2.1.2 Health consciousness

Health consciousness can be understood as the extent to which an individual tends to undertake health actions (Becker, Maiman, Kirscht, Haefner, & Drachman, 1977) which thus include various actions to maintain or boost the various aspects of health: physical, mental, and social wellbeing. Therefore, health consciousness evaluates the extent of readiness to undertake healthy actions. It is assumed that if consumers are ready to take action for their own health, then their attitude towards the object (in this case green personal care products) should be more positive (Schifferstein & Oude Ophuis, 1998). Health consciousness is prevalent in consumption studies directly related to human health such as food or cosmetic products (Liobikienė & Bernatonienė, 2017). Health-conscious individuals care about the well-being and healthy living. Therefore, health consciousness, as a value, guides individuals to engage in healthy behaviours, that is, to follow and maintain a healthy lifestyle (Becker et al., 1977; Newsom, McFarland, Kaplan, Huguet, & Zani, 2005).

For green cosmetics purchase, a closely related concept that sometimes overlaps with actual green cosmetics is "free-of cosmetics" which is preferred by consumers who regard certain chemicals and other non-natural ingredients as a potential danger to their health (Hansen, Risborg, & Steen, 2012). Although pragmatically these consumers are green cosmetics purchasers, the values behind their preferences are mainly health-oriented. Therefore, to better understand and fulfill the expectations of different groups in the aggregation of green cosmetics consumers, health consciousness and its influence in the regard should be further investigated.

In the context of organic food purchase, some studies have found health to be a more important motive than protecting the environment (Chryssohoidis & Krystallis, 2005; Worner & Meier-Ploeger, 1999). Nevertheless, Schifferstein and Oude Ophuis (1998) pointed out that it is difficult to identify which variable is more prominent since health and environmental consciousness tend to coincide. Added to that, these scholars also suggested that consumers who are concerned about their health are more likely to purchase or switch to purchasing green products.

In the context of organic personal care products, Kim and Chung (2011) noted that "consumers with high health consciousness may consider whether a product is safe to the skin and body; therefore, they may be more seriously concerned with the types of ingredients used to make the product than consumers with low health consciousness" (p. 41). In this connection, they highlighted that in the entire decision-making process, health consciousness is the most considered as well as the most significant factor affecting attitude towards green cosmetics. In a similar vein, Liobikienė and Bernatonienė (2017) proposed that health consciousness should be the major direct driving force to buy green personal care products. Furthermore, they assume that internal (e.g. values) and social factors (e,g subjective norms) have a bigger impact on purchase behaviour, whereas price has a lesser impact when health is considered to be particularly significant. Accordingly, it is reasonable to assume that health consciousness may serve as a driving force for the purchase of green personal care products. Thus, the following hypothesis is proposed:

> **H2:** Health consciousness will positively influence attitude toward purchasing green cosmetic products.

The relationship between environmental consciousness and health consciousness

Although EC and HC are present in the context of both personal care products and food (which share many similarities as they are both necessity goods), the relations between these two consciousness and consumer attitudes might change due to the specific context. Therefore, it is important to carefully adapt these two consciousnesses from general or food-related scenarios to the specific context so that they effectively reflect consumers' concerns in the product category of GPCPs. The relative power of the two might also change and is worthy of attention. In organic food settings, the two consciousness often coincide and it is hard to determine whether the state of the environment or individual well-being is the dominant motive (Schifferstein & Oude Ophuis, 1998). Other studies addressed this issue by forcing respondents to choose one principal buying motive (Beckenhoff & Hamm, 1983) or asking respondents to rate the relative importance of the two (Oude Ophuis et al., 1992a), and they both established that health aspects are considered by consumers to be more important than environmental aspects. On the contrary, Ophuis et al.'s (1992) study suggest that heavy buyers do not focus exclusively on personal health; they simultaneously pay close attention to environmental issues. This pattern resonates with Schifferstein and Oude Ophuist's (1998) conclusion that EC and HC have evolved from the same value-driven ideology that supports frequent green food consumption as a comprehensive lifestyle rather than a lop-sided or narrow concern. This indicates that EC and HC are strongly correlated, and this study adhere to this pattern by correlating the EC and HC constructs. Furthermore, the authors also intend to test the relative importance of these variables.

4.2.2 Attitude towards purchasing green personal care products

Attitude has a decisive role in shaping behaviour, and as such is a non-negligible component of consumer behaviour research (Follows & Jobber, 2000). Attitude refers to an individual's 'mental and neural state of readiness' (Breckler & Wiggins, 1989; Di Martino & Zan, 2015) and comprises cognitive, affective as well as conative elements (Albarracín, Johnson, & Zanna, 2018). Attitude is defined as "the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behaviour in question" (Ajzen, 1991, p. 188). Added to that, attitude also comprises one's judgment on whether the behaviour to be performed is good or bad, and whether the person is inclined to perform the behaviour (Leonard, 2004). Ramayah et al. (2010) noted that attitude also includes perceived behaviour-related consequences. Chen and Chai (2010) hold that environmental or green attitudes determine an individual's attitude toward green products. In other words, those individuals who are determined to protect the health of the environment and stay or become healthier, will demonstrate a favorable attitude towards green products, which in turn results in a green purchase attitude. In Homer and Kahle's (1988) structural equation test of the value-attention-behaviour structure in natural foods purchase, values were shown to be associated more strongly with attitude than with shopping behaviours, supporting the mediating role of attitude in consumer psychology research. (In the current study, attitude is also structured in the extended TPB model as a mediating construct). It was also argued by scholars that attitude is a powerful predictor of both behavioural intention (and behaviour) (Kotchen & Reiling, 2000; Stern & Dietz, 1994; Vining & Ebreo, 1992); and positive attitude toward a behaviour is likely to result

in heightened behavioural intention (Ajzen, 1985; M.-F. Chen & Tung, 2014). Jaiswal and Kant (2018) confirmed that attitude towards green products is positively and significantly related to green purchase intention and found to be the most significant predictors of intention. Several other studies support this proposition in the context of green consumption in general (Chan & Lau, 2000; Mostafa, 2007; Tarkiainen & Sundqvist, 2005); and organic food choice behaviour (Dean, Raats, & Shepherd, 2012; Ha & Janda, 2012; Zhou, Thøgersen, Ruan, & Huang, 2013). This confirms that the "attitude-intention rationale prevails in green consumption settings" (Paul et al., 2016, p. 125). In the context of green cosmetics, Kim and Chung (2011) and Hsu et al (2017) discovered that attitude towards purchasing green products significantly affects the purchase intention of green cosmetics as well. In light of the above, hypothesis 3 is proposed as follows:

> **H3:** Consumers' attitudes toward green products will be positively [and significantly] related to their green product purchase intention.

4.2.3 Subjective norms with respect to purchasing green personal care products

Subjective norm can be defined as the social pressure perceived by an individual to act or not to act on a specific behaviour (Ajzen, 1991; Han, Hsu, & Sheu, 2010). Hee (2000) emphasized the influence of those people who are close/important to the individual. Liobikiene et al. (2017) also proposed that if an individual's family and friends support pro-environmental behaviour and believe that they can contribute to making a difference, then they often purchase green products. For example, if close friends, family, or experts believe that organic skincare products are desirable, then the individual will be more inclined to purchase such products. As regards green consumer behaviour, a strong relationship between subjective norm and intention has been documented (Bamberg, 2003; Kalafatis, Pollard, East, & Tsogas, 1999). In the context of organic food consumption, de Maya et al. (2011) and Rezai et al. (2012) have found that the major determining factor is subjective norms. Similarly, in the context of cosmetics, Hillhouse et al. (2000) also found that subjective norm influences behavioural intention when it comes to skin management. Kim and Chang (2011) and Hsu et al. (2017) discovered a strong correlation between subjective norms and the intention to purchase green cosmetics products. On the contrary, Yazdanpanah and Forouzani (2015) concluded that subjective norms were not significant antecedents of intention. Added to that, when social norms are considered, it is crucial to make a distinction between hedonistic and normative goals. In this regard, culture is a non-negligible aspect, which must be considered according to the individualism and collectivism dimensions when analysing social norms. Kumar (2012) indicated that in more collectivistic countries, subjective norms have a greater impact on green purchase behaviour. Thus, SN is positively related to collectivism. Consequently, it can be inferred that findings vary according to the research context. Hypothesis 4 is proposed as follows:

> **H4:** Consumers' subjective norms will have a positive influence on their intentions to purchase green cosmetics.

4.2.4 Perceived behavioural control over purchasing green personal care products

Perceived behavioural control (PBC) becomes especially significant when behaviour is beyond individuals' volitional control (Paul et al., 2016; Yadav & Pathak, 2017). PBC is the degree of control perceived by an individual over performing a certain behaviour (M.-F. Chen, 2007; Kang, Hahn, Fortin, Hyun, & Eom, 2006). PBC can be divided into different kinds of factors: inner control factors (i.e. self-efficacy) and external control factors (i.e. perceived barriers) (Ajzen, 1991; Armitage & Conner, 2001). Among the three fundamental antecedents (attitude, subjective norms, and perceived behavioural control) of TPB, PBC "emerges as the key for behavioural concerns and patterns owing to its volitional control" (Kautish et al., 2019, p. 1427). In this regard, Sparks and Shepherd (1992) noted that consumers can have positive attitudes toward the environment and favorable subjective norms, many of them do not engage in green purchases because they lack the necessary resources and/or opportunities (low PBC). Ajzen (1991) defined PBC as "the perceived ease or difficulty of performing a particular behaviour" (p. 183); and noted that the higher the perceived control, the stronger the intention to act upon a certain behaviour. More specifically, when people think that they have the necessary resources (e.g. money, time, and knowledge) and opportunities (i.e. abilities), their perceptions of control elevate, and thus their behavioural intentions increase. Similarly, scholars investigating the purchase of green cosmetics have found that ´ability´ is very important in the purchase of green cosmetics (Bachleda, Fakhar, & Hlimi, 2012; Hsu et al., 2017; H. Y. Kim & Chung, 2011). Bachleda et al. (2012) and Kalita (2014) found that financial ability is the most determining. Hsu et al. (2017) also proposed that price sensitivity is a crucial component affecting consumers´ green cosmetics purchase intention. Based on this assumption, the following hypothesis is proposed:

> **H5**: Consumers' perceived behavioural control over buying green cosmetic products will have a positive influence on their intentions to purchase green cosmetics.

4.2.5 Intention to purchase green personal care products

In general connotation, it is agreed by several scholars that purchase intention is a consciously decided plan (an objective) that guides one's actions to make an effort to purchase a particular product or service (Peter & Olson, 2008; Spears & Singh, 2004). Green purchase intention is defined as individuals' willingness or readiness to give preference to green products compared to conventional ones in order to express their environmental concern and act for the benefit of the environment (Chan, 1999; Netemeyer, Maxham, & Pullig, 2005; Rashid, 2009).

In the context of green consumption, studies analyzing the relations between green attitudes/intentions and green behaviours have shown inconsistent results. Some studies have found that consumers´ attitudes/intentions do not automatically translate into behaviour (Gleim et al., 2013; Johnstone & Tan, 2015; Moser, 2016). This is termed as the ´attitude-behaviour´ or ´intention-behaviour´ gap (Carrigan & Attalla, 2001; Richard Elliott & Jankel-Elliott, 2003). This gap has been

explored by several scholars. Gleim et al. (2013) and Tanner and Kast (2003) found product prices, quality (or performance), availability, and trust in the brand to be among the main causal factors of the attitude/intention-behaviour gap. Nguyen et al. (2019) also found green product availability and perceived consumer effectiveness to be important moderating variables between green consumption intention and green consumption behaviour.

On the other hand, other studies have found a positive correlation between the intention to purchase and the actual purchase of sustainable products (Chan, 2001; Mostafa, 2007). In line with this argumentation, several scholars found purchase intention to be a significant pillar of consumers' buying process. According to Newberry et al. (2003), purchase intention is a widely used tool to predict actual/overt purchase behaviour. O' Keefe (2015) and Follows and Jobber (2000) also argued that in many cases, including green consumption, purchase intention is the most adequate instrument for predicting purchase behaviour. Moreover, it has been recognized by several other scholars that green purchase intention (as an accurate measure) significantly influences green purchase behaviour (Beckford et al., 2010; Chan & Lau, 2002; Ramayah et al., 2010). Based on the literature review above, the following hypothesis is proposed:

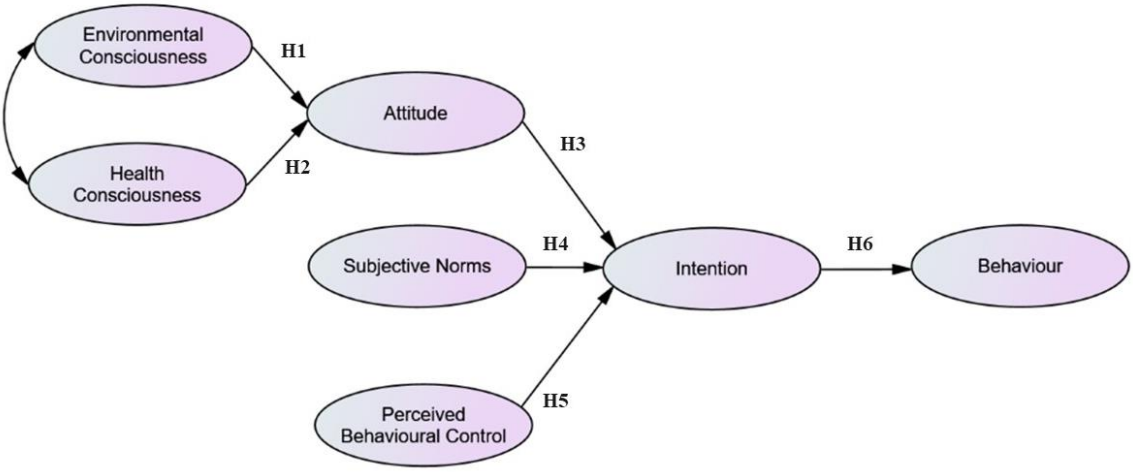
H6: Consumers' green purchase intention is positively related to their green purchase behaviour

4.2.6 Purchase behaviour of green personal care products

The effective purchase of environmentally friendly or sustainable products is referred to as green purchase behaviour. Green product purchases occur when green consumers act according to their convictions. These consumers tend to avoid using plastic bags, buy natural products, prefer biodegradable packaging and refuse to purchase product from brands that knowingly cause environmental damage (Minton & Rose, 1997; J. Schwartz & Miller, 1991). Green products are usually recyclable and have a significantly lesser impact on the environment and society (Chan, 2001; Mostafa, 2007).

Based on this literature review and hypotheses development chapter, an extended theoretical model is proposed by the authors consisting of six hypothesized relationships. Furthermore, since it has been found that EC and HC are strongly correlated (see section 4.2.1.2), a correlational relationship is drawn between these variables.

Figure 2 Initial Conceptual Framework



Chapter 5: Methodology and limitations

5.1 Research context

Green consumerism and conditions for it to spread in Denmark

Danish society has been promoting green consumerism in many industries and by many approaches. For green consumerism to spread, Sønderskov and Daugbjerg (2011) summarized three conditions: first, a fairly high level of environmental awareness of consumers. Second, consumers' willingness to act pro-environmentally when making individual purchasing decisions. Third, consumers' access to sufficient information which ensures them that the green products actually fulfils the promise (Carter, 2007; Gertz, 2005; Jordan, Wurzel, Zito, & Brückner, 2004).

Many studies have established some institutional and attitudinal requisites for increasing environmental awareness and promoting pro-environmental behaviour and therefore fueling green consumerism, for example, post-modernism and post-materialism by Inglehart (1997), citizen beliefs about collective benefits and participation by Lubell (2002), and citizens' levels of generalized social trust by Sønderskov (2008). One could infer from above that, to promote green consumerism, specific societal contexts (such as a country, a region, a political reunion, an ethnic group, etc.) need to be confined to accordingly discuss the institutional and attitudinal prerequisites that will work the best. Therefore, the current study is confined to Denmark in consideration that Danish residents share lots of common grounds regarding institutional and attitudinal factors that might pervasively influence their green consumption and other pro-environmental behaviours. Arguably, these institutional and attitudinal factors will also impact future marketing or policy-making strategies in Denmark. These factors are presumed by the two authors to be relatively stable and therefore will only be considered as research contexts rather than variables in this study. These important overarching factors also constitute the social context for the marketing and policy implications proposed.

Sustainability policies in Denmark

Considering that organic food and cosmetics share many common characteristics and therefore organic food industries might be practically referable for cosmetics industries, the policies applied to the Danish organic food industry is presented as research context aiming to assist the understanding of how Danish governmental bodies might as well perform in the GPCP industry.

Organic farming policy in Denmark has relatively relied on supply-side policy instruments (mainly farm subsidies) even though softer demand-side instruments such as marketing and product innovation subsidies and market facilitation through the introduction of a fully state-operated certification and labelling system (the Ø-label) have also been applied (Daugbjerg & Svendsen, 2011; Halpin, Daugbjerg, & Schvartzman, 2011). Since the Act on Organic farming published in 1987, the Danish government has been pursuing a more active market development policy strategy, developing

capacities in lobbying, mass communication, and also capacities in marketing targeted at retailers and in-store consumer behaviour (Halpin et al., 2011). One of the aims of the current study is to apply the research result on GPCPs policy implications and it is presumed that the policies in Danish organic food industries could provide practical grounds and inspirations for GPCPs related policies.

Green cosmetics consumption in Denmark

In a study of 250 Danish women's opinions on free-of cosmetics, it is suggested that consumer cosmetics behaviours should be understood as socially influenced and consumers' attitude towards the willingness to purchase is value-driven. (Hansen et al., 2012). Free-of cosmetics, although often defined by its health benefits (free of certain ingredients), share many similar features of green cosmetics and in substance are normally green. Therefore, it is reasonable to similarly ponder how green cosmetics consumption might be socially influenced and how the relevant attitude might be value-driven. Accordingly, the adapted TPB model in this study includes social influence by the variable of subjective norms and addresses consumer values by introducing environmental consciousness and health consciousness.

Citizen participation in sustainability in Denmark

After 2001, a new phase in ecological transformation is framed by Levy and Wissenburg (2004) as "the post-ecologist era" which increases the use of commercial mediators, technologies, and consensual actions (Læssøe, 2007). Reflecting on the Danish tradition "folkeoplysning", sustainability development in Denmark has undergone a major shift towards a focus on individual consumer practices or local technological fixes instead of specific political intentions (Læssøe, 2007). Moreover, possibly owing to the close relations between parties, movements, and government agencies, and professional NGOs in Denmark (Jamison, 2004), the role of the citizens in sustainability participation, is pervasively expected as political consumers who act by paying attention to the mass media and voices from different groups (Læssøe, 2007). This Danish political culture could potentially provide what is described by Boström and Klintman (2006) as a latent readiness for different actors (state and nonstate) to communicate, negotiate, and search for pragmatic eco-solutions. In general, Danish philosophy of sustainability in recent decades expected a holistic and liberalist approach that mobilizes the private good of different stakeholders rather than focusing on single and collective issues, although Læssøe (2007) pointed out that this approach risks of ending up with the self-deceptive simulation of sustainable development. This risk might be interpreted as consumers might only politically participate in this heated discussion, yet they still do not behaviourally perform enough to contribute to sustainability. Similarly, in a cross-continent study of sustainable pork consumption, Watson, Wilson, Smart, and Macdonald (2018) revealed that critical sustainable attitudes only weakly influence purchasing behaviour, they may, however, still be expressed in the public debate and influence policy formation at national and global levels.

Sustainability education and social learning in Denmark

Following the above-mentioned Danish philosophy of sustainability, environmental and sustainability education is embedded in many other realms than school education. Wals (2010) described the societal and holistic forms of sustainability education in Denmark as competence-based learning, 'a planetary

consciousness', and a paradox between pluralistic self-determination and pre-/expert-determined sustainable social norms. This sustainability, deep-rooted in democracy, emphasizes individuals' competence in searching, engaging, and reflecting on sustainable choices and norms (Wals, 2010). More specifically, this competence should be seen from within the complex context while functional, personal/behavioural, cognitive, and ethical components of competence are inseparable (Cheetham & Chivers, 1996). Heymann and Wals (2001) conclude that this type of education for sustainable development requires flexible and inclusive space for social learning; such space includes important elements of consumer behaviour and activity, for example, participation minimally distorted by power relations, space for self-determination, and space for contextual differences (Wals, 2010). Danish residents, regardless of nationality, analyzed as consumers in the scope of sustainability and green consumption, are similarly exposed to the above-discussed sense of citizen participation and pluralistic social learning. It is hence presumed by the two authors that these overarching societal factors of sustainability in Denmark will pervasively influence Danish residents through holistic social learning and everyday consumption norms.

5.2 Research purpose

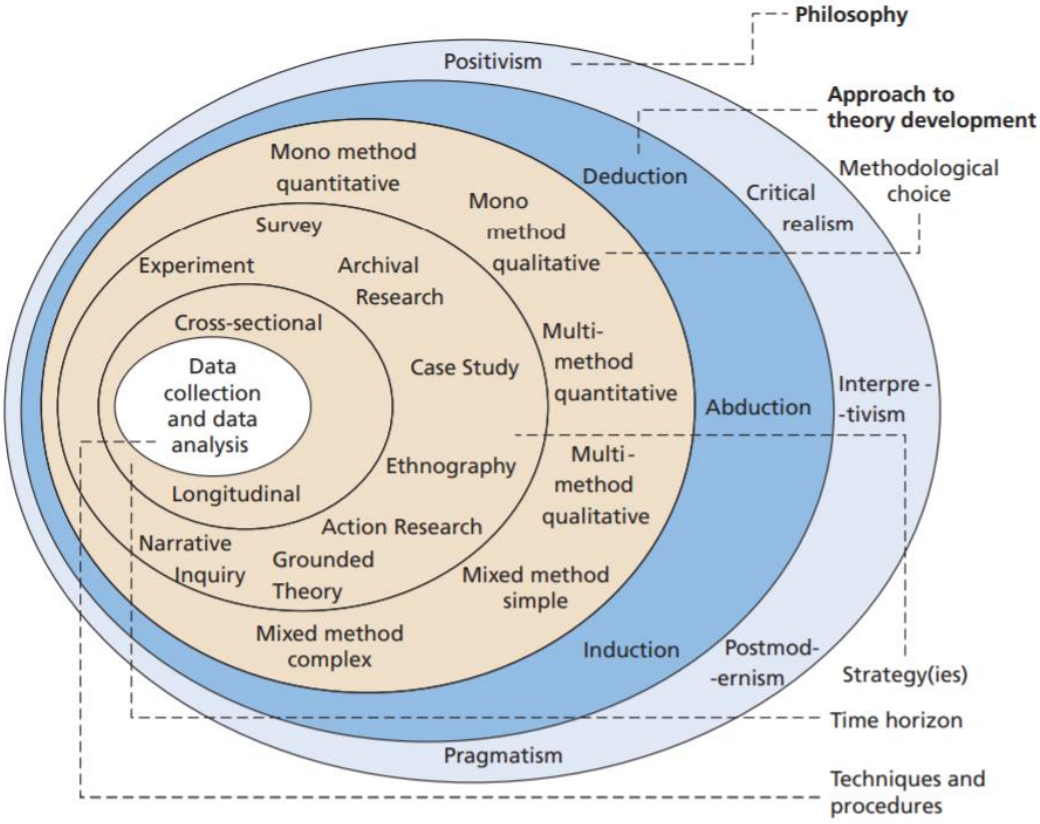
The primary aim of this study is to test the efficacy of the extended TPB framework, in which environmental and health consciousness are proposed as additional variables in the context of green personal care products purchase. Second, based on the extended TPB model, it was intended to unravel the motives behind green personal care products purchase in Denmark. Thus, the causal relationships/correlations between the proposed additional constructs (i.e. environmental and health consciousness) and the original TPB constructs in the context of GPCPs purchase were investigated. Accordingly, it can be argued that this is a descripto-explanatory study, as it contains both descriptive and explanatory elements (Saunders, Lewis, & Thornhill, 2009). The current study is descriptive, as the components of consumers´ behaviour regarding GPCPs purchase are described based on the TPB model in order to have a clear picture of the phenomenon. This descriptive part is non-negligible, since it serves as a precursor to explanation (Saunders et al., 2009). Explanatory research focuses on "why (and sometimes how) something is the case" (Punch, 2014, p. 20). In this connection, the study is also explanatory, since the aim is to investigate – based on the TPB model – the reasons ´why´ consumers (intend to) purchase green personal care products and explain ´how´ the variables/constructs correlate (i.e. their causal relationships) to one another through statistical analysis. This is connected to testing the proposed hypotheses.

5.3 Philosophy of science

The philosophical perspectives refer to the research paradigm within which academics carry out their research. It is crucial to choose an appropriate research paradigm, as it provides a framework for the entire research process, that is, it informs the research questions, the type of methodology and methods chosen as well as the interpretation of findings (Crotty, 1998). Guba and Lincoln (1994) defined a

research paradigm as “the basic belief system or world view that guides the investigation, not only in choices of methods but in ontologically and epistemologically (and axiologically) fundamental ways” (p. 105). The remainder of this section is concerned with the research philosophy and research approach of the current study. In this connection, to address the issues fundamental to the choice of data collection techniques and analysis methods, it is crucial to explain why those choices were made. The ´research onion´ proposed by Saunders et al. (2019) is utilized to facilitate this explanation. In this regard, at the different stages of research, several assumptions are made (i.e. ontological, epistemological and axiological and related assumptions (e.g. structure and agency assumptions), these assumptions will be described below. However, it is important to ensure consistency throughout the set of assumptions made in order to lend credibility and coherency to the research. This will underpin “the methodological choice, research strategy, data collection techniques, and analysis procedures” (Saunders et al., 2019, pp. 139–32), which will be addressed in this Chapter.

Figure 3 The Research ‘Onion’



Source: (Saunders, 2015)

5.3.1 Research philosophy: adapting the positivistic approach

Research philosophy is the outest layer of the ‘onion’. It is about how new knowledge is developed and the nature of that knowledge. Research philosophy captures the beliefs and assumptions about how researchers view the world. It is important as these assumptions will influence all aspects of the research

project. Thus, the aim here is to reflect upon the philosophical choices made. There are three major aspects of research philosophy: *ontology, epistemology,* and *axiology.* These research philosophies can be distinguished based on where their assumptions fall on the objectivism-subjectivism scales (Saunders et al., 2009).

Ontology is concerned with the assumptions about how the world operates, that is, the nature of reality. Easterby-Smith et al. (2012) state that ontology explains "how the researcher views the world and the assumptions that they make about the nature of the world and of reality" (p.18). In the philosophy of science, it is related to the objective-subjective debate. The current research takes more of an objective view (objectivism).

Epistemology is about "what constitutes acceptable (i.e. valid and legitimate) knowledge in a field of study" (Saunders et al., 2009, p. 112). Kuada (2012) describes epistemology as "how we know what we know or what we conceive as a 'truth'" (p.59). Consequently, the epistemological stance taken will determine the kind of knowledge one has and can contribute with as a result of their research as well as how one communicates knowledge to others and how data should be collected and analyzed to substantiate that knowledge (Saunders et al., 2009; Tennis, 2008). The most common epistemological approaches are pragmatic, positivistic, rationalist, realist, etc. (Tennis, 2008).

The current research adopts the philosophical stance of the natural scientist reflecting the philosophy of positivism. As the current study belongs to the domain of *social psychology*, it is important to mention that theoretical approaches in psychology have been dominated by positivism and its different varieties. This positivist approach is rooted in an objectivist epistemology, which holds that "reality exists apart from any consciousness and knowledge is gained through observation" (Stephens, 2008, p. 71). Accordingly, this study follows the preference of "working with an observable (and measurable) social reality/phenomena (Remenyi, Williams, Money, & Swartz, 1998, p. 32). In this connection, observable social reality means facts (rather than impressions) (Saunders et al., 2009). To answer the proposed research questions, this study intends to measure such observable phenomena by human psychological concepts like values, attitudes, and motivations so as to explain behavioural intention and behaviour. Although human psychological concepts are 'intangible', a vast array of empirical research suggests, human psychological processes are frequently measured and presented in the form of statistical data (Stephens, 2008). Furthermore, it is believed that observable phenomena will result in the creation of good quality/credible data (Saunders et al., 2009). To generate a research strategy to collect such credible data, an existing social cognitive model of behaviour – *the theory of planned behaviour* – is used to develop hypotheses for testing and identifying targets so that implications can be proposed.

Another critical characteristic of the positivist approach is that research is undertaken in a value-free way (Saunders et al., 2009). This also entails the *axiological* aspect, that is, researchers' own value position and their ability to articulate their values as guiding their judgments about what and how research should be conducted (Heron, 1996). The axiological approach adopted by the researchers reflects the maintenance of the objective or neutral stance, meaning that the researchers strive to stay objective (i.e. value-free) and detached from their own values to avoid bias. Nevertheless, it must be

noted that it is impossible for the researchers to completely rid themselves of their own values (Saunders et al., 2009). What is more, it could be argued that the sheer decision itself "to adopt a seemingly value-free perspective suggests the existence of a certain value position" (Saunders et al., 2009, p. 114). Thus, what is meant by 'value-free' is that the researchers are detached from and external to the process of data collection, which does not allow for the alteration of the data collected. Therefore, as an online questionnaire was utilized to gather data, it is claimed that the authors´ values do not affect the answers given by respondents. As Remenyi (1998) puts it, the assumption is that "the researcher is independent of and neither affects nor is affected by the subject of the research" (p.33). To ensure this objective stance during the data collection process – in accordance with the positivist paradigm - the emphasis is on quantifiable observations. Thus, a structured online survey instrument was utilized as the primary data collection method. The collected data will be analyzed through statistical methods. These conducts will all lend the data more objectivity.

5.3.2 Research approach

The current study is based on a cognitive social psychological theory – the theory of planned behaviour. Social psychologists often use the hypothetico-deductive model, in which hypotheses are tested to prove the theoretical propositions (i.e. hypotheses) (Stephens, 2008). This deductive approach is generally associated with the positivistic view and is followed by this study. Correspondingly, the TPB model will be used and a thorough literature review related to this theory in the context of green consumerism – more specifically organic food consumption and GPCPs purchase – will be conducted to develop hypotheses. The domain of organic food consumption was chosen for hypotheses development for two reasons: 1) scarcity of literature within the domain of green cosmetics purchase behaviour; 2) organic food purchase is considered similar to green cosmetics purchase as they both are necessity goods and are relevant to consumer values (i.e. health consciousness and environmental consciousness). The hypotheses generated will be tested and then confirmed or refuted, which will lead to the further development of the theory. This will allow the authors to propose theoretical, marketing and policy implications. What is more, this will also allow future research to test the proposed modified theory in the context of GPCPs.

