They Look Alive!

Consumer Evaluations of Anthropomorphised Green Products

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Abstract

Product anthropomorphism has been a conflictive topic for marketers in the past few years. Our research was focused on application, regarding when to use anthropomorphism for green products and when to avoid using it. In Chapter 2, using anthropomorphism theory, we examined the moderation effect of a product's anthropomorphism on the relationship between the internal locus of control (ILOC) and purchase intention for green products. To test this effect, we conducted our study in the UK using a survey. Our study revealed that ILOC is positively related to purchase intention, and that a product's anthropomorphism fully moderates the effect of ILOC on purchase intention. In Chapter 3, we examined the effect of anthropomorphising environmentally friendly products on consumers' intention to purchase the green products. We found that participants' purchase intentions in the high anthropomorphised condition were lower than in the low anthropomorphised condition. Subsequent analysis revealed that green products with a high level of anthropomorphism are perceived to be more humorous and less attractive than those with a low level of anthropomorphism. Our mediation analysis showed that, indeed, perceived humour and product attractiveness mediated the effect of the two experimental conditions on purchase intention. In addition, we found that the effect of perceived humour on purchase intention was mediated by perceived product credibility. In Chapter 4, the results revealed that Saudi consumers intended to purchase the anthropomorphised versions of non-green and green products. Product anthropomorphism positively and significantly affected purchase intention both for non-green and green products. Additionally, product trust is the reason why Saudi consumers buy a product. Our results in Chapter 4 show that the Saudi market is eligible and ready for anthropomorphised products. We discuss the implications of these findings for consumer research in more detail in the following chapters.

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Chapter 1

1.1 Introduction

Due to the fact that the use of anthropomorphism is viewed as a vital and important topic in marketing research, which has motivated research on this topic, the researcher conducted three studies in this thesis. Each study highlights three research problems related to the use of anthropomorphism, especially in a green context. The next paragraphs illustrate like theories and past studies related to anthropomorphism in marketing. In addition, the researcher advises the reader that in these three papers shown in Chapters 2, 3 and 4, the same literature related to the use of anthropomorphism in marketing may be seen across the three papers and this for the purpose of explaining theoretical and literature basis related to each paper presented in Chapters 2, 3 and 4.[1]

The word "anthropomorphism" seems to be a complicated concept when we read it for the first time because it is long and not commonly used in everyday conversation. Nevertheless, this word is very simple for us as consumers as we deal with it in our daily shopping and purchasing activities. Anthropomorphism refers to the idea of adding human elements to non-human objects (Boyer, 1996). Anthropomorphism can be defined as seeing humans in a non-human world (Hart & Royne, 2017).

Anthropomorphism started with ancient cultures as people used to tell stories and myths related to animals that attributed these animals with human elements (Moss, 2016). The origin of the word 'anthropomorphism' is Greek and it was first used in 1753 (Oxford, 1885). One of the earliest examples from the prehistory period is a sculpture that looks like a human

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[1] Similar literature discussions appear in the three papers in Chapters 2, 3 and 4 and they serve as the theoretical basis for each of the three papers.

with a lion face. It was found in Germany and dates to around 35,000 to 4,000 years ago (Dalton, 2004).

 Anthropomorphism continued to be used in the 19th century with stories like *Alice's Adventures in Wonderland* (1865) by Lewis Carroll. In this story, Alice meets animals that behave like humans, such as a talking rabbit. Life was added to a wooden toy in *The Adventures of Pinocchio* (1883) by Carlo Collodi as this wooden toy can talk, sleep and eat – all human behaviours. It should be noted that in psychology the first experiment related to how people tend to think about animals in anthropomorphised processing was in 1944 by Heider and Simmel. The participants in this experiment were shown different shapes of animals and they described and evaluated them by adding human-like features.

There are many contemporary examples where this concept is applied. Have you watched movies in the theatre in the last few months, such as *Toy Story 4* or *Sonic*? They feature characters associated with human-like powers. For example, the character "Woody" in the cartoon *Toy Story* is only a toy, but he can talk, smile and get upset sometimes, as human do. Adding the ability to talk means that he is an anthropomorphised object. When you go to a supermarket and look at chocolates you may see an M&M's package with a picture of a yellow piece of chocolate with a smile, like a human smile. This smile is a human-like element and it was added by the marketers of this product to make consumers stop when they see it and start to evaluate it (Aggarwal and McGill, 2007). By adding human-like features to these products, marketers are aiming to lead consumers to humanise the products (Hart & Royne, 2017). For example, Maeng and Aggarwal (2017) indicated that the face of a product is vital, not only because it is an important point of communication with the consumers, but also because it gives a first impression of the product. Nevertheless, the use of anthropomorphism sometimes appears to be harmful. For example, Puzakova, Kwak and Rocereto (2011) reported that in some conditions, such as when a brand is linked with bad

media publicity, for example when it is claimed to harm consumers, anthropomorphism is not a smart marketing tool. This is because consumers will evaluate the product negatively. In the next section, we provide the background to previous studies on anthropomorphism theory, which is used in several marketing contexts. Then we briefly introduce the scope of the following chapters.

1.2 Overview of the anthropomorphism research

Anthropomorphism is reported in some of the literature to be a vital tool that increases new products' adoption (Jiang, Hoegg & Dahl, 2011). It was found in the literature that adding human features to a brand or product is a vital tool to have a successful communication with consumers (Aggarwal and McGill, 2007). Guthrie (1993) indicated some of the explanations for why consumers tend to anthropomorphise an object and one of these reasons is that consumers try to have a better understanding of the world around them by humanising the object.

Some of the past studies related to anthropomorphism theory were related to brands. For example, Tuškej and Podnar (2018) investigated variables such as consumers' brand identification, brand prestige, brands that look like humans, i.e. anthropomorphism, and consumers' engagement in social media. The context of their study was related to corporate brands. The main finding of the authors' paper was that there was a positive influence from brand prestige and brand anthropomorphism on consumers' brand identification. Furthermore, it was also found that consumer brand identification positively influences consumers' active engagement with social media platforms such as Facebook, Instagram and Twitter and that consumer brand identification fully mediates the influence of anthropomorphism and the prestige of such corporate brands on consumers' active engagement with social media platforms.

One of the reasons for using the anthropomorphism theory within marketing research is that research on phenomena related to anthropomorphism is still not well defined (Hart et al., 2013). Furthermore, Tuškej and Podnar (2018) indicated that they built their work related to brand anthropomorphism on the psychological theory of anthropomorphism (Epley et al., 2007; Waytz et al., 2010ab). Tuškej and Podnar (2018) indicated that previous studies have found that anthropomorphism increases the extent to which people are inclined to cooperate with brands (Aggarwal and McGill, 2012 cited by Tuškej and Podnar, 2018). In addition, Tuškej and Podnar (2018) indicated that their paper added further benefits beyond the idea of simply understanding purchase behaviour as their paper explored the factors that influence consumers' active engagement with social media platforms. This enriches marketers by giving them a better understanding of how to communicate and interact with consumers on social media.

Another example is Puzakova and Aggarwal (2018), who conducted a recent study related to anthropomorphism. They indicated that previous research shows that anthropomorphism positively affects the attraction of a brand and this happens when social connection and effectance are active. Nevertheless, the authors indicated new findings to prove that anthropomorphism can be a harmful marketing strategy sometimes, which means that marketers should use anthropomorphism carefully. The authors indicated that anthropomorphism can be negative when consumers' distinctiveness is notable. This means that consumers will have less favourable evaluations of anthropomorphised brands than brands which are not anthropomorphised, and also consumers will be less likely to pick them to show their distinctiveness. Snyder and Fromkin (1980) mentioned that people often try to be different from others. Nevertheless, the authors indicated that one of the gaps in the literature is a dearth of studies related to what the case would be with anthropomorphised brands. It was found that people who have a problem related to social connectedness prefer

humanised brands to non-humanised brands (Chen, Wan, and Levy 2017). Nevertheless, Puzakova and Aggarwal's (2018) results indicated that consumers who want to be unique and different from others do not like anthropomorphised unique brands. We note that Puzakova and Aggarwal (2018) focused on brands rather than on products and their study was outside the green context, which differentiates their study from our work.

Another study was carried out by Claus and Warlop (2011), who indicated that anthropomorphism as a tool has been used within brands for a long time because adding these anthropomorphic elements was found to be useful for developing brand personality and for improving brand relationships. However, Aggarwal and McGill (2007) added to the literature of marketing by shifting the use of anthropomorphism within products instead of brands. Claus and Warlop (2011) indicated that loneliness is one of the reasons that drive people to reconnect with other people, in addition to humanised objects. Claus and Warlop (2011) indicated that the meaning of loneliness is people having a limited quantity of interaction and one of the reasons for being lonely is the poor quality of social interaction. The same authors investigated whether attitudes that were originally experienced with humans can also work with anthropomorphised objects and this study is related to products, not brands. The authors propose that people with low social efficacy will have fewer prior expectations of the anthropomorphised object. Nevertheless, the authors imply that on the other hand, successful interaction with the anthropomorphised object can produce a feeling of relief for people who have low social efficacy. Four studies were done by the same authors to test this hypothesis. Their study showed that people who had a high likelihood of feeling lonely preferred anthropomorphised products to non-anthropomorphised products. The authors also indicated that people believed that anthropomorphised products would deliver more benefits than in the control condition.

Chen, Sengupta and Adaval (2018) published a recent paper related to anthropomorphism within products. The authors took a novel perspective in their research by trying to focus on how applying anthropomorphism to products can influence people. The authors tried to differentiate their research from the previous literature on anthropomorphism in marketing as previous studies had focused mostly on the effect of anthropomorphism on people's reaction and evaluations of the anthropomorphised products. The authors claimed that their research shows that applying anthropomorphism qualities to products plays a vital role in fulfilling the needs of competence and connectedness. Consumers who are struggling because they feel low levels of connectedness and competence could have this need satisfied by anthropomorphised products. In addition, this satisfying will enhance consumers' vitality and this good feeling of vitality will further help consumers to enhance their self-control. The authors proposed that their research will add to the anthropomorphism theory by investigating how the anthropomorphism of products can enhance the feeling of well-being felt by consumers because it enhances vitality, which is related to consumers' energy. As explained earlier by the authors, vitality strengthened consumers' self-control and this self-control can even be in domains that are not related to anthropomorphism. The authors' work not only replicates the study done by Epley et al. (2007) by showing that these two needs for connectedness and competence act as motivators for individuals to anthropomorphise objects; the authors further argue that their work shows that satisfying the needs of connectedness and competence increases vitality.

The authors indicated that previous studies related to anthropomorphism showed conflicting results as some studies showed a positive effect of anthropomorphism while other studies showed a negative effect. For example, a study by Gray et al. (2007) showed that anthropomorphism is a positive tool; consumers perceived animals and robots that had human-like qualities as having more values and also people indicated that harming these

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objects is less likely when they are anthropomorphised. Furthermore, studies related to consumer behaviour showed that consumers who had anthropomorphised their products were actually more reluctant to replace those products (Chandler and Schwarz 2010). In contrast, some studies indicated that anthropomorphism can sometimes be a negative tool. For example, a study by Puzakova, Kwak and Rocereto (2013), related to the context of brands, showed that consumers will blame the brand more when it is anthropomorphised. There is a dearth of studies concerned with the idea of anthropomorphism enhancing the well-being of consumers. In addition, limited studies are related to the anthropomorphism of products and how this can affect consumers. For example, a study conducted by Mourey et al. (2017) indicated that anthropomorphism can be a useful tool when it is used with consumers who feel excluded and lack connectedness. This research showed that anthropomorphising a product fills this gap and satisfies those people's need for connectedness. In addition, this will decrease their further desire for interpersonal interactions. Epley et al. (2008a, cited by Chen et al., 2018) indicated in their study that, for example, those people who think that they will be alone at the end of their life apply more human-like qualities to their pets than those who do not worry about ending up alone at the end of their life. Epley and colleagues argued that because people are familiar with humans, predicting anthropomorphised objects is easier and in addition this will enhance people's competence in communicating with these anthropomorphised objects.

Moreover, It is important to know the motivations that make people want to anthropomorphise an object. For example, Chen et al. (2018) in sum indicated that the previous literature related to motivations that lead people to anthropomorphise objects indicated two important situations in which people feel helpless or alone and this enhances their needs for sociality and competence. As indicated earlier by Chen, Sengupta and Adaval (2018), when people feel lonely this will make them less connected to others and then this

will enhance their need for being social. In addition, since people who feel helpless are suffering and feel less competent, this will make them look for ways to enhance their competence. In the product context, Chen et al. (2018) indicated that adding human-like qualities to products can satisfy these needs for this type of consumer. The authors gave an example by saying that when a child has problems connecting with people and therefore feels a lack of sociality, this child may try to address this gap of social connectedness/ competence by treating his/her anthropomorphised toy as a friend. The authors further indicated that this enhancement of the need for connectedness and competence will lead to a higher level of vitality. In their study, Chen et al. (2018) propose that people who feel lonely or helpless will experience a better level of vitality when they come into contact with a human-like product, in comparison with those who experience natural products. The authors indicated that their results add to the literature of psychology.