5.3.3 Methodological choice, research strategy and time horizon

A single data collection technique (mono-method), an online self-administered questionnaire, was utilized as a primary data collection method to gather quantitative data to answer the research questions. Quantitative data can be analyzed using descriptive and inferential statistics. This data collection method and analysis procedure belongs to the *survey strategy*. This research strategy suggests possible reasons for particular relationships among variables and to produce models of these relationships. In this study, the relationships (hypotheses) between that of the TPB constructs and the additional variables are examined and explained. Apart from that, the current research is cross-sectional, as it aims to study a

particular phenomenon (GPCPs purchase) at a given time. Thus it represents a snapshot of the current situation (Saunders et al., 2009).

5.3.4 Sampling design and data collection

The population for this study consists of individuals residing in Denmark. Thus, both Danes and internationals with various national backgrounds participated in the study. It is supposed by the authors that internationals who have lived in Denmark for a while would be similarly influenced by consumer psychology phenomena present in Danish society.

Due to limited resources such as time constraints and non-availability of a sufficient sampling frame, a non-probability sampling technique – self-selection sampling – was utilized. The self-selection method was deemed to be a good fit for this study because it is often applied for convenience and cost reasons and is defined as allowing individuals to "identify their desire to take part in the research" (Saunders et al., 2009, p. 241). Consequently, self-selected individuals often participate because they are interested in the topic themselves and thus are willing to express their feelings and opinions about the research objectives (Saunders et al., 2009). To collect responses, the quantitative questionnaire was made public and distributed online on the following social media platforms: Facebook, LinkedIn, and Reddit.

Added to that, the purpose and focus of the current research directed the researchers' choice to decide on a suitable sample size. Nevertheless, since the primary purpose of the current study was to examine/justify the relevance of the two additionally integrated variables in the TPB model in the context of green personal care products, namely environmental and health consciousness, testing the relevance of these constructs to other constructs in the TPB is of greater importance than drawing a representative sample to make generalizations to the population. Accordingly, the sampling size was decided based on the analytical method used, i.e. structural equation modelling (SEM).

The sample size was computed based on the guidelines suggested by (Hair, Black, Babin, & Anderson, 2014) for applying structural equation modelling (SEM). According to the guideline, 10-15 observations are necessary per item/studied variable. The current research includes seven constructs with 27 question items. Consequently, the sample size for this study must reach at least 270 respondents (27*10 = 270).

5.4 Development of the questionnaire

To test the proposed hypotheses, there are several issues to be considered. First, it is important to point out that the proposed consumer values constructs (i.e. environmental- and health consciousness) and all constructs in the TPB model are hypothetical or latent. This means that they cannot be directly observed and as such, they "must be inferred from observable responses" (Ajzen, 2002, p. 2). Observable responses or manifest indicators can be obtained through either direct observation or self-reports (Ajzen,

2002). This study relies on the latter method, as self-reports are more easily acquired and the positivist approach was chosen guiding the current research.

Based on the above, to gather data about green personal care products purchase and validate and examine the extended TPB model, a 27-item self-administered questionnaire was designed. The close-ended questionnaire included: 1) demographic data (e.g. gender, age, monthly disposable personal income, education level, and occupation); 2) consumer values (i.e. environmental and health consciousness) and 3) the five major TPB constructs (subjective norm, perceived behavioural control, attitude, intention, and behaviour). Demographic data is used to provide an overall picture of the surveyed population, whereas consumer values were handled as background factors in the TPB. Ajzen and Fishbein (1980) suggest using a 7-point bipolar scale ranging from "completely agree" to "completely disagree" including a neutral option. Thus, this scale, with assigned ratings, was utilized in the case of consumer values and the TPB constructs. Ratings range from '+3' to '–3', with '+3' designating 'completely agree', '0' designating 'neither agree nor disagree', and '-3' designating 'completely disagree'.

In the final questionnaire, items belonging to a certain construct were presented in a randomized order, as it is believed to enhance the internal validity of the questionnaire (Ajzen, 2002). Furthermore, randomization is also important to avoid question order bias in order to obtain genuine and truthful answers from participants. This is because if respondents are presented with the items of the same construct all at once, then their answers are likely to become influenced by their own responses to similar items (Nederhof, 1985). Furthermore, to reduce the non-response rate, all questions were set compulsory to answer.

One advantage of the online self-administered survey method is that that the researcher is not present and thus respondents are less likely to provide socially desirable answers (Saunders et al., 2009; Wheeler, Gregg, & Singh, 2019). However, this bias might still be present (see the section on *Limitations*). In order to make sure that only those respondents' answers would be included in the data analysis who reside in Denmark, a filter question was proposed: *"Are you currently living in Denmark?"*. Only respondents who choose 'Yes' could proceed with the questionnaire, respondents who answer 'No' will be directed to the end of the questionnaire. An introduction is included at the beginning of the questionnaire to explain its purpose and raise respondents' interest to participate in the questionnaire. A definition of green personal care products is also presented to align respondents' conception of GPCPs since numerous definitions exist:

> "Green personal care products (e.g. soaps, shampoos, toothpaste, fragrances, etc.) contain at least a certain proportion of environmentally-friendly ingredients (grown without pesticides, synthetic fertilizers, toxic materials, etc.). Thus, they guarantee environmental conservation all along the production line and better respect for consumers and nature."

Furthermore, the questionnaire items presented below were refined in a way that respondents would be able to interpret the questions as intended by the researchers. Thus, a group of master´s students and an expert were asked to revise the proposed questions and the structure of the questionnaire.

Based on their suggestions, slight modifications were made to the wording of certain scale items. This helped to establish content validity.

5.4.1 Measures of the constructs

5.4.1.1 Consumer values: environmental consciousness and health consciousness

The purpose of including these additional constructs is to explain the *whys* of attitude formation towards GPCPs purchase. As it has been discussed earlier both environmental and health consciousness might be essential composites of certain people´s value systems guiding their behaviour (Balderjahn, 1988; Becker et al., 1977; Mishal et al., 2017; Newsom et al., 2005; Schifferstein & Oude Ophuis, 1998; Wang et al., 2014). Consequently, as values are usually considered as background factors in the TPB model, these constructs will be included and analyzed in the model accordingly.

Environmental consciousness (EC)

Environmental consciousness was measured using four questions from James and Burks (1995). The selected scale items reflect the conative, cognitive, and affective dimensions of EC that appear in various forms of attitude theory research (Gray, 1985).

The conative expression of EC can be understood as 'environmental intention' and relates to 'a readiness to perform or a commitment to support, a variety of actions that can potentially impact environmental quality', for example, this might be a willingness to perform a specific behaviour, which indicates personal commitment to protect environmental quality (Dunlap & Jones, 2002, p. 491). The following statement reflects this dimension*: "I would be willing to stop buying products from companies guilty of harming the environment, even though it might be inconvenient for me"* and *"I often discuss environmental issues with my friends and/or family"*.

Environmental concern can also be expressed cognitively and is usually treated as "the beliefs and knowledge an individual has about the nature of an environmental problem, its assumed causes and possible solutions" (Gray, 1985). An example of the cognitive dimension: *"I am aware of the harm being done to plant and animal life by pollution".*

Lastly, the affective expression of environmental concern comprises "an emotive and evaluative element which is synonymous with a more restricted conceptualization of attitude" (Fishbein and Ajzen, 1975; as cited in Dunlap, p.490). Such attitudinal indicators involve feelings and evaluations about environmental issues. This is reflected in the following item: *"When I think of the ways industries are harming the environment, I get frustrated and angry*".

Health consciousness (HC)

Health consciousness was measured with four scale items adapted from Gould (1988). These items also reflect Gould's (1988) breaking down of health consciousness into four dimensions. The first dimension is greater concerns to health: *I am very self-conscious about my health.* The second dimension is caring about health: "*I'm usually aware of my health*". The third dimension is engaging in searching for health

information: *"I take responsibility for the state of my health"*. The fourth dimension is valuing and reflecting on health conditions: "*I reflect about my health a lot"*.

5.4.1.2 Constructs of the theory of planned behaviour

There are some TPB-specific issues that must be considered to accurately measure the object of the current study (i.e. GPCPs purchase).

First, the behaviour of interest must be defined according to the TACT elements: *Target, Action, Context*, and *Time.* This is important because the TACT defines behaviour as a latent variable at the theoretical level. Researchers have flexibility with defining these elements and it is also allowed to increase generality and thus exclude elements depending on the research object (Ajzen, 2002). As the current study focuses on GPCPs purchase in general, the time and context elements are excluded. The reason why these elements were excluded is explained further below. The four elements of TACT are defined as follows:

1) *Action*: This element refers to the specific behaviour, which is the *purchase* of GPCPs. This behaviour is conceived of as 'single action'. This behaviour is reflective of a specific product category: green personal care products.
2) *Target:* The target element of the purchase behaviour is specified as the general *product category* of green personal care products.
3) *Context*: The context of green personal care products purchase is left undefined on purpose, as this study is interested in finding out the motives behind such purchases in general irrespective of the action's location (e.g. online or physical stores).
4) *Time:* Since personal care products are necessity products, a time frame (e.g. in the following month) as such is not defined in specific terms in the questionnaire, as it is assumed that consumers purchase these products when the need arises. Furthermore, the current study is cross-sectional in nature and thus it only provides a snapshot of consumers' current buying decisions. Consequently, it might well be the case that consumers´ intention (and behaviour) and the antecedents of these (attitude, subjective norm, perceived behavioural control) will change in the future.

Second, in line with the elements of TACT, the *principle of compatibility* must be ensured. This means that the predictor constructs in the TPB (attitude, subjective norm, perceived behavioural control, and intention) must be directly compatible with the behvaiour in terms of the exact same elements as well (Ajzen, 2002). Consequently, the attitude compatible with the behaviour is the attitude towards purchasing GPCPs, the subjective norm encompasses the perceived social pressure to do so, perceived behavioural control indicates the amount of control an individual has over acting on the behaviour, and eventually these constructs define intention to perform this behaviour. Accordingly, the measurement constructs and their scale items were designed in accordance with the principle of compatibility (see the specific measures of the constructs below).

Third, each TPB predictor variable can be assessed directly or indirectly based on beliefs. This study conducts a direct assessment of the predictor measures. When direct measures are selected, it is

crucial to ensure the reliability and a high degree of internal consistency of the chosen measures. This can be achieved by selecting items based on the specific behaviour (Ajzen, 2002). Thus, existing direct and empirically validated questionnaire items for the measurement of research constructs were adapted from previous research with careful modifications of their wordings so that they appropriately fit the current study and comply with the principle of compatibility explained above. Nevertheless, there are numerous studies that cover topics similar to this study (e.g. general green consumption, organic food consumption) utilizing the TPB framework. For that reason, they also offer valuable measurement items. Therefore, it was necessary to carefully decide the number and content of items. Concerning this, Robinson et al. (1991) suggest that each measurement item should be checked for its validity. In this study, both the content validity and statistical validity are investigated.

Lastly, an additional text indicating behavioural alternatives is added to all items measuring TPB constructs according to Mathieson (1991) recommended that TPB items require explicit behavioural alternatives so that the basis for comparison is clear. This allows TPB items to be more specific and tailored to the contexts, as is suggested by Ajzen (1991). It is also one of the advantages of TPB compared with other models; Ideally, TPB aims to ensure that all respondents are making the same set of comparison (Mathieson, 1991). Therefore, in this questionnaire, "compared with conventional ones" is added to all TPB items to better align all respondents' basis of comparison. EC and HC items are excluded from this adjustment because in this study they are not regarded as TPB constructs; they are background factors.

Attitude towards purchasing green personal care products (AT)

Attitude toward the behaviour is defined as "a person's overall evaluation of performing the behaviour" (Ajzen, 2002). Overall evaluation, however, should be decomposed into separable elements to accurately measure attitudes. Thus, both instrumental (e.g. wise or unwise) and experiential (e.g. pleasant or unpleasant) components should be included as well as the good-bad scale, as it captures overall assessment fairly accurately (Ajzen, 2002). The four scale items adapted from Yadav and Pathak (2016) cover all these aspects.

Subjective norms with respect to purchasing green personal care products (SN)

The measure of subjective norms should include norms with both injunctive (i.e. whether important others believe that an individual should perform the behaviour) and descriptive qualities (i.e. whether important others themselves perform the behaviour). The inclusion of descriptive qualities is necessary to avoid low variability, as important others usually approve of desirable and disapprove of undesirable behaviours (injunctive quality). However, the actual behaviour of important others themselves also has a significant impact on people. (Ajzen, 2002). Thus, to accurately represent this construct, three scale items were adapted from Yadav and Pathak (2016) to measure injunctive norms (e.g. "Most people who are important to me think I should purchase green personal care products when going for purchasing"). Furthermore, this set of scale items was complemented by adding an extra item based on Ajzen´s (2002) suggestion to measure descriptive norms: "Most people who are important to me purchase green personal care products".

Perceived behavioural control over purchasing green personal care products (PBC)

A set of measurement items containing four questions was adapted from Han et al. (2010). This set of items are chosen, as it contains both controls over the behaviour or controllability, that is, people's beliefs that performing a behaviour is or is not up to them, and self-efficacy items, that is, difficulty or likelihood of performing the behaviour. *"Selecting a green personal care product is completely up to me"* reflects the former and *"I am confident that if I want, I can buy a green personal care product"* concerns the latter. These are necessary components to effectively measure the TPB construct (Ajzen, 2002). Added to that, the different elements of PBC (time, money, availability, and knowledge) are addressed separately in order to identify the reasons behind people´s ability (which is measured as perceived ability) to perform the behaviour. The adopted measurement items from Han et al. (2010) also address some of the elements of PBC (time, money, and availability). However, an additional item was created by the researchers to address the knowledge element of the PBC construct: "I have enough knowledge to select a green personal care product". A more inclusive item combining each element was also included from Yadav and Pathak (2016).

Intention to purchase green personal care products (IN)

The TPB model, based on the cognitive hierarchy model, suggests that attitudes are expected to predict intentions, which in turn would predict actual behaviour (Ajzen, 1991). Specifically, Jaiswal & Kant (2018) found the green purchase intention to be the fundamental predictor of green purchase behaviour. Lai & Cheng (2016) suggested that the expressed willingness is more effective than other behavioural measures in holding consumers' psyche to predict green purchase behaviour. Therefore, intentions might be strong predictors of actual behaviours. Such behavioural intentions were measured by three scale items. Two of the measurement items were adapted from Yadav and Pathak (2016) and one scale item was adapted from Nquyen et al. (2019).

Green personal care products purchase behaviour (BH)

Purchase behaviour of GPCPs was measured as a part of the self-assessment questionnaire with two statements adapted from S. Kim & Seock (2009) and another one from Harland et al. (1999). This is in line with Ajzen's (2002) suggestion to use more than one question item to ensure the reliability of the behaviour construct. Nevertheless, it must be noted that self-reports are not entirely reliable measures of actual behaviours (Ajzen, 2002; Corral-Verdugo, 1997). To support this claim, several scholars have found a low correspondence between the reported and observed behaviours (Carrigan & Attalla, 2001; Corral-Verdugo, 1997; Richard Elliott & Jankel‐Elliott, 2003). Thus, this approach is not thought to guarantee the validity of the GPCPs purchase behaviour construct as accurately as onsite observations. Though the questionnaire measurement for purchase behaviour is developed, the authors tend to be careful about the efficacy of this expressed behaviour in representing actual behaviour and thus will review this issue according to the data collected.

Table 1 Survey Items

the Measured Latent Variable	Abbr.	Observed Variable
Environmental Consciousness	EC1	I would be willing to stop buying products from companies guilty of harming the environment, even though it might be inconvenient for me.
Environmental Consciousness	EC2	I often discuss environmental issues with my friends and/or family.
Environmental Consciousness	EC3	I am aware of the harm being done to plant and animal life by pollution.
Environmental Consciousness	EC4	When I think of the ways industries are harming the environment, I get frustrated and angry.
Health Consciousness	HC1	I reflect about my health a lot.
Health Consciousness	HC2	I'm very self-conscious about my health.
Health Consciousness	HC3	I'm usually aware of my health.
Health Consciousness	HC4	I take responsibility for the state of my health.
Attitude	AT1	Buying green personal care products is a good idea compared to buying conventional ones.
Attitude	AT2	Buying green personal care products is a wise choice compared to buying conventional ones.
Attitude	AT3	I like the idea of buying green personal care products better than buying conventional ones.
Attitude	AT4	Buying green personal care products would be pleasant compared to buying conventional ones.
Subjective Norms	SN1	Most people who are important to me think I should purchase green personal care products rather than conventional ones.
Subjective Norms	SN2	Most people who are important to me would want me to purchase green personal care products rather than conventional ones.
Subjective Norms	SN3	People whose opinions I value would prefer that I purchase green personal care products rather than conventional ones.
Subjective Norms	SN4	Most people who are important to me purchase green personal care products rather than conventional ones.
Perceived Behavioural Control	PBC1	Selecting green personal care products rather than conventional ones is completely up to me.
Perceived Behavioural Control	PBC2	I am confident that if I want, I can buy green personal care products rather than conventional ones.
Perceived Behavioural Control	PBC3_M	Compared to conventional personal care products, I can afford to select green personal care products.
Perceived Behavioural Control	PBC4_T	Compared to conventional personal care products, I have enough time to select green personal care products.
Perceived Behavioural Control	PBC5_K	I have enough knowledge to select green personal care products rather than conventional ones.
Perceived Behavioural Control	PBC6_MTK	I have the resources, knowledge and time to buy green personal care products rather than conventional ones.
Intention	IT1	I am willing to buy green personal care products rather than conventional ones while shopping.
Intention	IT2	I will make an effort to buy green personal care products rather than conventional ones.
Intention	IT3	I plan to buy green personal care products rather than conventional ones.

Behaviour	BH1	I often purchase green personal care products rather than conventional ones.
Behaviour	BH2	While shopping, I buy green personal care products rather than conventional ones.
Behaviour	BH3	In most instances, I purchase green personal care products, rather than conventional ones.

5.5 Method of data analysis

5.5.1 Structural Equation Modelling and the Theory of Planned Behaviour

Previously, researchers applied multiple regression procedures such as hierarchical regression to analyze the TPB framework (Ajzen, 2005; Francis et al., 2004). Lately, Structural Equation Modelling (SEM) has become a prevalent analytical method in TPB research (Mayhew, Hubbard, Finelli, Harding, & Carpenter, 2009; Topa & Leon, 2010). Concepts in TPB related research are not directly observable (i.e. latent variables) and therefore they must be measured indirectly via indicators, for example in the form of questionnaire items or other tests (Blunch, 2017). SEM aims to explain causal relationships among multiple latent variables and hence can serve the purpose of verifying a priori theories. More specifically, SEM is a family of statistical models and multivariate techniques combining factor analysis and multiple regression that seeks to simultaneously examine interrelated dependence relationships between/among the observed variables and the latent constructs, as well as relationships between/among latent constructs (Hair et al., 2014).

Anderson and Gerbing (1988) summarized the two-stage model-building approach for SEM analysis: the *measurement model* and subsequently the *structural model*, which are complementary but conceptually distinct models. This two-step approach is followed by this study primarily based on Hair et al.'s (2014) suggestions. Relationships among multiple independent and dependent constructs can be tested concurrently through examining both the measurement and the structural elements of a given model (Tabachnick & Fidell, 2007).

The measurement model operationalizes the theory in question, and the structural model represents the theory in question (Hair et al., 2014). It is worth noting that the measurement model in the current study is in line with the positivist methodology presuming that the latent constructs are observable and examinable with an acceptable level of disturbance from reality. Supported by a measurement model, a structural model sets the hypothesized dependence relationships among constructs. SEM is hence summarized by Blunch (2013) as a combination of factor analysis and path analysis where factor analysis sets the ground for capturing the multi-dimensionality of latent constructs in the measurement model and path analysis estimates correlations among variables in an assumed data-generating processes both in the measurement model and the structural model.

In the context of conventional TPB research, Cooper et al. (2016) note: "constructs of the TPB are theorized to have causal links (e.g. attitude → intention) and SEM analysis allows researchers to examine if, and by how much, the TPB independent variables (Attitude, Subjective Norm, and Perceived

Behavioural Control) predict the TPB dependent variables (Intention and/or Behaviour)" (p.156). Following the recent method shift in TPB research and the operationalizability of SEM in the context of TPB research, the current study adopted SEM analysis. Nevertheless, the model studied in this paper is an extended TPB model. The purpose of using an extended version of the original model was to examine and explain how environmental consciousness (EC) and health consciousness (HC) affect consumers´ attitudes, behavioural intention (and behaviour) in the context of green personal care products purchase. Furthermore, SEM allows for testing the proposed extended TPB model against the empirical data. This is beneficial for two reasons in the present study: 1) the measuring efficacy of the measurement model can be examined by statistically assessing the proposed model for its significance, fit, reliability, and validity regarding the observed data (Hair et al., 2014).; and 2) the proposed hypotheses can be verified or refuted by estimating the significance and strength of the theorized connections (Blunch, 2017).

5.5.2 Selecting an appropriate estimation method

The choice of an appropriate estimation method is an important prerequisite for SEM. The current study opted for Maximum Likelihood Estimation (MLE). It is an estimation method commonly used in SEM, a procedure that iteratively improves parameter estimates to minimize a specified fit function (Hair et al., 2014).

In this study, Likert scale generates ordinal data instead of continuous data, and therefore the data will scarcely be normally distributed. The most statistically rigorous approach in this scenario is to conduct a nonparametric method that does not assume anything about the underlying distribution. However, though nonparametric methods have been proposed as the most appropriate procedures for inferential statistics involving ordinal data (Siegel & Castellan Jr., 1988), the use of parametric statistics for ordinal data may be permissible with certain caveats to take advantage of the greater range of available statistical procedures (Cohen, Swerdlik, & Phillips, 1996; van Belle, 2008).

Numerous extant SEM analyses in social science using ordinal data still adhere to parametric SEMs and hence use Maximum Likelihood Estimation (for its confirmatory purpose and better estimation efficiency). In this connection, VB-SEM (Variance Based SEM) and CB-SEM (Covariance Based SEM) differs in 1) their statistical approaches, namely the non-parametric testing and the parametric testing, 2) their research objectives, namely exploratory and confirmatory, and 3) their algorithms, namely Generalized Least Square (GLS) and Maximum Likelihood Estimator (MLE) (Awang, Wan Afthanorhan, & Asri, 2015). Unlike the non-parametric procedure in VB-SEM, the parametric procedures in CB-SEM rely on the assumptions such as adequate sample size, and normally distributed data. However, because VB-SEM is only meant for exploratory study, as opposed to confirmatory analysis in CB-SEM (Hair et al., 2014), many extant works of literature that apply SEM to social science still utilize CB-SEM for the confirmatory purpose. To compensate for the ordinal type of data that generally does not exhibit normal distribution due to its numerical nature of inconsistency, one can execute bootstrapping procedures when violating the distributional assumptions (P. N. Sharma & Kim, 2013). Nevertheless, Pearl (2000) proposed that nonparametric SEMs permit the estimation of

total, direct and indirect effects without making any commitment to the form of the equations or to the distributions of the error terms and therefore extended conventional SEMs to systems involving categorical variables in the presence of nonlinear interactions. Awang et al., (2015) indicate that, when the sample size is larger than 100, researchers can continuously depend on MLE without the implementation of bootstrap because in their comparison the estimates from MLE and bootstrapped CB-SEM show very similar results. In this connection, it must be noted that MLE performs relatively well when data resembles normal distribution and when only mild departures from multivariate normality are present (Schermelleh-Engel & Moosbrugger, 2003). As Schermelleh-Engel and Moosbrugger (2003) put it: "violations of distributional assumptions are common and often unavoidable in practice. Nevertheless, MLE seems to be quite robust against the violation of the normality assumption" (p. 26).

As discussed by Sharma & Kim (2013), the choice of SEM estimation method is a complex, dynamic consideration that does not have a one-size-fits-all solution, because it is influenced by the different goals that scholars aim to balance concurrently, such as the efficiency and accuracy of model parameter recovery, the efficiency of reproducing measurement model parameters and structural model parameters, and suitable estimation method for a certain sample size. Therefore, taking issues such as data type, sample size, research objective, and efficiency into consideration, the authors adopt MLE in this study with an ordinal dataset larger than 300 and a confirmatory research objective.

An important assumption of MLE is that the endogenous variables in the model exhibit multivariate normal distribution, that is, the data of their constructing indicators are normally distributed (Schermelleh-Engel & Moosbrugger, 2003). However, MLE is still considered robust when the multivariate normal assumption is only violated to a limited degree (Hair et al., 2014, p.293). Since the current study still uses CB-SEM (and therefore MLE) which statistically has the distributional assumptions, both the non-normality itself and its effects on the estimation results will be assessed in section 6.1.3. The concluding remark about the departure from normality in this study is that it causes neither Chi-square related misspecification nor significantly erroneous parameters. Therefore, MLE is believed to be effective in this study and it is used for the subsequent measurement model and structural model analysis.

5.6 Limitations

The empirical data for the current study was derived from a self-reported questionnaire. However, implicit techniques such as observations are considered as more accurate measures of overt/actual behaviour than direct self-report methods (Ajzen, 2002). It has been found that there is a potential for biased responses to green product surveys since most consumers do report preferences for green over non-green products that does not translate into corresponding behaviour (Griskevicius, Tybur, & Van Den Bergh, 2010). This survey method limits the possibility of capturing actual purchase behaviours and hence constraints the extended TPB model's capability of translating behavioural intention into actual behaviours. The attempt to measure actual behaviour via survey is considered by the two authors as inappropriate because surveyed behaviour is not distinguishable enough from expressed intention

(see section 6.2.3.4 and 7.1.1.2), consequently, the behaviour construct is removed from the statistical scope of this study. This study is focused on the psychological domain of consumer behaviour yet is insufficient in addressing the Intention-behaviour gap which is a critical last step in actualizing green purchase.

Apart from that, another issue related to self-reporting is that people tend to systematically under-report socially undesirable activities and give systematically positive responses to socially desirable ones. This latter phenomenon is usually termed positive response or social desirability bias (Krumpal, 2013). As buying green personal care products might be perceived as socially desirable, the possibility that the survey method applied in this study could produce a social desirability bias cannot be ruled out and as such must be recognized as a limitation.

Krumpal (2013) noted that social desirability bias in surveys can be mitigated, among others, by increasing survey anonymity and pinpointing survey importance. Thus, to lessen the impacts of this potential bias, besides ensuring anonymity during the data collection process, the subjective benefits of their genuine opinions are highlighted, that is, the significance of the survey to discover the 'real' driving forces of green personal product purchase and to provide valuable information and implications, based on their responses.

Another limitation lies in the sampling method of this study. The self-selection sampling utilized by this study may produce biasedly positive responses to the green-related statements, due to the potentially pre-existing interests for the research objectives within the respondents who choose to participate (Saunders et al., 2009). Moreover, this non-probability is not the most accurate approach to estimate characteristics of the whole population as the representativeness of the sampled population in relation to the population of concern is had to be accurately determined as can be done in probability sampling. To produce more accurate estimates of population totals and to increase the representativeness of the surveyed population, probability sampling could be given priority by future research as long as enough sampling resources are allowed.

Lastly, the accuracy of statistical estimates could be improved by a better alignment between the ordinal data type and the estimation method. Although the application of parametric SEMs and estimation methods (i.e. MLE) on ordinal data is supported by many social scientists, the violations of statistical assumptions still produce disturbance to the results. Even though the disturbance is evaluated as acceptable, there is still room for aiming a statistically more rigorous approach to analyze the often noncontinuous data from social science and utilize the benefits of probability-based tests at the same time.

Chapter 6: Structural Equation Modelling Analysis and Findings

6.1 Data overview

6.1.1 Data screening and evaluation of missing data

316 respondents participated in the research, out of which only 6 respondents failed to complete the questionnaire. To deal with missing data, observations with incomplete data were removed (complete case approach / listwise deletion). Although this approach, due to its deletion of incomplete cases, is a nonrandom missing data process and might cause a considerable reduction in sample size (Hair et al., 2014), the extent of missing data in the current study is considered to be sufficiently small (less than 2 percent) to confidently adopt this approach. Moreover, to minimize the potential number of incomplete cases, respondents were not allowed to skip questions as each survey question was mandatory to answer. The remaining complete cases (N=310) were then analyzed.

6.1.2 Descriptive statistics

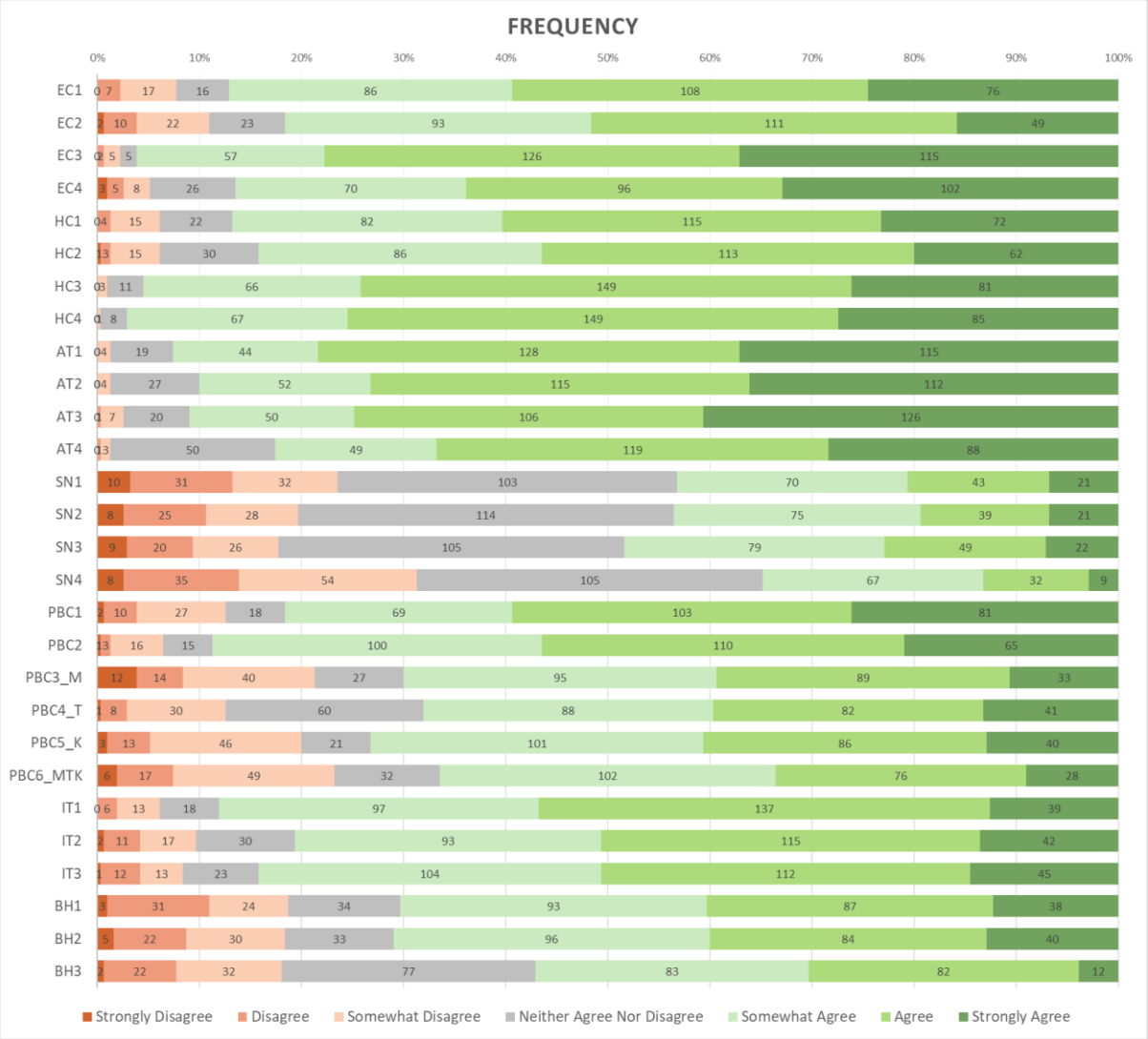
Demographics

In the 310 analyzed cases, 21% is male; 78.7% is female; 0.3% of respondents identify them as 'other' in terms of gender. Concerning age, 50% of respondents fall into the age range of '18-25'; 42.9% fall into the age range of '26-35'; 5.5% fall into the age range of '36-45'; for the age group of '46-55', '56-65', and '66 or older', the percentages are all ≤ 1%. Detailed information about respondents' monthly disposable personal income, level of education, and occupation can be found in Appendix 3 as demographics in this study is only considered as background information.