Using human-like features is related to a variety of marketing applications such as brands. For example, A study by Merchant, LaTour, Ford and LaTour (2018) was about developing a brand icon and how this process of developing a brand icon drove marketers in previous years to anthropomorphise such icons to develop successful relationships with consumers. The authors of this paper indicated that marketers will experience a challenge in terms of when to stay consistent with the current icon for their brand and also when to accept changes in the icon to adapt to marketplace cultural changes. In their first study, which was a qualitative study, the researchers used three versions of the Cookie Monster character in their work. The results of the study showed that the Cookie Monster in the first picture was the same as the one appearing in childhood times with some cookies around him. In the second picture this was changed by putting fruits and vegetables instead of cookies around him and the third picture was the same as the second one but with the Cookie Monster in a green colour. After doing the manipulation check quantitatively, the authors of this paper found that

in terms of familiarity, the participants were more familiar with the first picture than with the second and third picture, and that they were more familiar with picture 2 than with picture 3. In addition, the results also indicated that in terms of the intention to donate, consumers who were most familiar with icon 1 (picture 1) showed a higher intention to donate, followed by picture 2 and 3. In addition, an ANOVA test was done by the authors, and it was found that those participants who had the highest level of familiarity had a higher donation intention when compared with those who had a low familiarity level. In the second study, it was found that there is a significant interaction between familiarity with the non-profit icon and the need to belong. This result confirmed their hypothesis that there is a positive relationship between familiarity with the icon and the need to belong, but only for participants who have a low need to belong. It was indicated also that the participants who had a low need to belong had a higher level of familiarity with the icon and the highest intention to donate. On the other hand, it was also found that familiarity with the icon had no effect on the intention to donate when the participants had a high need to belong. In the third study, two types of attachment style were used: the fearful attachment style and the dismissive attachment style. These were chosen because these two styles are related to high levels of avoidance to attachment, which was the focus for the authors of this paper. It was found in study 3 that with fearful participants, the higher the familiarity with the icon and the higher the intention to donate, while with those participants who were dismissive there was no relationship between familiarity with the icon and the intention to donate. This research added to the literature of anthropomorphism because it was looking at the specific relationship that consumers have with the brand icon.

In addition, studies with human-like features were used in a persuading context. For example, research by Touré-Tillery and McGill (2011) was built on the idea that people deal with humanised objects based on their general beliefs about people. Epley et al. (2007) indicated

that anthropomorphism is a way in which people engage in a process of inductive inference and, in this process, they apply their knowledge about people in order to understand non-human objects. Touré-Tillery and McGill's (2011) research is related to anthropomorphism in the persuading context and the authors compared messages created by anthropomorphic objects with messages from real human. They mentioned that it is difficult to persuade people with low (vs. high) intrapersonal trust because they think that social agents are not trustworthy, based on Rotter (1967). The authors proposed that those people who have a negative idea about human nature will be more willing to trust anthropomorphised agents than human sources. Epley et al. (2008) indicated that people who feel lonely are communicating with their pets and anthropomorphising them to create a social connection between them and their own pets. From here, Touré-Tillery and McGill (2011) argued that people who feel lonely and do not trust other people are more willing to create communication with non-human objects than with humans when these non-human objects are anthropomorphised. The authors of the same paper proposed that lonely people have less trust in humans, and on the other hand they have high trust in non-human objects when they are anthropomorphised. This proposal, as mentioned by the same authors, indicates that people who are low in interpersonal trust will be more persuaded by anthropomorphised non-human objects than human agents. They also indicated that the behavioural intention to accept messages will be higher for anthropomorphised non-human objects compared with human agents. Nevertheless, the authors reported that people who have high interpersonal trust will see anthropomorphised non-human objects and human agents as similar, and the reason for this is that people who have high interpersonal trust do not have the same dark idea about the world as low trust people do. Those authors conducted several studies. The first study was in the health context and the authors tried to compare anthropomorphised objects with human agents. For example, they compared some messages about disease. One message was

delivered by university authorities and another message was delivered by anthropomorphised disease objects. Participants with low trust were persuaded by the humanised message, which shows that they perceived the anthropomorphised message to more believable. In the second study, the same authors tried to replicate the results of study 1, but with the positive side of the anthropomorphised object for people who have low interpersonal trust. Study 2 used two messages, one message delivered by a human source and another message represented by a car that was anthropomorphised, showing that these messages were in the care advertising context. The results showed that participants responded more positively to the anthropomorphised car than with the human source, and they were also more likely to buy the car.

Human-like elements can affect how consumers react to a product based on their financial status. For example, Kim and McGill (2018) conducted several studies to determine how anthropomorphic products are evaluated by taking into account the effect of financial status. Their research aimed specifically to find out the influence of consumers' financial status on how they perceive a product when this product has anthropomorphic features. The researchers for this paper conducted five studies. For example, in the first and second studies, the authors found that those consumers who perceived themselves as having high financial status had the expectation that the company would provide them with favourable treatment. An example of the products that the authors used in previous studies was a self-driving car which indicated the well-being of people with high financial status over others. In their third study, the authors indicated that consumers with high financial status showed different behaviour than those with lower financial status. For example, consumers who perceived themselves as having high financial status showed that they liked the anthropomorphised products more than those consumers with low financial status. Furthermore, the results for the third study indicated that this influence is mediated by the expectations of commercial

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treatment. In the fourth study, the authors uncovered an interesting finding – that in the situation where the participants felt that poor people would be treated in more special and favourable way than them, the results were opposite to those of the previous study.

Related to using human-like features in online auctions, Yuan and Dennis (2019) carried out a study related to anthropomorphism in the context of online auctions. According to the authors, past research showed that adding anthropomorphism qualities plays a role in changing how people perceive objects, such as perceiving these objects to be more attractive. The authors were trying to answer the question of whether adding anthropomorphised features to objects would lead people to pay more for these objects. The authors indicated two designs of anthropomorphised objects: visual, such as a face, and auditory, for example sound. They assessed the effect of this on the willingness to pay. They aimed to test three theoretical ways in which anthropomorphised objects influence the willingness to pay. These three theoretical ways were emotional, attachment to the product and the quality of the product. Their findings indicated that adding visual anthropomorphism (not auditory) effected the willingness to pay for the object because people's bids increased by 7% with the visual anthropomorphism condition. However, the same authors reported that adding auditory anthropomorphism did not influence people's willingness to pay. They verified that anthropomorphism by visual additions positively influenced product attachment, but did not influence emotions or how people perceived the quality of this object. Therefore, the results of their studies showed that anthropomorphism by visual additions can influence people via attachment to the product. Nevertheless, the same authors indicated that future research may explore new ways in which anthropomorphism can influence the willingness to pay as there are many theoretical ways which is not discovered yet. The authors indicated that the use of visual forms has started to become more popular. Some companies use the cartoon form because it less expensive to establish while others use more realistic form such as Roman, a

digital avatar developed by Soul Machines (https://www.soulmachines.com/ cited by Yuan & Dennis, 2019). It was also found in past studies that humanising objects is considered to be an automatic process and this means that people automatically perceive humanised objects as human, even though they know logically that this product or object is not a real human (Guthrie, 1993; Mithen & Boyer, 1996). As indicated by Yuan and Dennis (2019), firms have the ability not only to establish and produce these artificial objects, but also to make these objects alive by adding visual qualities, auditory qualities or both at the same time. The authors investigated what would happen if we displayed a product that induced anthropomorphism, for example adding human features without changing the product itself, and whether people would pay more for that. This would provide a main benefit for companies because price competition is one of the most difficult challenges that e-commerce companies face these days. The authors also mentioned that differentiating the company from other competitors is an important step towards improving the company's profit and this can be done by triggering anthropomorphism to motivate people to pay more for the product. The authors indicated in their study that anthropomorphism features could be added to the display of the product and not to the product itself, as this still positively leads people to pay more for the product. Visual anthropomorphism is one of the tools that is considered by people to make products more attractive and trustworthy (Gong, 2008). The conventional wisdom that we should use visual and auditory design to trigger anthropomorphism (Duffy, 2003) is not always correct as they found in their research that visual but not auditory design has the effect of triggering anthropomorphism.

Even though Yuan and Dennis (2019) added important additions to the literature of anthropomorphism, especially in relation to the information system literature, we argue that our studies are adding different contributions as our studies are related to the green product context rather than the online auction context. In addition, we focus on purchase intention as

a dependent variable, which is different from willingness to pay a higher price. The product that was used in Yuan and Dennis (2019) is a tablet, which is a different product type to the product we used in our research. Other studies related to information systems found that people who interact with computers attribute human-like features to them, such as gender or ethnicity (Moon, 2000; Nass and Moon, 2000). Moussawi, Koufaris and Benbunan-Fich (2020) found that human-like features added to a personal intelligent agent help to increase the enjoyment of using them. In addition, they reported that perceived intelligence is positively associated with the human-like features of personal intelligent agents. Examples of personal intelligent agents are Siri and Alexa (Moussawi, Koufaris and Benbunan-Fich, 2020)

However, sometimes human-like features may not be a good idea as they can negatively influence consumers' privacy. For example, a study by Puzakova, Rocereto and Kwak (2013) explored adding anthropomorphism to a recommendation agent, especially in the case in which the recommendation agent requires some sort of personal information such as age, name or income when the message is customised. Puzakova, Rocereto and Kwak (2013) indicated that previous studies did not discover the negative effect of anthropomorphism within recommendation agents when the message is customised or when the recommendation agent requires sensitive information from consumers. The results of Puzakova, Rocereto and Kwak's (2013) paper show that the influence of anthropomorphism is predominantly negative on the attitudes that consumers have towards advertisements. Furthermore, they indicated that this relationship between the anthropomorphism of a recommendation agent and attitudes is mediated by the unwillingness to provide personal information. Another mediator that mediates the relationship between the anthropomorphism of a recommendation agent and attitudes is psychological resistance towards the advertisement. According to Puzakova, Rocereto and Kwak (2013), customisation gives consumers many benefits such as

modifying a final product or recommending products that consumers may prefer (Kramer et al. 2007; Franke et al. 2009). Previous research has reported that the design of a recommendation agent is an important factor that affects consumers' attitudes towards this recommendation agent (i.e. Koehler et al., 2006). Puzakova, Rocereto and Kwak (2013) were trying to answer the question of how consumers evaluated an advertisement that contained a recommendation agent. Specifically, they were exploring the case when the recommendation agent requires personal information such as a security number or information related to previous buys (in this case related to antifungal medication). As indicated by Puzakova, Rocereto and Kwak (2013), the use of tools such as anthropomorphism for a recommendation agent can be useful. One case that serves as an example is Travelocity.com in May 2010, when anthropomorphism appeared to be useful for the firm's reputation. Travelocity.com used roaming gnome which was successful tool in their advertisements and their recommendation services, but would this strategy be also applicable when consumers asked to provide sensitive information? (Puzakova, Rocereto and Kwak, 2013). The researchers of this paper wished to determine whether the results would be similar if the recommendation agent required sensitive information from consumers. The same paper noted that recently researchers have started to explore the downside of using human-like features. For example, people with low power indicated physical risk when they were shown an anthropomorphic form of skin cancer and those people were more prone to engaging in risk-taking behaviour that could affect their health (Kim and McGill, 2011). Puzakova, Rocereto and Kwak (2013) paper show the negative effect of anthropomorphising a recommendation agent when this recommendation requires a certain kind of personal information and it also demonstrates how this affects consumers' evaluation of advertisements when the message is customised. For their framework, Puzakova, Rocereto and Kwak (2013) indicated that consumers may experience a feeling of unease when they encounter an anthropomorphised recommendation

agent and when this recommendation requires personal information. The authors suggested that this feeling may continue to affect the attitudes of consumers towards the advertisement that includes the anthropomorphised recommendation agent, and that they would show a less favourable attitude towards it. The authors suggested also that when consumers are dealing with these anthropomorphised recommendation agents, they are less willing to respond to their enquiries that require revealing personal information. This is because this would involve answering sensitive and personal questions and therefore consumers are less willing to answer an anthropomorphised recommendation agent because this entity will have its own personal thoughts and intentions. Puzakova, Rocereto and Kwak's (2013) work added theoretical and empirical additions to the literature of anthropomorphism. For example, their research shows that the influence of anthropomorphism is not positive in a universal way, as indicated in most of the literature. The authors indicated that the theoretical explanation of their results is that people think about the anthropomorphised entity as if it is processing their thoughts and this leads people to feel that these anthropomorphised entities' actions have intent. In addition, the authors indicated that providing personal information leads to an unpleasant feeling because people then feel that they are being monitored and scrutinised. Ultimately, this leads to a negative attitude towards the advertisement. In addition, the authors of this research highlighted the mechanism which explains the influence of anthropomorphism on attitudes, by indicating the mediating role of consumers' reactance and willingness to provide personal information in the situation when the message is customised. The authors showed that the results of their studies are important because they show consumers' concerns about privacy intrusions and they recommended that companies provide options for consumers related to collecting personal information.

There are several studies that discuss the use of human-like features in the green context. For example, Tam (2014) examined whether anthropomorphism can empower people to take

conservation action. Tam (2014) indicates that people with a dispositional tendency to anthropomorphise nature have stronger beliefs and a capacity to understand environmental crises. Tam (2014) found that "action efficacy mediates the relationship between dispositional anthropomorphism of nature and conservation behavior" (Tam, 2014, p.276). Tam (2014) claims that people who have a strong desire for control carry out more efficient actions when they read messages that include the anthropomorphism of nature and encourage them to take conservation action. According to Cooremans and Geuens (2019), the appearance of the product is an important factor that influences consumers' evaluation and choice. We used anthropomorphism in our research because it changed the appearance of the green product. Tam (2015) states that previous studies have revealed that people show more pro-environmental behaviour when nature is anthropomorphised. His work motivated us to use the anthropomorphism theory with our green product. In his study, nature was anthropomorphised and not the product. Tam's (2015) first experiment indicated that anthropomorphised (vs non- anthropomorphised) messages are effective in terms of motivating the environmental participation (but not green behaviour) of participants who really want to have control but have less effect on people whose need for control is not so great. Tam, Lee and Chao (2013) discovered that when nature is anthropomorphised, people connect to the environment more. The authors also found that the anthropomorphism of nature increases conservation behaviour, such as purchasing green products. Thus, it is likely that consumers are motivated to purchase anthropomorphised green products

Ketron and Naletelich (2018) reported that sad anthropomorphic features help to activate saviour behaviour because this enhances the sympathy feelings within people. In the green context, Chang, Huang and Liu (2018) studied the happy/sad face of anthropomorphism for green products. Even though their study found a two way-interaction between anthropomorphic style and issue proximity, they found that the sad anthropomorphic style

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was more effective with high proximity problems. However, even though Ketron and Naletelich (2018) added vital value to the anthropomorphism theory in marketing, they did not find out whether elements such as ILOC, perceived attractiveness, perceived humour, product credibility and product trust can play a role in the purchase intention of anthropomorphised green products. Despite this, recent papers have shown that marketers have recently tried to think about how anthropomorphism can create opportunities for product managers (Aggarwal and McGill 2007, cited by Hart and Royne, 2017).

Although previous researchers studied anthropomorphism in several contexts with different variables, they did not find out whether elements such as ILOC, perceived attractiveness, perceived humour, product credibility and product trust can play a role in the purchase intention of anthropomorphised green products. We note that studies which consider the downside of humanising such green products are limited too. Here we propose three pieces of research to investigate the literature gaps, as below.

1.2.1 Chapter 2: The moderation effect of the anthropomorphism of green products on the relationship between internal locus of control and purchase intention for green anthropomorphised products.

In Chapter 2, we want to answer questions related to whether consumers' ILOC influences their intention to purchase green products with human-like qualities and whether product anthropomorphism moderates the relationship between ILOC and the purchase intention of human-like green products.

It appears from previous studies that identifying green consumers is important for companies in order for them to target the correct segmentation (Bohlen et al., 1993, p. 415 cited by Schlegelmilch, Bohlen & Diamantopoulos, 1996). Previous studies indicated that internal locus of control is one of the tools used to identify personality and this show the importance of focusing on ILOC as an independent variable (e.g. Balderjahn, 1988; Crosby et al., 1981;

Henion and Wilson, 1976; Kinnear et al., 1974 cited by Schlegelmilch, Bohlen & Diamantopoulos, 1996). Internal locus of control refers to the extent to which people believe that they control events in their lives and the outcome of those events (Rotter, 1966).

To the best of our knowledge, there are limited studies concerning what will happen if we add human features to a green product in terms of determining whether this will motivate consumers who are classified as having ILOC to purchase green products or not. We are adding anthropomorphism to the green product we are using in this paper to see the effect of the product's anthropomorphism on the relationship between ILOC and the purchase intention of anthropomorphised green products. Previous studies related to anthropo-morphism in green marketing have been silent about the role that product anthropomorphism plays in the relationship between ILOC and the purchase intention of green anthropo-morphised products. We are aiming to test the moderating effect of product anthropo-morphism on the relationship between ILOC and the purchase intention of green products. Further research background and details are provided in Chapter 2. One of the biggest motivations for us to conduct this research is that it is important to understand the role of ILOC because it is a process that we apply to many environmental decisions. For example, if a person decides to put a plastic bottle in a recycling box, this could be because he/she is internally believing that his/her own behaviour will protect the environment by reducing his/her own waste. The questions investigated in this chapter emerged because, as indicated earlier, internal locus of control can increase purchase intention but there is a lack of research on the effect of ILOC on anthropomorphised green products. Thus, this is a gap in knowledge that this research aims to fill. Further information will be presented in Chapter 2.

1.2.2 Chapter 3: The mediating role of perceived humour, perceived attractiveness and product credibility on the relationship between product anthropomorphism for green products and purchase intention

As we mentioned earlier, there is a small number of studies considering the downside of increasing human-like features for green products in relation to purchase intention. To the best of our knowledge, no studies have yet explored the mediation role of perceived humour and perceived attractiveness and product credibility within human-like green products. For instance, Chowdhury, Karmakar, Ghosh and Chakrabarti (2014) studied the effect of anthropomorphic feature on purchase intention for chairs and they found that when the chair is highly anthropomorphised it is perceived as more visually attractive. However, we differ in our work from Chowdhury, Karmakar, Ghosh and Chakrabarti (2014) because we focus on a green product and compare two types of human-like features of green products (high and low levels of anthropomorphic features). We explore whether increasing the human-like features will make consumers think that the product is attractive. Also, in this chapter, we examine the mediating effect of perceived humour and according to our knowledge, there are no studies considering the mediating effect of perceived humour on the relationship between product anthropomorphic type (e.g. high and low) and the purchase intention of green products. We are proposing to use perceived humour as another mediator in our research. It was reported in previous studies, for example in Teixeira, Picard and El Kaliouby (2014), that entertainment influences purchase intention directly. Even though humour is a useful tool sometimes and can be used by marketers to increase purchase intention, it is also dangerous for marketers to use too much humour as this can cause a drop in purchase intention (Teixeira & Stipp 2013). In addition, our research examines why consumers perceive a green anthropomorphic product to be humorous. We are proposing that this is due to product credibility. According to past studies, using funny objects decreases object credibility (Barsoux, 1997). Therefore, the scope of our work in Chapter 3 is to examine the mediation role of perceived humour and

perceived attractiveness on the relationship between anthropomorphic green product type (high vs. low level of human-like features) and the purchase intention of green products. We also examine the reason behind why consumers perceived the highly anthropomorphised green product as more humorous than the slightly anthropomorphised green product. We argue that the findings of this research will enrich our understanding of how consumers evaluate anthropomorphised green products and also provide marketers with knowledge about whether or not they should use high or low anthropomorphic features when they want to promote green products. Our questions for this study emerged because, as mentioned above, to the best of our knowledge perceived attractiveness and humour have not been discussed in the literature in relation to non-green products. This is why we want see how these elements affect consumers' evaluations of anthropomorphised green products, for example, their intention to purchase. Further information is provided in Chapter 3.

1.2.3 Chapter 4: Case of Saudi Arabia: The influence of product trust on the relationship between product anthropomorphism and purchase intention for non-green and green products

In this chapter we are proposing original research that was conducted in Saudi Arabia rather than in the UK. The story of anthropomorphism in the Islamic context appears to be different to in the Western world, due to the Islamic background. Previous scholars have reported that using human-like features is considered to be an act which should be avoided by Muslims. For instance, the act of possessing drawings that are similar to humans or animals is perceived as a behaviour that should be avoided (Abdul-Hadi, 1999, p.173). Nevertheless, on some occasions, anthropomorphism has been shown by research in other countries to be a lovable and likeable tool. Therefore, in this chapter we investigate whether Saudi consumers would wish to purchase human-like products, whether they be non-green or green. In addition, this chapter will investigate the reason for Saudi consumers' behaviour in terms of

their purchase intention. We propose that product trust as a mechanism explains Saudi consumers' purchase intention behaviour towards human-like non-green and green products. According to past studies, product trust is a factor that can explain consumers' behaviour towards anthropomorphised products (e.g. vehicles) (Waytz, Heafner and Epley, 2014). The following table shows the interrelation that holds Chapters 2, 3 and 4 together.

Table 1.1: Interrelation between Chapters 2, 3 and 4

Chapter	Interrelation
Chapter 2	**The moderation effect of the anthropomorphism of green products on the relationship between ILOC and purchase intention for green anthropomorphised products.**
Chapter 3	**The mediating role of perceived humour, perceived attractiveness and product credibility on the relationship between anthropomorphism of green products and purchase intention.**
Chapter 4	**Case of Saudi Arabia: The influence of product trust on the relationship between product anthropomorphism and purchase intention for non-green and green products.**
How chapters are interrelated	**In these three chapters the researcher discusses research problems related to the use of human-like features with green products. This means that the same concept (anthropomorphism) is used across these chapters.** **The researcher therefore aims to show how consumers evaluate these anthropomorphised green products in three different situations. These chapters mainly address consumers' evaluations of human-like green products.** **In Chapter 4 the researcher introduces new seed about using human-like products, both green and non-green, in Saudi Arabia.** **The researcher confirms that during this thesis, human-like features appeared to be a sensitive tool. They**

should therefore be used carefully and appropriately by marketers. This confirms the different results of using human-like features with products that appeared in the literature related to using anthropomorphism in marketing.

1.3 The research problem

1.3.1 The managerial dilemma

Our research mainly focuses on green products. Purchasing green products has been an important topic that has been discussed by marketers in the last few years. Dembkowski and Hanmer-Lloyd (1994, cited by Schlegelmilch, Bohlen & Diamantopoulos, 1996) reported that 82% of British citizens thought green problems were an important issue that needed to be solved fast. Furthermore, 69% of people consider green issues to be affecting their daily life actions (Worcester, 1993 cited by Schlegelmilch, Bohlen & Diamantopoulos, 1996). Although some studies indicate that consumers are willing to pay more for green products (Dagnoli 1991), a study by Nielson (2011, cited by Fowler and Close, 2012) found that surprisingly, even though 83% of consumers around the world view programmes associated with saving the environment as important, only 22% of those global consumers are willing to pay more for green products. As indicated in the literature, the problem is not that people are not concerned about the problem; however, even though they are concerned about the environment, they do not buy green products (Bray et al., 2011 cited by Mydock et al., 2018). Therefore, we test the human-like features of green products in several contexts via the next three chapters to show marketers when to use human-like features within green products and also when it is better to avoid using human-like features with green products.

We are focusing on purchase intention, which refers to consumers' tendency to purchase a product (Yoo, Donthu, & Lee, 2000). Even though enhancing the purchase intention of green

products can provide important benefits for the environment, it is also a useful tool for marketers to increase companies' profits. The reason for choosing the purchase intention of green products as the dependent variable in our research is that purchase intention has been found to be an important indicator for marketers to know if marketing management is successful (Wu, Wu, Lee & Lee, 2015). We are aiming in this research to find a tool that can fill the gap for green adoption. Previous marketing studies have shown that using anthropomorphism can enhance consumers' evaluations of a product (Aggarwal & McGill, 2007) and this means that adding human-like elements (anthropomorphism) will be a positive tool. However, sometimes it will not be a good idea to use human-like features (Puzakova, Rocereto and Kwak, 2013). In this research we want to examine anthropomorphism within green products to address the question of when it is the right time for marketers to use human-like elements in the UK (Chapters 2 and 3) and in Saudi Arabia (Chapter 4).

1.3.2 The research questions

The research questions that the researcher wishes to answer at the end of this research are:

Chapter 2 answers these questions:

- Does the internal locus of control of consumers influence the purchase intention of green products with human-like qualities?
- Does product anthropomorphism moderate the relationship between internal locus of control and purchase intention of human-like green products?

Chapter 3 answers these questions:

- Does the type of anthropomorphism of green products (high vs low) influence the purchase intention of green products?
- Does perceived humour mediate the relationship between type of product anthropomorphism and the purchase intention of green products?
- Does perceived attractiveness mediate the relationship between type of product anthropomorphism and purchase intention of green products?

- Does product credibility explain the influence of perceived humour on purchase intention for green humanised products?

Chapter 4 answers these questions:

- Do human-like features influence the purchase intention of non-green and green products for Saudi consumers?
- Does product trust explain the relationship between product anthropomorphism and purchase intention for non-green and green products for Saudi consumers?

1.3.3 Motivation for focusing on green products

Firstly, one of the motivations for applying the research in a green context is the massive shift in the media towards green issues. For example, as indicated by Ottman (2011), green stories nowadays are running in the *New York Times*, the *Washington Post* and other major dailies on a daily basis. This indicates that the researcher's topic related to a green context can contribute to communities as well as industries because it is an important and valid subject.

Secondly, one of the future theoretical directions for green marketing research, as indicated by Groening, Sarkis and Zhu (2018), is that green marketing can be applied under the umbrella of a brand story-telling, such as using props or anthropomorphic identities to produce stories. This is a research opportunity from this new article published in 2018 which encouraged us to investigate anthropomorphism theory within green products because it is valid area to investigate new research gaps.

Thirdly, in addition to the previous empirical benefits, this research makes a theoretical contribution in that it investigates the effect of anthropomorphism theory by applying it to green products, adding to the limited literature on this area of green marketing using anthropomorphism theory.

Lastly, as shown in previous studies above, and as we will see in the next chapter, there is no consensus on whether using human-like features is recommended to marketers or not. This

shows us that it is important to investigate and invest more in discovering more details and results about anthropomorphism theory within green products.

1.4. Theoretical contribution

1.4.1 Anthropomorphism theory

In our current research we used anthropomorphism theory as the umbrella which will cover our researcher and we will try at the end of this research to add to this theory in the marketing context. However, we will not only add to the theory, but also contribute to the actual practice of marketing and provide marketers, especially those concerned with green products, with information gained from these theories. This will provide them with better knowledge about how they should use anthropomorphism theory within green products or even non-green products as in Chapter 4. Is using these anthropomorphic features a useful tool in the first place or not and if it is useful, then in which conditions? Therefore, we are using anthropomorphism theory as the main theory in our research, with additional variables, and finding out the influence of using the anthropomorphism theory within green products. We will explore how this will influence consumers' evaluations of green products and more specifically how using anthropomorphism theory will affect the purchase intention for these green anthropomorphised products.

1.4.2 Internal locus of control

In Chapter 2, we are aiming to use the theory of ILOC in our conceptual model to understand its role when it is used within green human-like products. The meaning of locus of control is the degree to which people believe that they can control the outcomes of future events (Rotter, 1966), which is our focus in Chapter 2. We are aiming to find out how people with ILOC evaluate green anthropomorphised products and we are testing whether anthropomorphism features play a role in this evaluation. We propose that those people with high and medium levels of ILOC have higher intention to purchase green products when they

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are anthropomorphised. And here we are arguing that we are adding to the anthropomorphism theory by examining it with consumers with ILOC, which to the best of our knowledge has not been tested yet.

1.4.3 Perceived humour, perceived attractiveness and product credibility

Furthermore, and as will be explained in Chapter 3, our research adds to the anthropomorphism literature by finding that the type of anthropomorphism for green products (high vs. low) as a product design tool can influence the purchase intention of green products negatively for consumers in the UK and details of this influence will be explained further in Chapter 3. Also, we are adding to the literature of humour by finding that perceived humour works as a mediator and explains the effect of anthropomorphism type (high vs. low) of green products on purchase intention. We also add to the literature of perceived attractiveness in marketing by finding that attractiveness also works as a mediator and explains the effect of anthropomorphism type for green products (high vs. low) on purchase intention of green products. In Chapter 3, we further add an explanation of why high levels of anthropomorphism could be perceived as funny and we propose that this is due to product credibility, as explained in Chapter 3 in more detail. Here we are adding to the literature of anthropomorphism on how consumers in the UK evaluate green products and how elements such as perceived humour, perceived attractiveness and product credibility can play a role in this.

1.4.4 Product trust

In Chapter 4, we are adding to anthropomorphism theory in the Saudi market, which to the best of our knowledge has not yet been explored and we propose that the way Saudis respond to anthropomorphism can be explained by product trust. It is worth investigating this research challenge due to the history of anthropomorphism in Islamic transcripts as Saudi Arabia is considered to be the centre of Islam in the world.