Descriptive statistics of all survey items

It must be noted that the descriptive statistics interpreted in this study only serve to describe the central tendency of the sample where data is of ordinal nature. For ordinal data, Stevens (1946) suggested that the use of means and standard deviations for description of ordinal distributions and of inferential statistics based on means and standard deviations was not appropriate. Instead, positional measures like the median and percentiles, in addition to descriptive statistics appropriate for nominal data (number of cases, mode, contingency correlation) are recommended (Stevens, 1946). Following this recommendation, number of cases, percentiles, and modes are utilized in the descriptive parts of this study. The multiple stacked bar chart below summarizes the frequency statistics of all survey items, further discussion and implication can be found in Chapter 7.

Figure 4 Frequency of All Variables



6.1.3 Assumptions for MLE as a multivariate technique

Multivariate normality is an important assumption for MLE. Even though large sample sizes tend to diminish the total effects of nonnormality, it is still recommended to assess the normality for all metric variables included in the analysis (Hair et al., 2014, p. 69). This section will address this assumption. The final measurement model in this study is obtained after re-specification efforts, hence the original measurement model and two subsequently re-specified models are all subject to this examination.

As elaborated in the methodology section, the noncontinuous ordinal nature of the data decides that the data will scarcely be normally distributed, hence the evaluation processes for continuous data (for example skewness and kurtosis for univariate normality, and multivariate kurtosis for multivariate normality) are not meaningful in this case. The emphasis is to investigate potential multivariate outliner resulted from theoretical flaws, and to assess the acceptableness of the departure from multivariate normality.

Potential multivariate outliner

Mahalanobis D^2 is often introduced to assess each observation's distance in multidimensional space from the mean centre of all observations (i.e. the centroid) (Hair et al., 2014). Mahalanobis D^2 therefore is often used as a technique of detecting multivariate outliners. Examining potential multivariate outliners in this study is for detecting potential theoretical flaws rather than excluding statistical-wise disturbance. Kline (2011) recommends a p-value <0.001 when testing for the statistical significance of Mahalanobis D^2 (p.54). When $p<0.001$, the observation in question might be significantly different from the others, which signals a potential multivariate outliner. In addition, Byrne (2016) noted that the value of a multivariate outlier tends to differ substantially from the others within the dataset.

As shown in Appendix 4, the original model and re-specification 1 have four cases whose p-value is smaller than 0.001, which suggests they might be multivariate outliners. However, their respective Mahalanobis D^2 is not evidently different from those of other cases. The authors therefore tentatively included the cases in question for later observation. In re-specification 2 (Appendix 4), there is neither a case whose p-value is smaller than 0.001 nor a case whose Mahalanobis D^2 is significantly different from the rest, hence the authors concluded that there is no obvious multivariate outliner which requires separate profiling. The following session will assess the severity of the departure and the potential impacts on the robustness of MLE.

Assessment of departure from multivariate normality

Although MLE is considered to be able to deliver better estimation than variance-based estimations, with or without correction for non-normality (Schermelleh-Engel & Moosbrugger, 2003), severe violations of the multivariate normality assumption may lead to two consequences. The first is inflated Chi-square test values, which results in incorrect rejection of plausible models and therefore also unnecessary model specification (Byrne, 2016). The second is underestimated standard errors which can yield incorrect model parameters. To evaluate the above-mentioned issues, the current study assessed the severity of the two potential consequences and concluded that the departure from multivariate normality, in this case, will not substantially distort the analysis.

The first consequence is not present in this study because χ^2/df values of the original model (1.931) and the two re-specification models (1.734 and 1.671) all indicate good model fit and hence no re-specification is conducted based on Chi-square values.

To assess the second consequence, bootstrap procedures are utilized as a supplement of MLE to generate bias-corrected standard errors and regression weight results, and thereafter to examine the second potential consequence brought by the deviation from normality. The bootstrap is a method for estimating the distribution of an estimator or test statistic by resampling one's data or a model estimated from the data (Horowitz, 2001). The bootstrap provides statistical inferences - standard error and bias estimates, confidence intervals, and hypothesis tests - without assumptions such as normal distributions or equal variances (Hesterberg, 2011).

The bootstrapped MLE is conducted with 500 numbers of bootstrap samples and confidence intervals of 95. Appendix 5,6, and 7 compare the results between MLE and bootstrapped MLE for all

three measurement models. Although the bootstrapped standardized errors are indeed, generally and slightly, higher than those in MLE, the bias-corrected bootstrap results still exhibit p-values smaller than 0.05, indicating the indicator variables are still loaded on the latent factors at the significance level of 0.05 without evidently underestimated standard errors. Hence impacts from the second consequence are evaluated as acceptable. Furthermore, the lower bounds for the standardized regression weights, generated by the bootstrap percentile method, do meets the 0.50 criterion of significant loading (or at least the 0.40 acceptable criterion) (see criteria in section 6.2.3.2), meaning that for a 95% confidence interval, the estimates are all above a lower bound that meet the criterion for practical significance. Hence, the bootstrap results reveal that standard errors and estimates generated from the original and resampled dataset are similar and are both statistically meaningful for further analysis.

The departure from normality in this study hence causes neither Chi-square related mis-specification nor significantly erroneous parameters. Moreover, as discussed by Hair et al. (2014), for sample size over 200 or more, the effects of non-normality are reduced due to reduced sampling errors, and so researchers can be less concerned about non-normal variables (p. 70). Therefore, in this large-sample study, MLE can still produce valid estimates without significant influence from non-normality.

Treatment of departure from multivariate normality

Regarding the treatment of deviations from multivariate normality, it is suggested that if outliners are problematic only in a particular statistical technique, many times they can still be accommodated in the analysis in a manner in which they do not seriously distort the analysis (Hair et al., 2014, p.65). The general principle proposed by Hair et al. (2014) to treat outliners is that the outliners should be retained unless they are truly aberrant and are not representative of any observation in the population (p.65). Following this principle, the potential outliners detected by Mahalanobis analysis are kept because they only generate statistical disturbance rather than theoretical flaws. Because the statistical disturbance has been evaluated to not cause model mis-specification, the statistical outliners should be kept to preserve the representativeness of the dataset. Managing them might seemingly improve the normality indices, but this manipulation lacks support from the theory. Last but not least, although the data resampled via bootstrapping approximates a distribution that better fulfills the multivariate normality assumption from MLE, the subsequent analysis in this study is still conducted on the original dataset. This is because bootstrap MLE in AMOS only provides parameter estimates but not model fit indices. To keep the consistency between parameter estimates and model fit indices, MLE without bootstrapping is utilized for the following analysis. Bootstrapping MLE is only utilized to estimate the consequence of the departure from normality which has been assessed as acceptable.

6.2 Measurement Model

6.2.1 Measurement model development

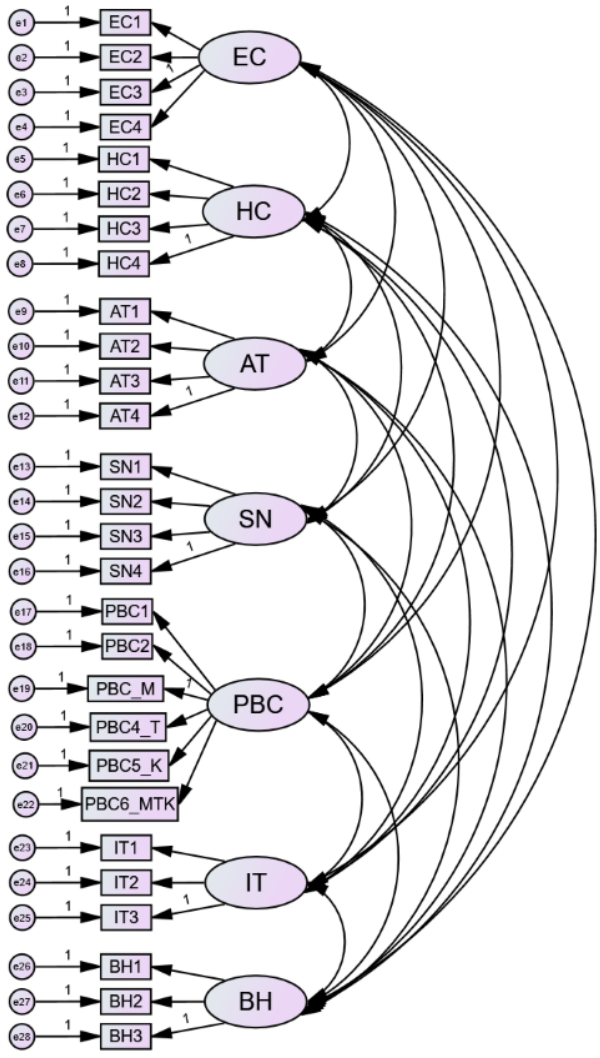
The measurement model specifies the observed variables (i.e. indicators) for each latent construct and enables an assessment of construct reliability and validity (Hair et al., 2014). The measurement model

can be presented by path diagram notations. The measurement model designates how latent variables and error terms cause the observed variables. Therefore, conceptually latent variables can be measured by the observed variables with joint effects from error terms.

6.2.2 Measurement model specification

Initial Specification and Model Identification

Figure 5 The Original Measurement Model



The original measurement model comprises of 7 latent constructs and 28 observed variables with their respective 28 error terms, as shown in Figure 5. The 7 latent constructs are mutually correlated.

Model identification aims to assess whether there are enough known variables and equations in the SEM to inform the unknown parameters. SEM can be un-identified, just-identified, and over-identified. Degree of freedom, the number of nonredundant covariance/correlations in the input matrix minus the number of to-be-estimated coefficients (Hair et al., 2014), is used to inform the identification status of an SEM. A model needs to be over-identified to sufficiently serve its purpose of estimating the parameters and leave extra room for potential re-specification.

The initial measurement model has 406 nonredundant covariance and 77 distinct coefficients to be estimated, and consequently, it has 329 degrees of freedom signaling an over-identified model. Although the number of estimated coefficients changed in the subsequent re-specification processes, the re-specified models are still confidently over-identified. Model “re-specification 1” and model “re-specification 2” (namely the final measurement model) respectively have 254 and 174 degrees of freedom.

6.2.3 Measurement model assessment and re-specification

6.2.3.1 Techniques, principles, and processes

Factor analysis

Factor analysis, defined by Hair et al. (2014) as an interdependence technique with a primary purpose of defining the underlying structure among variables, can achieve its purposes from either an exploratory or a confirmatory perspective, although there have been different opinions among scholars regarding the exploratory or confirmatory role of factor analysis. The explorative factor analysis (EFA) differs from the confirmatory approach in that, EFA does not set any a priori constraint on the model structure and the number of factors to be extracted, hence model re-specification in EFA is a-theoretical and inductive (Hair et al., 2014). By contrast, in situations where researchers aim to test hypotheses involving issues such as which variables should be grouped together on a factor or a precise number of factors, factor analysis takes a confirmatory approach (Hair et al., 2014, p.93). In summary, techniques in EFA are used primarily to reveal or explore a model structure, and techniques in CFA are used primarily to test or confirm a model structure, although these techniques are not necessarily distinct from one another.

In the current study, a tentative structure has been developed prior to the factor analysis and the goal of measurement model assessment is to confirm to what extent the theory-supported measurement model structure is acceptable for forming a meaningful structural model, therefore, factor analysis in the following sections takes a confirmatory approach. To decide whether the constructs in the proposed theoretical model which is based on an extensive literature review, are reliable and valid, Confirmatory Factor Analysis (CFA) is used to assess several model features – *unidimensionality, convergent validity, reliability, and discriminant validity*. Although explorative techniques of factor extraction are employed subsequently to investigate the grouping issue of indicator variables, this investigation and the subsequent re-specification are still confirmatory in essence because they are conducted on a hypothesized structure and a pre-determined number of factors.

The four-step re-specification process

The evaluation of the estimates necessitates a four-step re-specification process for the measurement model. The variables that do not meet the recommended minimum thresholds are examined via modification indices and/or investigated via extra factor analysis techniques. Before presenting the re-specification process and the results, an overview of the four-step re-specification process is presented below. The goal of model re-specification is to obtain a measurement model that is both conceptually and statistically meaningful, with priority given to conceptual efficacy because this SEM analysis is built on an a priori theoretical framework. The re-specification decisions are made step by step and are justified by corresponding statistics and theoretical considerations so that the re-specification efforts do not collectively generate misleading statistics that cause misspecification.

Table 2 The Four-step Re-specification Process

	Analytical Procedure	Unsatisfactory Index	Identified Problem	Re-specification Effort
Step 1	CFA (all variables)	Model Fit	e21 (PBC5_K) measurement error	Removing PBC5_K, which also results in the removal of PBC3_M and PBC4_T
		Discriminant Validity	Not clear. Requiring factor extraction	
Step 2	CFA (without TPB3,4,5)	Discriminant Validity	Not clear. Requiring factor extraction	
Step 3	Factor Extraction (7-factor)	Pattern Matrix	EC1 cross-loading	Removing EC1
			BH sharing a majority of variances with IT	Removing BH construct and BH variables
Step 4	CFA and Factor Extraction (6-factor)	-	-	-

The four steps are briefly explained in this paragraph and will be further elaborated in the following sections with the support from data. In step 1, all variables in the original measurement model are included for CFA. The e21 (the error term of PBC5) is found to have caused evident measurement errors, and the unsatisfactory discriminant validity shows that evident overlaps exist between a few sets of latent constructs. The model "re-specification 1" is then developed by removing PBC5, and accordingly, PBC 3 and PBC 4, because they are conceptually bundled. In step 2, "re-specification 1" is subject to CFA which validates the previous decision by showing a now acceptable standardized residual covariance matrix and improved model fit statistics. The discriminant validity remains unsatisfactory and therefore necessitates extra factor extraction techniques. In step 3, "re-specification 1" is investigated through factor extraction which detects the cross-loading issues responsible for poor construct distinction. With sufficient statistical and theoretical justification for a more effective factor solution, EC1 is removed, and the latent construct 'Behaviour', together with the corresponding indicator variables, is removed. "Re-specification 2" is therefore developed. In step 4, to test the efficacy of "re-specification 2", CFA and factor extraction are conducted step by step again. The results confirmed that "re-specification 2" is a satisfactory measurement model in terms of all criteria mentioned in the following sections. Thereafter, re-specification 2 is utilized as the final measurement model for building the subsequent structural model.

6.2.3.2 Step 1 – Assessing the original model and developing 're-specification 1'

In *Step 1*, the extended theoretical model proposed by the authors is subjected to a CFA analysis.

Unidimensionality

First, the unidimensionality of the variables was assessed. Unidimensionality means that "a set of variables only has one underlying dimension in common" (Janssens, Wijnen, De Pelsmacker, & Van Kenhove, 2008, p. 294). Critical Ratios (C.R.) together with Standardizes Regression Weights (factor loadings) explain this feature (Janssens et al., 2008).

Critical Ratios and Factor Loadings

For the constructs to show unidimensionality, the critical ratios of regression weights should differ significantly from zero and all values should be above 1.96 (in the C.R. column). Furthermore, the Standardized Regression Weights (factor loadings), which define a construct or variable by explaining the role of each item constituting the factor, must all be greater than the required minimum of 0.50 as they are normally considered necessary for practical significance, although factor loadings above 0.30 and 0.40 are marginally acceptable (Hair et al., 2014). Table 3 shows that these criteria are all achieved suggesting that the unidimensionality of the variables is established.

Table 3 Unidimensionality - Original Model and Re-specification 1

	Original model					**Re-specification 1**				
	Regression Weights				Standardized	Regression Weights				Standardized
	Estimate	S.E.	C.R.	P-value	Estimate	Estimate	S.E.	C.R.	P-value	Estimate
EC4<---EC	1				0.715	1				0.714
EC3<---EC	0.676	0.068	9.997	***	0.65	0.676	0.068	9.993	***	0.649
EC2<---EC	0.848	0.092	9.193	***	0.592	0.849	0.092	9.196	***	0.593
EC1<---EC	0.936	0.088	10.632	***	0.697	0.937	0.088	10.636	***	0.698
HC4<---HC	1				0.645	1				0.643
HC3<---HC	1.185	0.116	10.21	***	0.72	1.187	0.117	10.164	***	0.719
HC2<---HC	1.735	0.162	10.686	***	0.77	1.745	0.164	10.664	***	0.772
HC1<---HC	1.808	0.164	10.991	***	0.811	1.815	0.166	10.955	***	0.812
AT4<---AT	1				0.764	1				0.764
AT3<---AT	1.029	0.07	14.802	***	0.818	1.029	0.07	14.8	***	0.819
AT2<---AT	0.98	0.067	14.694	***	0.813	0.981	0.067	14.692	***	0.813
AT1<---AT	0.939	0.062	15.07	***	0.832	0.939	0.062	15.061	***	0.832
SN4<---SN	1				0.765	1				0.765
SN3<---SN	1.146	0.072	15.835	***	0.841	1.146	0.072	15.831	***	0.841
SN2<---SN	1.276	0.072	17.684	***	0.944	1.276	0.072	17.68	***	0.944
SN1<---SN	1.096	0.077	14.169	***	0.767	1.096	0.077	14.166	***	0.767
PBC6_MTK<---PBC	1				0.878	1				0.904
PBC5_K<---PBC	0.732	0.057	12.757	***	0.659					
PBC4_T<---PBC	0.749	0.05	14.954	***	0.739					
PBC3_M<---PBC	0.869	0.06	14.508	***	0.724					
PBC2<---PBC	0.516	0.047	10.943	***	0.586	0.491	0.053	9.338	***	0.574
PBC1<---PBC	0.561	0.06	9.313	***	0.513	0.597	0.065	9.15	***	0.562
IT3<---IT	1				0.911	1				0.911
IT2<---IT	1.009	0.043	23.537	***	0.886	1.008	0.043	23.527	***	0.886
IT1<---IT	0.779	0.04	19.652	***	0.814	0.779	0.04	19.668	***	0.815
BH3<---BH	1				0.877	1				0.875
BH2<---BH	1.207	0.048	25.343	***	0.935	1.212	0.048	25.278	***	0.937
BH1<---BH	1.231	0.048	25.619	***	0.94	1.233	0.048	25.418	***	0.939

*** P-value <0.001

Goodness-of-fit indices

Goodness-of-Fit consists of a series of measures indicating how well a specified model reproduces the covariance matrix among the indicator variables, that is, how similar a theoretical model is to the observed data sample (Hair et al., 2014). The more representative the model matrix is of the sample matrix, the better the GOF will be (Liu et al., 2020). GOF analysis is conducted by examining the residual matrix that reflects the level of proximity between the implied matrix and the real variance-covariance matrix) (Tasos Barkatsas & Bertram, 2016).

Model fit can be assessed inferentially by the chi-square index (χ^2) or by supplementary or alternative indices. Proponents adhere to different approaches: some strictly rely on the chi-square index and some place more emphasis on the supplementary indices (Barrett, 2007). According to Hair et al. (2014), a model is considered a good fit if the GOF measures, that is, the Chi-square value and at least one incremental goodness-of-fit fit index (like CFI, GFI, TLI, AGFI, etc.) and one badness of fit index (like RMR, RMSEA, SRMR, etc.) meet the predetermined criteria. Collectively these GOF measures summarize the discrepancy between observed values and expected values. Blunch (2013) also suggested that researchers shall report fit indices from different categories to measure different aspects of model fit. Based on this recommendation, both absolute (χ^2/df, RMSEA, GFI, AGFI) and incremental (IFI, TLI, CFI) goodness-of-fit indices are used to determine the overall fit (i.e. general quality) of the measurement model. Absolute measures show to what extent an a priori model is different from a perfect fit. In other words, absolute fit indices indicate how well a hypothesized model matches the observed data. These indices evaluate a specified model independent of other models, meaning that they do not compare the hypothesized model to any other model (Hair et al., 2014). Incremental fit indices, on the other hand, "compare the fit of an a priori model with that of a baseline model (i.e. a model with the worst fit, often called a null model)" (Xia & Yang, 2019). In the following sections, it is argued why the Chi-square value is substituted by the Chi-square per degree of freedom value (χ^2/df), as the Chi-square value itself has noticeable shortcomings.

The Chi-square value is the conventional inferential measure for assessing overall model fit and 'assesses the magnitude of discrepancy between the sample and fitted covariances matrices' (Hu & Bentler, 1999, p. 2). A non-significant Chi-square value with a P-value larger than 0.05 suggests that the null hypothesis can be accepted, meaning that the model fits the data at this significance level (Barrett, 2007).

The χ^2 test, however, has several limitations. A precondition of the χ^2 test is the assumption that variables are multivariate normally distributed, and another one is that the sample size is large enough (Jöreskog & Sörbom, 1993). Nonetheless, these assumptions often fail in numerous practical applications. Moreover, the χ^2 value is strongly dependent on the sample size. Larger sample sizes cause the χ^2 value to increase and the reliance on χ^2 might cause the rejection of a plausible model which simply has a larger sample size (Schermelleh-Engel & Moosbrugger, 2003). On the contrary, smaller sample sizes prompt smaller χ^2 values, which might indicate nonsignificant probability levels even when the model-sample discrepancy is unacceptable (Schermelleh-Engel & Moosbrugger, 2003). Model complexity is also an issue as the χ^2 value decreases when more parameters are to be tested in the model.

Consequently, in complex models, the χ^2 values are likely to be smaller than in more simple ones due to the mere reduction in degrees of freedom.

Table 4 Model Fit Indices - Original Model and Re-specification 1

		Criteria		Original model		Re-specification 1	
		Acceptable	Ideal	Value	Evaluation	Value	Evaluation
Chi-square Test	χ^2	-	-	635.428	-	440.52	-
	df	-	-	329	-	254	-
	P-value	-	>0.05*	<0.001	*******	<0.001	*******
	χ^2/df	≤5.00****	≤2.00*	1.931	Ideal	1.734	Ideal
Goodness of Fit	GFI	≥0.80**	≥0.90***	0.870	Acceptable	0.898	Acceptable
	AGFI	≥0.80*	≥0.90******	0.840	Acceptable	0.869	Acceptable
Incremental Index	IFI (Delta2)	-	≥0.90***	0.946	Ideal	0.963	Ideal
	TLI (rho2)	≥0.90******	≥0.95*	0.938	Acceptable	0.956	Ideal
	CFI	≥0.90******	≥0.95*	0.946	Acceptable	0.963	Ideal
Badness of Fit	RMSEA	≤0.08*	≤0.05*****	0.055	Acceptable	0.049	Ideal

Reference: *(Hair et al., 2014) **(Baumgartner & Homburg, 1995) ***(Hu & Bentler, 1999)
****(Wheaton, Muthen, Alwin, & Summers, 1977) *****(Browne & Cudeck, 1992) ******(Hox & Bechger, 1999)
Note: ******* Not reliable due to sample size issues and model complexity

The authors revealed the χ2 test value merely as the basis of Normed Chi-square discussed below. The overall model χ^2 is 635.428 with 329 degrees of freedom. As noted above, the P-value associated with the Chi-square should be larger than 0.05. The P-value in the current study is <0.001 (see Table 4), meaning that the null hypothesis is rejected, which indicates that the model does not fit the data. However, this result is an expected outcome due to model complexity – especially when more constructs/indicators are incorporated in a model – and large sample size (N=310), as they make it difficult for the model to achieve statistically insignificant model fit (Hair et al., 2014).

To correct for the sample size and model complexity issue associated with the Chi-square test, researchers proposed an alternative Goodness-of-Fit index (Jöreskog & Sörbom, 1993), the relative or normative Chi-square (NC), which is less sensitive to sample size. This index is the result of the Chi-square value divided by the degrees of freedom (χ^2/df). There is no agreed-upon standard regarding this index. For 'ideal' or 'acceptable' model fit, the criterion ranges from less than 2.00 (Hair et al., 2014) or 3.00 (Jöreskog & Sörbom, 1993) and less than 5.00 (Wheaton et al., 1977). This value from the current dataset is 1.931, which falls within the stricter criterion (See Table 4), suggesting a good fit between the original measurement model and the data.

As a result of the shortcomings stated above, it is argued that researchers should not overemphasize the importance of the χ^2 test and that supplementary/alternative indices should be proposed to evaluate the model fit (Schermelleh-Engel & Moosbrugger, 2003). Following this line of argumentation, in the current study, the model fit is also evaluated via several supplementary indices.

The absolute fit indices used in this study are The Goodness of Fit Index (GFI), the Adjusted Goodness of Fit Index (AGFI), and the Root Mean Square Error of Approximation (RMSEA). The GFI

is an index that measures the relative amount of variance and covariance in the variance/covariance matrix (S) (Byrne, 2016). The only difference regarding the AGFI is that it adjusts for the numbers of degrees of freedom in the specified model (Byrne, 2016). The agreed-upon cut-off point for both GFI and AGFI is 0.90 (Hox & Bechger, 1999; Hu & Bentler, 1999). The RMSEA is regarded as one of the most informative criteria in covariance structure modelling which indicates "how well would the model, with unknown but optimally chosen parameter values, fit the population covariance matrix if it were available" (Browne & Cudeck, 1992, pp. 137–138). It corrects for both model complexity and sample size issues by explicitly including them in its calculation (Hair et al., 2014). The RMSEA is deemed to be ´acceptable´ if lower than 0.08 (Hair et al., 2014) and ´ideal´ if lower than 0.05 (Browne & Cudeck, 1992). The values of GFI (0.87), AGFI (0.84) and RMSEA (0.055) for the initial measurement model are all acceptable though not ideal.

The incremental indices used in this study are Incremental Fit Index (IFI), Tucker-Lewis Index (TLI) and Comparative Fit Index (CFI). The IFI is relatively insensitive to sample size and it "adjusts the normed fit index for sample size and degrees of freedom" (Bollen, 1989, p. 314). The value of IFI is considered to be satisfactory if greater than 0.90 (Hu & Bentler, 1999). The TLI compares the normed Chi-square for the baseline model and the hypothesized model and takes into account the issue of model complexity (Hair et al., 2014). Its value is considered ideal if greater than 0.90 (Hox & Bechger, 1999) and acceptable if greater than 0.95 (Hair et al., 2014). The CFI is a widely used index also because it is relatively insensitive to model complexity (Hair et al., 2014) and it is the least impacted by sample size (Fan, Thompson, & Wang, 1999). The ideal criterion of CFI $\geq$ 0.95 is preferred to avoid model misspecification (Hair et al., 2014). Nevertheless, a CFI value $\geq$ 0.90 is still considered acceptable (Hox & Bechger, 1999).

As shown in Table 4, the IFI (0.946) shows an ideal fit, whereas the CFI (0.946) and TLI (0.938) indicate acceptable fit. Based on the indices above, it becomes clear that though each value is acceptable or ideal, the quality of the original model could be improved. Two types of output were used to find the variables that may have caused noticeable measurement error and hence have impaired the overall model fit: standardized residual covariances and modification indices. First, standardized residual covariances were examined where values larger than |2.58| indicate potential model misspecification (Janssens et al., 2008). As Appendix 8 illustrates, there are two residual covariances greater than the |2.58| threshold: 3.095 (PBC5_K and PBC1) and -2.944 (EC2 and PBC5_K). To better understand the effect of the relationships between these variables on the model fit, the modification indices were then analyzed.

Modification indices

The variables that do not meet the minimum thresholds recommended are changed via modification indices. Modification indices "indicate what the effect (decrease) is on the Chi-square value in modelling or allowing an additional relationship" (Janssens et al., 2008, p. 302). These data also indicate which variables could potentially be removed from the model to improve model fit. However, theoretical justification is always necessary for the removal of variables (Janssens et al., 2008). In Appendix 9, it is shown that omitting the correlation between 'e21' (error term in PBC5_K) and 'e17' (error term in PBC1) would decrease the Chi-square value by 26.118 and hence improve the Chi-square index.

Furthermore, removing ‘e21’ (and therefore the related PBC5_K) would decrease the Chi-square value by 81.435 (4.153 + 11.316 + 26.118 + 15.679 + 24.169). This is the error term having the biggest effect and therefore the related PBC5_K is a variable which causes considerable measurement errors that impairs the model fit. This finding serves as important reference for potential re-specification efforts.

Reliability and validity

To gain a comprehensive picture of the original model, the validity and reliability of the model are also studied. The reliability of a measurement model is the degree to which a set of indicators of a latent construct is internally consistent, namely the degree to which they are interrelated and actually measure the same construct (Hair et al., 2014). The validity of a measurement model is the extent to which a set of observed variables actually represent the theoretical latent construct they are designed to measure (Hair et al., 2014). The measurement model was evaluated by using the following tests: *convergent validity, reliability and discriminant validity*.