Before continuing to the next section we should mention that in terms of ethics, anthropomorphism is a topic that not all people agree with (Karlsson, 2012). The issue is that using anthropomorphism misdirects people's empathy towards animals because using human-like elements on non-human animals does not acknowledge the animal's otherness, as indicated by Taylor (1996 cited by Karlsson, 2012). The tool of anthropomorphism is useful for marketing products; however, general ethical aspects should be considered. When we add human-like features to a non-human animal we are using anthropomorphism to add a message or meaning to the product in order to increase consumers' intention to purchase; this does not mean that animals' emotions are not important. The way animals describe their emotions are different, such as when they laugh, and by humanising them marketers do not mean to disrespect their emotions, which would be unethical (Karlsson, 2012). Another aspect of anthropomorphism that has been problematic is that it may contain a bias towards the human way of thinking. Anthropomorphism only presents the position of human beings and their advantages, which can be considered as an ethical issue (Karlsson, 2012). Karlsson (2012) indicated that the definition of anthropomorphism can be changed to "Anthropomorphism is the habit of attributing traits, believed to be uniquely or typically human, to non-human entities, such as divinities, machines, or animals". Psychological anthropomorphism is a controversial topic in the field of ethology (Midgley, 2002) because it seems unethical to show an animal such as a cat exhibiting human-like behaviour rather than the real behaviour of a cat as an animal. In addition, anthropomorphism is controversial from the social and cultural perspective by basing animal relationships on human relationships, which is not fair (Ganetz, 2004).

Chapter 2: Internal Locus of Control, Green Products and Purchase Intention: The Moderation Effect of Product Anthropomorphism

Abstract

Although the relationship between ILOC and purchase intention has been an ongoing topic in consumer research, little is known about how consumers' ILOC affects purchase intention in a green context. Using anthropomorphism theory, we examined the moderation effect of a product's anthropomorphism on the relationship between ILOC of green products and purchase intention. To test this effect, we conducted our study in the UK using a survey. Our study revealed that ILOC is positively related to purchase intention and that a product's anthropomorphism fully moderates the effect of ILOC on purchase intention. We discuss the implications of these findings for consumer research.

Keywords

ILOC, product anthropomorphism, purchase intention

2.1 Introduction

In recent years, green problems have become a global issue. As indicated by Dembkowski and Hanmer-Lloyd (1994), 82% of British citizens consider environmental issues to be important and urgent. Another study indicated that 69% of the public believe that pollution and other green issues affect their everyday lives (Worcester 1993).

Environmental issues have attracted great attention politically and socially in the last 20 years, with various publications by marketing and social researchers (e.g., Alwitt and Pitts 1996; Berger 1997; Berger and Corbin 1992; Pieters et al. 1998; Shrum, McCarty and Lowrey 1995). For instance, some papers have focused on the reasons that motivate consumers to buy green products (e.g., Bagozzi and Dabholkar 1994). There are three vital elements that have attracted public, academic and political attention to environmental problems (Kalamas, Cleveland and Laroche 2014). These are globalisation, which includes the fast growth in the middle-class segment, the increasing world population and evidence that the environment is being degraded (Friedman, 2009).

Green products play an important role in the protection of the environment (Raghuvanshi 2016). Businesses that manufacture and sell such products are thriving in today's market, because many consumers these days choose to be associated with companies that have a green identity, and they will pay a premium for a greener lifestyle (Raghuvanshi 2016; Dagnoli 1991). A study by Nielsen (cited by Schlegelmilch, Bohlen and Diamantopoulos 1996) shows that four out of five people reveal their opinion about the environment with their purchasing behaviour, which shows that purchasing behaviour is important not only for marketers, but also to help to protect and save the overall environment.

However, consumers' adoption of green products in the mass market is limited (Alam, Almotairi and Gaadar 2012). The problem is that there is a gap between what people intend to do with regard to green living and how they actually behave (Fowler and Close 2012). The

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issue is that the majority of consumers who have a high level of environmental concern do not buy green products (Bray et al. 2011, cited by Mydock et al. 2018).

Therefore, marketing and advertising need to pay attention to this green gap (Fowler and Close 2012). The problem is the difference between what people believe should be done to protect the environment and what they actually do to protect and improve the environment (McNally 2011). Another example provided by Nielson (2011, cited in Fowler and Close 2012) is that even though 83% of global consumers indicate that programmes to protect the environment are important, only 22% will pay more for eco-friendly products. Also, a study by OgilvyEarth found that while 80% of shoppers want to buy green products, only 20% actually buy them (Sendrow 2013). Therefore, this research aims to find factors that increase purchase intention, which indicates the probability that a consumer will buy a product or service (Grewal, Monroe and Krishnan 1998).

Due to the significance of purchase intention behaviour for marketers, it is important to assess some of the factors affecting purchase intention. Here we propose that factors such as ILOC (Rotter 1966) affect purchase intention. This is important because some companies attempt to segment customers who are concerned about the environment, and the green consumer segment should be identified (Bohlen et al. 1993). We propose that ILOC is a very useful tool for doing so because it affects the purchase intention of green products. The measurements that have been used to identify those customers fall into two categories: socio-demographics such as gender and age (see Schlegelmilch et al. 1994); and personality measurement (e.g., Balderjahn 1988; Crosby et al. 1981; Henion and Wilson 1976; Kinnear et al. 1974) such as ILOC. This shows the vital role of ILOC in the environmental context in our research.

Locus of control refers to the extent to which people believe that they control events in their lives and the outcomes of those events (Rotter 1966). By studying how ILOC affects the way in which consumers process information on purchasing green products, examining the relationships between the various factors involved, we set out to enhance our understanding of how ILOC affects the purchase intention of green products. In this research we focus on a specific type of product, which is a green anthropomorphised product.

Guthrie defines anthropomorphism as 'attributing human characteristics to the nonhuman' (1993, p. 52). Boyer (1996) gives examples of objects that can be anthropomorphised, such as rivers that can talk and mountains that can breathe. The degree of human-like features can be captured in many ways. It has also been reported that humanising objects is an automatic process and this means that people automatically perceive humanised objects as human even though they know logically that they are not a real human (Guthrie, 1993; Mithen & Boyer, 1996). For example, the degree of anthropomorphism ranges from a non-obvious type, such as designing the front of a car to try to show that it is smiling (Aggarwal and McGill 2007) to the clear anthropomorphism involved in getting a sweet to talk, smile and interact with humans, as with M&Ms chocolates.

Recently, the concept of product anthropomorphism has received a great deal of attention from researchers in the field of marketing (e.g., Kwak, Puzakova and Rocereto 2015; Puzakova and Kwak 2017; Touré-Tillery and McGill 2015). Consumers' characteristics and motivations are important elements of processing anthropomorphisation, which leads us to consider personal elements such as LOC in our research (Gardner and Knowles 2008). In previous years, marketers have found it useful to use human-like elements in their brand or product to communicate with consumers (Aggarwal and McGill 2007) through advertisements. A recent study from 2018 was also concerned with the influence of anthropomorphism within the advertisement context. Bondt, Kerckhove and Geuens (2018)

studied the anthropomorphism of product packaging in advertisements. Their study examined how the shape of the packaging of anthropomorphised products influenced people's evaluations of the products. The authors found that when the product's packaging was designed in an ideal body shape such as the hourglass shape for females and a V-shape for men, this activated people's mental schema for the human body. The authors indicated that this accessible knowledge of the activated schema would affect consumers' evaluations. The authors indicated that when consumers see packaging related to gender-neutral products, they consider the product to be aesthetic and favourable. However, when the packaging relates to a specific gender, for example a V-shape package, male consumers' aesthetic for this product's design was highest when the shape of the anthropomorphised ideal body was congruent with their own. Bondt et al. (2018) proposed that in situations where the packaging is product specific, males are expected to seek packaging that matches their congruent ideal shape, so for personal care products for men, men will regard products with a V-shape as more favourable. On the other hand, females will seek hourglass-shaped products when they are looking for female personal care products. Bondt et al. (2018) indicated that their research also included valuable tips for marketers about building a competitive advantage through ideal human body packaging.

For instance, Phillips, Sedgewick and Slobodzian (2019) carried out research to see whether using spokes-characters was still a useful promotion tool. The authors indicated that they found in previous studies that using such spokes-characters was popular between the 1950's and 1990's. The authors investigated whether this tool was still successful among modern-day consumers. Their findings showed that in fact the use of spokes-characters in printed advertisements had increased since the 1990's. The focus of the paper by Phillips et al. (2019) was spokes-characters and they defined them as an animated character or object that is used as a tool by advertisers to promote ideas, products or even services. Some examples of

animated characters are Tony the Tiger, who encouraged people to eat a certain breakfast cereal. He was given human-like features, for example the ability to talk. A previous study conducted by Phillips and Gyoerick (1999) tested the usage of spokes-characters from the 1950's until the 1990's, and at that time spokes-characters were used in around 7% of printed advertisements. In the new study by Phillips et al. (2019) it was shown that this is no longer true because the usage of spokes-characters jumped in the last 20 years to 14%. This shows that advertisers can indeed still use this tool to promote their products through printed advertainments. Here we see that a spokes-character (i.e. a human-like character such as Tony the Tiger who can talk) is still a smart tool for attracting consumers' attention.

In addition, as indicated by Yuan and Dennis (2019), firms have the ability not only to establish and produce artificial objects for products, but also to make these objects seem alive by adding human-like qualities such as visual or auditory qualities or both. The authors raised the question about what would happen if we displayed a product with anthropomorphised features – would people pay more for that? This could provide a main benefit for companies because price competition is one of the most important challenges faced by e-commerce companies these days. Also, the authors mentioned that differentiating the company from its competitors is an important step to improving the company's profit and this can be done by finding other ways such as anthropomorphism to motivate people to pay more for the product. Yuan and Dennis (2019) indicated that the use of visual forms of anthropomorphism is very popular these days. The authors indicated that some companies used the cartoon form because it less expensive to establish while others used a more realistic form such as Roman, a digital avatar developed by Soul Machines. Yuan and Dennis's (2019) study is related to anthropomorphism in the context of online auctions. The authors were trying to answer the question of whether adding anthropomorphised features to objects would lead to people paying more for them. The authors indicated two types of design of human-like objects –

visual 'face' and auditory 'sound' – and they looked at their effect on willingness to pay. They aimed to test three theoretical ways in which human-like objects influence willingness to pay: emotions, attachment to the product and the quality of the product. Their findings indicated that adding visual type anthropomorphism, but not auditory anthropomorphism affected the willingness to pay for the object because people's bids increased by 7% with the visual anthropomorphism condition. However, adding auditory anthropomorphism did not influence people's willingness to pay. They verified that anthropomorphism with visual additions positively influenced product attachment, but did not influence emotions or how people perceived the object's quality. Therefore, the results show that anthropomorphism with visual additions can influence people via attachment to the product. Nevertheless, the same authors indicated that future research may explore new ways in which anthropomorphism can influence the willingness to pay as there are many theoretical ways not yet discovered in which this could happen. Further research about anthropomorphism is therefore needed. In their discussion, they mention that the conventional wisdom, which says that we should use visual and auditory design to trigger anthropomorphism, is not always the best way (Duffy, 2003, cited by Yuan & Dennis, 2019). This is because Yuan and Dennis (2019) found that the visual but not the auditory type of anthropomorphism has the effect of making anthropomorphism successful.

For example, marketers add facial features to products, making them speak to consumers in first-person language (Levy, Kim and Reed 2017). Our paper focuses on the effect of ILOC on purchase intention for green products and it examines the moderation effect of perceived product anthropomorphism. To the best of our knowledge, there are no studies related to the effect of ILOC on consumers' purchase intention for anthropomorphised green products. An example of one such study related to the environmental context is that by Tam, Lee and Chao (2013), in which they discovered that when nature is anthropomorphised, people connect to

the environment more. Another example of studies in the green context is that of Cooremans and Geuens (2019). They used anthropomorphism features in their study with misshapen food products, and they investigated how this increased purchase intention. However, the moderator in their study was environmental concern, which is a different concept to ILOC. Also, Cooremans and Geuens' (2019) study was connected to food waste, especially the grocery shopping context, and not the environmental/energy-saving context. The authors focused on misshapen food products, which is a different focus to our research.

What is lacking in the marketing literature in relation to product anthropomorphism is information on how anthropomorphism moderates the effect of ILOC on consumers' purchasing decisions in relation to green products. We thus contribute to the green marketing literature. This research will contribute to the literature on green product adoption by examining the effect of ILOC on purchase intention for green anthropomorphised products, as we argue that our results output provides rich information to help with identifying the appropriate green product design for consumers with ILOC. In addition, we contribute to the anthropomorphism literature by examining the moderation effect of product anthropomorphism on the relationship between ILOC and purchase intention, and we argue that humanising green products by first-person language is a useful tool to attract consumers with ILOC to purchase green products. Our practical contribution is to provide insights for marketers on how products with anthropomorphism motivate consumers with high ILOC to purchase green products.

2.2 Conceptual background
2.2.1 Other anthropomorphism theory applications
Here are some applications for using anthropomorphism in the marketing literature. Both negative and positive examples of using anthropomorphism theory. Even though positive applications of this theory were much more than negative ones. Some studies are related to

the dark side of using anthropomorphism. For example, Puzakova, Kwak and Rocereto (2011) explored the problem that brands can suffer from negative media publicity, especially when the brand includes human-like features. They focused on situations where human-like featured brands were facing negative media publicity. They provided the example of a food company that faced bad publicity related to its use of unhealthy ingredients in its chocolates. The authors' findings revealed that human-like features are not a successful tool. They explained that it is bad to use human-like features in the situation where consumers have negative information related to a brand's performance. The authors highlighted that the reason for this is that consumers will deal with a human-like brand in similar way that they deal with humans. Consumers will see that the brand as having intention and a mind and therefore, they will tend to consider the brand's actions as accountable. Nevertheless, according to our knowledge, the majority of anthropomorphism literature is related to the positive applications of anthropomorphism theory, as in the next paragraphs.

Chen and Wan (2017) explored whether human-like future influence the way consumers choose a product from numerous product options. They mainly focused on how consumers would pick a specific product from other options – maybe consumers would choose all the available options for human-like products? Considering that this action of choosing a product is related to consumers' thinking, in order to explore the way consumers think about human-like products, it is important to see how people perceive real human beings. The authors argued that anthropomorphised products create holistic thinking which on the whole will influence consumers' attention (Nisbett, Peng, Choi, and Norenzayan 2001, cited by Chen and Wan 2017). On the contrary, the other way of thinking is analytical thinking, which focuses on thinking about parts rather than about the whole (Nisbett, Peng, Choi, and Norenzayan 2001, cited by Chen and Wan 2017). The authors strengthen their argument by pointing out that holistic consumers are more likely to perceive a closer relationship with

original brands and their extensions (Monga and John 2007, cited by Chen and Wan, 2017). Therefore, consumers who are holistic are more willing to perceive the original brand and its extension as two things that are very connected and related to each other. In their first experiment, Chen and Wan (2017) found that consumers who were in the human-like product condition compared with the non-human-like product condition were thinking in a more holistic way. In their second experiment, the participants were offered four kinds of yogurt flavours. They were offered a promotion in which they could pick one pack from each flavour, four packs of the same flavour, or two packs each from two flavours. In the anthropomorphised (vs. non-anthropomorphised) condition, the participants were more likely to choose one pack from each flavour to taste all the possible flavours. In their last experiment, the authors confirmed the results for experiment 2 in addition to showing that the mediator of the previous relationship was holistic thinking, which explains why consumers choose all flavours because they see all flavours together as one entity.

Kim, Puzakova, Kwak, and Jeong (2017) studied the anthropomorphism of brands related to used products from the point of view of sellers and buyers. The authors of this paper were trying to show that brand positioning not only influences consumers who will purchase a used product, but also sellers. The authors relied on past work related to using anthropomorphism theory with brands and the idea that people tend to be much more connected to human-like brands than non-human-like brands (Chandler and Schwarz 2010). The authors also built on previous research by Richins (1994) and demonstrated that consumers with good memories about their past are more willing to make connections with a human-like used product compared to a non-human-like used product of the same brand. Building on this, the authors predicted that people with good past memories who want sell used products will value human-like used products more than non-human-like used products. On the other hand, and from the buyers' point of view, the authors indicated that people apply what is called a stigma

relationship when they deal with used products. Stigma means that people perceive the object as unacceptable and less desirable, as supported by Goffman's (1963) definition of stigma. It has also been shown in past studies that people not only end their relationships with other people, but also with brands (Fournier, 1998). Therefore, people are expected to evaluate human-like used products related to a brand less favourably than non-human-like used products and this means that they will propose a lower buying price. Nevertheless, Kim, Puzakova, Kwak, and Jeong (2017) indicated that the stereotypical way of thinking, explained earlier, can be attenuated when people have a creative mindset because they are less willing to apply stereotyping when making judgements about a used product they want to buy. Sassenberg and Moskowitz's (2005) research is used to build this argument. Therefore, the authors propose that for consumers with a creative mindset, the negative influence of human-like qualities when buying will be attenuated for used products of human-like brands. In their studies, the authors found that participants in the seller condition indicated a higher selling price while in the buying condition, the participants indicated a lower price.

Previous studies talked about how different levels of anthropomorphism can have different influences on consumers. Reavey, Puzakova and Kwak (2011) explained that there are two kinds of anthropomorphism: implicit and explicit. According to the authors, explicit human-like features mean applying clear and obvious human-like qualities. Examples of this can be a toy that talks like a human or an object that uses first-person language such as "I". Implicit anthropomorphic features are when the human-like features are not obvious. An example of this type is a perfume that has the shape of a woman, but still has the non-human looks of a perfume bottle. The authors explained that these different degrees of anthropomorphism can have different influences on consumers' intentions and perceptions related to pro-social behaviours. These were examples of variety of applications of anthropomorphism used in the marketing literature. Anthropomorphism has been found to affect purchase intention for

green anthropomorphised products (Chang, Huang and Liu, 2018), as will be explained in the next pages. Also as explained earlier according to our knowledge, the majority of the literature talked about the positive implication of using human-like features as will be shown in the next pages.

2.2.2 Locus of control and purchase intention of green products

As interpreted by Rotter (1966), the word "locus" is derived from the word "location" to locate individual control, whether internal or external. Individuals with ILOC believe that they have control over these events and their outcomes, whereas individuals with external LOC believe that events and their outcomes are controlled by others. Locus of control is important because, as indicated by Hill (2011), internal control is considered to be a form of power and freedom, leading to success, self-improvement, happiness and more. This could be applied to green behaviours because people who have internal control are self-directed and self-responsible (Hill 2011). Hill (2011) also indicated that from a philosophical point of view, ILOC represents the highest idea of personhood that can positively affect the world, and this includes saving and protecting the environment, as in our research.

The research focus was shifted in the 1990s in relation to the nature of environmental discussion related to green problems (Leonidou and Leonidou 2011), from topics that were local (e.g., water pollution) or regional (e.g., energy shortage and acid rain) to a different kind of discussion, focused on problems related to the world as a whole, and particularly the type of problems related to the near or far future, such as global warming. As there is a wide range of green problems caused by human sources, the key to dealing with these issues is to control people's behaviour or change their behaviour (Stern 1992). In addition, it was found in the literature that attitude variables are much stronger than other variables, such as demographic variables, as they are found to be a strong predictor of the undertaking of pro-environmental behaviours (Straughan and Roberts 1999). Some problems are facing green products, such as

challenges in the marketplace, as they appear to have a low level of the market share (Kalafatis et al. 1999). The importance of locus of control can lie in showing that in order to encourage people to be active with regard to pro-environmental behaviours, these people should be influenced to think about more than just themselves, to be active regarding pro-environmental behaviour, and also to care about the dark side of the green problems facing the world nowadays, showing responsibility by playing a role personally in helping to save the environment (Guagnano 1995, p. 64). Bradley and Sparks (2002) found locus of control to be one of the best personal measurements to help with predicting pro-environmental behaviours. According to Cleveland, Kalamas and Laroche (2012), when people show their responsibility by indicating their personal acceptance of taking this responsibility, this brings important long-term benefits, such as consumers attempting to buy green products rather than products that are not environmentally friendly, and those consumers will do that whenever these green products are available. Therefore, when people are buying these green products, they are actually not only buying them for the sake of saving the environment, but the meaning is deeper, as those people are attempting to show that they believe their actions can protect the environment (Cleveland, Kalamas and Laroche 2012).

In previous studies, people with ILOC suggested that the importance of recycling is positively related to the propensity to recycle, which shows the vital role of ILOC in motivating recycling behaviour (McCarty and Shrum 2001). Previous studies have indicated that people who are actively concerned about the environment have a high ILOC compared with those who are passively concerned or unconcerned, who are controlled externally (Bodur and Sarigollu 2005, cited by Ramayah et al. 2010). This shows the importance of ILOC in an environmental context. Bodur and Sarigollu (2005) mention that little research has been done on LOC and its meaning in green papers, which is a motivation for exploring it more in our research.

In our research we focus on one element of behaviour, which is purchase intention, and we see how ILOC affects purchase intention. It has been shown that ILOC has a positive effect on the intention to purchase green products (DS 2017). Individuals with ILOC who are concerned about litter, and believe that there is a pollution problem, have a favourable attitude towards ecologically conscious living, and are more inclined to purchase ecologically packaged products (Schwepker and Cornwell 1991). Schwepker and Cornwell (1991) showed that having ILOC, and thus a belief in one's own ability to control the environmental outcome, can motivate consumers to purchase green products. Based on past literature, it can be seen that ILOC positively affects purchase intention for green products. We propose that:

H1: Internal locus of control is positively related to purchase intention of green products.

This hypothesis will be tested in the pilot study (study 1), which contains 120 participants, in order to test the relationship between ILOC and purchase intention. We confirm this relationship again in the main study, which contains 401 participants (study 2).

2.2.3 Anthropomorphism of green products and purchase intention

As indicated by Mathwick and Ridgon (2004) and Zeithaml, Parasuraman and Malhotra (2002), fun, entertainment and the human-like touch resulting from interaction can serve as reasons for consumers to form a purchase intention. Sivaramakrishnan, Wan and Tang (2007) indicated that adding anthropomorphic features to a website enhances consumers' purchase intention, especially when there is not much information about the product. As found by Hadi and Valenzuela (2014), some elements such as affection can affect purchase intention positively when the affection is shown through an anthropomorphic object, supporting our assumption that anthropomorphic features of green products lead to higher purchase intention. Car manufacturers sometimes create advertisements where the edges of a car are made to curl up, in order for the car to give the impression that it is smiling (Osselaer 2006).

Marketing folklore advocates that adding smiling elements to a product enhances purchase intention for that product (Osselaer 2006). Wan, Chen and Jin (2017) indicated the effect of anthropomorphism on the purchasing of a product. For example, they mentioned that people in their experiment were more likely to use their money to purchase a charger with a superior appearance, after having been anthropomorphised, compared to when it was not anthropomorphised.

Furthermore, according to Chowdhury, Karmakar Ghosh and Chakrabarti (2014), the intention to purchase a product is increased when the product is anthropomorphised in a visually attractive manner. Also, Laksmidewi, Susianto and Afiff (2017) found that adding anthropomorphic features to products significantly affects purchase intention. However, little research has been conducted on the effect of the anthropomorphism of green products on purchase intention in relation to those consumers with ILOC towards energy problems in everyday life. Related to anthropomorphised products and purchase intention in the green context, Cooremans and Geuens (2019) found that using anthropomorphism can increase purchase intention, especially for misshapen produce. In another example of research in this area, Tam, Lee and Chao (2013) found that the anthropomorphism of nature increases conservation behaviour, such as purchasing green products. Thus, it is likely that consumers are motivated to purchase anthropomorphised green products, which leads to our second hypothesis:

H2: Product anthropomorphism is positively related to the purchase intention of green products.

This will be tested in the main study with 401 participants (study 2).

2.2.4 Product anthropomorphism moderates the effect of ILOC on purchase intention for green products

Epley, Waytz and Cacioppo (2007, cited by Cooremans and Geuens 2019) indicated that when a non-human object is anthropomorphised, knowledge about the human agents serves as a source of evaluation and interpretation. In addition, Hur, Koo and Hofmann (2015) found that anthropomorphising an object enhanced the evaluation of the object, which strengthened the force for temptation, which led to higher self-control failure, noting that self-control is different from ILOC. We are proposing that since anthropomorphising an object increases purchase intention, and since ILOC also positively affects purchase intention, adding anthropomorphic features to our green product will strengthen the effect of ILOC on purchase intention. Since ILOC affects purchase intention positively, and as people are internally responsible regarding their environment, we propose that consumers may evaluate the green product as being more attractive because of the anthropomorphic features. We propose that this will increase the purchase intention for an environmentally friendly electric energy-saving kettle.

H3: Green product anthropomorphism moderates the relationship between internal locus of control and the purchase intention of a green product.

This will be tested in the main study containing 401 participants (study 2).

2.2.5 External locus of control and gender (control variables)

The meaning of external locus of control is that a person believes that factors outside their control or elements such as fate or chance control their own life (Rotter,1966). Kalamas et al. (2014) argued that environmental behaviours are influenced by external elements such as government and businesses, in addition to chance and fate elements, as they represent different dimensions of external locus of control in the environmental context. We used

external LOC as a control variable in our study because we found that it affects purchase intention behaviour in an environmental context (Cleveland, Kalamas and Laroche 2005). Also, external locus of control influences consumers' green behaviour (Ramayah, Lee and Mohamad, 2010) and it significantly affects green consumption intentions (Wang, 2014). It negatively influences green purchase intention (Mahmoud, 2018), which motivated us to control this variable in our study. We used gender in our study as a control variable because previous studies found that it can play a role in the purchasing of green products. In spite of the high number of females participating in this research compared with males, we used gender as a control variable due to its importance within green purchases in past studies. The balance between female and male participants was also outside the researcher's control. For example, Mostafa (2007) found that men showed more environmental concern and outlook related to green purchases than women. It was also found that females play more of a role in ecologically conscious consumer behaviour (ECCB) than males, which is consistent with the literature (Eagly 1987; Roberts 1996). According to Cabano, Maeng and Mishra (2015), elements such as external locus of control (religion: powerful others such as God) can reduce pro-environmental behaviours. Judeo-Christians are less willing to engage in pro-environmental behaviours than non-religious individuals, due to the external locus of control – "an omnipotent image of God/negative effect of religion". Moreover, Chang, Huang and Liu (2018) advised considering gender as a covariate variable in future studies on anthropomorphism in the green context.
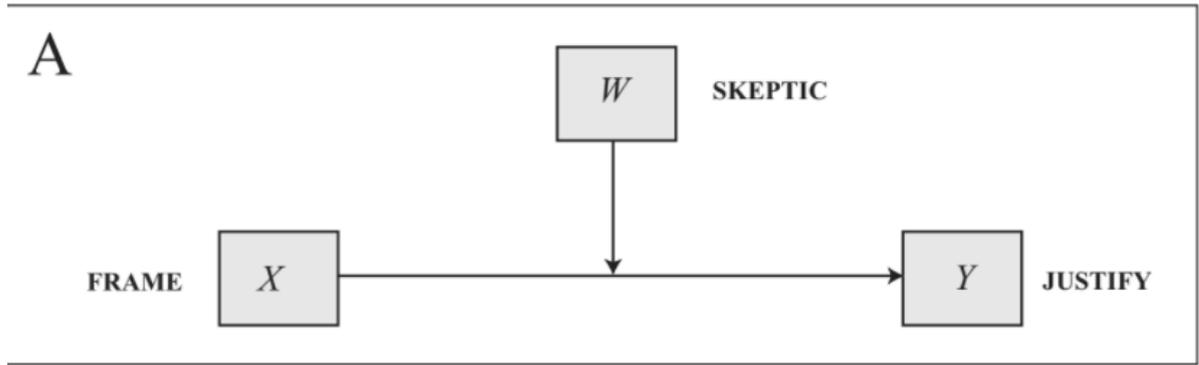
Figure 2.1. Conceptual model. form of Hayes' (2018, p.235). X= ILOC; Y=Purchase intention; W= Green product anthropomorphism; EXLOC and Gender used as control variables.