Convergent validity

First, convergent validity is examined. Convergent validity is the measure of “how much an observed variable shares variance in common with different observed variables on a different latent variable” (Hair et al., 2014, as cited in Cooper, 2016, p. 157). Convergent validity is achieved if, firstly, the significance of each factor loading, namely the Critical Ratio (C.R.), is greater than 1.96 (Janssens et al., 2008), and secondly, the factor loading between each indicator and the corresponding latent variable is greater than 0.50 (Janssens et al., 2008, p. 307). These conditions are both satisfied and hence the convergent validity of the original measurement model is satisfactory (see Table 3).

Reliability

Reliability is then studied, since, as suggested by Janssens et al. (2008), “reliability must always be verified after convergent validity, because a model may be reliable without being convergent valid” (p. 307). Reliability can be assessed by Average Variance Extracted (AVE) scores, Composite Reliability (CR), and Cronbach´s Alpha. The Average Variance Extracted (AVE) “measures the amount of variance that is captured by the construct in relation to the amount of variance due to measurement error” (Hu & Bentler, 1999, as cited in Cooper et al., 2016, p.157). AVE estimates should ideally be greater than 0.50 (Janssens et al., 2008), yet those greater than 0.40 are still acceptable for indicating that the constructs are adequately distinct from one another (Hair et al., 2014; Kline, 2011). Although AVE is an important basis of subsequent discriminant validity analysis, its values are discussed here as it is also a dimension of reliability. Composite reliability (CR) measures the overall reliability of a set of indicators constituting a latent variable (Fornell & Larcker, 1981). The CR values of all constructs must be above the suggested threshold of > 0.70 (Janssens et al., 2008). Cronbach’s alpha measures the internal consistency of each latent construct which is influenced by the homogeneity of the constituting observed variables (Hair et al., 2014). A higher Cronbach’s alpha (usually >0.70) entails that the observed constructs are more reliable in measuring the latent constructs (Janssens et al., 2008). Nonetheless, it is worth noting that, for each latent construct, its CR should usually be slightly higher than Cronbach´s alpha (Janssens et al., 2008).

Table 5 Reliability Test - Original Model and Re-specification 1

Latent Construct	Original Model					Re-specification 1				
	N of Items	AVE	CR	Cronbach's Alpha	Overall Cronbach's Alpha	N of Items	AVE	CR	Cronbach's Alpha	Overall Cronbach's Alpha
EC	4	0.442	0.760	0.755		4	0.442	0.760	0.755	
HC	4	0.546	0.827	0.819		4	0.546	0.827	0.819	
AT	4	0.652	0.882	0.880		4	0.652	0.882	0.880	
SN	4	0.693	0.900	0.896		4	0.693	0.900	0.896	
PBC	6	0.480	0.843	0.836		3	0.488	0.730	0.726	
IT	3	0.759	0.904	0.902		3	0.760	0.904	0.902	
BH	3	0.842	0.941	0.939		3	0.842	0.941	0.939	
Overall	28				0.939	25				0.932

Table 5 illustrates the reliability indices; the relevant calculation processes can be found in Appendix 10. The AVE values of EC (0.442) and PBC (0.480) are above the acceptable threshold of 0.40 (Hair et al., 2014; Kline, 2011) though not ideal. The CR and the Cronbach´s alpha value of each construct are all above the recommended criteria suggesting the sets of indicators reliably constitute the respective latent variables and are internally consistent. It is worth noting that high reliability, however, does not guarantee that a construct is empirically representing what it is supposed to represent, so reliability and validity should always be assessed jointly (Hair et al., 2014).

Discriminant validity

Discriminant validity is supposed to assess that indicators measuring the same construct correlate higher among each other than with indicators measuring different constructs (Hair et al., 2014). Fornell and Larcker (1981) suggest that "for each couple of constructs the square root of the correlation between these two constructs should be smaller than both of the corresponding AVE" (Janssens et al., 2008, p. 310). If that is the case, discriminant validity is achieved on the construct level. Table 6 presents the outputs for determining the discriminant validity of the latent constructs. The bold values are the AVE of the constructs. The non-bold values are calculated as the square of the correlations between the latent constructs (Appendix 11). Five of the squared correlations shared by the constructs are higher than one or both of their corresponding AVE. This finding indicates overlaps between latent constructs within each set of the five pairs (AT-EC, IT-EC, BH-EC, BH-PBC, BH-IT), which encourages extra factor analysis techniques to identify potential cross-loadings.

Table 6 Discriminant Validity - Original Model and Re-specification 1

Original Model							
	EC	**HC**	**AT**	**SN**	**PBC**	**IT**	**BH**
EC	**0.442**						
HC	0.152	**0.546**					
AT	0.540	0.158	**0.652**				
SN	0.202	0.064	0.213	**0.693**			
PBC	0.251	0.157	0.258	0.165	**0.480**		
IT	0.560	0.185	0.585	0.256	0.430	**0.759**	
BH	0.500	0.187	0.523	0.248	0.575	0.792	**0.842**
Re-specification 1							
	EC	**HC**	**AT**	**SN**	**PBC**	**IT**	**BH**
EC	**0.442**						
HC	0.153	**0.546**					
AT	0.540	0.158	**0.652**				
SN	0.202	0.064	0.213	**0.693**			
PBC	0.182	0.108	0.197	0.138	**0.488**		
IT	0.560	0.185	0.585	0.255	0.349	**0.760**	
BH	0.500	0.187	0.523	0.248	0.489	0.792	**0.842**

Concluding remark of the original measurement model

Although the original measurement model proves to achieve unidimensionality, an acceptable model fit, convergent validity, and reliability, the existing measurement errors have impaired the model fit and the discriminant validity signals a need for a better factor solution. The former suggests potential re-specification efforts for a better model fit and the latter calls for extra factor analysis techniques. As the authors found that 'e21' (which relates to PBC5_K) causes substantial errors regarding model fit, the relating variable PBC5_K (knowledge) is considered to be removed. To preserve the theoretical consistency of the model, the other two variables, namely PBC3_M (money) and PBC4_T (time), which are theoretically bundled together with PBC5_K, are also removed. These two variables are inseparable from PBC5_K because they were designed to jointly further investigate the potential reasons for consumers´ perceived behavioural control and thus they must be analyzed together. Consequently, the separate inclusion of them would jeopardize the integrity of the PBC construct. Nevertheless, PBC6_MTK measures these reasons collectively compensating for the removal of the variables. Thus, the deletion of these variables was based on sufficient theoretical support. After this removal, the 're-specification 1' model is established, and the degree to which the measurement model quality is improved is to be assessed by a new round of CFA (see Step 2).

6.2.3.3 Step 2 – Assessing the 're-specification 1'

In step 2, the re-specified theoretical model (after the removal of PBC3_M, PBC4_T, and PBC5_K) is again subject to CFA.

Unidimensionality

In the 're-specification 1' model, unidimensionality is attained, as both C.R. and factor loadings fulfil the recommended criteria discussed in step 1 (see Table 3).

Model fit analysis

As a result of the deletion of the variables PBC3_M, PBC4_T, and PBC5_K, the model fit is effectively improved, which is shown in the comparison in Table 4. The χ^2 is 440.52 with 254 degrees of freedom. All model fit indices fulfil the recommended thresholds discussed in step 1: CMIN/DF (1.734), GFI (0.898), AGFI (0.869), IFI (0.963), TLI (0.956), CFI (0.963) and RMSEA 0.049. Nevertheless, the GFI and AGFI only meet the minimum acceptable criteria (≥0.80). This indicates that the standardized residual covariances could be further examined to reveal more detailed variable-level information regarding the model fit. A study of the standardized residual covariances (see Appendix 12) shows that there is no value above the threshold of |2.58|. Although some values are close to this number, they do not necessitate further re-specification for the model fit.

Convergent validity

Both conditions explained in step 1 for convergent validity are satisfied, as the C.R. values are above 1.96 and factors loadings are above the minimum value of 0.50 (Table 3). Hence, the convergent validity of 're-specification 1' is established.

Reliability

Reliability results of 're-specification 1' are shown in Table 5. The Average Variance Extracted (AVE) values of EC (0.442) and PBC (0.488) are however still below the ideal >0.50 threshold (Janssens et al., 2008), yet they meet the acceptable threshold of 0.40 suggested by Hair et al. (2014) and Kline (2011). The Composite Reliability and the Cronbach´s alpha values for each construct are all above the suggested criterion in step 1. The sets of indicators in 're-specification 1' are therefore considered reliable in constituting the respective latent variables and internally consistent. The relevant calculation can be found in Appendix 13.

Discriminant validity

Table 6 presents the outputs that are calculated to assess discriminant validity. The bold values represent the AVE of the constructs. The non-bold values are calculated as the square of the correlations between the constructs. As shown in Table 6, similar to the previous model, the same five of the squared variances shared by the constructs are greater than one or both of their corresponding AVE. This finding indicates that although the model fit is improved, the overlaps between latent constructs within each set of the five pairs (AT-EC, IT-EC, BH-EC, BH-PBC, BH-IT) is still evident. Extra factor analysis techniques are considered to be introduced in the following re-specification processes to identify potential cross-loadings.

Concluding remarks of the 're-specification 1' model

In sum, the quality of the modified model has improved because the model fit indices are improved in comparison with the original model. The GFI (0.898 – previously 0.870) and AGFI (0.869 – previously

0.840) are approaching the ideal threshold of 0.90 (Hox & Bechger, 1999; Hu & Bentler, 1999). However, discriminant validity is not achieved. Consequently, the authors decided to employ extra factor analysis techniques (see step 3) intending to check for potential cross-loadings among variables.

6.2.3.4 Step 3 – Conducting further factor extraction on 're-specification 1' and developing 're-specification 2'

It is shown in the discriminant validity test of 're-specification 1' that several inter-construct correlations are unacceptably high even though other CFA criteria have been fulfilled. This calls for extra factor analysis techniques that further reveal the factor structure and assist in selecting a better factor solution. The factor extraction is conducted in 'SPSS 25'.

a) Testing assumptions of factor analysis

The adequacy of factor analysis needs to be examined to support the assumptions that a base level of statistical structure does exist among the variables before performing the factor analysis. To achieve this, Bartlett's test of sphericity and measure of sampling adequacy (MSA) are analyzed. A statistically significant Bartlett's test of sphericity (significance <0.05) indicates sufficient correlations among the variables for the subsequent factor analysis. The MSA value serves to quantify the factorability of the overall set of variables with the following thresholds: >0.80, meritorious; >0.70, middling; >0.60, mediocre; >0.50 acceptable (Hair et al., 2014; H. F. Kaiser & Rice, 1974). As shown in Table 7, for 're-specification 1', a statistically significant Bartlett's test of sphericity (<0.000) and a meritorious MSA of 0.925 constitute a sufficient basis for conducting meaningful factor analysis.

Table 7 Adequacy - Re-specification 1

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.925
Bartlett's Test of Sphericity	Approx. Chi-Square	5143.986
	df	300
	Sig.	0.000

b) Factor method

In this study, factors are extracted using the method of common factor analysis which is useful in identifying the latent dimensions/constructs that reflect what the indicator variables share in common and is suitable in well-specified theoretical applications (Hair et al., 2014). Common factor analysis only considers common variance instead of the unique variance and error variance considered in its alternative method known as component analysis (Hair et al., 2014). Since the primary objective of the factor extraction in question is to identify the causes of the unacceptably high correlations between some latent constructs in 're-specification 1', the common variance is of particular interest in this section. Hence, the corresponding factor method of common factor analysis is selected for theory-supported models in this study.

c) Number of factors to extract

The ‘a priori criterion’ is adopted in terms of the number of factors to extract because this approach is useful when attempting to extract the same number of factors which was previously found in other researchers’ work (Hair et al., 2014) and the latent dimensions in this study are built on established previous research. 7 factors are extracted for ‘re-specification 1’ in accordance with the 7 latent constructs.

The rotational method of Promax is selected because it, as an oblique rotation method, is suitable for the goal of obtaining several theoretically meaningful factors (Hair et al., 2014, p.114). Following the suggestion from Field (2013), small factor loadings in the pattern matrix (< |0.30|) are suppressed (further explained in the pattern matrix section). The re-produced correlation matrix is then generated for the following factor interpretation.

d) Factor Interpretation – ‘re-specification 1’

Factor loadings

The first effort is to check the factor loadings to ensure practical significance for the interpretation of the structure. As presented in Table 3, all factor loadings of ‘re-specification 1’ are above 0.50 indicating that they are practically significant (Janssens et al., 2008). One exception is “PBC1←PBC” with a loading of 0.491 which only meets the minimal level (the range of |0.30| to |0.40|) for practical significance (Hair et al., 2014). Overall, the factor loadings reveal that all variables have sufficient correlation with its corresponding factor, which is practically meaningful for further factor analysis.

Factor pattern matrix

The factor pattern matrix has loadings that represent the unique contribution of each variable to the factor (Hair et al., 2014) to help distinguish which variables load uniquely on each factor without interference from correlations among factors. The criterion for determining the practical significance of a variable on one or more factor(s) is the same as the 0.50 threshold discussed in the previous factor loading section (Hair et al., 2014). Loadings greater than 0.4 are considered stable (Guadagnoli & Velicer, 1988). In practice, a variable may be found to have more than one significant loading, which generates a cross-loading issue that requires further statistical and theoretical consideration. If a variable persists in having cross-loadings, it becomes a candidate for deletion, and interpretation of the complex interrelationships represented in a factor matrix requires a combination of applying objective criteria with practical judgment (Hair et al., 2014, p.117). The goal for analyzing pattern matrix is to minimize the number of significant cross-loadings and to have an internally distinct factor structure.

Table 8 Pattern Matrix - Re-specification 1

	Factor						
	1	**2**	**3**	**4**	**5**	**6**	**7**
EC1	0.460						
EC2					0.603		
EC3					0.711		
EC4					0.744		
HC1				0.796			
HC2				0.805			
HC3				0.722			
HC4				0.613			
AT1			0.796				
AT2			0.795				
AT3			0.758				
AT4			0.667				
SN1		0.735					
SN2		0.967					
SN3		0.850					
SN4		0.742					
PBC1						0.813	
PBC2						0.548	
PBC6_MTK						0.703	
IT1	0.875						
IT2	0.715						
IT3	0.916						
BH1	0.536						0.608
BH2	0.560						0.474
BH3	0.486						0.485

Extraction Method: Maximum Likelihood.
Rotation Method: Promax with Kaiser Normalization.
Rotation converged in 9 iterations.

It can be seen in Table 8 that EC1 is not loaded on the same factor as the other three EC variables, which indicates that EC1 might be an erroneous variable in collectively explaining the EC construct with the other three. The fact that the other three EC variables all have considerably higher loadings than EC1 further indicates that they should be grouped together to collectively capture a dimension while EC1 does not contribute to this configuration.

BH variables also require extra investigation because each of them has moderate-size loadings on factor 7 and 1, while factor 1 is defined by the Intention variables. It can be seen that the loadings on factor 1 and 7 for each BH variable are of similar value, which suggests a construct-level problem for BH instead of problems with any individual variable. This indicates that, collectively, the three BH variables may be describing a similar dimension as the IT variables did.

Moreover, as discussed at the beginning of this analysis factor, loadings less than 0.30 are set to be suppressed, any variable with all loadings suppressed should be removed (Field, 2013) because it does not sufficiently contribute to the measurement of any dimension. In this connection, all the other variables in this model show factor loadings higher than 0.50 which justify their practical significance and there is no variable with all loadings suppressed. Last but not least, all variables other than the questionable ones discussed above are correctly loaded together on each factor, as theorized in the original conceptual framework.

Communality

A variable's communality is "the estimate of its shared variance among the variables as represented by the derived factors (Hair et al., 2014, p.103)", an important indicator of common variance. A low communality indicates that the variable in question is not relevant enough for the definition of the factors

in that particular configuration (Janssens et al., 2008). There is no fixed level for what degree of communality qualifies a variable as having sufficient shared variance, and Cattell (2012) recommends that variables with low communality should still be evaluated with relevant implications from factor loadings and the total variance explained. The current study adopts the criterion advised by Child (2006) that items with a communality score less than 0.20 can be considered for removal. As shown in Table 9, all the communality extractions for all variables are above 0.20, suggesting that appropriate percentages of the variance in the variables are explained by the 7 underlying dimensions.

Table 9 Communalities - Re-specification 1

	Initial	Extraction
EC1	0.485	0.470
EC2	0.395	0.427
EC3	0.434	0.524
EC4	0.508	0.672
HC1	0.561	0.653
HC2	0.526	0.624
HC3	0.485	0.559
HC4	0.407	0.416
AT1	0.653	0.705
AT2	0.626	0.685
AT3	0.644	0.666
AT4	0.587	0.600
SN1	0.570	0.607
SN2	0.772	0.900
SN3	0.677	0.713
SN4	0.592	0.623
PBC1	0.370	0.499
PBC2	0.343	0.377
PBC6_MTK	0.586	0.708
IT1	0.655	0.700
IT2	0.740	0.769
IT3	0.779	0.848
BH1	0.838	0.910
BH2	0.835	0.864
BH3	0.757	0.771

Extraction Method: Maximum Likelihood

Total variance explained

For a factor solution to be meaningful, the factors all together should explain an appropriate percentage of the total variance. Conventionally, for social science, an accumulative percentage above 60 suggests that the factors, when put together, are sufficient in explaining the total variance (Hair et al., 2014). The accumulative percentage of extraction sums of squared loadings in this case is 65.160 suggesting that the 7 factors collectively could explain 65.160% of the total variance. Relevant output can be found in Appendix 14.

Reliability checked

If researchers have identified a structure among the variables, Cronbach's alpha for each latent dimension also needs to be calculated to ensure the reliability of the measurement model (Janssens et al., 2008). As presented in Table 5, the Cronbach's alpha for each latent dimension (construct) in 're-specification 1' is all higher than 0.70 indicating sufficient reliability of the indicator variables in measuring the corresponding latent constructs.

e) Development of 're-specification 2'

Taking both conceptual and statistical considerations into account, the authors choose to remove EC1 and the three BH variables from this factor structure and therefore proposed the 're-specification 2' model which consists of only 6 underlying dimensions. Although other strategies (for example using component factor method to include other types of variance) are available to address the cross-loading issues, their purposes do not align with the goal of obtaining a both theoretically-supported and statistically-meaningful factor structure.

EC1 is the only one not loaded together with the other EC variables. In addition, its relatively low communality value (0.470) signals that it is a variable of lesser importance to the objective of this study. Statistically, EC1, being erroneous in measuring EC and being only moderately relevant in explaining EC, is considered to be removed. This removal of EC1 is also theoretically justifiable because it might help to clarify the conceptual boundaries among latent constructs EC, IT, and BH, and hence forming an internally distinct model. Although the initial selection of the four EC questions was meant to reflect the conative, cognitive and affective dimensions of EC that appear in various forms of attitude theory research (Gray, 1985), the conative dimension of EC, when merged into the extended TPB model from its original conceptual setting, might overlap with Intention or Behaviour because it measures the readiness to act as well as behavioural dispositions. EC1 ("I would be willing to stop buying products from companies guilty of harming the environment, even though it might be inconvenient for me"), being a conative dimension of EC, attempts to measure people's readiness to act for environment-relevant purchase, and therefore can cause conceptual overlap between EC and IT/BH. This potential overlap is reflected in Table 8 where EC1 loads together with all IT and BH statements rather than other EC statements. Therefore, for better statistical and theoretical efficacy, EC1 will be removed for the 're-specification 2' model.

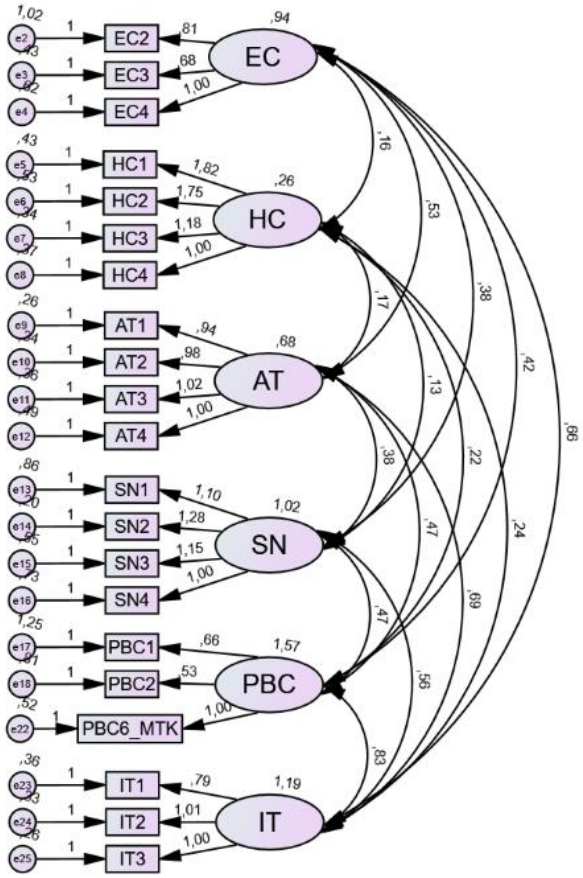
The three BH variables are removed because their substantial cross-loadings with the IT variables confirmed the authors' doubts in the literature review and questionnaire development process: whether expressed behaviour can be a reliable measurement of real behaviour. The results from factor extraction show that behaviour expressed through questionnaires cannot be differentiated from intention. Discussion regarding the measurability of behaviour by questionnaire has also been raised in previous theory-building sections. Therefore, combining both the statistical results and the theoretical considerations, the authors adopted the variable deletion and dimension reduction strategy to tackle the three tentative behaviour variables. The alteration of the number of factors aiming to identify a better structure is justified by Hair et al. (2014).

f) Concluding remarks about factor extraction for 're-specification 1'

In summary, the factor extraction techniques revealed the possibility of re-specifying a factor solution in which the factors are more internally distinct, which might lead to more robust discriminant validity. The authors adopted variable deletion and dimension reduction strategy which results in the removal of EC1 and the three BH variables, and therefore a 6-factor model.

This 're-specification 2' will be evaluated all over again in the next section. The basic CFA analysis will be conducted again to operate an objective evaluation of 're-specification 2' and to provide consistent comparison across the three measurement models. The factor interpretation of the 6-factor extraction will be performed again because factor interpretation requires a return to the evaluative steps after re-specification efforts (i.e. the deletion of variables, the need to extract a different number of factors, the change of extraction method, etc.) until a final factor solution is achieved (Hair et al., 2014).

Figure 6 Re-specification 2 (Final Measurement Model)



6.2.3.5 Step 4 – Assessing 're-specification 2'

In step 4, after the further deletion of the variable EC1, the three BH variables, and the BH construct, the 're-specification 2' model was subject to CFA and then further validated by factor extraction. The 're-specification 2' is presented in Figure 6 along with the parameter estimates.

a) CFA on 're-specification 2'

Unidimensionality

For 're-specification 2', unidimensionality is achieved, as the C.R. and factor loadings for all variables are above the minimum criteria (C.R. >1.96; factor loading >0.50) (see Table 10).

Table 10 Unidimensionality - Re-specification 2

	Re-specification 2				
	Regression Weights				Standardized
	Estimate	S.E.	C.R.	P-value	Estimate
EC4<---EC	1				0.778
EC3<---EC	0.68	0.065	10.53	***	0.711
EC2<---EC	0.806	0.086	9.39	***	0.613
HC4<---HC	1				0.643
HC3<---HC	1.182	0.117	10.138	***	0.716
HC2<---HC	1.745	0.164	10.669	***	0.772
HC1<---HC	1.819	0.166	10.969	***	0.814
AT4<---AT	1				0.764
AT3<---AT	1.024	0.07	14.698	***	0.814
AT2<---AT	0.981	0.067	14.687	***	0.814
AT1<---AT	0.942	0.062	15.115	***	0.835
SN4<---SN	1				0.763
SN3<---SN	1.148	0.073	15.8	***	0.841
SN2<---SN	1.28	0.073	17.643	***	0.946
SN1<---SN	1.097	0.078	14.125	***	0.766
PBC6_MTK<---PBC	1				0.867
PBC2<---PBC	0.527	0.059	8.918	***	0.591
PBC1<---PBC	0.658	0.073	8.954	***	0.594
IT3<---IT	1				0.907
IT2<---IT	1.013	0.045	22.482	***	0.887
IT1<---IT	0.786	0.041	19.32	***	0.819

*** P-value <0.001

Model fit analysis

Due to the deletion of the variable (EC1) and the behaviour construct (BH), the model fit has improved noticeably (see Table 11). The χ^2 is 290.715 with 174 degrees of freedom. All model fit indices reach the ideal thresholds: CMIN/DF (1.671), GFI (0.918), AGFI (0.891), IFI (0.967), TLI (0.96), CFI (0.967) and RMSEA (0.047). An examination through the Standardized Residual Covariances (see Appendix 15) shows that there is no value above |2.58|. The several values close to |2.58| do not necessitate further re-specification for the model fit since the comprehensive set of fit indices have already suggested a satisfactory model fit.

Table 11 Model Fit Indices - Re-specification 2 (The Final Measurement Model)

		Criteria		Re-specification 2	
		Acceptable	Ideal	Value	Evaluation
Chi-square Test	χ^2	-	-	290.715	-
	df	-	-	174	-
	P-value	-	>0.05*	<0.001	*******
	χ^2/df	≤5.00****	≤2.00*	1.671	Ideal
Goodness of Fit	GFI	≥0.80**	≥0.90***	0.918	Ideal
	AGFI	≥0.80*	≥0.90******	0.891	Ideal
Incremental Index	IFI (Delta2)	-	≥0.90***	0.967	Ideal
	TLI (rho2)	≥0.90******	≥0.95*	0.960	Ideal
	CFI	≥0.90******	≥0.95*	0.967	Ideal
Badness of Fit	RMSEA	≤0.08*	≤0.05*****	0.047	Ideal

Reference: *(Hair et al., 2014) **(Baumgartner & Homburg, 1995) ***(Hu & Bentler, 1999)
****(Wheaton et al., 1977) *****(Browne & Cudeck, 1992) ******(Hox & Bechger, 1999)
Note: ******* Not reliable due to sample size issues and model complexity

Convergent validity

Both conditions of convergent validity are satisfied, as for all variables the C.R. values are above 1.96 and factor loadings are above the minimum value of 0.50 (see Table 10). Therefore, the convergent validity of the 're-specification 2' model is satisfactory.

Reliability

Reliability related results are shown in Table 12. The AVE values for each construct reach the ideal level of 0.50 except for the value of EC (0.496) and PBC (0.485). Although not ideal, they are still greater than the acceptable threshold of 0.40 (Hair et al., 2014; Kline, 2011). The CR and the Cronbach´s alpha values are all above the suggested criteria. Hence, the sets of indicators in 're-specification 2' reliably constitute the respective latent variables and are internally consistent. The calculation details can be found in Appendix 16.

Table 12 Reliability Test - Re-specification 2

Latent construct	Re-specification 2				
	N of Items	AVE	CR	Cronbach's Alpha	Overall Cronbach's Alpha
EC	3	0.496	0.745	0.730	
HC	4	0.546	0.827	0.819	
AT	4	0.652	0.882	0.880	
SN	4	0.693	0.899	0.896	
PBC	3	0.485	0.731	0.726	
IT	3	0.760	0.905	0.902	
Overall	21				0.905

Discriminant validity

In Table 13, the bold values represent the AVE of the constructs. The non-bold values are calculated as the square of the correlations between the constructs. In 're-specification 2', all of the squared variances shared by the constructs are smaller than both of their corresponding AVE, which indicates sufficient discriminant validity and therefore validates the re-specification efforts aiming to achieve an internally distinct factor solution. It can be confirmed that, for the 're-specification 2' model, discriminant validity is achieved on the construct level.

Table 13 Discriminant Validity - Re-specification 2

	EC	HC	AT	SN	PBC	IT
EC	**0.496**					
HC	0.111	**0.546**				
AT	0.429	0.158	**0.652**			
SN	0.150	0.063	0.213	**0.693**		
PBC	0.120	0.116	0.206	0.136	**0.485**	
IT	0.387	0.186	0.585	0.256	0.362	**0.760**

b) Factor Extraction for 're-specification 2'

Although CFA results already credited 're-specification 2' with fairly good measurement capability. The factor extraction and interpretation are still conducted for 're-specification 2' as a validation of the re-specified factor structure. The factor method is still common factor analysis for the similar purpose of examining an already specified theoretical application. The 'a priori criterion' is still deemed appropriate in terms of the number of factors to extract for a model built on extant research. 6 factors are extracted for 're-specification 2' after both statistical and theoretical considerations discussed in the previous section. Similarly, the rotational method of Promax is selected and small factor loadings in the pattern matrix (< |0.30|) are suppressed.

Testing assumptions of factor analysis

To assess the adequacy for further factor analysis, Bartlett's test of sphericity and measure of sampling adequacy (MSA) are analyzed again for 're-specification 2'. As shown in Table 14, a statistically significant Bartlett's test of sphericity (sig. <0.05) and a meritorious MSA (should be higher than 0.80) of 0.895 constitute a sufficient basis for conducting meaningful factor analysis.

Table 14 Adequacy - Re-specification 2

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy		0.895
Bartlett's Test of Sphericity	Approx. Chi-Square	3636.617
	df	210
	Sig.	0.000

Factor loadings

The factor loadings are firstly checked to ensure practical significance for the interpretation of the structure. As presented in Table 10, all factor loadings of 're-specification 2' are above 0.50 indicating that the variables have sufficient correlation with its corresponding construct, which are practically meaningful for further factor analysis.

Factor pattern matrix

Evaluated by the same criteria for practical significance discussed in the previous factor loading section, the factor pattern matrix reveals that all variables have significant loadings (which should be above 0.50) for their corresponding factors. There is no variable with all loadings suppressed, indicating that there is no variable that should be removed due to its failure in sufficiently measuring any dimension. Moreover, the elimination of cross-loading further validates the re-specification efforts that attempt to identify an internally distinct factor solution. The variables are sufficiently and correctly loaded on their corresponding factor as theorized in the 're-specification 2' model.