2.3 Study 1 (Pilot study)

2.3.1 Design

To test our hypotheses, we designed an online survey. We assigned respondents to this survey and collected data through an online questionnaire that contained the general instructions, scenario descriptions, and a list of items to measure ILOC and purchase intention (Table 2.4). In addition, we used demographic measures to gather age and gender variables.

We used an image of an electric energy-saving kettle in the survey (Figure 2.2). The application of product anthropomorphism added human qualities to the product. In the survey, we presented the participants with an image of an electric kettle with the words "I save energy" printed above the kettle (Figure 2.2). Note that the image of the electric energy-saving kettle used in the survey was brand neutral, which means that no brand name was used in the image. This was to prevent the participants from associating the product with an existing brand, which might have created bias in their responses (e.g., familiarity with an existing brand name). Note that in the survey we used the same slogan of "I save energy" above the kettle. This was to prime the participants to believe that the kettle was an eco-friendly product.

2.3.2 Procedures and measurement

We conducted quantitative research to test the hypothesised direct effect of ILOC on purchase intention before testing the complete model in study 2, which is the main study in this chapter. We collected data through prolific.com by targeting UK participants, and designed the survey through Qulatics.com. Participants for this study were 18 or older (n=120) and were chosen by convenience sampling. We collected data from 120 participants after deleting incomplete answers, so the questions were suitable for an online survey (Callegaro et al. 2015). This number of participants was chosen because it is more than 12, which is the recommended number of participants for pilot studies (Moore, Carter, Nietert,

and Stewart, 2011; Julious, 2005). The sample was chosen from the UK with no restrictions on age or gender as the purpose of this study was to test the effect of ILOC on purchase intention. The pilot study also aimed to ensure that the independent, dependent and control variables were acceptable by testing the questions' loading to each construct through conformity factor analysis (CFA), as well as testing the constructs' reliability. We conducted this pilot study in the UK as it is one of the many countries suffering from green problems. Our sample comprised 70% females, and the majority of our sample (60%) was aged between 25 and 44 years; 61.6% of the respondents had two years college education or had completed a four-year university degree. To ensure the face validity of all the questions related to each construct, we used existing measures from the literature applicable to our survey context. Two experts, one in marketing and the other in information systems, were asked for their feedback in relation to the survey questions' wording and clarity, and the survey wording was edited based on their feedback. All the questions used a 7-point scale, except one question, which had a 5-point scale. Some information related to specific measurements is discussed below.

Purchase Intention is the subjective probability of carrying out a specific behaviour, as defined by Fishbein and Ajzen (1975). Our instrument has items to measure purchase intention. Purchase intention is the probability that a consumer will buy a product or service (Grewal, Monroe and Krishnan 1998). Items from the past literature were used to measure purchase intention (Li et al. 2002; Moon et al. 2008; Coyle and Thorson 2001). Purchase intention was measured using a 7-point semantic differential scale. A sample item is "How likely are you to purchase this electric kettle: Improbable/ Probable; Uncertain/Certain; Definitely not/Definitely". The results item scale showed good reliability ($\alpha > 0.70$). Internal locus of control items were used to measure the degree to which people believe that they have control over their lives, as opposed to believing they are subject to external forces beyond

their control (Ottman 2011). Measurements were gathered from existing literature (Cleveland et al. 2005). The results items scale showed good reliability ($\alpha > 0.70$). We adapted measurements from the existing literature (Cleveland, Kalamas and Laroche 2005). The results item scale showed good reliability ($\alpha > 0.70$). A sample item is "It is acceptable to pay 10 percent more for products that are produced, processed, and packaged to save energy".

2.3.3 Analysis of measurement items

The hypothesised three-factor measurement model was composed of ILOC, purchase intention and external locus of control as a control variable. We tested the model with confirmatory factor analysis (CFA). We used Amos software 21.0 to perform CFA. Before conducting CFA, we ensured that there were no missing data. We used maximum likelihood methods to estimate the model. The results showed that the observed data were a fit with the hypothesised CFA model (CFI=0.990, RMSEA=0.036, NNFI=0.987, Chisq= 69.50, DF=60). The convergent and discriminant[2] validities of our measures were ensured by using Gaskin's (2011) macro. First, all standardised factor loadings were statistically significant, at above 0.70 and only one item was loaded at 0.67. Additionally, the average variance extracted (AVE) ranged from 0.587 to 0.684, which is above the threshold of 0.50. Finally, composite reliabilities (CRs) ranged from 0.850 to 0.926, which is above 0.7, indicating good construct reliability (Table 2.1).

2.3.4 Common method bias

We checked the possibility of common method bias. We used Harman's one-factor test (Harman, 1976), we connected all items in our model to one single factor. The one-factor model indicated a very poor model fit (CFI=0.137, RMSEA=0.299, NNFI=0.125;

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[2] The discriminant validity in our thesis was assessed using Fornel and Larcker's criterion (1981). This was done by comparing the square root of each AVE in the correlation table with the correlation coefficients for each construct in the relevant rows and columns. The square root of each construct's AVE was found to have a larger value than the correlations with other latent constructs. Tables related to thesis studies: pp.149-151.

Chisq=898.257, DF=77), and we also conducted a one-factor extraction method applying principal axis factoring by SPSS and the percentage of variance of this factoring test was 34.28% which is less than 50% and this help us evidencing that our model does not suffer from common bias method.

Table 2.1: **Results of CFA (Study 1)**

Constructs and items	SL*	t Value
Internal locus of control, AVE=0.68; CR= 0.86[3]		
It is acceptable to pay 10 percent more for products that are produced, processed, and packaged to save energy.	.87	3.91
I would accept paying 10 percent more taxes to pay for environmental energy-saving products.	.80	5.48
I would be willing to spend an extra £10 per week in order to buy less environmentally wasteful energy products.	.81	5.34
Purchase intention, AVE=0.67, CR=0.92		
How likely are you to purchase this electric kettle?		
Very unlikely: Very likely	.94	4.04
Improbable: Probable	.90	5.39
Not Definitely: Definitely	.83	6.55
I will definitely try this electric kettle.	.75	7.04
I will purchase this product next time I need an electric kettle.	.74	7.45
I would recommend this electric kettle to my friends.	.67	7.31
External locus of control, AVE=0.58, CR=0.85[4]		
In the UK, we have so much electricity that we do not have to worry about conservation	.73	6.22
Since the UK is such a large country, any pollution that we create is easily spread out and therefore of no concern to me.	.83	4.73
With so much water in the UK, I don't see why people are worried about leaking faucets and flushing toilets.	.79	5.54
The UK has so many trees that there is no need to recycle paper.	.71	6.35

[3] The researcher used Cleveland et al.'s (2005, p.203) economic motivation (INLEM) factor related to internal locus of control because it is related to the aim of this chapter, which is purchasing a green product. However, individual recycling efforts (INLIR) mentioned by Cleveland et al. (2005, p.203) were related to recycling efforts which is not the scope of this chapter.

[4] The researcher used Cleveland et al.'s (2005, p.203) biospheric-altruism external locus of control questions because they have a higher Cronbach's alpha than corporate skepticism external locus of control questions. In addition, biospheric-altruism includes more questions, which is better for the data analysis quality. Biospheric-altruism external locus of control questions were selected by the researcher as they cover more general beliefs related to how external factors in everyday life can affect consumers' beliefs, and not just about companies. Finally, the researcher considered that too many questions related to one concept might make participants skip the survey without completing it.

Note: SL=standardised loadings.

2.3.5 Results

Using SPSS software linear regression, the results indicated that H1 is supported, and that ILOC has a positive direct effect on the purchase intention of green products H1= b = 0.22 (t = 2.50, p < 0.05) (see Table 2.2).

Table 2.2: Internal locus of control effect on purchase intention (Study 1- Pilot study)

	b	t	P-value
ILOC	.222	2.507	.014

ILOC= internal locus of control; DV: Purchase intention

2.4 Study 2 (Main Study)

2.4.1 Design

This is the same survey used in study 1 (Pilot study). However, this study was conducted with a larger sample to test the complete model for this chapter, including the moderation effect[5]. To test our hypotheses, we designed a survey. We assigned respondents to this survey and collected data through an online questionnaire that contained the general instructions, scenario descriptions, and a list of items to measure the ILOC, green products anthropomorphism, purchase intention and external locus of control (Table 2.4). In addition, we used demographic measures to gather age and gender variables.

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[5] The same survey was used in Chapter 2 in study 1 (Pilot study) and study 2 (Main study). However, study 1 and study 2 in Chapter 3 are different because different product images were used and different questions too. Also, in Chapter 4 the scenario used in each survey was different.

2.4.2 Procedures and measurement

We conducted quantitative research to test the hypothesised models of this study. We collected data through prolific.com by targeting UK participants, and the survey was designed through Qulatics.com. We collected data through convenience sampling and we applied pre-screening to select only UK participants aged 18 and older. We collected data from (N=401) participants after deleting incomplete answers (Callegaro, Manfreda and Vehovar 2015).

Our sample comprised 65% females, and 36% of the total sample was aged between 25 and 34 years; 67% of the respondents had two years of college education or had completed a four-year university degree. To ensure the face validity of all the questions related to each construct, we used existing measures from the literature applicable to our survey context. We also wanted to make sure that the survey questions were easily understood, and therefore we tested the survey by giving it to 40 participants before the actual distribution. Two experts, one from the marketing department and the other from the information systems department, were asked for their feedback in relation to the survey questions' wording and clarity. The survey wording was edited based on their feedback. All the questions used a 7-point scale questions. Some information related to specific measurements including anthropomorphism measures: Our instrument included items that measured anthropomorphism, and indicated the respondents' opinions about the features of the electric kettle and how they were similar to human features (Boyer 1996). To measure product anthropomorphism, the participants were asked whether they thought that the features of the electric kettle were close to human-like elements on a 7-point Likert scale ranging from 1=strongly disagree to 7=strongly agree. The survey items were adapted from Hur et al. (2015), Puzakova and Kwak (2017) and Waytz et al. (2010). A sample item was "It almost seems as if this electric kettle has intentions.". The results item scale showed good reliability ($\alpha > 0.70$).

Purchase intention is the subjective probability of carrying out a specific behaviour, as defined by Fishbein and Ajzen (1975). Our instrument has items to measure purchase intention. Purchase intention is the probability that a consumer will buy a product or service (Grewal, Monroe and Krishnan 1998). Items from past literature were used to measure purchase intention (Li, Daugherty and Biocca 2002; Moon, Chadee and Tikoo 2008; Coyle and Thorson 2001) using a 7-point semantic differential scale. A sample item is "How likely are you to purchase this electric kettle: Improbable/Probable; Uncertain/Certain; Definitely not/Definitely". The results item scale showed good reliability ($\alpha > 0.70$).

Items of ILOC were used to measure the degree to which people believe that they have control over their lives, as opposed to believing that they are subject to external forces beyond their control (Rotter 1966). We adapted measurements from existing literature (Cleveland, Kalamas and Laroche 2005). The results item scale showed good reliability ($\alpha > 0.70$). A sample item is "It is acceptable to pay 10 percent more for products that are produced, processed, and packaged to save energy". External locus of control questions by Cleveland, Kalamas and Laroche (2005) were used and they were measured on a 7-point Likert scale (1=strongly disagree to 7=strongly agree). A sample item was "Since the UK is such a large country, any pollution that we create is easily spread out and therefore of no concern to me."

2.4.3 Measurement analysis

The hypothesised four-factor measurement model was composed of product anthropomorphism, internal LOC and purchase intention. Also, the model included external LOC as control variables. We tested the model with confirmatory factor analysis (CFA). We used Amos software 21.0 to perform CFA. Before conducting CFA, we ensured that there were no missing data. We used maximum likelihood methods to estimate the model. The results showed that the observed data were a fit with the hypothesised model (CFI=0.988,

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RMSEA=0.044, NNFI=0.984, Chisq=104.208, DF=59). Convergent and discriminant

validities of our measures were ensured by using Gaskin's (2011) macro. First, all

standardised factor loadings were statistically significant above 0.70. Additionally, the AVE

ranged from 0.698 to 0.759, which is above the threshold of 0.50. Finally, CRs ranged from

0.874 to 0.925, which is above 0.7, indicating good construct reliability (Table 2.3).

Table 2.3**: Results of CFA (Study 2)**

Constructs and items	SL*	t Value
Internal locus of control, AVE=0.69; CR= 0.87		
It is acceptable to pay 10 percent more for products that are produced, processed, and packaged to save energy.	0.88	6.93
I would accept paying 10 percent more taxes to pay for environmental energy-saving products.	0.85	8.29
I would be willing to spend an extra £10 per week in order to buy less environmentally wasteful energy products.	0.77	11.24
Green product anthropomorphism, AVE=0.73; CR= 0.89		
It almost seems as if this electric kettle has intentions – Not at all: Very much	0.79	11.38
This electric kettle appears to have the ability to experience emotions – Not at all: Very much	0.91	6.41
This electric kettle appears to have consciousness – Not at all: Very much	0.87	8.42
Purchase intention, AVE=0.75, CR= 0.92, How likely are you to purchase this electric kettle: Very unlikely: Very likely	0.96	6.68
Improbable: Probable	0.95	8.75
Uncertain: Certain	0.62	13.79
Definitely not: Definitely	0.91	11.29
External locus of control AVE=0.74; CR=0.89		
Since the UK is such a large country, any pollution that we create is easily spread out and therefore of no concern to me.	0.89	7.57
With so much water in the UK, I don't see why people are worried about leaking faucets and flushing toilets.	0.82	10.70
The UK has so many trees that there is no need to recycle paper.	0.87	8.52

Note: SL=standardised loadings.

2.4.4 Common method bias

We checked the possibility of common method bias. We used Harman's one-factor test (Harman, 1976), we connected all items in our model to one single factor. The one-factor model indicated a very poor model fit (CFI=0.149, RMSEA=0.318, NNFI=0.138; Chisq=3199.031, DF=77), and we also conducted a one-factor extraction method applying principal axis factoring by SPSS and the percentage of variance of this factoring test was 24.81% which is less than 50% and this help us evidencing that our model does not suffer from common bias method.

2.4.5 Testing the moderation effect

As the proposed measurement model was consistent with our data, we could use it to estimate our model. Our model included three exogenous latent variables: product anthropomorphism, ILOC and purchase intention.

Second, we used the moderation macro by Hayes (2013). We mean-centred the independent variables and the moderator in our testing, as recommended by Dawson (2014). As stated by Dawson (2014), "Mean centering the variables will ensure that the (unstandardised) regression coefficients of the main effects can be interpreted directly in terms of the original variables. For many people this is reason enough to use this method." This revealed that the product anthropomorphism of green products moderates the effect of the ILOC on purchase intention. ILOC * product anthropomorphism interaction is significant, with H3=b=.133, t=3.285, p=.001. The results also indicated that H1 was supported, but not H2. Regarding H1, b=.179, t=4.050, p=.000. Furthermore, regarding H2, product anthropomorphism is not significantly related to purchase intention b=.102, t=.1.851, p=.065. The constructs' external LOC and gender were control variables in the moderation test (Table 2.5 and Figure 2.3). We further investigated the conditional effect of ILOC on the purchase intention of green products at different values of green product anthropomorphism and the results revealed that

green product anthropomorphism moderates the influence of ILOC on the purchase intention

of green products when the green product anthropomorphism value is 1.28 out of 7 and above

(Figure 2.4). Although H2 is rejected, when reporting the moderation test, should not be

concerned about the rejection of H2 as moderation is one of the main theories this chapter

contributes. As Hayes (2018) notes, "If you choose to retain XW in the model, X and W

should be included as well, even if b_1 and b_2 are not statistically significant" (p.231).

Table 2.4**: Descriptive statistics of mean variables of studies 1 and 2**

Studies	Constructs	Mean (SD)
Study 1	Internal locus of control	4.61 (1.42)
	Purchase intention	3.97 (1.34)
	External locus of control	1.99 (0.98)
Study 2	Internal locus of control	4.21 (1.50)
	Green product anthropomorphism	1.70 (1.21)
	Purchase intention	4.20 (1.32)
	External locus of control	2.14 (1.21)

I save energy

Figure 2.2. Product used in the studies

Table 2.5**: Internal locus of control and green product anthropomorphism effect on purchase intention**

	b	t	P-value
Ex_LOC	-.026	-.472	.637
Gender	-.272	-2.036	.042
ILOC	.179	4.050	.000
Anthro	.102	1.851	.065
Anthro X ILOC	.133	3.285	.001

ILOC= internal locus of control, Ex_LOC=external locus of control, Anthro= product anthropomorphism and DV: Purchase intention.
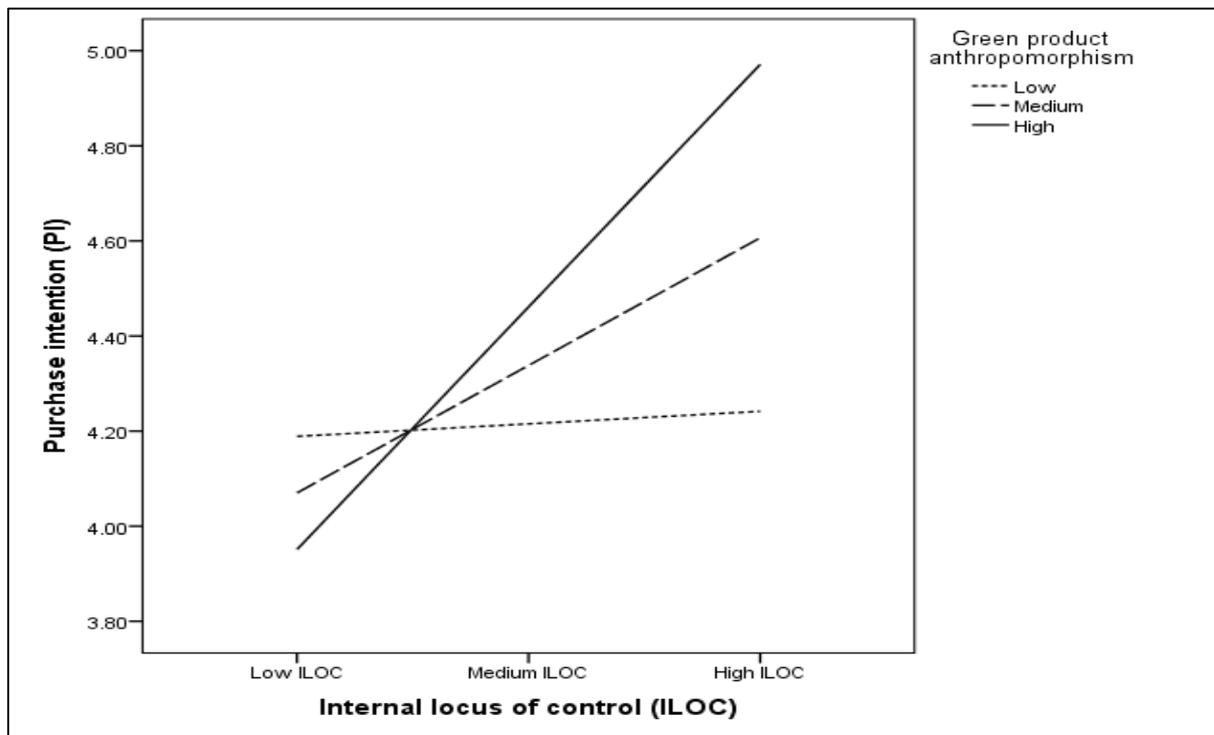
Figure 2.3. The interaction between green product anthropomorphism and internal locus of control
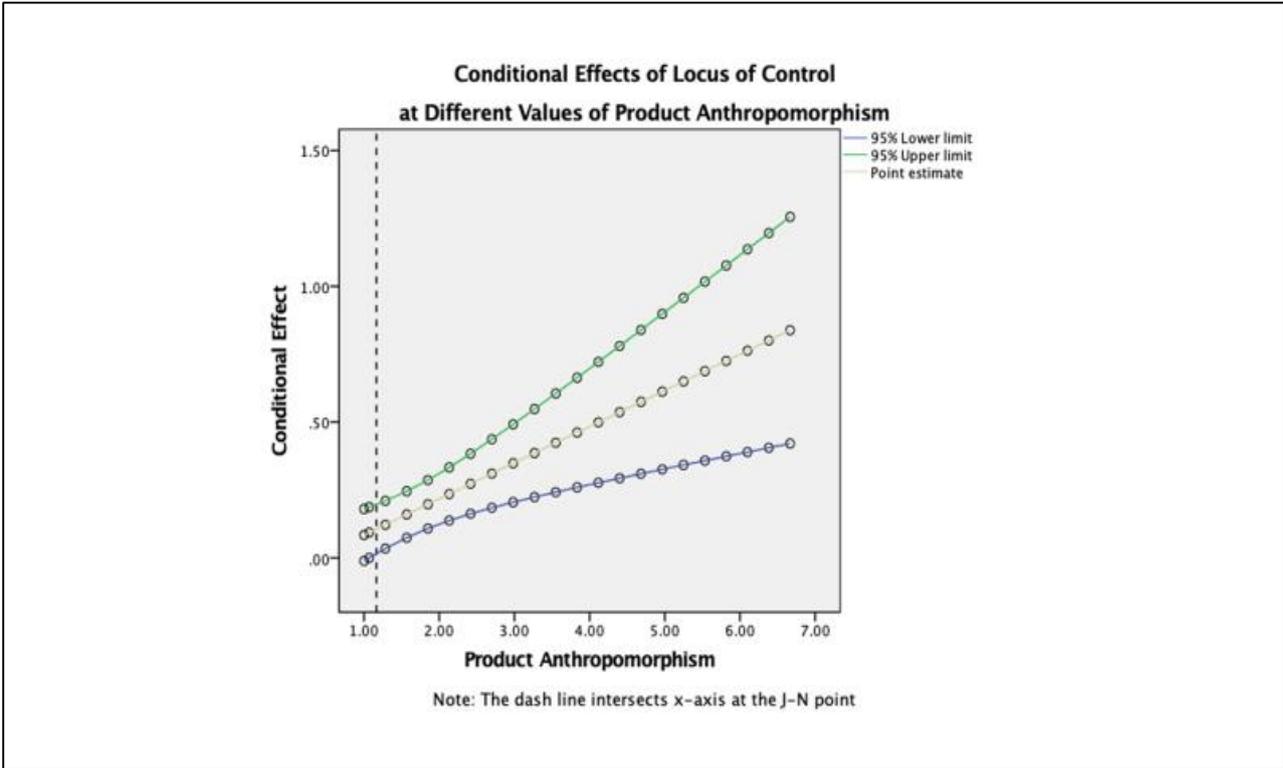
Figure 2.4. Conditional effect of internal locus of control at different levels of green product anthropomorphism

2.4.6 Robustness check for the moderation effect

Nonlinearity (quadratic effects) can lead to spurious moderation and therefore, a robustness

check is recommended to make sure that our moderation affect is not spurious (Daryanto

2019). We used the MODLR macro, multimode package in R (available at:

https://sites.google.com/site/ahmaddaryanto/scripts/ModLR) to run the robustness check.

Models with distance ≤ 2 are perceived to have substantial support (Burnham & Anderson

2003). Thus, there were no threats of quadratic effects and the moderation effect was found to

be not spurious (see Table 2.6, model 4).

Table 2.6: **Robustness Check for the Moderation Effect**

Models	K	RSS	AIC	D	Weight
1	6.000	655.746	1347.490	8.806	.009
2	4.000	673.064	1353.943	15.259	.000
3	4.000	684.523	1360.712	22.028	.000
4	7.000	638.311	1338.684	.000	.742
5	8.000	653.735	1350.258	11.575	.002
6	9.000	637.614	1342.246	3.562	.125
7	10.000	636.629	1343.626	4.942	.063
8	10.000	636.853	1343.767	5.083	.058

2.5 General discussion

Since previous research such as that by Reavey, Puzakova and Kwak (2011) indicated that human-like features are a vital tool for communicating with consumers for profit and non-profit marketing communications, we examined the role of product anthropomorphism in the relationship between consumers with ILOC and their purchase intention for anthropomorphised green products. To the best of our knowledge and according to the studies we have reviewed, no researchers have yet investigated this research problem.

The majority of consumers think that environmental programmes are important, but actually only a small percentage of them are willing to pay more for green products (Nielson 2011, cited by Fowler and Close 2012). Therefore, companies and marketers face a challenge related to increasing purchase intention for green products, because many consumers intend to purchase green products, but only a small percentage of them actually do buy green products (Sendrow 2013). An opportunity is raised by targeting consumers with ILOC because this positively affected purchase intention in previous studies (Schwepker and Cornwell 1991). From here, our paper underlines under which conditions the positive effect

of ILOC on purchase intention can be maximised, and this can be done by adding anthropomorphism with first-person language to the green product.

Study 1 documented that the main effects of ILOC on purchase intention are positive and significant in the case of purchasing a green product with human-like features (i.e., an electric kettle). This means that consumers who have ILOC believe that they can protect the environment, and thus they have strong purchase intention towards the green anthropomorphised kettle.

Study 2 extended the findings of study 1 by finding that the effect of ILOC on purchase intention is moderated by the green product's anthropomorphism. In other words, it examined the condition in which the purchase intention for consumers with high internal beliefs is stronger. Interestingly, the direct effect of the green anthropomorphised kettle on purchase intention was not found in our research. Our research also indicated the importance of focusing on people with high ILOC. In previous research, Cleveland, Kalamas and Laroche (2005) investigated how some personal characteristics and attitudes can influence behaviours related to being environmentally friendly. Their study examined this relationship from the locus of control point of view. One of the vital questions related to environmentally friendly behaviours is why consumers have certain attitudes towards the environment. Nevertheless, these attitudes do not transfer into pro-environmental behaviours (Cleveland et al. 2005). The authors tried in their research to focus on what they called environmental internal locus of control, which is a measurement of the dispositional behaviours of ILOC and the attitudes related to specific situations. The authors argue that their study is different from previous studies as they are examining consumers' perceptions about the level of control they have over the environment around them internally, which led us to focus on consumers with ILOC in our research. The authors also indicated that having concern for the environment does not always lead to actual behaviours to protect the environment because consumers need the

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sense of empowerment that they gain from their internal control. Interestingly, it was found in previous studies that personal control is an important element that allows researchers to predict these pro-environmentally friendly behaviours, as indicated by (Allen and Ferrand 1999, cited by Cleveland et al. 2005). This is another vital reason to focus in our study on consumers with ILOC. Also, and as indicated by the above authors, corporations will shift their focus to what is called the societal marketing concept (Kotler, 2003 cited by Cleveland et al. 2005). Organisations will not only try to compete with their competitors, but they will also care about consumers and their environment. This is an important element which can change how corporations behave in response to their consumers as corporations will be concerned about whether these environmental attitudes can change consumers' consumption behaviour. For example, consumers with a high ILOC would like to purchase green human-like products, as evidenced in our research results. From here, our research finds that human-like qualities are a tool that strengthens the motivation for consumers with high ILOC to purchase human-like green products.

2.5.1 Theoretical and practical implications

Our research findings have an important impact on previous anthropomorphism theory. Past studies investigated antecedents of anthropomorphism (Epley et al. 2008, cited by Hur et al. 2015) and changes in consumer evaluations of an object as a result of anthropomorphism (Aggarwal and McGill 2007, cited by Hur et al. 2015). Our current work explores the effect of ILOC on purchase intention for green products, and the moderation effect of a product's anthropomorphism on the effect of ILOC on purchasing green products. According to our knowledge, no research has yet explored the process through which it exerts influence, or the role of the anthropomorphism of green products (e.g., an electric kettle). Notably, in our studies we attempted to avoid adding emotional features to the product, in order to avoid any

emotional effects resulting in positive or negative emotions (Winkielman and Cacioppo 2001, cited by Hur et al. 2015).