Table 15 Pattern Matrix - Re-specification 2

	Factor					
	1	**2**	**3**	**4**	**5**	**6**
EC2				0.602		
EC3				0.707		
EC4				0.758		
HC1			0.794			
HC2			0.801			
HC3			0.732			
HC4			0.614			
AT1		0.809				
AT2		0.812				
AT3		0.783				
AT4		0.676				
SN1	0.746					
SN2	0.958					
SN3	0.841					
SN4	0.757					
PBC1					0.711	
PBC2					0.615	
PBC6_MTK					0.762	
IT1						0.847
IT2						0.687
IT3						0.879

Extraction Method: Maximum Likelihood
Rotation Method: Promax with Kaiser Normalization

Table 16 Communalities - Re-specification 2

	Initial	Extraction
EC2	0.380	0.418
EC3	0.421	0.502
EC4	0.502	0.666
HC1	0.554	0.655
HC2	0.523	0.620
HC3	0.475	0.546
HC4	0.401	0.418
AT1	0.652	0.708
AT2	0.621	0.684
AT3	0.626	0.661
AT4	0.575	0.601
SN1	0.568	0.605
SN2	0.768	0.896
SN3	0.672	0.712
SN4	0.581	0.614
PBC1	0.354	0.441
PBC2	0.334	0.390
PBC6_MTK	0.507	0.673
IT1	0.648	0.701
IT2	0.724	0.770
IT3	0.750	0.846

Extraction Method: Maximum Likelihood

Communality

To reveal the relevancy of a variable for the definition of the factors in that particular configuration (Janssens et al., 2008), the communality of each variable is presented in Table 16. According to the criterion advised by Child (2006) that items with a communality score less than 0.20 can be considered for removal, all the communality extractions for all variables in 're-specification 2' are above 0.3, suggesting that appropriate percentages of the variance in the variables are explained by the 6 underlying dimensions.

Total variance explained

The accumulative percentage of extraction sums of squared loadings in this case is 62.501 indicating that the 6 factors collectively explain 62.501% of the total variance. According to the conventional threshold of an accumulative percentage above 60 (Hair et al., 2014), the factors collectively are sufficient in explaining the total variance of the entire factor structure. Relevant output can be found in Appendix 17.

Reliability checked

Cronbach's alpha for each latent dimension also needs to be calculated to ensure enough reliability of the measurement model (Janssens et al., 2008). As presented in Table 12, the Cronbach's alphas for each latent dimension (construct) in 're-specification 2' are all higher than 0.7 indicating sufficient reliability at the construct-level.

c) Concluding remarks about 're-specification 2' (the final measurement model)

Based on the above analysis, it can be concluded that the last re-specified measurement model provided satisfactory evidence of unidimensionality, convergent validity, reliability, discriminant validity, and a good fit. The factor interpretation validates that 're-specification 2' provides a practically meaningful factor structure that is internally distinct and is consistent with the proposed theory. Combining the confirmatory results from CFA and the validated factor structure from factor extraction, the authors considered 're-specification 2' as an efficacious measurement model for further development of the structural model.

6.3 Structural Model

6.3.1 Specifying structural model

6.3.1.1 The structural theory

As the results from the final measurement model met the acceptable thresholds, a structural model was built upon the measurement model. The structural model allows for measuring how much of the total variation of the dependent construct (intention), is explained by independent constructs (attitude, SN, PBC) within the model" (Cooper et al., 2016, pp. 158–159). Thus at this stage, both the predictive capability of the model (the efficacy of the extended TPB model) and the relationships between the constructs (hypotheses testing) and are examined.

In a structural model, paths that designate the dependence relationship (regression type) between any two latent constructs will be specified (Hair et al., 2014) by using path diagram notations and path analysis will be conducted. Path analysis is an approach that employs simple bivariate correlations to estimate relationships in an SEM model seeking to determine the significance and strength of the paths denoted by standardized path diagram notation (Hair et al., 2014). The structural model is where the causality relationship in the proposed (to-be-tested) theory can be mapped out. The structural model can be recursive or non-recursive. A recursive model is one where all causal effects are unidirectional and disturbances are uncorrelated (Hair et al., 2014). The structural model in this study is recursive, without feedback loops or reciprocal effects.

The structural theory in this study is initially based on the extended TPB model from the literature review and theory-building, and is modified in course of measurement model re-specification. The final structural theory proposed 5 hypothesized relationships among the constructs. The 5 hypothesized regression paths are presented below. The statistical significance and magnitude of the 5 paths will be estimated and therefore the corresponding 5 hypotheses in the proposed TPB theory will be empirically validated or refuted.

The effect of environmental consciousness on attitudes (H1)

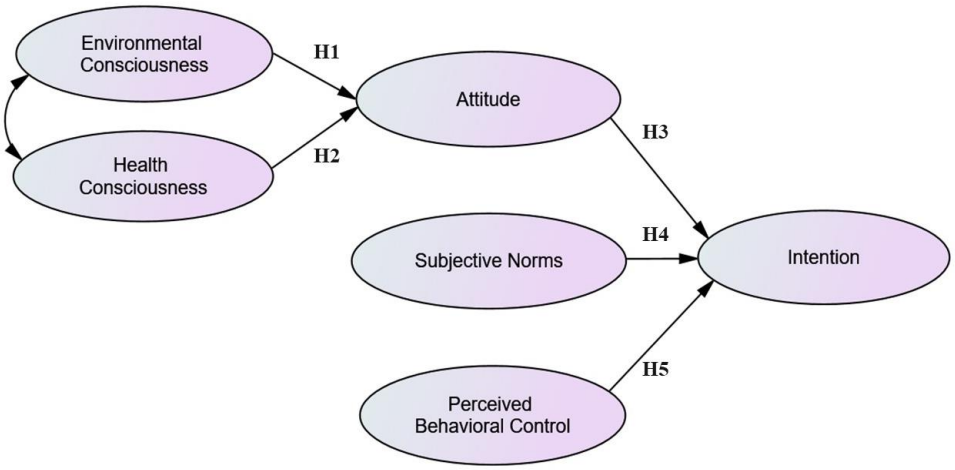
The effect of health consciousness on attitudes (H2)

The effect of attitude on intention (H3)

The effect of subjective norm on intention (H4)

The effect of perceived behavioural control on intention (H5)

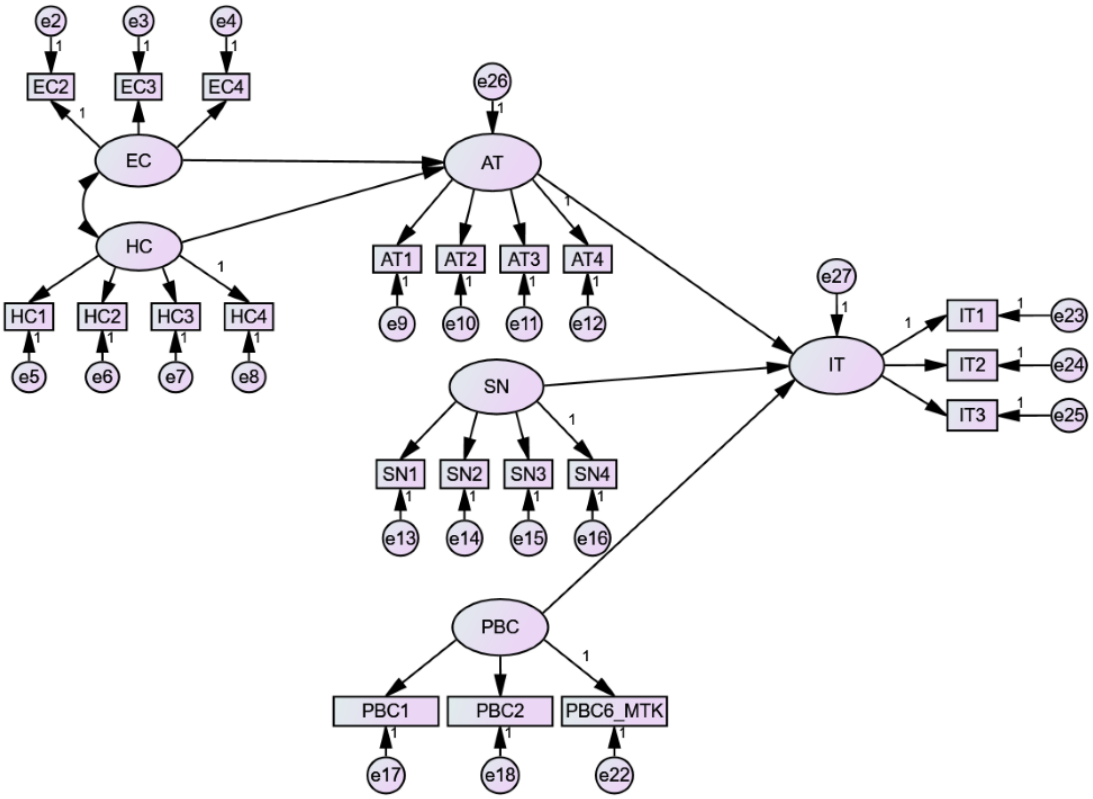
Figure 7 Final Conceptual Framework



6.3.1.2 Defining theoretical constructs

Before investigating the dependence relationships within an SEM, it is necessary to clarify what position does each theoretical construct stands within an SEM as this has important implications for the subsequent statistical consideration. Based on its measurability, a variable could be either an observed variable, also known as an indicator, or a latent variable. Based on the dependence relationship within an SEM, a construct could be an exogenous, endogenous, and/or mediating construct. Exogenous constructs are latent, multi-item equivalent of independent variables and therefore they are determined by factors outside of an SEM model (Hair et al., 2014). In comparison, Endogenous constructs are latent, multi-item equivalent to dependent variables, and are therefore represented by a variate of dependent variables (Hair et al., 2014). In this study, the term ‘variable’ generally refers to any item that is observed or measured, whereas ‘construct’ solely refers to the latent theoretical constructs. The structural model with all the variables and paths is presented in Figure 8.

Figure 8 Path Diagram – Structural Model



In this study, the exogenous constructs are HC, EC, SN, and PBC; the endogenous variables are AT and IT. HC and EC are exogenous constructs explaining AT. PBC and SN are exogenous constructs explaining IT. AT, though acting as an independent construct on IT, is considered as an endogenous construct because its variance is explained within the model. In other words, it is both a predictor and an outcome construct. Furthermore, endogenous constructs can be dependent on both exogenous and endogenous constructs (Hair et al., 2014). So, AT and IT are endogenous constructs.

The causality between an observed variable and a latent variable also categorizes the nature of an observed variable into two groups: reflective or formative. Reflective observed variables are assumed to be caused by latent variables, whereas formative observed variables are assumed to not change along with manipulation of latent variables (Hair et al., 2014) In the current study, observed variables are reflective, which constitutes an important condition for performing confirmatory factor analysis.

It is recommended by Hair et al. (2014) that when specifying a structural model researchers could consult CFA factor pattern and compare the standardized loading estimates and the error variance from the measurement model with those obtained from the structural model. In this approach, fluctuations of standardized loading estimates might reveal the estimate changes brought by the mere conversion from measurement model to structural model (Hair et al., 2014). The current study adopts this approach by utilizing the same factor solution from the measurement model pattern matrix and comparing standardized loading estimates in the measurement model and those in the structural model (discussed as ‘interpretational confounding’ in ‘assessing structural model’).

6.3.1.3 Identifying structural model

The structural model comprises of 6 latent constructs, 21 observed variables, and 23 error terms (21 error terms related to observed variables and 2 error terms related to the two endogenous constructs AT and IT), as shown in Figure 8. The model has 231 nonredundant covariance and 47 distinct to-be-estimated parameters, and consequently, it has 184 degrees of freedom signaling an over-identified model with the capability of estimating the unknown parameters.

6.3.2 Assessing structural model

In the assessment of structural model, if the structural model shows good fit, and if the hypothesized paths are significant and in the direction hypothesized, then the model is supported (Hair et al., 2014, p.642).

6.3.2.1 Comparison of CFA results between the measurement model and the structural model

As discussed in 6.3.2, this study adopts the model specifying approach that applies the same factor solution from measurement model pattern matrix to structural model, it is therefore necessary to compare important CFA results between the measurement model and the structural model so as to check the validity and reliability of the structural model and to assess the transition from measurement model to structural model.

Comparison of validity and construct reliability

To check the validity and reliability of the structural model, Hair et al. (2014) recommended scholars to compare the standardized factor loadings and the construct reliability between the two models. Fluctuations of standardized loading estimates more than 0.05 might be evidence of interpretational confounding, which is an unwanted situation where the loadings of a given construct are being affected noticeably only due to the conversion from measurement model to structural model (Hair et al., 2014). As shown in Table 17, the difference of standardized factor loadings between the measurement and the structural model are all smaller than |0.05|. Therefore, it can be confidently believed that the mere structural change from the measurement model to the structural model does not cause evident measuring inefficiency. Consequently, the differences of construct reliabilities between the two models are also very minor, as shown in Table 17. (Calculation details of the reliability test can be found in Appendix 18). These small differences of factor loadings and construct reliabilities also serve as evidence of stability among the indicator variables and further supports the measurement model's validity (Hair et al., 2014).

Table 17 Comparison of Standardized Factor Loadings and Construct Reliabilities for the Structural and Measurement Model

Regression	Standardized Factor Loading		
	Structural Model (a)	Measurement Model (b)	Comparison (a-b)
EC4<---EC	0.777	0.778	-0.001
EC3<---EC	0.721	0.711	0.01
EC2<---EC	0.602	0.613	-0.011
HC4<---HC	0.638	0.643	-0.005
HC3<---HC	0.715	0.716	-0.001
HC2<---HC	0.777	0.772	0.005
HC1<---HC	0.813	0.814	-0.001
AT4<---AT	0.752	0.764	-0.012
AT3<---AT	0.813	0.814	-0.001
AT2<---AT	0.816	0.814	0.002
AT1<---AT	0.836	0.835	0.001
SN4<---SN	0.762	0.763	-0.001
SN3<---SN	0.839	0.841	-0.002
SN2<---SN	0.951	0.946	0.005
SN1<---SN	0.76	0.766	-0.006
PBC6_MTK<---PBC	0.828	0.867	-0.039
PBC2<---PBC	0.607	0.591	0.016
PBC1<---PBC	0.627	0.594	0.033
IT3<---IT	0.888	0.907	-0.019
IT2<---IT	0.856	0.887	-0.031
IT1<---IT	0.786	0.819	-0.033

Construct	Composite Reliabilities (CR)	
	Structural Model	Measurement Model
EC	0.744	0.745
HC	0.827	0.827
AT	0.880	0.882
SN	0.899	0.899
PBC	0.732	0.731
IT	0.881	0.905

Comparison of model fit

To assess the transition from measurement model to structural model, model fit statistics can be compared because a structural model is supported to a greater extent when the fit statistics suggest that the observed covariances are reproduced adequately by the structural model (Hair et al., 2014). To evaluate the strucutal model´s predictive capabiltiy, GOF (Goodness-of-fit) indices with the same thresholds of the measurement model should once again be discussed (Cooper et al., 2016). GOF indices of a structural model serve to indicate the degree to which the sample variance/covariance data fit the structural equation model (Hair et al., 2014). As Table 18 shows, all GOF indices reach the ideal thresholds except for the GFI and RMSEA. The GFI (0.872) is slightly below the minimum *ideal* criterion (0.90) yet is still above the *acceptable* criterion (0.80). However, this number still falls within the *acceptable* (0.8) criterion suggested by Baumgartner and Homburg (1995) and Doll, Xia and

Torkzadeh (1994). In this connection, Baumgartner and Homburg (1995) argue that in case of complex models, it is misleading to use the 0.90 threshold as a general rule-of-thumb. The RMSEA (0.069) is above the maximum *ideal* threshold (0.05), however this value is still considered *acceptable* (0,08). Accordingly, it can be concluded that there is an acceptable fit between the sample data and the structural model.

Table 18 Model Fit Indices – Structural Model

		Criteria		**Structural Model**	
		Acceptable	Ideal	Value	Evaluation
Chi-square Test	χ^2	-	-	456.415	-
	df	-	-	184	-
	P-value	-	>0.05*	<0.001	*******
	χ^2/df	≤5.00****	≤2.00*	2.481	Ideal
Goodness of Fit	GFI	≥0.80**	≥0.90***	0.872	Acceptable
	AGFI	≥0.80*	≥0.90******	0.840	Acceptable
Incremental Index	IFI (Delta2)	-	≥0.90***	0.923	Ideal
	TLI (rho2)	≥0.90******	≥0.95*	0.912	Acceptable
	CFI	≥0.90******	≥0.95*	0.923	Acceptable
Badness of Fit	RMSEA	≤0.08*	≤0.05*****	0.069	Acceptable

Reference: *(Hair et al., 2014) **(Baumgartner & Homburg, 1995) ***(Hu & Bentler, 1999)
****(Wheaton et al., 1977) *****(Browne & Cudeck, 1992) ******(Hox & Bechger, 1999)
Note: ******* Not reliable due to sample size issues and model complexity

It is recommended by Hair et al. (2014) to compare the GOF indices of the measurement model and the structural model because the fit of the measurement model provides a useful baseline to assess the structural model fit, and one can conclude that the structural theory lacks validity if the structural model fit is substantially worse than the measurement model fit. In practice, a recursive structural model will not improve model fit when compared to a measurement model, because it will always have less relationships between constructs than indicated in the corresponding measurement model (Hair et al., 2014). Therefore, it is expected that the structural model fit would be comparatively less satisfactory due to its specified relationships and that some fit indices of the structural model will be of acceptable level instead of ideal.

As compared in Table 19, the only substantive difference is a chi-square increase of 165.7 and a difference of 10 degrees of freedom. Since these changes are resulted from changes in specified relationships, the chi-square/df is a much more reliant indicator for comparisons across different models. The expectedly increased chi-square/df (2.481) still suggests ideal model fit. The other GOF indices changed from ideal level to acceptable level, except for IFI which is still ideal. The changes are all acceptable according to the established criteria and are expected in practice. To sum up, the structural model fit is not substantially worse than that of the measurement model, and hence the validity of the structural model is supported to a greater extent.

Table 19 Model Fit Indices – Comparison: Structural Model and Measurement Model

		Criteria		Structural Model		Measurement Model	
		Acceptable	Ideal	Value	Evaluation	Value	Evaluation
Chi-square Test	χ^2	-	-	456.415	-	290.715	-
	df	-	-	184	-	174	-
	P-value	-	>0.05*	<0.001	*******	<0.001	*******
	χ^2/df	≤5.00****	≤2.00*	2.481	Ideal	1.671	Ideal
Goodness of Fit	GFI	≥0.80**	≥0.90***	0.872	Acceptable	0.918	Ideal
	AGFI	≥0.80*	≥0.90******	0.840	Acceptable	0.891	Ideal
Incremental Index	IFI (Delta2)	-	≥0.90***	0.923	Ideal	0.967	Ideal
	TLI (rho2)	≥0.90******	≥0.95*	0.912	Acceptable	0.960	Ideal
	CFI	≥0.90******	≥0.95*	0.923	Acceptable	0.967	Ideal
Badness of Fit	RMSEA	≤0.08*	≤0.05*****	0.069	Acceptable	0.047	Ideal

Reference: *(Hair et al., 2014) **(Baumgartner & Homburg, 1995) ***(Hu & Bentler, 1999)
****(Wheaton et al., 1977) *****(Browne & Cudeck, 1992) ******(Hox & Bechger, 1999)
Note: ******* Not reliable due to sample size issues and model complexity

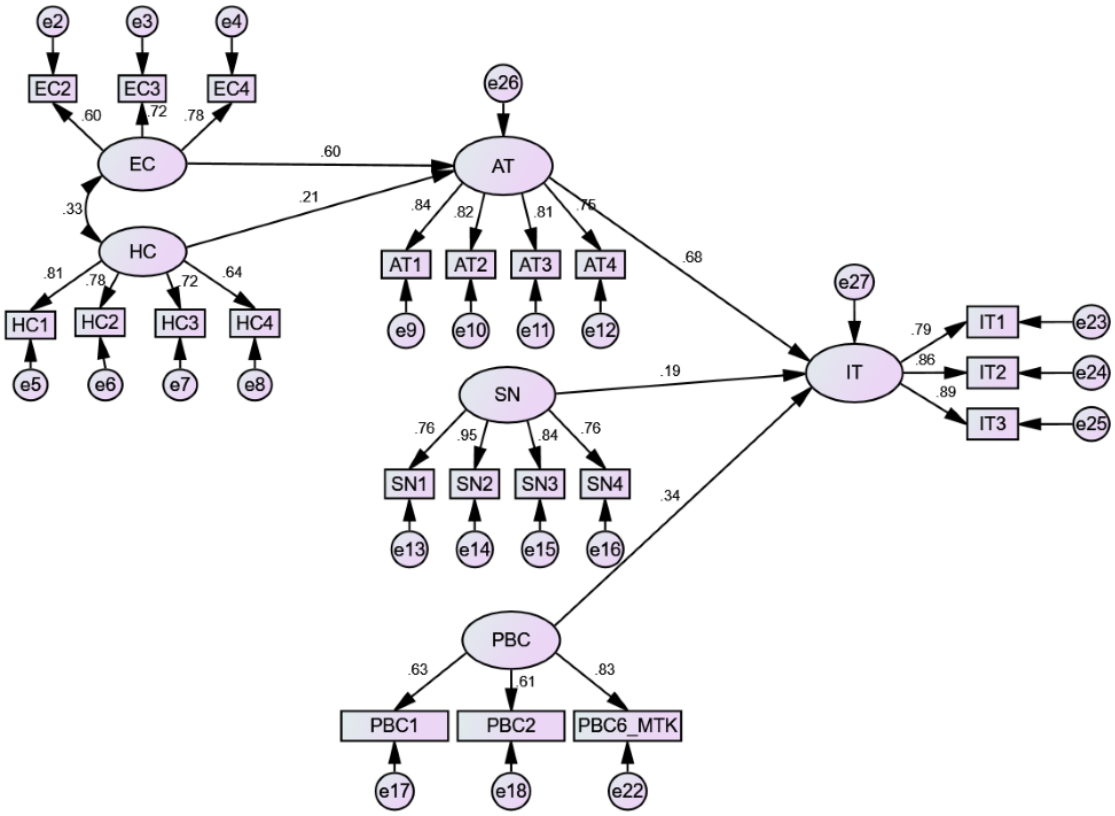
6.3.2.2 Nomological validity

Nomological validity is a theoretical plausability test (Hair et al., 2014). This means that the causal relationships must be consistent with the theory and indicate negative or positive connections accordingly. If that´s not the case, the relationship should not be relied upon (Hair et al., 2014). All the 5 hypotheses propose that the indicator construct positively influences the outcome construct. As shown in Table 20 in 6.3.2.3 Hypotheses testing section, all of the 5 hypothesized regressions in the structural model indicate positive connections (both the unstandardized and the standardized regression weights) as hypothsized in the proposed theory. Therefore, the nomological validity is fullfiled, meaning that the structural relatinships are consistent with theoretical expectations.

6.3.2.3 Hypotheses testing

The last step of structural model assessment is to examine the significance and magnitude of individual parameter estimates. The standardized parameter estimates for all the paths can be seen in Figure 9.

Figure 9 Path Diagram with Parameter Estimates – Structural Model



The significance of the hypotheszied paths can be analyzed through critical ratios (C.R. or t-value) and P-value. In Table 20, C.R. of all hypothesis are greater than 1.96 and estimates are of the hypothesized direction (i.e. positive). Furthermore, all causal relationships are deemed significant, as their P-values are less than 0.001, meaning that the probability of getting the corresponding critical ratio is less than 0.001 in absolute value. In other words, the hypotheses regarding the five predictor constructs in the prediction of its corresponding outcome construct are supported at the 0.001 significance level.

The magnitude of the hypothesized causal connections is reflected by the Standardized Regression Weights (β) (Cooper et al., 2016). The magnitude of the 5 hypothesised causal connections varies to a considerable degree, which will be further interpreted in the subsequent discussion section.

Table 20 Hypotheses Testing

Hypothesis	Causal Connection	Unstandardized Regression Weight	C.R.	P-value	Evaluation	Standardized Regression Weight
H1	EC --> AT	0.637	7.117	***	Supported	0.602
H2	HC --> AT	0.337	3.386	***	Supported	0.208
H3	AT --> IT	0.635	10.481	***	Supported	0.678
H4	SN --> IT	0.146	4.122	***	Supported	0.193
H5	PBC --> IT	0.215	5.869	***	Supported	0.338

*** P-value < 0.001

6.3.2.4 Concluding remark about the structural model assessment

The concluding remark about the structural model assessment is that the structural model is effective and well supported because 1) the structural model, compared with both the measurement model and the established criteria, shows satisfactory measuring validity, construct reliability, nomological validity, and model fit, and 2) the hypothesized paths are significant and in the direction hypothesized.

Chapter 7: Discussion and Implications

The primary aim of this paper was to study the influence of environmental consciousness and health consciousness – *as consumer values* – on consumers´ attitude and intention (as well as behaviour) together with the influence of subjective norms and perceived behavioural control, in the product category of GPCPs. These two consciousnesses were integrated into *The Theory of Planned Behaviour (TPB)* resulting in an extended theoretical framework, as TPB offers a flexible framework allowing for the incorporation of additional predictor variables (Ajzen, 1991). In this way, not only the influence of these consciousnesses on attitude, behavioural intention, and actual behaviour but also the usability/efficacy of the extended TPB model in explaining consumers´ purchase intention to choose GPCPs is explored in its entirety considering these additional aspects. The motivational drivers of GPCPs purchase intention are investigated via five hypotheses. Based on these hypotheses, suggestions for academics, marketers, ad policy-makers are proposed. Following on from that, the purpose of the following section is to 1) discuss the efficacy of the proposed extended TPB model; 2) discuss the motivational drivers of GPCPs purchase intention – in the form of hypotheses – within the fields of TPB research and sustainability; 3) propose implications for marketers, policy-makers and academics.

7.1 The theoretical efficacy of the proposed extended TPB framework in the context of green personal care products

As has been discussed earlier, there is a growing interest in green living due to consumers increasing environmental consciousness (EC) and health consciousness (HC). EC and HC are especially important in the case of organic food consumption and cosmetics use, as these product categories – encompassing necessity products – share similarities because they significantly affect both the environment and consumers´ health, and thus contribute to the promotion of healthy and sustainable lifestyles. Consequently, an important focus of this study, besides mapping out a reasonably comprehensive picture – including attitude (AT), subjective norms (SN), and perceived behavioural control (PBC) – as to why consumers (intend to) purchase GPCPs, is on how EC and HC affect the overall intention-formation process. There exists a wide range of studies in the realm of organic food consumption showing that EC and HC exert influence on consumers´ attitudes towards organic food consumption (Chryssohoidis & Krystallis, 2005; Scalco, Noventa, Sartori, & Ceschi, 2017; Wandel & Bugge, 1997). On the other hand, to the best of the authors´ knowledge, this study is one among a few studies (see H. Y. Kim & Chung, 2011; S. Kim & Seock, 2009) that explores the impacts of EC and HC as antecedents of attitude, behavioural intention and actual behaviour in the context of green cosmetics – more specifically green personal care products (GPCPs) purchase.

Nevertheless, the proposed extended TPB framework in the product category of GPCPs is unique to this study. Thus, it is hoped that future studies will also attempt to test the model efficacy and

critically review the model in other situational contexts (i.e. different countries). However, it is important to point out that the proposed framework is considered relevant in contexts where environmental and health consciousness are likely to have a significant impact (e.g. organic food and green cosmetics). The following parts within section 7.1 have three main objectives: 1) to clarify how EC and HC – as consumer values – can be integrated into the TPB framework. 2) to explain how EC and HC affect the theoretical suitability of the model. 3) to discuss the attitude-behaviour or intention-behaviour gap regarding methodological considerations and the analytical results of the present study.

7.1.1 The integration of environmental consciousness and health consciousness as consumer values into the TPB framework

The Theory of Planned Behaviour (TPB) framework allows for the integration of context-specific factors as such modifications not only contribute to better understanding the theoretical mechanisms within the model but also improve the prediction power for individuals' intention as well as behaviour in the given context (A. Sharma & Foropon, 2019). Following on from that, the authors decided to integrate EC and HC as consumer values into the TPB framework and test their relative importance in the decision-making process. In this connection, it is important to briefly discuss why this choice was made and how values play an important role in predicting consumer attitude, intention, and behaviour. Values can be defined as "concepts or beliefs about desirable end states (i.e. outcomes) or behaviours which transcend specific situations, guide selection or evaluation of behaviours or events, and exhibit relative ranking of importance" (S. H. Schwartz & Bilsky, 1987, p. 551). Hofstede and Bond (1984) argue that products and services are selected based on value-related goals in mind. More specifically, values are one of the crucial building blocks of attitude and may affect an individual's attitude formation by directing the person to search for objects that will be aligned with his/her values (Eagly & Chaiken, 1995; Grunert & Juhl, 1995; Poortinga et al., 2004). Consequently, values can be thought of as indirect rather than direct predictors of behavioural intentions (C Seligman & Katz, 1996). Put differently, values are more likely to function as 'catalysts' between other variables (e.g. attitude) and intentions than direct predictors for intentions (N. T. Feather, 1995). Consequently, it is proposed in this study that EC and HC have a direct effect on consumers' attitudes and therefore an indirect effect on intention toward purchasing GPCPs. Thus, in the following paragraph, the roles of EC and HC regarding attitude and intention formation are discussed.

7.1.1.1 How EC and HC affect the theoretical suitability of the proposed extended TPB framework

Before discussing the theoretical suitability of EC and HC, it is necessary to examine the theoretical legitimacy of the conventional parts of the TPB model in this study as EC and HC are designed as built-in elements of a valid TPB model. To evaluate to what extent the endogenous variable (IT) in the conventional TPB model is explained by its exogenous variables (AT, SN, and PBC), the squared multiple correlation estimate for IT is obtained from AMOS which shows a percentage of 61.1%. The message expressed is that IT is explained collectively by its exogenous variables (AT, SN, and PBC) to

a degree of 61.1%. The legitimacy of the conventional TPB parts in this study can therefore be confirmed and thereafter can the theoretical suitability of EC and HC be further discussed.

The decision to integrate environmental consciousness (EC) and health consciousness (HC) as additional variables into the TPB model was based on the authors´ intention to move beyond the mere evaluation of negative/positive attitudes towards GPCPs and explore *why* consumers might hold such attitudes, as EC and HC are considered to be decisive variables in the personal care products sector. The integration of these variables provided the authors with a deeper and more comprehensive understanding as to *how* these variables influence consumers' attitude as well as intention to purchase these products in Denmark. The squared multiple correlation of AT obtained from AMOS is 49% suggesting the degree to which AT is explained by its independent variables (EC and HC). Since EC and HC explain nearly half of the AT construct, it is confidently believed by the authors that the proposal of value-based implications is solid, as the results show that these values do exert evident influence on the selection of GPCPs. In addition, the relative importance of these values was also expected to impact the proposed implications.

7.1.1.2 Methodological considerations of the 'Behaviour' construct and analytical results

The initial theoretical model proposed by the authors included behaviour (BH) as its final construct. Nevertheless, the authors considered the methodological limitation of addressing/including behaviour in a survey-based study. In this connection, it must be acknowledged that *social desirability bias* (providing responses that are believed to be desirable by the requester) is an unavoidable by-product of self-reported surveys (Auger & Devinney, 2007). Furthermore, in the consumer behaviour and social psychology domains, the attitude-intention and intention-behaviour gap are well-documented (Bagozzi, 2000; Sheeran, Trafimow, & Armitage, 2003; Szmigin, Carrigan, & McEachern, 2009). The authors are aware of this methodological limitation not necessarily because of the bare fact that social desirability bias cannot be evaded in such a quantitative study but also because of the conceptual consideration that the BH construct potentially describes a similar dimension to that of the IT construct. This consideration manifests itself during the discriminant validity analysis when the authors found that the three BH variables required extra examination because each of them had moderate size cross-loadings with all the IT variables. The factor loadings for all the BH variables were split almost equally between the BH and IT constructs suggesting a construct-level problem with BH instead of problems with any single variable (see the pattern matrix in Table 8). This again indicates that the BH variables describe a similar dimension to what is described by the IT variables. As a result, the authors decided to exclude the BH construct from the final model (and thus examined the process of intention formation), as it was neither methodologically feasible to measure the BH construct by a survey, nor conceptually valid to include expressed behaviour as a distinguishable construct from intention .

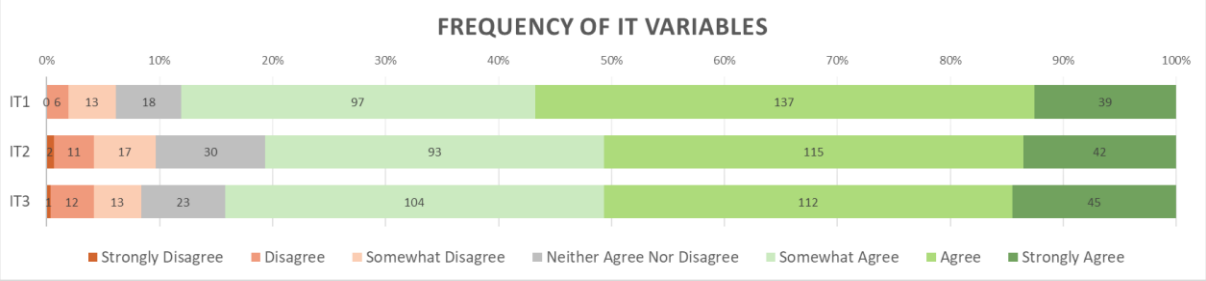
The above-mentioned issue begs the question: what kind of approach could counterbalance this methodological limitation, that is, how can researchers move beyond cognitive intention formation? Research attempting to understand green purchase decision-making is growing (Akehurst et al., 2012; Askadilla & Krisjanti, 2017; Jaiswal & Kant, 2018; Kautish et al., 2019; Nguyen et al., 2019; Wei et al.,

2017), but these studies primarily rely on quantitative methods. In order to appropriately explore how intentions turn into actual purchase behaviour and lessen the effect of social desirability bias, researchers must not solely rely on survey-based methods. In this regard, it must be noted that quantitative methods are more useful for theory-verification (Deshpande, 1983). This is the purpose of the current study. On the other hand, as argued by Carrington et al. (2014), the emerging field of I-B research necessitates a theory-building approach because the translation between intention and behaviour is tremendously complex. Consequently, studies that intend to address this translation should adopt a qualitative approach (e.g. interviews) (Belk, Devinney, & Eckhardt, 2005; Szmigin et al., 2009) and combine such approaches with grounded analysis (i.e. observations) (Glaser & Strauss, 1967). Such approaches are especially useful for theory-construction (Corbin & Strauss, 2008; Edmondson & Mcmanus, 2007) because they provide an in-depth understanding of this complex phenomenon of I-B gap (Goulding, 2005). Consequently, it must be acknowledged that though the present study provides valuable insights into attitude and intention formation, the adopted survey-based method is not appropriate for moving beyond intention formation and bridging the complex attitude-behaviour or intention-behaviour gap (Carrigan & Attalla, 2001; Richard Elliott & Jankel-Elliott, 2003) (see section *theoretical implications*). Following on from this, the next section investigates the motivational drivers of *GPCPs purchase intention* rather than those of actual behaviour.

7.2 Motivational drivers of GPCPs purchase and hypotheses discussion

In this study, consumers in Denmark stated a strong intention (more than 80% of the consumers agree according to the three IT variables) to purchase GPCPs. In the following sub-sections, it is discussed why the majority of consumers hold a strong intention towards purchasing GPCPs. Thus, the additional constructs (EC and HC as consumer values), each TPB construct, and the hypothesized relationships are discussed.

Figure 10 Frequency of IT Variables

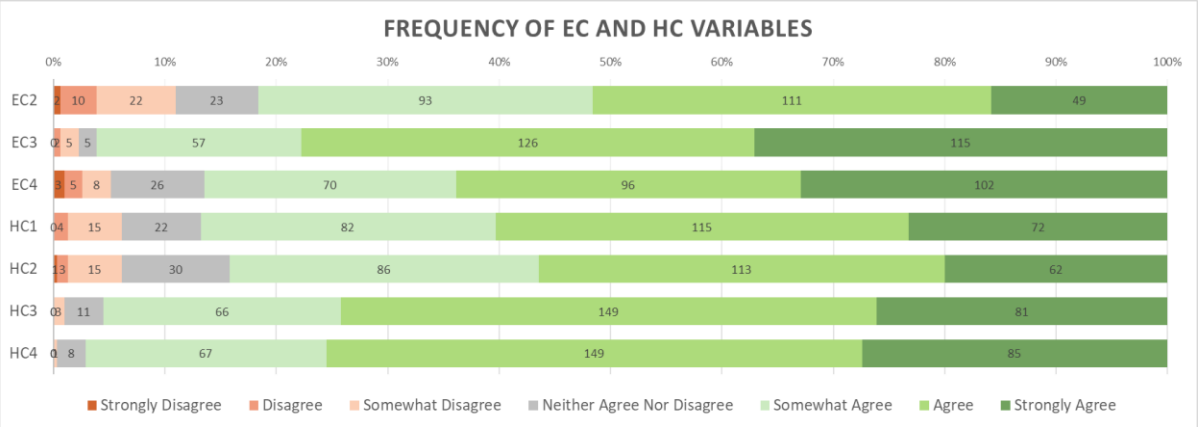


7.2.1 Consumer values: Environmental Consciousness and Health Consciousness

The purchase of different green products is determined by distinct factors and consumers´ preferences differ according to product categories (Almossawi, 2014; Majumdar and Swain, 2015). In the product category of GPCPs, EC (reflecting eco-centric reasons) and HC (reflecting ego-centric reasons) are

considered as decisive factors (Padel & Foster, 2005; Wandel & Bugge, 1997). Environmental consciousness is often considered as a precondition for green consumerism in general (Dembkowski, 1998; Mintu-Wimsatt et al., 1995), as it directs individuals to make greener purchasing decisions (Peattie, 2001; Schlegelmilch et al., 1996). Health consciousness (HC), however, is believed to be a factor more distinctively related to food and cosmetic products, as the concern for one´s health plays a significant role in health-related products (Liobikienė & Bernatonienė, 2017). The aim here is to evaluate the contribution of EC and HC to AT in the product category of GPCPs. Additional attention is paid to the relative influence of the two motives as EC and HC often coincide (Schifferstein & Oude Ophuis, 1998). The descriptive statistics below show that consumers in Denmark express both high (more than 80%) environmental consciousness and health consciousness.

Figure 11 Frequency of EC and HC Variables



7.2.1.1 The effect of consumer values on attitudes (H1 and H2)

> **H1***:* Environmental consciousness will positively influence attitude toward purchasing green cosmetic products (EC→AT)

Hypothesis 1 is supported at the 0.001 significance level. The hypothesized relationship between EC and AT is the second strongest (a standardized regression weight of 0.602) in the model. This is in line with the finding of numerous scholars that environmental consciousness is one of the strongest antecedents of attitude towards green products and the willingness to purchase such products (Jaiswal & Kant, 2018; H. Y. Kim & Chung, 2011; Patel et al., 2015; Pervin et al., 2014; Tamasiro et al., 2014). Furthermore, this finding indicates that environmentally conscious consumers are more likely to hold a positive attitude towards GPCPs, presumably because they believe that the use of GPCPs would reduce their environmental impacts and help to protect the environment. This indication may also be expressed as Danes and expatriates in Denmark tend to pursue the normative goal (Liobikienė & Bernatonienė, 2017), meaning that they intend to purchase GPCPs because they believe that such behaviour contributes to environmental protection and the well-being of other people. Moreover, the indirect impact of EC on IT is 0.408 suggesting that consumers' high environmental consciousness has an evident impact on the purchase intention of GPCPs.

H2: Health consciousness will positively influence attitude toward buying green cosmetic products (HC→AT)

Hypothesis 2 is also supported at the 0.001 significance level. However, the strength of the hypothesized connection between HC and AT is fairly weak (a standardized regression weight of 0.208). This suggests that, in the context of this study, HC does positively influence consumer attitude, yet the influence is not significant. According to Sahota (2014), in the personal care industry, the primary consumption motive is to satisfy consumers' health and wellness needs, whereas in this study, when the 'green' feature is added to the context of GPCPs, this health-related motive appeared to be noticeably less concerning.

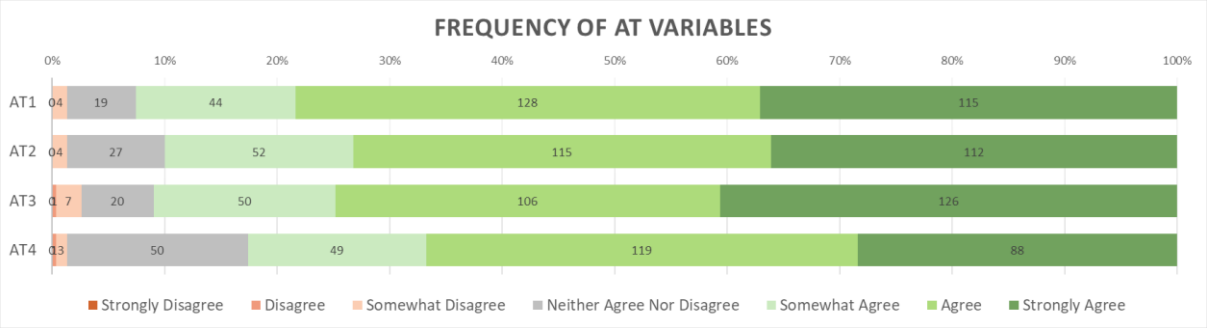
Results about EC and HC also imply that for consumers in Denmark, HC, though accompanied by high EC, is comparatively a less important consumer value in the contribution to positive consumer attitude towards GPCPs. This is in contrast with the findings of most scholars that health consciousness tends to be a more important motive than protecting the environment in the product categories of organic food and green cosmetics (Chryssohoidis & Krystallis, 2005; H. Y. Kim & Chung, 2011; Liobikienė & Bernatonienė, 2017; Oude Ophuis et al., 1992b; Worner & Meier-Ploeger, 1999). In this study, consumers instead form their attitude relying more on environmental motives. Through the comparison of the relative influence of EC and HC, it can be inferred that, for consumers in Denmark, eco-centric reasons outstrip ego-centric reasons in developing positive attitude towards GPCPs.

Granted that there is a strong environmental consumer value (EC), the selection of GPCPs is still determined to a considerable extent by how well ethical consumption values – like EC – are integrated into consumers´ lifestyles (Carrington et al., 2014). Nonetheless, though the TPB framework does not focus explicitly on product attributes, the bare fact cannot be neglected that other important factors such as price consciousness, convenience, product effectiveness, etc. are also relevant considerations and thus play a decisive role in bridging the intention-behaviour gap. On the other hand, however, consumers holding deeply rooted (ethical) values tend to consciously avoid a trade-off between cost, convenience, and salient consumption values as well as deprioritize other practical factors (Carrington et al., 2014). People holding such deeply rooted values will more likely make ethical choices, as these values strongly resonate with one's personal values and are integrated parts of their sense of self, and thus guide their everyday consumption behaviour (Tybout & Yalch, 1980).

7.2.2 Attitude towards purchasing GPCPs

In the model, the attitude (AT) construct functions as a mediating variable, as it is influenced by consumer values (EC and HC) to a substantial degree and it influences intention towards purchasing GPCPs. As such, attitude is the *central factor* in the proposed model (which supports the authors' claim that favourable attitude formation should be the primary focus of implications proposed). Overall, consumers (more than 80%) in Denmark demonstrate favourable attitude towards purchasing GPCPs.

Figure 12 Frequency of AT Variables



7.2.2.1 The effect of attitude on intention (H3)

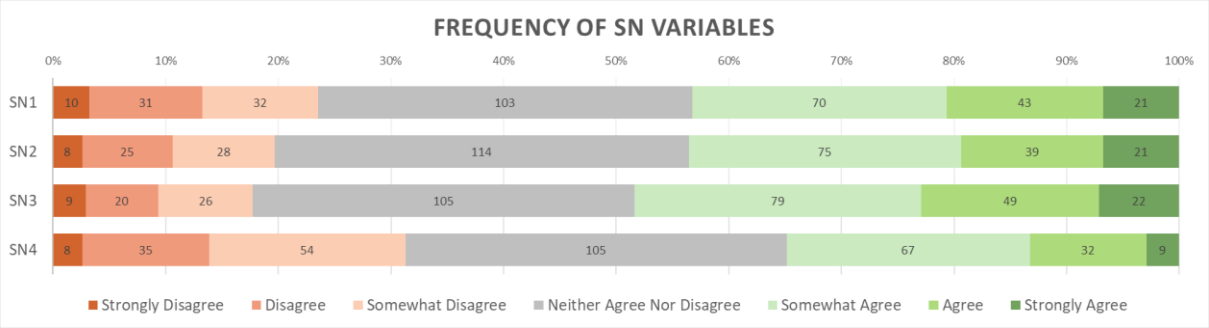
H3: Consumers' attitudes toward green products will be positively and significantly related to their green product purchase intention (AT→IT)

Hypothesis 3 is supported at the 0.001 significance level. This finding resonates with what has been proposed by a number of other researchers that attitude is the most significant predictor of behavioural intention (Kotchen & Reiling, 2000; Stern & Dietz, 1994; Vining & Ebreo, 1992); and positive attitude toward a behaviour is likely to result in heightened behavioural intention (Ajzen, 1985; M.-F. Chen & Tung, 2014). Moreover, the magnitude of this hypothesized relationship is the highest in the model (a standardized regression weight of 0.678), which resembles the finding of Kim and Chung (2011) and Hsu et al. (2017) that attitude has a significant impact on purchase intention of organic skincare products. This means that people holding positive attitudes towards GPCPs will more likely buy these products. This finding also underpins that the "attitude-intention rationale prevails in green consumption settings" (Paul et al., 2016). According to the above discussion, attitude is proven to be the crux of translating consumer values into more favourable purchase intention. At the practical level, if a party aims to raise consumers' purchase intention towards GPCPs, attitude can be the most effective target to implement changes because it contributes to intention in a more substantial manner compared with the other two TPB constructs in this study.

7.2.3 Subjective norms toward purchasing GPCPs

The results below show that around 40% of the respondents believe that important others would prefer if they purchased GPCPs. Compared to the other constructs, SN does not seem to exert significant influence on consumers in Denmark when it comes to GPCPs purchase.

Figure 13 Frequency of SN Variables



7.2.3.1 The effect of subjective norm on intention (H4)

H4: Consumers' subjective norms will have a positive influence on their intentions to purchase green cosmetics (SN→IT)

Hypothesis 4 is supported at the 0.001 significance level. Although the positive influence is confirmed, it shows a rather insignificant impact because the hypothesized relationship between SN and IT is the weakest in the model (a standardized regression weight of 0.193). This translates into that subjective norms do not affect GPCP purchase intention to a great extent in Denmark.

This finding is in contrast with the proposition from numerous studies that the impact (i.e. social pressure) from close friends and family is defining in green purchasing (Biswas & Roy, 2015a; Lin & Hsu, 2015; Liobikienė et al., 2017; Liobikiene et al., 2016; Mohd Suki, 2016; Ritter et al., 2015; S.-I. Wu & Chen, 2014). Kim and Chung (2011) and Hsu et al. (2017) also found that there is a strong relationship between subjective norms and purchase intention to buy organic skin and hair care products. To analyze the potential reason behind this discrepancy, the assessment of social norms must take into consideration a significant cultural aspect: the continuum of individualism and collectivism. Kumar (2012) has found that subjective norms are more impactful in collectivist cultures. Whereas Liobikiene et al. (2016) revealed that in the European Union, people's decision-making pattern is of more individualism feature. In this regard, Denmark does not represent a collectivist culture. On the opposite, individualism is deeply rooted in Danish cultural values. These individualistic cultural values not only concern Danes but also expatriates who have lived in Denmark for a while. It can be inferred from this study that consumers in Denmark are more self-concerned (in a neutral manner) rather than collectivism-concerned when they evaluate their purchase intentions of GPCPs. This inference resonates with Wals' (2010) description that sustainable consumption in Denmark operates on space for self-determination and individual competence in sustainable choices and norms. Consumers' consideration for the general public is not explicitly measured in this study though it can be believed that the EC implicitly encompasses some considerations for the well-being of the general public.

7.2.4 Perceived behavioural control towards purchasing GPCPs

Perceived behavioural control (PBC) entails inner control factors (referred to as self-efficacy) and external control factors (i.e. perceived barriers) (Ajzen, 1991). Self-efficacy was measured by the items PBC1 and PBC2. The stacked bar chart in Figure 14 indicates that overall, consumers hold confirmative perceptions when asked if it was completely up to them to purchase GPCPs. It is shown that for PBC1, 253 out of 310 respondents (82%) lean towards the 'agree' side of the scale (the green bars). Similarly, 274 respondents (89%) reported such perceptions for PBC2. On the other hand, the external factors (or perceived barriers): accessibility, price, time, and knowledge form another important aspect of PBC: resources. When consumers believe that they have more time, money, and knowledge, their behavioural intentions increase (Hsu et al., 2017; H. Y. Kim & Chung, 2011). The joint impacts from money, time, and knowledge were measured via one item (PBC6_MTK). These external control factors (resources) are believed by the respondents to be the more limiting aspect of PBC, compared with the two inner control factors (self-efficacy) described by PBC1 and PBC 2 because only 206 (66%) respondents agree (to various extent) that they have enough of these resources to purchase GPCPs.

However, from this single item, it is difficult to identify which of the three elements contribute to or hinder consumers' perceived external barriers. Therefore, PBC3_M, PBC4_T, and PBC5_K are still utilized as extra pieces of descriptive information to provide insights into which specific external factor is more relevant to consumers' perceived barriers. From Figure 15, it can be seen that the differences are small, nevertheless, these results still indicate that there is room for improvement regarding these areas.

Firstly, even though the majority of respondents (68%) agree they have time for purchasing GPCPs, the various practical or situational obstacles concerning especially necessity products could be the direction of improvement. Such obstacles may include: existing non-sustainable or non-ethical habits, alternative values, unwillingness to commit and sacrifice, as well as the distraction of the situational environment (e.g. spontaneous or effortful shopping) and availability (Biswas & Roy, 2015a; Carrington et al., 2014; B. Kumar, 2012; Paul et al., 2016; Wang et al., 2014; S.-I. Wu & Chen, 2014). Another obstacle regarding time could be the lack of accessible information and refusing to search for information (Carrington et al., 2014). Secondly, price undoubtedly influences purchase intention/behaviour, especially the income-price level ratio (Finisterra do Paço & Raposo, 2010). Although GPCPs tend to be more expensive than their conventional counterparts, a fair share of respondents (70%) consider GPCPs as affordable, potentially because Denmark is a high-income country. Based on this result, the authors believe that although sales promotion of GPCPs in Denmark should only serve as a secondary approach to boost GPCPs purchase. Last but not least, it is not surprising to see that knowledge is self-reported to be high in this case since the population shows remarkably high EC and HC (see Figure 11) of which knowledge constitute an important facet.

Figure 14 Frequency of PBC Variables

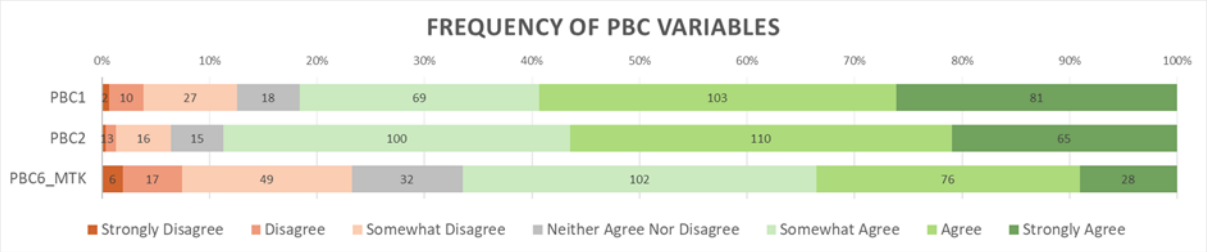
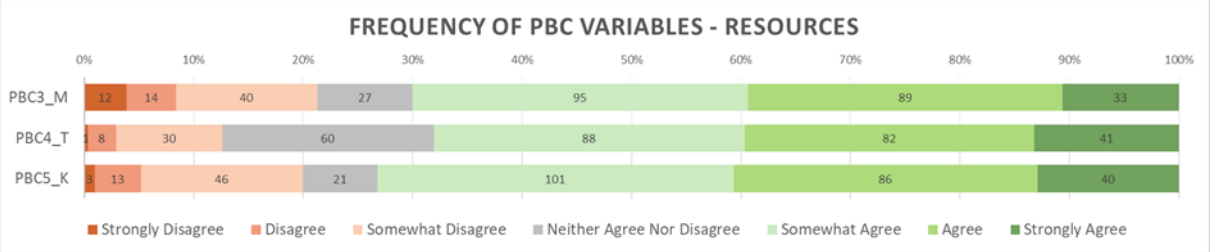


Figure 15 Frequency of PBC Variables – Resources



7.2.4.1 The effect of perceived behavioural control on intention (H5)

H5: Consumers' perceived behavioural control over buying green cosmetic products will have a positive influence on their intentions to purchase green cosmetics.

Hypothesis 5 is supported at the 0.001 significance level suggesting that perceived behavioural control positively influences purchase intention in this study. The strength of the hypothesized connection was fairly low (a standardized regression weight of 0.338). This means that PBC does not exert a significant impact on the intention to purchase GPCPs. What is more, it is a less decisive factor than attitudes. This finding might strengthen the indication made earlier that consumers holding deeply rooted values tend to consciously deprioritize cost and convenience and instead base their intention on salient consumption values, like EC, as these values are integrated parts of consumers' personal values and their sense of self (Carrington et al., 2014; Tybout & Yalch, 1980).

7.2.5 Concluding remarks about hypotheses discussion

To conclude, the three conventional TPB constructs are verified to positively influence purchase intention in this study, although the magnitudes of their impacts are evidently different. The most significant construct influencing purchase intention towards GPCPs is attitude. In comparison, influence from important others (SN) does not significantly affect the purchase intention towards GPCPs for consumers living in Denmark. This might be related to the cultural context that the Danish culture leans towards the individualistic end of the collectivism-individualism continuum (supposedly influencing non-Danish citizens as well). PBC has a mediocre effect on intention formation. When it is decomposed to its two aspects (self-efficacy and external resources), external resources seem to be the more restricting elements. When examining attitude the authors find it important to explore the *whys* of attitude formation and thus concurrently analyze the effects of EC and HC on attitude. The results

indicated that EC is significantly more defining in the attitude formation than HC. Added to that, PBC's relatively moderate influence on IT, compared with AT's significant influence on IT, infers that deeply rooted environmental consciousness (EC) may motivate people to make compromises about cost and convenience in the product category of GPCPs in Denmark. This is because EC contributes significantly to such positive attitude toward GPCPs. Thus, the proposed implications will primarily focus on attitude formation and the role of EC in it (see section on *Implications*).

7.3 Implications

The extended Theory of Planned Behaviour encompasses a comprehensive theoretical framework – including *internal* (i.e. values and attitude), *external* (i.e. perceived behavioural control) and *social dimensions* (i.e. subjective norms). The inclusion of each of these dimensions is crucial, as it will facilitate the provision of effective and far-reaching implications for researchers, marketers, and policy-makers. Whereas theoretical implications address the efficacy of the proposed model and methodological considerations in the product category of GPCPs, marketing and policy implications are tailored to collectively encourage of GPCPs purchase. The promotion of GPCPs (as they are necessity products), within reasonable bounds, is one of the main tools to underpin and support a more sustainable future and facilitate the implementation of sustainable consumption and production (SCP) policies (Liobikienė & Bernatonienė, 2017). Production and consumption (consumer behaviour) should be addressed side by side in order to reduce environmental pressure (Liobikiene & Dagiliute, 2016). Regarding the promotion of GPCPs, managerial and policy implications are centered around favourable attitude formation, since the findings of this study suggest that *attitude* is the most significant determinant of the intention to purchase GPCPs. When environmental and health consciousness are considered (to explain why consumers might hold favourable attitudes), the most important finding based on which implications are made is the dominant effect of EC (though HC is also an important determinant) on attitude towards GPCPs purchase. All practical implications are summarized in the table below.

Table 21 Practical Implication

	Dimension of TPB	Relevant Concept	Implication
Managerial/ Marketing	Internal	EC, HC, Attitude	Consumer value marketing; Relevant communication strategies
	External	PBC (Information, price)	Eco-labelling; Open, interactive, and informative communication with consumers
Policy	Internal	EC, HC, Attitude	Sustainability/Eco education
	External	PBC (information)	Government-centric eco-labeling schemes (systematic, open, and periodical participation from non-governmental bodies); Standards or certifications about GPCPs
		PBC (price)	Financial support schemes

7.3.1 Theoretical implications

Overall, the theoretical efficacy of both the conventional TPB model and the extended part is established because the model is statistically validated to represent a meaningful configuration and all hypotheses are supported as they are theorized to be. Extending the TPB model with environmental and health consciousness that are unique in the context of GPCPs made it possible for the authors to not only improve and better understand the theoretical mechanisms within the model but also determine the relative importance of these antecedents. What is more, EC and HC provided the primary foundation for practical implications in this study as they actively contribute to the formation of favourable attitude which is the focal point of the implications recommended in this study. Therefore, it is recommended that since EC and HC are important antecedents of both the attitude and intention of purchasing GPCPs, future studies could retest the efficacy of this extended TPB framework in the context of GPCPs and critically review it in other situational contexts (i.e. different countries).

Added to that, the discriminant validity tests and pattern matrix in this study supports that purchase intention is both conceptually and practically distinct from actual purchase. They also support the methodological consideration from Carrington et al. (2014) that survey-based studies cannot appropriately measure behaviour, as the translation from intentions into behaviour is a fairly complex process necessitating a theory-building approach. Consequently, qualitative methods are more appropriate to understand this complexity in-depth and explain how purchase intention turns into actual behaviour. For example, ethnographic research strategy, that is, closely observing complicated decision-making processes and everyday practices could provide a better explanation as to how consumers´ intention translates into actual behaviour (Glaser & Strauss, 1967) and why consumers often fail to purchase green products, including GPCPs (Carrigan & Attalla, 2001; Richard Elliott & Jankel-Elliott, 2003). In addition, the conceptual and practical distinction between purchase intention and actual purchase suggests that research about I-B gap is still crucial for carrying favourable intention from the cognitive domain to the real world.

7.3.2 Managerial/Marketing implications

Due to the rising levels of consumption which has a detrimental effect on the environment, green or sustainable marketing has received considerable attention (Kumar, 2011). Green marketing promotes products that are considered to be environmentally less damaging and less detrimental to human health while satisfying consumer needs and desires (Biswas & Roy, 2015a; Majumdar and Swain, 2015). In the following sub-sections, marketing implications are provided based on the *internal* (environmental consciousness, health consciousness, and attitude) and *external* dimensions (perceived behavioural control, information, and price). Implications are not proposed based on the social dimension of close networks, as the subjective norms from such networks have been found to be insignificant in contributing to the purchase intention towards GPCPs in Denmark.

7.3.2.1 Marketing implications based on the internal dimensions: Environmental consciousness and health consciousness and attitude

Based on their research on Danish free-of cosmetics consumers, Hansen et al. (2012) suggested that companies may market their products around values and not solely around search and experience attributes (beauty effects) since consumer values evidently drive consumption behaviours in this regard. Consumer value management/marketing is a worthwhile strategic tool for marketers for not only discovering the factors that drive purchase decisions but also pinpointing the relative importance of these factors to the purchasing decision and thereby establishing their place in the market in relation to their competitors (Gale et al., 1994; Li, 2009; Nguyen et al., 2019). Consumers are likely to hold different concerns when they purchase personal care products. This study explored the environmental and health concerns of consumers living in Denmark. The results indicated that environmental consciousness has a more significant influence on consumers´ attitudes than health consciousness and an evident effect on intentions. It seems to be the case that consumers lean towards a more *eco-centric* than *ego-centric* approach when they intend to purchase GPCPs. As environmental protection has become an integrated consumer value at the forefront, the question is: how can this increased environmental consciousness be harnessed effectively? In this regard, it is proposed by the authors:

Marketers of green personal care products should better align their value marketing with consumers' values by developing effective marketing strategies including both environmental and health aspects. However, considering the relative importance of these values, the environmental benefits are of primary importance.

Based on the above, GPCP businesses in Denmark or targeting the Danish market are advised to highlight the environmental friendliness of their production and sourcing practices, packaging, ingredients used, and product disposal (eco-design) in their advertising inasmuch they genuinely adhere to this more sustainable approach. This offers benefits for not only the environment and environmentally conscious individuals but also for businesses themselves since addressing and dealing with environmental issues has become a competitive advantage also enhancing brand reputation (Coleman, Bahnan, Kelkar, & Curry, 2011; Hasan, Subhani, & Osman, 2012). For example, reducing the amount of raw material, energy use and waste materials including the packaging can lower business expenses. This way, profitability increases by ´doing more with less`. Furthermore, employees and consumers also tend to be more committed if, as has been found in this study, their values encourage them to support good causes (Sahota, 2014).

Added to that, there is a growing interest regarding the origin, sourcing, and the preservation of the ecosystem. The shrinking resource base worries cosmetics companies, as it will impact the amount and quality of resources available. As such companies should mind the conservation of biodiversity and safeguard its sustainable use by ensuring ethical sourcing across business practices (Sahota, 2014). In this connection, Cosmetics Europe (The Personal Care Association) has highlighted that the preservation of natural resources and biodiversity are among the main challenges for sustainability in the cosmetics industry (COLIPA, 2008). Thus, it is in the interest of companies to ensure that their policies and practices promote the conversation of biodiversity and its sustainable use. Since this study has found

that consumers in Denmark project strong environmental consciousness, companies' marketing strategies should highlight not only the 'naturalness' of their products but also the active role of preserving biodiversity and ethical sourcing practices to attract consumers. This way, businesses could educate consumers about biodiversity and offer a way to contribute to a more sustainable world and make a difference, while emphasizing the distinctive values and attributes in their products.

7.3.2.2 Marketing implications based on external dimensions: information, price, and availability (PBC)

As Cervellon et al. (2010) noted, consumers generally lack sufficient information about green products, especially green cosmetics. Though 73% of the respondents agree that they have enough knowledge, there is still room for improvement. This lack of information might be related to inefficient communication on the market or consumers' insufficient knowledge. To address the inefficient communication on the market, brands dedicated to environmental protection should explicitly indicate their commitment by using *eco-labels* (see section *policy implications*) and being transparent about their ingredients and company policies. Traceability is also crucial from harvest to product delivery. All these conducts help to provide eco-minded consumers with sufficient information and establish trust. In this regard, communicating the goal of environmental protection clearly and concisely is essential for brands to be perceived positively by environmentally-concerned consumers, which again could help to increase their exposure in eco-centric markets and develop relevant competitive advantages. These green or sustainable efforts must be and communicated and spread via multiple channels addressing each stakeholder in a relevant way. Online marketing (e.g. social media), grassroots, conferences, public service advertising (PSA) are good examples of target-specific communication strategies (Sahota, 2014). Social media might the best possible platform to convey sustainable credentials and engage with customers in an open dialogue. This open and interactive communication also serves the purpose of educating consumers about green and sustainability matters, which resonates with the value marketing (especially the environment-related values) proposed in the last section. Policy-making at the governmental/national level could aid environment-related information provision and improve the fairness of the industry by reducing environment-related information asymmetry among important parties (i.e. consumer, producer, laboratory, etc.) (see section on *policy implications*). Such concise and explicit communication strategies would also provide a solution to consumers´ perception in this study (32% of the respondents) that they lack time to purchase GPCPs.

Regarding affordability, in this study though price is not the main obstacle to purchase GPCPs (as 70% of the respondents agree that they have enough money) as Denmark is a high-income country, lowering the price of GPCPs could evidently contribute to their promotion, as it would make these products more available to consumer groups with a lower income level (e.g. students – a violation of the inclusion principle). In this regard, brands could use certain marketing strategies (e.g. occasional discounts) to change consumers´ perceptions of higher prices so that consumers with a lower income also believe that they can afford GPCPs. Nevertheless, this approach should only be secondary because it does not tackle the core drivers of GPCPs purchase (i.e. environmental- and health consciousness, and attitude)

7.3.3 Policy implications

A prevalent policy shift from production processes to consumption has only happened in the recent years since high consumption levels put the environment and sustainable development at risk (Liobikiene & Dagiliute, 2016; J. Liu et al., 2010; Tukker et al., 2010). The primary aim of sustainable consumption is to minimize the environmental impact of consumption. This, in part, could be achieved by incentivizing the purchase of environmentally-friendly (i.e. green) product alternatives (Mont & Plepys, 2008; Ritter et al., 2015). Nevertheless, in the product category of GPCPs, it is impossible to significantly reduce the volume of consumption, as GPCPs are necessity goods, having short life cycle and being consumed on a daily basis. Evidently, the purchase of these products should be based on needs and not detrimental accumulation.

In a similar vein, it is argued by the authors of this paper that since GPCPs are necessity products (meaning that they are purchased relatively frequently), the overall goal should be the promotion of the purchase of green(er) alternatives within reasonable bounds. In this regard, policy-making should concern the governmental-, organizational- as well as individual/consumer levels so that various parties collectively make efforts to replace the conventional production and consumption practices with greener alternatives when the absolute transaction volume cannot be significantly reduced.

7.3.3.1 Policy implications at the governmental level

Following the discussion in the previous chapters that organic food and cosmetics share many common characteristics, experience from organic food industries might therefore be referable for cosmetics industries, the approaches effectively applied to the Danish organic food industry are consulted as potential ways to boost GCPCs consumption in Denmark.

Eco-labeling, the labelling of environmentally friendly products, has been recognized as an effective way to provide easily accessible information (Lohr, 1998), and has been prevalently used by institutions and governments, interest groups, etc. to boost consumer confidence in green consumption, although the effectiveness is dependent on the credibility of the labelling. As in the previous section, similar conducts were also recommended from the perspectives of market main bodies, this section focus more on how governmental bodies could aid the relevant behaviours of market bodies.

There are different stands in academia regarding the debate over government-centric eco-labelling and private eco-labelling. Gertz (2005) and Hunnicutt et. al. (2004) revealed consumers' preference on environmental or consumer organizations over governmental organizations when consumers are asked to choose among hypothetical eco-labelling alternatives. On the other hand, Sønderskov and Daugbjerg´s (2011) empirical study revealed that substantial government involvement increases consumer confidence, with Denmark analyzed as a case in point. Hofer (2000) also suggested that the state's takeover of organic labelling in Denmark successfully increased consumer confidence.

In summary, previous research targeting the Danish society suggested two pathways to increase consumer confidence in this regard: 1) substantial state involvement in labelling schemes, 2) increased

eco-education and environmental awareness. These two pathways tackle the two potential causes of consumers' perceived lack of information discussed in the marketing implication section.

Whether a government should take a minimal role or a more direct involvement is still under discussion based on situated knowledge, yet it is believed by the two authors of this study that Denmark's strong state involvement in organic food labelling can be efficaciously consulted as an example for the GPCPs industry. Reasons are: 1) both industries resonate with similar sets of environmental awareness and consumer willingness, 2) both industries share similar utilitarian or practical characteristics (private purchase, frequent purchase, low investment, etc.), 3) both industries are situated in Denmark and hence are discussed in similar institutional and attitudinal environment, given that Denmark has not experienced drastic societal changes in the recent years.

Although the state engagement provides credible and stable eco-pragmatic standards, the risk of regulatory occupation from within should be minded. Boström & Klintman (2006) reminded that when the definition of eco-values becomes rigid and tied to prevailing standard criteria, the risk might be that there is no space left for actors who claim ethical responsibility in alternative ways. Although this study proposes that in Denmark state-centric approaches are effective in aiding the external dimensions of GPCPs purchase (i.e. information and communication), inclusiveness and new knowledge are still deemed to be very important to sustain a truly sustainable practice.

For Danish organic foods, the state label is the sole national organic label in practice. Imported food labelled with foreign labels must comply with the EU's rules for organic farming (Fødevarestyrelsen, 2020). When comparing Denmark with Sweden, UK, and the US, Sønderskov and Daugbjerg (2011) confirmed that the Danish organic labelling system has the highest level of state involvement and also the highest level of consumer confidence when influence from other institutional or attitudinal factors is ruled out. The potential reasons include 1) Danish people are more generally trusting, 2) Danish people have higher levels of environmental awareness. Sønderskov and Daugbjerg's (2011) additional findings may also shed light on the success of Danish organic labelling: the two most important additional predictors of label confidence are generalized social trust and, especially, generalized institutional trust. These two elements are deeply rooted in Danish society and hence might provide a fertile societal and institutional ground for consumer confidence in government-centric eco-labelling. Moreover, given that stakeholder inclusiveness and genuine consensus-building are also suggested as important in building trust on eco-standardization (Boström & Klintman, 2006), it is advised by the two authors that state-centric standards should be advised systematically, openly, and periodically by varies non-governmental bodies.

7.3.3.2 Policy implications at the manufacturer/retailer level

Companies manufacturing green products like GPCPs could receive financial support (e.g. tax reduction) inasmuch they live up to certain well-defined criteria regarding their production processes, packaging, and ingredients used in their products. This approach could immediately provide such businesses with price competitiveness and could also incentivize the emergence of more eco-friendly cosmetics businesses. If these businesses are supported, then it is likely that companies manufacturing products

according to conventional standards would gradually adjust their sourcing and production practices in the future facilitating the creation of a circular economy and thereby contributing to the protection of the eco-system.

Although there are various certification bodies in the realm of 'natural/organic' cosmetics (e.g. COSMOS), there is no national or regional regulation in Denmark yet as to what may be marketed as a 'green' personal care product (or clearly-defined analogues for example 'natural' or 'organic' personal care product). Thus, companies in this specific market might describe their products as such despite containing low levels of green ingredients (greenwashing) or conducting low levels of green production practices. This fact highlights the importance of government-level establishment or adherence to already established standards and certifications, assuring consumers that products reach a specified level of green content or that the production practices are responsible for the environment as marketed. Nevertheless, the adaptation of such standards and certifications by businesses can be voluntary depending on whether the business hopes to market its products as GPCPs or not.

7.3.3.3 Policy implications at the consumer level

Sustainability education in Denmark is pioneering. Universities offer numerous sustainability programmes and courses. Moreover, there are many good initiatives addressing the younger generations as well. Nevertheless, consumers should be aware of what impact their consumer choices have on the environment (purchasing power). This is especially important in the case of GPCPs as they are used daily and synthetic ingredients and other unwanted components have an adverse impact on not only the environment but also on consumers´ health. The continuously increasing EC (and HC) in Denmark is the fundamental building block of a greener future. This increasing trend must be continuously supported in the future as well via education focusing on environmental awareness.

Chapter 8: Conclusions and suggestions for future research

8.1 Conclusions

Despite that green consumerism is on the rise, unsustainable consumption (as well as production) patterns are contributing to severe environmental degradation. Thus, it is crucial for researchers, marketers as well as policy-makers to understand the mechanics behind the purchase intention/behaviour of scarcely analyzed product categories such as green personal care products (GPCPs), as different product categories jointly contribute in different ways to realizing a more sustainable society. Research on explaining the determinants of GPCPs is scarce. Thus, the primary aim of this study was to contribute to filling in this gap. Consumers demonstrate increasing environmental consciousness (EC) and health consciousness (HC), which come to the fore especially in the food and cosmetics sectors. Consequently, an extended Theory of Planned Behaviour (TPB) framework was proposed and applied by the authors, into which EC and HC were integrated as consumer values. This has contributed to mapping out a reasonably comprehensive picture including the original TPB constructs - attitude (AT), subjective norms (SN), and perceived behavioural control (PBC) – as to why consumers (intend to) purchase GPCPs. In the following sections, the main findings of the proposed research statements are summarized: 1) the efficacy of the extended TPB model in the context of GPCPs purchase; 2) the motivational drivers of GPCPs purchase intention; 3) the implications based on these findings.

Regarding the efficacy of the proposed extended TPB framework, it can be stated that the inclusion of EC and HC - as consumer values - has improved the explanatory power of the original TPB model, since these additional variables aid in exploring why consumers might hold positive attitudes towards GPCPs purchase and thus make it possible to move beyond the mere positive-negative evaluation of attitude formation. This is because EC and HC, as consumer values, influence consumers´ attitude formation by directing them to search for objects (i.e. GPCPs) that are aligned with their values (Grunert & Juhl, 1995). In this study, EC and HC explain the attitude towards GPCPs purchase by 49% (the squared multiple correlation estimate of AT) confirming the relevance of these values in attitude formation. Apart from that, it was found that it is neither methodologically feasible to address actual behaviour (BH) in a survey-based study nor conceptually valid to incorporate expressed behaviour as a distinguishable construct from intention (IT) into the model. As a result, the authors decided to exclude the BH construct from the final model (and thus examined the process of intention formation).

When considering the motivational drivers of GPCPs purchase intention, the three conventional TPB constructs (SN, PBC, and AT) are verified to positively influence purchase intention in this study, although the magnitudes of their impacts are evidently different. In this regard, influence from important others (SN) does not significantly affect the purchase intention towards GPCPs purchase. This might be the case because when the individualism-collectivism continuum is considered, Denmark leans toward

the more individualistic end. As to PBC, the majority of the consumers confirmed that it was completely up to them to purchase GPCPs (self-efficacy). On the other hand, external control factors - like money, time and knowledge - seem to be the more limiting aspects of GPCPs purchase, and as such, there is room for improvement regarding these areas. The overall impact of PBC on intention is moderately significant. The most significant construct influencing purchase intention towards GPCPs purchase is attitude. In this regard, when examining attitude the authors found it important to explore the whys of attitude formation and thus concurrently analyze the effects of EC and HC (as consumer values) on attitude. Regarding these additional variables, though consumers express both high EC and HC which positively affect their attitude towards GPCPs – EC has a significantly greater impact on consumers' attitude (the hypothesized relationship between EC and AT is the second strongest in the proposed model), as well an evident effect on intention towards GPCPs purchase. In this connection, PBC's relatively moderate influence on IT, compared with AT's significant influence on IT, infers that deeply rooted EC may motivate people to make compromises about cost and convenience in the product category of GPCPs in Denmark. This is because EC contribute significantly to such positive attitude toward GPCPs

Based on these findings, the proposed practical (managerial and policy) implications were primarily centered around positive attitude formation and the role of EC in it, since attitude has been found to be the crux of translating EC (as well as HC) into more favourable intention towards GPCPs purchase. Moreover, the elements of PBC (i.e. money, time, and knowledge) were also considered. Added to that, the major goal of these practical implications is to promote and incentivize the purchase of GPCPs within reasonable bounds as they are necessity goods, alongside the implementation of sustainable production processes. In this regard, some of the crucial implications are, utilizing and supporting consumers' strong environmental consciousness via consumer value marketing, concise and genuine communication strategies, educating consumers about sustainability, and highlighting the company´s active role in biodiversity preservation. The implementation of these implications might contribute to establishing a more sustainable industry and aid in the minimization of the environmental- and health impacts of personal care products.

8.2 Suggestions for future research

This study essentially focuses on stated purchase intentions. As Fukukawa (2003) notes, consumer studies have the tendency to assume that intentions inevitably translate into behaviour. Nevertheless, contrary to several consumer studies, the authors do not assume that intentions will directly determine actual purchase behaviour. This assumption would disregard empirical studies in the broader contexts of social psychology and consumer behaviour indicating that purchase intentions do not typically determine actual purchase behaviour (Ajzen, Brown, & Carvajal, 2004; Bagozzi, 2000; Morwitz, Johnson, & Schmittlein, 1993; Young, DeSarbo, & Morwitz, 1998). Thus, future studies should shed light on how purchase intention translates into actual buying behaviour in the context of green personal care products/cosmetics, as research within this context is scarce. This product category – like organic food consumption – is immensely relevant in sustainability, since consumers use such products on a

daily basis. Furthermore, bridging the often-problematic attitude-behaviour or intention-behaviour gap, which reflects the discrepancy between what consumers intend to purchase and what they actually consume, holds considerable advantages for academia, marketers, and society as a whole. Nevertheless, as also argued by the authors of this paper, such studies should combine a qualitative research methodology (e.g. interviews) with grounded analysis (observations) to appropriately explore this potential gap (Glaser & Strauss, 1967).

Added to that, to further contribute to bringing the I-B gap, another valuable addition to such research would be the exploration of the role of habit. This is because cosmetics tend to reflect routine purchase decisions (Liobikienė & Bernatonienė, 2017). The absence of habits/plans (i.e. spontaneous purchases) oftentimes leads to shopping behaviours that are misaligned with consumer values such as EC and HC, as ethical values and intentions are superseded by existing, non-ethical habits (Verplanken, 2006).

Since in the current study, the initial measurement model was rescpecified, which resulted in a different theoretical model (i.e. structural model) than the originally proposed theoretical framework, it is important to test the newly proposed model with an entirely new dataset. This way the findings of this research could hopefully be firmly substantiated. Furthermore, since the proposed extended TPB framework is unique to this study, future studies should also attempt to test its efficacy and critically review it in other situational contexts (i.e. different countries) as well.

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Appendix 3 Demographics

Gender			
	Frequency	Percent	
Male	65	21.0	
Female	244	78.7	
Other	1	0.3	
Total	310	100.0	
Age			
	Frequency	Percent	Cumulative Percent
18-25	155	50.0	50.0
26-35	133	42.9	92.9
36-45	17	5.5	98.4
46-55	3	1.0	99.4
56-65	1	0.3	99.7
66 or older	1	0.3	100.0
Total	310	100.0	
Disposable Personal Income (Monthly)			
	Frequency	Percent	Cumulative Percent
0-4.999 DKK	80	25.8	25.8
5000-13.999 DKK	149	48.1	73.9
14.000-24.999 DKK	49	15.8	89.7
25.000-39.999 DKK	21	6.8	96.5
40.000-59.999 DKK	9	2.9	99.4
60.000 DKK or more	2	0.6	100.0
Total	310	100.0	
Level of Education			
	Frequency	Percent	Cumulative Percent
Primary and lower secondary education (age 6 to 16)	4	1.3	1.3
Upper secondary education (age 16 to 19) including vocational or technical education	21	6.8	8.1
Bachelor level	114	36.8	44.8
Master level	156	50.3	95.2
Above master level	15	4.8	100.0
Total	310	100.0	
Occupation			
	Frequency	Percent	
Not working	30	9.7	
Student and not working	65	21.0	
Student and working	106	34.2	
Computer/Engineer	18	5.8	
Humanities/Art	12	3.9	
Medicine/Health	4	1.3	
Management/Administration	17	5.5	
Customer Service	11	3.5	
Banking/Finance	5	1.6	
Other	42	13.5	
Total	310	100.0	

Appendix 4 Mahalanobis D^2 – Original Model, Re-specification 1, and Re-specification 2

Original Model			Re-specification 1			Re-specification 2		
Observation Number	Mahalanobis D^2	P1	Observation Number	Mahalanobis D^2	P1	Observation Number	Mahalanobis D^2	P1
67	66.904	0	67	62.903	0	100	46.073	0.001
158	66.007	0	158	59.197	0	303	45.719	0.001
233	64.402	0	66	57	0	304	45.634	0.001
66	60.518	0	152	55.472	0	240	45.464	0.002
152	59.272	0.001	51	54.435	0.001	251	45.403	0.002
51	59.037	0.001	240	54.058	0.001	51	45.119	0.002
100	58.771	0.001	172	53.003	0.001	165	44.711	0.002
41	58.42	0.001	303	52.777	0.001	67	44.448	0.002
300	57.994	0.001	228	51.196	0.002	74	44.296	0.002
303	56.424	0.001	300	50.834	0.002	158	44.05	0.002
282	56.244	0.001	251	50.048	0.002	238	43.535	0.003
240	55.71	0.001	282	49.747	0.002	152	43.4	0.003
172	55.561	0.001	100	49.281	0.003	284	43.385	0.003
251	55.157	0.002	284	48.439	0.003	118	42.091	0.004
228	53.024	0.003	74	47.94	0.004	300	41.051	0.006
287	52.38	0.003	238	47.449	0.004	288	41.044	0.006
199	51.259	0.005	202	47.007	0.005	143	40.743	0.006
204	51.108	0.005	304	46.244	0.006	296	40.533	0.006
74	50.937	0.005	165	46.236	0.006	202	39.818	0.008
14	50.267	0.006	118	45.756	0.007	282	39.414	0.009
48	50.265	0.006	216	45.719	0.007	287	39.334	0.009
284	50.2	0.006	14	45.488	0.007	204	39.038	0.01
216	49.927	0.007	199	45.153	0.008	83	38.979	0.01
296	49.587	0.007	41	45.124	0.008	259	38.906	0.01
92	48.976	0.008	143	44.013	0.011	199	38.831	0.01
202	48.733	0.009	233	43.852	0.011	228	38.728	0.011
118	48.034	0.011	296	43.722	0.012	233	38.434	0.011
238	47.876	0.011	288	43.277	0.013	229	38.235	0.012
161	47.747	0.011	204	43.079	0.014	92	37.319	0.015
290	47.397	0.012	231	42.91	0.014	216	36.679	0.018
229	47.274	0.013	92	42.512	0.016	31	36.345	0.02
304	47.209	0.013	259	42.227	0.017	116	36.228	0.021
259	46.691	0.015	5	41.986	0.018	176	36.12	0.021
31	46.493	0.015	287	40.775	0.024	183	35.568	0.024
165	46.433	0.016	161	40.507	0.026	26	35.404	0.025
231	46.253	0.016	229	40.3	0.027	230	35.276	0.026
143	45.693	0.019	83	40.175	0.028	194	35.225	0.027
283	45.264	0.021	116	40.1	0.028	172	34.981	0.028
288	45.192	0.021	64	40.016	0.029	187	34.634	0.031
26	45.113	0.021	79	39.975	0.029	170	34.619	0.031
59	44.891	0.023	26	39.944	0.03	103	34.573	0.031
183	44.813	0.023	290	39.591	0.032	290	34.52	0.032
242	43.87	0.029	48	39.23	0.035	14	33.974	0.036
227	43.737	0.029	230	39.108	0.036	242	33.361	0.042

83	43.731	0.03	31	39.071	0.036	22	32.983	0.046
35	43.663	0.03	183	38.985	0.037	8	32.797	0.049
116	43.219	0.033	242	38.984	0.037	66	32.76	0.049
5	43.132	0.034	27	38.974	0.037	102	32.703	0.05
226	42.751	0.037	187	38.957	0.037	81	32.687	0.05
81	42.312	0.041	250	38.822	0.038	198	32.568	0.051
64	41.621	0.047	102	38.746	0.039	247	32.518	0.052
17	41.397	0.049	139	38.492	0.041	59	32.406	0.053
103	41.284	0.051	35	38.466	0.042	101	32.306	0.054
8	41.128	0.052	194	37.751	0.049	90	32.173	0.056
139	40.839	0.056	226	37.68	0.05	231	32.141	0.057
250	40.655	0.058	176	37.378	0.053	273	32.023	0.058
102	40.637	0.058	170	37.335	0.054	291	31.852	0.061
79	40.451	0.06	17	37.183	0.055	97	31.61	0.064
214	40.304	0.062	247	36.461	0.065	96	31.299	0.069
187	40.103	0.065	59	36.304	0.067	17	30.528	0.082
170	40.081	0.065	97	36.25	0.068	79	30.412	0.084
27	39.505	0.073	198	36.184	0.069	48	30.364	0.085
198	39.45	0.074	103	36.043	0.071	145	30.279	0.087
230	39.415	0.074	38	35.611	0.078	252	29.698	0.098
145	39.083	0.08	81	35.273	0.083	115	29.564	0.101
194	38.805	0.084	145	34.932	0.089	214	29.434	0.104
176	38.505	0.089	22	34.65	0.095	5	29.324	0.106
262	38.377	0.091	90	34.231	0.103	226	28.922	0.116
38	38.307	0.093	8	34.054	0.107	36	28.663	0.122
109	38.299	0.093	214	33.88	0.11	281	28.606	0.124
266	38.147	0.096	273	33.753	0.113	139	28.477	0.127
97	38.096	0.097	262	33.671	0.115	41	28.307	0.132
247	37.746	0.103	291	33.627	0.116	27	28.295	0.132
90	37.319	0.112	109	33.561	0.118	175	27.956	0.141
252	37.306	0.112	101	33.477	0.12	98	27.591	0.152
273	37.133	0.116	115	33.287	0.124	262	27.566	0.153
22	36.668	0.126	252	32.762	0.137	283	27.395	0.158
277	35.568	0.154	213	32.73	0.138	54	27.206	0.164
115	35.443	0.157	96	32.681	0.139	95	27.141	0.166
101	35.275	0.162	43	32.568	0.142	114	27.13	0.167
98	34.988	0.17	274	31.776	0.165	222	27.051	0.169
213	34.819	0.175	54	31.178	0.183	38	26.988	0.171
36	34.816	0.175	36	31.083	0.186	227	26.932	0.173
274	34.815	0.175	76	30.865	0.194	250	26.608	0.184
119	34.486	0.185	257	30.791	0.196	159	26.49	0.188
291	34.341	0.19	266	30.679	0.2	77	26.465	0.189
193	34.213	0.194	110	30.415	0.209	93	25.921	0.209
96	34.04	0.2	60	30.35	0.211	200	25.65	0.22
159	33.48	0.219	281	30.35	0.211	149	25.587	0.223
93	33.382	0.222	283	30.191	0.217	49	25.506	0.226
55	33.298	0.225	77	30.103	0.22	76	25.344	0.233
76	33.198	0.229	55	30.037	0.223	221	25.219	0.238
33	33.163	0.23	114	29.653	0.238	89	24.896	0.252

221	32.987	0.236	98	29.63	0.238	94	24.839	0.254
43	32.986	0.236	175	29.617	0.239	55	24.832	0.255
70	32.879	0.24	95	29.603	0.239	4	24.801	0.256
218	32.665	0.248	142	29.579	0.24	257	24.753	0.258
200	32.624	0.25	227	29.428	0.246	43	24.731	0.259
49	32.49	0.255	11	29.403	0.247	151	24.588	0.265
54	32.351	0.26	200	28.787	0.273	28	24.432	0.273

Appendix 5 Comparison between MLE and Bootstrapped MLE - Original Model

			Unstandardized Regression Weight								Standardized Regression Weight			
			MLE				Bootstrapped MLE				MLE	Bootstrapped MLE		
			Estimate	S.E.	C.R.	P-value	S.E.	Lower	Upper	P-value	Estimate	Lower	Upper	P-value
EC4	<---	EC	1				0	1	1		0.715	0.583	0.812	0.004
EC3	<---	EC	0.676	0.068	9.997	***	0.07	0.559	0.842	0.002	0.65	0.517	0.749	0.005
EC2	<---	EC	0.848	0.092	9.193	***	0.122	0.646	1.137	0.002	0.592	0.466	0.721	0.002
EC1	<---	EC	0.936	0.088	10.632	***	0.154	0.716	1.362	0.002	0.697	0.586	0.808	0.003
HC4	<---	HC	1				0	1	1		0.645	0.536	0.74	0.005
HC3	<---	HC	1.185	0.116	10.21	***	0.145	0.963	1.534	0.003	0.72	0.624	0.79	0.007
HC2	<---	HC	1.735	0.162	10.686	***	0.235	1.361	2.311	0.003	0.77	0.685	0.835	0.004
HC1	<---	HC	1.808	0.164	10.991	***	0.194	1.509	2.298	0.002	0.811	0.721	0.873	0.007
AT4	<---	AT	1				0	1	1		0.764	0.71	0.821	0.003
AT3	<---	AT	1.029	0.07	14.802	***	0.068	0.907	1.157	0.006	0.818	0.758	0.856	0.007
AT2	<---	AT	0.98	0.067	14.694	***	0.079	0.83	1.139	0.005	0.813	0.738	0.864	0.005
AT1	<---	AT	0.939	0.062	15.07	***	0.077	0.782	1.088	0.008	0.832	0.769	0.878	0.004
SN4	<---	SN	1				0	1	1		0.765	0.7	0.835	0.004
SN3	<---	SN	1.146	0.072	15.835	***	0.081	0.992	1.308	0.005	0.841	0.78	0.888	0.006
SN2	<---	SN	1.276	0.072	17.684	***	0.071	1.149	1.415	0.004	0.944	0.912	0.969	0.008
SN1	<---	SN	1.096	0.077	14.169	***	0.076	0.951	1.253	0.005	0.767	0.692	0.832	0.003
PBC6_MTK	<---	PBC	1				0	1	1		0.878	0.778	0.933	0.009
PBC5_K	<---	PBC	0.732	0.057	12.757	***	0.086	0.58	0.93	0.003	0.659	0.535	0.747	0.006
PBC4_T	<---	PBC	0.749	0.05	14.954	***	0.07	0.625	0.887	0.004	0.739	0.645	0.81	0.005
PBC3_M	<---	PBC	0.869	0.06	14.508	***	0.053	0.771	0.986	0.004	0.724	0.64	0.793	0.006
PBC2	<---	PBC	0.516	0.047	10.943	***	0.058	0.401	0.63	0.003	0.586	0.479	0.667	0.005
PBC1	<---	PBC	0.561	0.06	9.313	***	0.063	0.433	0.675	0.004	0.513	0.383	0.619	0.006
IT3	<---	IT	1				0	1	1		0.911	0.879	0.937	0.005
IT2	<---	IT	1.009	0.043	23.537	***	0.051	0.898	1.104	0.004	0.886	0.833	0.921	0.007
IT1	<---	IT	0.779	0.04	19.652	***	0.047	0.669	0.859	0.009	0.814	0.736	0.861	0.009
BH3	<---	BH	1				0	1	1		0.877	0.835	0.903	0.007
BH2	<---	BH	1.207	0.048	25.343	***	0.047	1.104	1.292	0.005	0.935	0.907	0.955	0.007
BH1	<---	BH	1.231	0.048	25.619	***	0.049	1.145	1.338	0.003	0.94	0.915	0.955	0.009

*** P-value < 0.001

Appendix 6 Comparison between MLE and Bootstrapped MLE - Re-specification 1

			Unstandardized Regression Weight								Standardized Regression Weight			
			MLE				Bootstrapped MLE				MLE	Bootstrapped MLE		
			Estimate	S.E.	C.R.	P-value	S.E.	Lower	Upper	P-value	Estimate	Lower	Upper	P-value
EC4	<---	EC	1				0	1	1		0.714	0.584	0.812	0.004
EC3	<---	EC	0.676	0.068	9.993	***	0.07	0.563	0.846	0.002	0.649	0.517	0.748	0.005
EC2	<---	EC	0.849	0.092	9.196	***	0.122	0.649	1.142	0.002	0.593	0.466	0.721	0.002
EC1	<---	EC	0.937	0.088	10.636	***	0.154	0.715	1.364	0.002	0.698	0.587	0.804	0.003
HC4	<---	HC	1				0	1	1		0.643	0.533	0.734	0.005
HC3	<---	HC	1.187	0.117	10.164	***	0.146	0.963	1.533	0.003	0.719	0.621	0.788	0.007
HC2	<---	HC	1.745	0.164	10.664	***	0.237	1.37	2.329	0.003	0.772	0.688	0.837	0.004
HC1	<---	HC	1.815	0.166	10.955	***	0.195	1.513	2.311	0.002	0.812	0.725	0.875	0.007
AT4	<---	AT	1				0	1	1		0.764	0.711	0.821	0.003
AT3	<---	AT	1.029	0.07	14.8	***	0.068	0.906	1.157	0.007	0.819	0.758	0.856	0.007
AT2	<---	AT	0.981	0.067	14.692	***	0.079	0.829	1.139	0.006	0.813	0.739	0.864	0.005
AT1	<---	AT	0.939	0.062	15.061	***	0.077	0.782	1.089	0.008	0.832	0.769	0.878	0.004
SN4	<---	SN	1				0	1	1		0.765	0.7	0.835	0.004
SN3	<---	SN	1.146	0.072	15.831	***	0.081	0.992	1.308	0.005	0.841	0.78	0.888	0.007
SN2	<---	SN	1.276	0.072	17.68	***	0.071	1.15	1.416	0.004	0.944	0.912	0.969	0.007
SN1	<---	SN	1.096	0.077	14.166	***	0.076	0.95	1.252	0.005	0.767	0.691	0.832	0.003
PBC6_MTK	<---	PBC	1				0	1	1		0.904	0.819	0.986	0.007
PBC2	<---	PBC	0.491	0.053	9.338	***	0.079	0.338	0.652	0.004	0.574	0.451	0.684	0.003
PBC1	<---	PBC	0.597	0.065	9.15	***	0.074	0.466	0.766	0.002	0.562	0.439	0.658	0.005
IT3	<---	IT	1				0	1	1		0.911	0.879	0.938	0.005
IT2	<---	IT	1.008	0.043	23.527	***	0.051	0.904	1.105	0.004	0.886	0.833	0.921	0.006
IT1	<---	IT	0.779	0.04	19.668	***	0.047	0.664	0.856	0.01	0.815	0.737	0.861	0.009
BH3	<---	BH	1				0	1	1		0.875	0.833	0.902	0.007
BH2	<---	BH	1.212	0.048	25.278	***	0.048	1.111	1.297	0.005	0.937	0.909	0.957	0.007
BH1	<---	BH	1.233	0.048	25.418	***	0.049	1.147	1.338	0.004	0.939	0.913	0.955	0.01

*** P-value < 0.001

Appendix 7 Comparison between MLE and Bootstrapped MLE - Re-specification 2

			Unstandardized Regression Weight								Standardized Regression Weight			
			MLE				Bootstrapped MLE				MLE	Bootstrapped MLE		
			Estimate	S.E.	C.R.	P-value	S.E.	Lower	Upper	P-value	Estimate	Lower	Upper	P-value
EC4	<---	EC	1				0	1	1		0.778	0.652	0.871	0.005
EC3	<---	EC	0.68	0.065	10.53	***	0.081	0.539	0.876	0.003	0.711	0.604	0.786	0.005
EC2	<---	EC	0.806	0.086	9.39	***	0.133	0.603	1.147	0.002	0.613	0.496	0.742	0.002
HC4	<---	HC	1				0	1	1		0.643	0.535	0.736	0.005
HC3	<---	HC	1.182	0.117	10.138	***	0.145	0.958	1.523	0.003	0.716	0.618	0.784	0.009
HC2	<---	HC	1.745	0.164	10.669	***	0.235	1.382	2.33	0.002	0.772	0.69	0.838	0.004
HC1	<---	HC	1.819	0.166	10.969	***	0.195	1.512	2.303	0.002	0.814	0.732	0.878	0.006
AT4	<---	AT	1				0	1	1		0.764	0.712	0.822	0.003
AT3	<---	AT	1.024	0.07	14.698	***	0.067	0.901	1.154	0.006	0.814	0.753	0.855	0.006
AT2	<---	AT	0.981	0.067	14.687	***	0.078	0.828	1.141	0.005	0.814	0.734	0.863	0.006
AT1	<---	AT	0.942	0.062	15.115	***	0.076	0.789	1.095	0.007	0.835	0.775	0.879	0.004
SN4	<---	SN	1				0	1	1		0.763	0.698	0.833	0.004
SN3	<---	SN	1.148	0.073	15.8	***	0.081	0.995	1.313	0.005	0.841	0.781	0.887	0.006
SN2	<---	SN	1.28	0.073	17.643	***	0.071	1.152	1.428	0.003	0.946	0.915	0.97	0.007
SN1	<---	SN	1.097	0.078	14.125	***	0.076	0.95	1.249	0.005	0.766	0.692	0.832	0.003
PBC6_MTK	<---	PBC	1				0	1	1		0.867	0.761	0.95	0.008
PBC2	<---	PBC	0.527	0.059	8.918	***	0.082	0.374	0.712	0.003	0.591	0.473	0.692	0.004
PBC1	<---	PBC	0.658	0.073	8.954	***	0.084	0.495	0.836	0.003	0.594	0.477	0.705	0.003
IT3	<---	IT	1				0	1	1		0.907	0.868	0.939	0.005
IT2	<---	IT	1.013	0.045	22.482	***	0.051	0.914	1.109	0.004	0.887	0.837	0.921	0.006
IT1	<---	IT	0.786	0.041	19.32	***	0.049	0.67	0.87	0.009	0.819	0.732	0.864	0.01

*** P-value < 0.001

Appendix 8 Standardized Residual Covariances - Original Model

	BH1	BH2	BH3	IT1	IT2	IT3	PBC1	PBC2	PBC3_M	PBC4_T	PBC5_K	PBC6_MTK	SN1	AT1	AT2	AT3	AT4	HC1	HC2	HC3	HC4	EC1	EC2	EC3	EC4
BH1	0																								
BH2	0.052	0																							
BH3	0.08	-0.2	0																						
IT1	-0.407	-0.144	-0.265	0																					
IT2	-0.023	0.211	0.179	-0.092	0																				
IT3	-0.043	0.207	-0.118	0.309	-0.135	0																			
PBC1	-1.751	-0.841	-0.911	-0.351	-0.231	-0.469	0																		
PBC2	-0.48	-0.141	0.02	-1.507	-0.268	-0.346	1.762	0																	
PBC3_M	0.096	-0.19	0.569	0.295	0.56	0.259	0.56	0.012	0																
PBC4_T	0.419	0.466	1.891	0.029	1.525	0.801	-0.537	-0.485	-1.025	0															
PBC5_K	0.93	0.618	1.619	0.089	1.51	0.494	-2.944	0.845	-1.682	2.018	0														
PBC6_MTK	-0.643	-0.493	0.64	-1.003	-0.045	-0.74	1.033	-0.26	0.692	-0.272	-0.321	0													
SN1	0.534	0.488	0.679	0.309	0.326	-0.097	-2.061	-1.018	0.376	-0.136	1.711	0.087	0												
SN2	-0.287	-0.161	-0.399	0.11	0.207	-0.546	-1.251	-0.851	0.43	-0.754	1.411	-0.142	-0.069												
SN3	-0.357	-0.559	-0.198	-0.081	-0.073	-0.057	-2.041	-1.031	-0.144	-0.788	1.328	-0.484	0.148												
SN4	1.273	1.454	1.344	0.726	0.832	0.622	-0.081	-0.043	2.168	0.339	2.525	1.226	-0.112												
AT1	-0.273	0.013	-0.543	-0.235	0.3	-0.019	-0.277	-1.274	-0.031	0.894	0.932	-0.434	1.115	0											
AT2	-0.389	-0.089	-0.641	-0.544	0.047	-0.394	-0.916	-0.544	-1.341	1.989	1.345	-0.935	0.848	0.637	0										
AT3	0.097	0.254	0.046	0.661	-0.285	-0.125	-0.685	0.143	-0.896	0.818	1.254	-1.428	0.939	-0.202	-0.334	0									
AT4	0.559	0.793	0.016	0.182	0.357	0.346	0.902	0.998	-0.017	1.964	2.005	0.635	1.776	-0.507	-0.357	0.721	0								
HC1	-0.259	0.145	0.322	-0.051	0.73	0.369	-1.243	0.651	0.185	0.548	1.103	-0.682	1.012	-0.215	-0.684	0.358	1.431	0							
HC2	-0.714	-0.551	-0.892	-0.893	-0.269	-0.472	-0.15	0.251	-0.552	0.015	-0.373	-1.985	-0.126	-0.85	-0.097	-0.986	0.366	0.452	0						
HC3	0.399	0.609	0.906	-0.742	0.095	-0.239	-0.616	1.123	1.311	0.999	1.95	-0.399	1.146	0.313	-0.168	-0.294	1.393	-0.556	0.077	0					
HC4	0.468	0.28	0.362	0.633	0.904	-0.411	0.923	1.25	1.294	1.406	2.209	0.264	1.147	0.484	0.082	-0.358	0.517	-0.133	-0.768	1.003	0				
EC1	1.543	2.28	0.89	2.007	1.876	1.911	-0.03	0.221	2.005	2.349	2.006	0.81	0.81	0.55	1.038	1.123	0.043	0.625	0.523	0.661	0.43	0			
EC2	-0.162	-0.658	-0.631	-1.524	-0.057	-1.347	-1.226	0.024	-0.73	0.566	3.095	-0.796	1.61	-1.733	-0.613	-1.175	-0.139	0.518	1.077	0.639	-0.513	-0.55	0		
EC3	-0.215	-0.53	-0.874	-1.672	-0.871	-1.695	-2.052	-0.799	-1.678	0.21	2.574	-0.735	-0.109	0.229	-0.16	-0.42	-1.356	0.644	0.387	-0.552	0.227	-1.218	1.441	0	
EC4	-0.844	-0.953	-1.178	-1.105	0.362	-0.107	-1.811	-0.99	-2.038	0.383	1.245	-1.277	-0.651	0.57	0.707	0.003	-0.77	-0.333	-0.637	-2.454	-1.425	-0.9	0.44	1.408	0

Appendix 9 Modification Indices - Covariances - Original Model

			M.I.	Par Change
e28	<-->	PBC	11.94	0.128
e25	<-->	e23	4.019	0.043
e17	<-->	BH	6.146	-0.097
e17	<-->	PBC	4.424	0.14
e17	<-->	e26	6.853	-0.113
e18	<-->	e17	7.67	0.178
e20	<-->	SN	5.076	-0.107
e20	<-->	e28	6.026	0.088
e20	<-->	e19	7.946	-0.165
e21	<-->	PBC	4.153	-0.122
e21	<-->	EC	11.316	0.158
e21	<-->	e17	26.118	-0.39
e21	<-->	e19	15.679	-0.277
e21	<-->	e20	24.169	0.285
e22	<-->	HC	5.632	-0.058
e22	<-->	e17	11.964	0.203
e22	<-->	e19	10.061	0.167
e13	<-->	AT	6.287	0.082
e13	<-->	e17	4.072	-0.136
e16	<-->	BH	6.614	0.074
e16	<-->	AT	5.11	-0.068
e9	<-->	e18	5.932	-0.076
e10	<-->	e19	4.656	-0.089
e10	<-->	e20	10.214	0.109
e10	<-->	e15	4.926	0.066
e10	<-->	e16	9.45	-0.101
e10	<-->	e9	8.388	0.06
e11	<-->	e23	7.683	0.069
e11	<-->	e24	4.491	-0.053
e11	<-->	e22	6.213	-0.081
e12	<-->	EC	5.894	-0.077
e12	<-->	e9	4.001	-0.049
e12	<-->	e11	7.315	0.076
e5	<-->	e10	5.513	-0.068

(to be continued)

(continued)			M.I.	Par Change
e8	<-->	e25	5.903	-0.053
e8	<-->	e6	4.333	-0.062
e8	<-->	e7	5.727	0.055
e1	<-->	IT	8.971	0.094
e1	<-->	EC	17.496	-0.155
e1	<-->	e27	8.417	0.097
e1	<-->	e23	5.014	0.078
e1	<-->	e19	7.735	0.166
e2	<-->	SN	13.141	0.201
e2	<-->	AT	4.209	-0.074
e2	<-->	e25	4.717	-0.08
e2	<-->	e21	10.979	0.225
e2	<-->	e9	7.374	-0.098
e3	<-->	IT	12.497	-0.09
e3	<-->	EC	4.328	0.063
e3	<-->	e25	5.886	-0.062
e3	<-->	e19	4.649	-0.103
e3	<-->	e21	8.37	0.137
e3	<-->	e1	8.005	-0.112
e3	<-->	e2	7.907	0.129
e4	<-->	BH	4.532	-0.066
e4	<-->	SN	4.563	-0.106
e4	<-->	e19	5.263	-0.141
e4	<-->	e16	10.008	-0.155
e4	<-->	e7	11.202	-0.117
e4	<-->	e1	5.62	-0.119
e4	<-->	e3	11.52	0.138

Appendix 10 Calculation - AVE and CR of Original Model

	Standardized Loading (A)	Squared Loading (B)	Sum of Squared Loadings (C)	**AVE (D)***	Delta (E)**	Sum of Loadings (F)	Squared Sum of Loadings (G)	Sum of Deltas (H)	CR Dominant (I)***	**CR (J)****
EC4<---EC	0.715	0.511	1.770	**0.442**	0.489	2.654	7.044	2.230	9.274	**0.760**
EC3<---EC	0.65	0.423			0.578					
EC2<---EC	0.592	0.350			0.650					
EC1<---EC	0.697	0.486			0.514					
HC4<---HC	0.645	0.416	2.185	**0.546**	0.584	2.946	8.679	1.815	10.494	**0.827**
HC3<---HC	0.72	0.518			0.482					
HC2<---HC	0.77	0.593			0.407					
HC1<---HC	0.811	0.658			0.342					
AT4<---AT	0.764	0.584	2.606	**0.652**	0.416	3.227	10.414	1.394	11.808	**0.882**
AT3<---AT	0.818	0.669			0.331					
AT2<---AT	0.813	0.661			0.339					
AT1<---AT	0.832	0.692			0.308					
SN4<---SN	0.765	0.585	2.772	**0.693**	0.415	3.317	11.002	1.228	12.231	**0.900**
SN3<---SN	0.841	0.707			0.293					
SN2<---SN	0.944	0.891			0.109					
SN1<---SN	0.767	0.588			0.412					
PBC6_MTK<---PBC	0.878	0.771	2.882	**0.480**	0.229	4.099	16.802	3.118	19.920	**0.843**
PBC5_K<---PBC	0.659	0.434			0.566					
PBC4_T<---PBC	0.739	0.546			0.454					
PBC3_M<---PBC	0.724	0.524			0.476					
PBC2<---PBC	0.586	0.343			0.657					
PBC1<---PBC	0.513	0.263			0.737					
IT3<---IT	0.911	0.830	2.278	**0.759**	0.170	2.611	6.817	0.722	7.540	**0.904**
IT2<---IT	0.886	0.785			0.215					
IT1<---IT	0.814	0.663			0.337					
BH3<---BH	0.877	0.769	2.527	**0.842**	0.231	2.752	7.574	0.473	8.047	**0.941**
BH2<---BH	0.935	0.874			0.126					
BH1<---BH	0.94	0.884			0.116					

Note: * (D)=(A)/N. of variables in the construct ** (E)=1-(B) *** (I)= (G)+(H) **** (J) = (G)/(I)

Appendix 11 Inter-construct Correlations - Original Model, Re-specification 1, and Re-specification 2

			Original Model	Re-specification 1	Re-specification 2
EC	<-->	HC	0.39	0.391	0.333
EC	<-->	AT	0.735	0.735	0.655
EC	<-->	SN	0.449	0.449	0.387
EC	<-->	PBC	0.501	0.427	0.346
EC	<-->	IT	0.748	0.748	0.622
EC	<-->	BH	0.707	0.707	-
HC	<-->	AT	0.398	0.398	0.397
HC	<-->	SN	0.252	0.252	0.251
HC	<-->	PBC	0.396	0.329	0.341
HC	<-->	IT	0.43	0.43	0.431
HC	<-->	BH	0.432	0.432	-
AT	<-->	SN	0.461	0.461	0.461
AT	<-->	PBC	0.508	0.444	0.454
AT	<-->	IT	0.765	0.765	0.765
AT	<-->	BH	0.723	0.723	-
SN	<-->	PBC	0.406	0.371	0.369
SN	<-->	IT	0.506	0.505	0.506
PBC	<-->	IT	0.656	0.591	0.602
IT	<-->	BH	0.89	0.89	-
SN	<-->	BH	0.498	0.498	-
PBC	<-->	BH	0.758	0.699	-

Appendix 12 Standardized Residual Covariances – Re-specification 1

	BH1	BH2	BH3	IT1	IT2	IT3	PBC1	PBC2	PBC6_MTK	SN1	SN2	SN3	SN4	AT1	HC1	HC2	HC3	HC4	EC1	EC2	EC3	EC4
BH1	0																					
BH2	0.037	0																				
BH3	0.11	-0.196	0																			
IT1	-0.405	-0.165	-0.247	0																		
IT2	-0.014	0.196	0.205	-0.09	0																	
IT3	-0.041	0.184	-0.099	0.304	-0.134	0																
PBC1	-1.803	-0.907	-0.951	-0.289	-0.16	-0.4	0															
PBC2	0.178	0.505	0.655	-0.902	0.401	0.336	1.385	0														
PBC6_MTK	-0.164	-0.033	1.127	-0.467	0.548	-0.149	0.117	-0.327	0													
SN1	0.538	0.478	0.693	0.309	0.33	-0.097	-2.064	-0.693	0.36	0												
SN2	-0.283	-0.174	-0.384	0.109	0.21	-0.548	-1.256	-0.454	0.188	-0.069	0											
SN3	-0.353	-0.569	-0.184	-0.081	-0.069	-0.058	-2.045	-0.677	-0.188	0.149	0.043	0										
SN4	1.278	1.445	1.359	0.727	0.836	0.623	-0.084	0.285	1.504	-0.11	0.081	-0.333	0									
AT1	-0.269	-0.004	-0.526	-0.235	0.306	-0.019	-0.122	-0.679	0.174	1.117	-0.534	-0.151	-0.343	0								
AT2	-0.389	-0.108	-0.627	-0.547	0.05	-0.397	-0.766	0.041	-0.347	0.848	-0.599	0.461	-1.446	0.636								
AT3	0.097	0.234	0.06	0.657	-0.283	-0.129	-0.535	0.737	-0.842	0.939	-0.334	-0.119	-0.606	-0.202								
AT4	0.563	0.778	0.034	0.183	0.363	0.347	1.048	1.562	1.21	1.779	0.797	1.242	1.034	-0.502								
HC1	-0.258	0.133	0.332	-0.055	0.729	0.364	-0.988	1.261	0.009	1.012	-0.086	-0.164	0.302	-0.216	0							
HC2	-0.719	-0.568	-0.889	-0.902	-0.277	-0.482	0.092	0.826	-1.344	-0.129	-0.656	-0.651	-0.597	-0.856	0.42	0						
HC3	0.414	0.613	0.929	-0.733	0.108	-0.229	-0.381	1.675	0.232	1.153	0.063	-0.178	0.915	0.324	-0.549	0.074	0					
HC4	0.488	0.29	0.388	0.647	0.922	-0.396	1.139	1.748	0.84	1.156	0.484	0.188	0.486	0.499	-0.115	-0.761	1.042	0				
EC1	1.539	2.258	0.898	2	1.874	1.904	0.181	0.811	1.465	0.806	0.353	0.598	0.817	0.547	0.615	0.509	0.663	0.435	0			
EC2	-0.165	-0.675	-0.623	-1.529	-0.058	-1.352	-1.047	0.527	-0.247	1.608	1.921	2.037	1.125	-1.735	0.51	1.065	0.641	-0.508	-0.556	0		
EC3	-0.213	-0.543	-0.86	-1.671	-0.866	-1.695	-1.856	-0.252	-0.133	-0.109	-0.449	-0.658	-0.614	0.232	0.639	0.377	-0.547	0.235	-1.218	1.441	0	
EC4	-0.838	-0.965	-1.161	-1.102	0.369	-0.104	-1.594	-0.391	-0.624	-0.649	-1.4	-0.429	-2.332	0.576	-0.337	-0.646	-2.448	-1.415	-0.898	0.442	1.416	0

Appendix 13 Calculation - AVE and CR of Re-specification 1

	Standardized Loading (A)	Squared Loading (B)	Sum of Squared Loadings (C)	**AVE (D)***	Delta (E)**	Sum of Loadings (F)	Squared Sum of Loadings (G)	Sum of Deltas (H)	CR Dominant (I)***	**CR (J)****
EC4<---EC	0.714	0.510	1.770	**0.442**	0.490	2.654	7.044	2.230	9.274	**0.760**
EC3<---EC	0.649	0.421			0.579					
EC2<---EC	0.593	0.352			0.648					
EC1<---EC	0.698	0.487			0.513					
HC4<---HC	0.643	0.413	2.186	**0.546**	0.587	2.946	8.679	1.814	10.493	**0.827**
HC3<---HC	0.719	0.517			0.483					
HC2<---HC	0.772	0.596			0.404					
HC1<---HC	0.812	0.659			0.341					
AT4<---AT	0.764	0.584	2.608	**0.652**	0.416	3.228	10.420	1.392	11.812	**0.882**
AT3<---AT	0.819	0.671			0.329					
AT2<---AT	0.813	0.661			0.339					
AT1<---AT	0.832	0.692			0.308					
SN4<---SN	0.765	0.585	2.772	**0.693**	0.415	3.317	11.002	1.228	12.231	**0.900**
SN3<---SN	0.841	0.707			0.293					
SN2<---SN	0.944	0.891			0.109					
SN1<---SN	0.767	0.588			0.412					
PBC6_MTK<---PBC	0.904	0.817	1.463	**0.488**	0.183	2.040	4.162	1.537	5.699	**0.730**
PBC2<---PBC	0.574	0.329			0.671					
PBC1<---PBC	0.562	0.316			0.684					
IT3<---IT	0.911	0.830	2.279	**0.760**	0.170	2.612	6.823	0.721	7.543	**0.904**
IT2<---IT	0.886	0.785			0.215					
IT1<---IT	0.815	0.664			0.336					
BH3<---BH	0.875	0.766	2.525	**0.842**	0.234	2.751	7.568	0.475	8.043	**0.941**
BH2<---BH	0.937	0.878			0.122					
BH1<---BH	0.939	0.882			0.118					

Note: * (D)=(A)/N. of variables in the construct ** (E)=1-(B) *** (I)= (G)+(H) **** (J) = (G)/(I)

Appendix 14 Total Variance Explained - Re-specification 1

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings*
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	10.098	40.393	40.393	9.668	38.673	38.673	8.088
2	2.201	8.804	49.197	1.780	7.119	45.792	5.327
3	1.977	7.907	57.104	1.628	6.510	52.303	7.033
4	1.697	6.786	63.890	1.349	5.397	57.699	4.119
5	1.159	4.635	68.525	0.760	3.040	60.740	5.053
6	0.988	3.951	72.476	0.625	2.500	63.239	4.542
7	0.682	2.730	75.206	0.480	1.920	**65.160**	4.545
8	0.652	2.608	77.814				
9	0.566	2.265	80.078				
10	0.551	2.202	82.281				
11	0.500	1.998	84.279				
12	0.477	1.908	86.186				
13	0.420	1.680	87.867				
14	0.388	1.552	89.419				
15	0.363	1.453	90.871				
16	0.334	1.334	92.206				
17	0.328	1.311	93.517				
18	0.301	1.202	94.719				
19	0.262	1.046	95.765				
20	0.236	0.946	96.711				
21	0.217	0.868	97.579				
22	0.185	0.739	98.318				
23	0.172	0.686	99.004				
24	0.142	0.568	99.572				
25	0.107	0.428	100.000				

Extraction Method: Maximum Likelihood.

*When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Appendix 15 Appendix Standardized Residual Covariances - Re-specification 2

	IT1	IT2	IT3	PBC1	PBC2	PBC6_MTK	SN1	SN2	SN3	SN4	AT1	AT2	AT3	AT4	HC1	HC2	HC3	HC4	EC2	EC3	EC4
IT1	0																				
IT2	-0.154	0																			
IT3	0.293	-0.099	0																		
PBC1	-0.664	-0.544	-0.764	0																	
PBC2	-1.152	0.149	0.105	0.904	0																
PBC6_MTK	-0.349	0.71	0.054	0.004	-0.227	0															
SN1	0.283	0.326	-0.071	-2.2	-0.756	0.568	0														
SN2	0.063	0.19	-0.532	-1.43	-0.539	0.428	-0.07	0													
SN3	-0.115	-0.08	-0.036	-2.197	-0.748	0.031	0.159	0.03	0												
SN4	0.704	0.836	0.654	-0.22	0.224	1.717	-0.085	0.087	-0.317	0											
AT1	-0.317	0.254	-0.025	-0.424	-0.884	0.256	1.107	-0.559	-0.168	-0.35	0										
AT2	-0.597	0.031	-0.371	-1.047	-0.147	-0.247	0.857	-0.602	0.464	-1.434	0.589	0									
AT3	0.653	-0.252	-0.052	-0.796	0.569	-0.711	0.976	-0.303	-0.085	-0.566	-0.191	-0.291	0								
AT4	0.136	0.347	0.374	0.778	1.383	1.308	1.787	0.794	1.246	1.045	-0.545	-0.364	0.769	0							
HC1	-0.097	0.706	0.368	-1.244	1.072	0.017	1.013	-0.093	-0.167	0.304	-0.246	-0.699	0.369	1.42	0						
HC2	-0.932	-0.288	-0.468	-0.148	0.652	-1.328	-0.123	-0.656	-0.648	-0.589	-0.875	-0.108	-0.972	0.358	0.396	0					
HC3	-0.743	0.117	-0.196	-0.594	1.523	0.262	1.169	0.076	-0.164	0.932	0.323	-0.145	-0.247	1.418	-0.535	0.105	0				
HC4	0.621	0.912	-0.383	0.937	1.602	0.853	1.162	0.485	0.191	0.493	0.483	0.093	-0.326	0.53	-0.136	-0.764	1.07	0			
EC2	-0.727	0.855	-0.411	-0.77	0.872	0.518	2.001	2.397	2.466	1.518	-1.303	-0.164	-0.697	0.293	0.892	1.436	0.996	-0.202	0		
EC3	-1.133	-0.251	-1.044	-1.695	-0.017	0.498	0.111	-0.193	-0.424	-0.394	0.359	-0.013	-0.236	-1.216	0.87	0.603	-0.326	0.424	0.592	0	
EC4	-0.475	1.095	0.668	-1.402	-0.118	0.085	-0.388	-1.097	-0.148	-2.075	0.754	0.911	0.245	-0.578	-0.067	-0.382	-2.194	-1.195	-0.415	-0.008	0

Appendix 16 Calculation - AVE and CR of Re-specification 2

	Standardized Loading (A)	Squared Loading (B)	Sum of Squared Loadings (C)	**AVE (D)***	Delta (E)**	Sum of Loadings (F)	Squared Sum of Loadings (G)	Sum of Deltas (H)	CR Dominant (I)***	**CR (J)****
EC4<---EC	0.778	0.605			0.395					
EC3<---EC	0.711	0.506	1.487	**0.496**	0.494	2.102	4.418	1.513	5.932	**0.745**
EC2<---EC	0.613	0.376			0.624					
HC4<---HC	0.643	0.413			0.587					
HC3<---HC	0.716	0.513	2.185	**0.546**	0.487	2.945	8.673	1.815	10.488	**0.827**
HC2<---HC	0.772	0.596			0.404					
HC1<---HC	0.814	0.663			0.337					
AT4<---AT	0.764	0.584			0.416					
AT3<---AT	0.814	0.663	2.606	**0.652**	0.337	3.227	10.414	1.394	11.807	**0.882**
AT2<---AT	0.814	0.663			0.337					
AT1<---AT	0.835	0.697			0.303					
SN4<---SN	0.763	0.582			0.418					
SN3<---SN	0.841	0.707	2.771	**0.693**	0.293	3.316	10.996	1.229	12.225	**0.899**
SN2<---SN	0.946	0.895			0.105					
SN1<---SN	0.766	0.587			0.413					
PBC6_MTK<---PBC	0.867	0.752			0.248					
PBC2<---PBC	0.591	0.349	1.454	**0.485**	0.651	2.052	4.211	1.546	5.757	**0.731**
PBC1<---PBC	0.594	0.353			0.647					
IT3<---IT	0.907	0.823			0.177					
IT2<---IT	0.887	0.787	2.280	**0.760**	0.213	2.613	6.828	0.720	7.548	**0.905**
IT1<---IT	0.819	0.671			0.329					

Note: * (D)=(A)/N. of variables in the construct ** (E)=1-(B) *** (I)= (G)+(H) **** (J) = (G)/(I)

Appendix 17 Total Variance Explained - Re-specification 2

Factor	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings*
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total
1	7.690	36.621	36.621	7.224	34.401	34.401	4.573
2	2.198	10.468	47.089	1.829	8.708	43.109	5.638
3	1.909	9.092	56.180	1.646	7.837	50.946	3.593
4	1.589	7.568	63.748	1.070	5.094	56.040	4.102
5	1.155	5.498	69.246	0.658	3.135	59.175	3.491
6	0.842	4.009	73.256	0.698	3.326	62.501	5.666
7	0.652	3.103	76.358				
8	0.595	2.835	79.193				
9	0.538	2.562	81.755				
10	0.500	2.381	84.136				
11	0.471	2.243	86.379				
12	0.427	2.035	88.414				
13	0.377	1.795	90.209				
14	0.364	1.733	91.942				
15	0.327	1.557	93.499				
16	0.292	1.392	94.891				
17	0.270	1.286	96.177				
18	0.236	1.123	97.300				
19	0.223	1.064	98.364				
20	0.190	0.906	99.270				
21	0.153	0.730	100.000				

Extraction Method: Maximum Likelihood.

*When factors are correlated, sums of squared loadings cannot be added to obtain a total variance.

Appendix 18 Calculation - AVE and CR of Structural Model

	Standardized Loading (A)	Squared Loading (B)	Sum of Squared Loadings (C)	**AVE (D)***	Delta (E)**	Sum of Loadings (F)	Squared Sum of Loadings (G)	Sum of Deltas (H)	CR Dominant (I)***	**CR (J)****
EC4<---EC	0.777	0.604			0.396					
EC3<---EC	0.721	0.520	1.486	**0.495**	0.480	2.1	4.410	1.514	5.924	**0.744**
EC2<---EC	0.602	0.362			0.638					
HC4<---HC	0.638	0.407			0.593					
HC3<---HC	0.715	0.511	2.183	**0.546**	0.489	2.943	8.661	1.817	10.478	**0.827**
HC2<---HC	0.777	0.604			0.396					
HC1<---HC	0.813	0.661			0.339					
AT4<---AT	0.752	0.566			0.434					
AT3<---AT	0.813	0.661	2.591	**0.648**	0.339	3.217	10.349	1.409	11.758	**0.880**
AT2<---AT	0.816	0.666			0.334					
AT1<---AT	0.836	0.699			0.301					
SN4<---SN	0.762	0.581			0.419					
SN3<---SN	0.839	0.704	2.767	**0.692**	0.296	3.312	10.969	1.233	12.203	**0.899**
SN2<---SN	0.951	0.904			0.096					
SN1<---SN	0.76	0.578			0.422					
PBC6_MTK<---PBC	0.828	0.686			0.314					
PBC2<---PBC	0.607	0.368	1.447	**0.482**	0.632	2.062	4.252	1.553	5.805	**0.732**
PBC1<---PBC	0.627	0.393			0.607					
IT3<---IT	0.888	0.789			0.211					
IT2<---IT	0.856	0.733	2.139	**0.713**	0.267	2.53	6.401	0.861	7.262	**0.881**
IT1<---IT	0.786	0.618			0.382					

Note: * (D)=(A)/N. of variables in the construct ** (E)=1-(B) *** (I)= (G)+(H) **** (J) = (G)/(I)