Our research also supports the literature on anthropomorphism in marketing. For example, it was shown in the literature that anthropomorphising the brand or product generates favourable consumer attitudes towards the product or brand (Puzakova, Kwak and Rocereto 2013). In our case, because we were dealing with the electric energy-saving kettle, which helps to save the environment and prevent energy wastage, we found that the product's anthropomorphism strengthened the positive effect of ILOC on purchase intention, which supports the positive influence of anthropomorphism discussed in the literature.

The present research also makes several contributions to the ILOC literature. First, it empirically demonstrates that ILOC and external locus of control are different paths. In our research we found that consumers with high ILOC intend to purchase anthropomorphised green products. In our research, ILOC was the factor with the most significant purchase intention, not external LOC.

Second, this research explored the relationship between ILOC and purchase intention in an environmental context. Drawing on anthropomorphism theory, via this study, our research examined how product anthropomorphism moderates the relationship between ILOC and consumers' purchase intention, thus making a major contribution to the existing literature, in which there is a dearth of similar research.

The results of study 2 indicated that product anthropomorphism through the wording "I save energy" has a moderation effect on the relationship between the ILOC of consumers and purchase intention. Overall, our research results showed that product ILOC is positively related to purchase intention. From the past literature, we found that consumers intend to purchase green products because they enhance ILOC, which motivates them to buy green

products. Interestingly, one of the practical benefits of our research is that adding anthropomorphic features to green products will strengthen the effect of ILOC within green consumers, resulting in higher purchase intention behaviour towards green products.

The results of our research also indicate that consumers with ILOC are one of the groups of target consumers on whom green marketers should focus, because they are potential purchasers of green products, and therefore efforts to make these consumers aware of new anthropomorphised green products should be maximised. The practical contribution of this study lies in enabling marketers to have the option of adding anthropomorphism to their products, which is a flexible thing to do. Anthropomorphic features represent a factor that can be controlled by marketers. Also, as our results confirm hypothesis 1 – that ILOC positively affects purchase intention – this is a positive sign from the environmental point of view, because people with ILOC will feel an internal responsibility to purchase green anthropomorphised products. It is also valuable for marketers to understand the positive effect of ILOC on purchase intention, as people who are internally controlled are more resilient in response to external effects (Hill 2011). Also, as mentioned by Hill (2011), one of the features that make people with ILOC positively affect the world is their resistance to conformity (Hill 2011). Hill (2011) indicated that many studies in the field of psychology have found a correlation between ILOC and qualities of desirable personalities. According to Hill (2011), this means that people with ILOC are people who believe that they are responsible for their actions towards the environment and they think that the action of protecting the environment should start with themselves, without waiting for external factors to influence them. This makes these people desirable targets for marketers who are promoting their green products. This is from a profit point of view, but on the other hand, it is also positive for the well-being of the environment, specifically in terms of not wasting energy. This is especially important as we are living in a fast-growing world with many people

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sharing the world's resources. In addition, Hill (2011) highlighted a vital point, which is that people who are internal are more active than those who are external (e.g. Shipe 1971). Furthermore, Hill (2011) also indicated that internals perceive themselves as assertive and that other people also report them as being assertive (e.g. Phares 1965), which makes them a desirable target to be considered by green marketers. Furthermore, Hill (2011) stated that internal individuals recover quickly after they have experienced any sort of disappointment or failure, which is opposite to externals (e.g. Davis and Davis 1972). Internals also have a stronger ability to fix their life situations (Phares, Ritchie and Davis 1968) and they are ready to face life's challenges (Chen & Wang 2007). Applying this to our results is a bright opportunity for green marketers because we argue that being ready to face life's challenges and fix life's situations are qualities that are needed to encourage consumers to purchase environmentally friendly products. In addition, internals are more concerned about ethical behaviours (Reynolds and Ceranic, 2009).

Based on our results, we can infer that consumers with ILOC related to the purchase of green products show the feature of conformity resistance because they will select a green product as an alternative to other, non-green products. One of the challenges in communicating green messages in general is the difficulty of explaining the environmental or green problem and making it tangible (Ottman 2011). Therefore, knowing the moderation effect of anthropomorphism on the relationship between ILOC and purchase intention can help marketers to address this gap, even though using anthropomorphism does not eliminate the issue completely.

2.5.2 Limitations and future research

The current paper is subject to certain limitations that should be noted. First, there is the generalisability of the results; even though we conducted the study with a large sample of participants from the UK, it would be valuable to conduct similar studies in different cultural

contexts. Second, in this study, we used convenience sampling methods to draw the sample, so the limitations of the sampling method are applicable. The third limitation is the narrow focus of our study, because our paper focuses on the effect of ILOC on purchase intention and the moderation effect of green product anthropomorphism. We included a set of antecedents such as ILOC. Therefore, we did not include several other green variables, such as green knowledge and social norms, in our studies. Another limitation in our research is that using an online survey could have prevented us from reaching the whole target population, because prolific.com provides the number of participants available in the dataset, and this means that we excluded some older people who do not use a computer, or people who do not have Internet access. We did not use different products in our research, and this falls under the issue of product-specific effects mentioned by Cooremans and Geuens (2019). Also, we attempted to capture the behaviour of purchase intention as a dependent variable in our research, but this may not reflect the actual purchasing numbers, because the people who completed the questionnaire may have felt under pressure to show good behaviour with regard to saving energy and protecting the environment. However, the participants were not aware of our hypothesis (adapted from Cooremans and Geuens 2019).

Future research may explore another version of the electric energy-saving kettle to gain more detail about consumers' purchase intention levels related to different types of anthropomorphism. Although this paper considered a commonly used household green product, it would be interesting to see what would happen if we changed the product. In addition, our paper included anthropomorphism using first-person wording, and it would be interesting to consider other levels of anthropomorphism in future research. Kalamas et al. (2014) argue that challenges related to green actions cannot be fixed with individual efforts only; there is also a need for social and institutional forms. The authors also explained that even though industries can make some voluntary efforts related to, for example, the source

use of waste, the actual factors that can play a vital role in this process are governments and politicians. They are the ones who can implement strict guidelines, which can influence pro-environmental behaviours. This makes external locus of control an interesting topic which future researchers should pay attention to, using it with anthropomorphism theory, as we focused in our current research on ILOC.

Chapter 3: Anthropomorphising Green Products: The effect of perceived humour and product attractiveness on purchase intention

Abstract

In this paper, we examine the effect of anthropomorphising products that are environmentally friendly on consumers' intention to purchase the products. We conducted two studies. In study 1, using a one-way between-subject experiment of two experimental conditions (n=539) in which we manipulated the degree of green product anthropomorphism into low vs. high, we tested the effect of perceived humour and product attractiveness on consumers' evaluation of anthropomorphised green products. We found that the participants' purchase intentions in the high anthropomorphised condition were lower than in the low anthropomorphised condition. Subsequent analysis reveals that green products with a high level of anthropomorphism are perceived to be more humorous and less attractive than those with a low level of anthropomorphism. Our mediation analysis shows that indeed perceived humour and product attractiveness mediate the effect of the two experimental conditions on purchase intention. Study 2 used a one-way between-subject experiment of two experimental conditions (n=350) and confirmed the mediation roles of perceived humour and perceived product attractiveness. In addition, we found that the effect of perceived humour on purchase intention is mediated by perceived product credibility. The implication of this research is that anthropomorphising green products could decrease purchase intention if the product is perceived to be humorous which decrease the product credibility. Another implication of this research is that anthropomorphising green products could decrease product attractiveness which in turn decrease purchase intention.

Keywords: Anthropomorphism, green products, humour, product attractiveness, product credibility, message credibility, purchase intention

3.1 Introduction

Anthropomorphism has become a popular marketing tool in recent years. Anthropomorphism can be explained as "seeing humanness in the nonhuman world" (Hart and Royne 2017). Marketers attempt to humanise products by adding human-like features to them (Hart and Royne 2017). An example of product anthropomorphism is consumers seeing smiling faces on cars (Aggarwal and McGill 2007) and on vacuum cleaners (the Henry vacuum cleaner). Marketing researchers have generally shown that anthropomorphised products draw positive reactions from consumers, such as liking a product more (Aggarwal and McGill 2007) and positively enhancing purchase intention (Osselaer 2006; Wan, Chen and Jin 2017).

In the context of green products, Chang, Yeh and Lin (2017) proposed that adding cuteness to the product design to make green products look babyish is beneficial for product promotion. A green product is a product that is safe or does not harm the environment. Companies are gearing towards producing green products in response to consumers who are concerned about the environment (Schuhwerk and Lefkoff-Hagius 1995). Although previous studies have shown that green 'cute' products are beneficial for product promotion, with the 'noble' mission of saving the environment, it is unclear whether increasing the extent of green product anthropomorphism will further increase the purchase intention of green products. Therefore, in our research, we focus on the degree of green product anthropomorphism (low and high levels of anthropomorphism) and its effect on purchase intention. Some research has investigated the downside of anthropomorphism. For example, Puzakova, Rocereto and Kwak (2013) try to answer the question of how consumers evaluate an advertisement that contains a recommendation agent, more specifically, a recommendation that requires personal information, for example a security number, age, name, income or other personal information when the message is customised. Puzakova, Rocereto and Kwak (2013) indicated that previous studies did not discover the negative effect of anthropomorphism within

recommendation agents when the message is customised and when the recommendation agent requires sensitive information from consumers. The results of Puzakova, Rocereto and Kwak's (2013) paper show that the influence of anthropomorphism is predominantly negative on consumers' attitudes towards advertisements. Furthermore, Puzakova, Rocereto and Kwak (2013) indicated that this relationship between the anthropomorphism of a recommendation agent and attitudes are mediated by the unwillingness to provide personal information. Another factor that mediates the relationship between the anthropomorphism of a recommendation agent and attitudes is psychological resistance towards the advertisement. This is one example of the downside of using anthropomorphism theory as a marketing communication tool in marketing. Another example of the downside of using anthropomorphism is related to people who feel that they are powerful and those who do not feel powerful (Kim and McGill, 2011). For example, Kim and McGill (2011) indicate that those people who are low in power will have different attitudes towards anthropomorphised objects. People low in power, for example, perceive a higher risk when they see anthropomorphised forms of skin cancer, while people who feel powerful perceive a higher risk when the skin cancer is non-anthropomorphised. The authors indicated that the reason behind these behaviours is the sense of control, as people who feel powerful feel that they have high a level of control over these human-like forms (Kim and McGill, 2011).

Another example of negative applications was studied by Puzakova, Kwak and Rocereto (2011) as they focused on challenges faced by a brand when it faces negative publicity, for example when a food product contains unhealthy ingredients. The authors stated that it is not wise for marketers to use human-like qualities when consumers perceive negative information about the brand. The logic behind this, as explained by Puzakova, Kwak and Rocereto (2011), is that consumers dealing with human-like objects act as if they are seeing a human and that this is risky because they will think that this brand has the intention to hurt

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them. Therefore, marketers should avoid anthropomorphising under these circumstances. What is lacking in previous studies is the negative applications of using anthropomorphism with green products.

We posit that increasing the degree of anthropomorphism may not necessarily increase the purchase intention of the green product. This is because on the one hand, anthropomorphism may make the product look more appealing (Aggarwal and McGill 2007), but on the other hand, too much anthropomorphism may negatively affect purchase intention. One of the risky scenarios for marketers is when such a product is perceived as humorous. For example, Teixeira and Stipp (2013) found that the use of humour is associated with increasing purchase intention relative to other types of entertainment, but that too much humour decreases purchase intention. We aim to test the perceived humour of an anthropomorphised green product in order to determine whether too much humour negatively affects the purchase intention of green anthropomorphised products.

The product used in our experiment is an energy-saving kettle. When an energy-saving kettle appears too humorous, consumers may no longer view it as a 'credible product' that will help them to reduce energy consumption, which in turn decreases their purchase intention. Moreover, the attractiveness of such a product lies in its function rather than in its looks. It is well known that product appearance should be carefully managed to ensure that it is aesthetically acceptable to consumers (Creusen and Schoormans 2005) while not distracting the consumers from the function of the product. An analogy is when an extremely good-looking woman applies for a science job; she might be dismissed very early in the recruitment process because of prejudice about her ability to perform the job. In the same way, increasing the extent of green product anthropomorphism may decrease the green product's attractiveness as it distracts the consumers from the seriousness and credibility of its green credentials, in this case saving energy.

We propose that perceived humour and product attractiveness are mediators of the relationship between the degree of green product anthropomorphism and purchase intention. To test our predictions, we conducted two studies. Study 1 is a one-way experiment with two degrees of green product anthropomorphism. The findings reveal that increasing the degree of anthropomorphism of green products is negatively related to purchase intention, and that such a negative effect is indeed due to its over humorous nature and this reduces product attractiveness. Study 2 is a one-way experiment to further investigate why when the anthropomorphised green product is perceived to be humorous, purchase intention decreases. In this study, we examined the effect of perceived humour on product and message credibility. Credibility is a belief in a product or service that reduces purchase anxiety (Fugate, 1998; Hovland, Janis and Kelly, 1953, cited by Jin and Sung, 2010). A massive meta-analysis paper by Eisend (2009) indicated that if an object is perceived to be humorous, the credibility of the object decreases.

Besides contributing to the anthropomorphism literature by examining the effect of the type (level) of green product anthropomorphism (low, high) on purchase intention, our study contributes to the understanding that 'too much' anthropomorphism can decrease the purchase intention for green products. Our study also contributes to the anthropomorphism literature by examining the underlying mechanisms of such a negative relationship, which are perceived humour and product attractiveness. For marketers, this study reveals the downside of increasing the degree of anthropomorphism of green products. A wider implication of this study is a reconsideration of increasing the degree of anthropomorphism of other utilitarian products.

3.2 Theoretical development

3.2.1 Green product anthropomorphism

"The more readily people can anthropomorphise a stimulus, the more they like it" (Aggarwal and McGill, 2007). Some studies discuss the positive side of anthropomorphism theory on purchases. For example, Chen, Wan & Levy (2017) indicated that consumers who are feeling socially excluded have more favourable attitudes towards the anthropomorphised brand comparing with those who feel included. However, when the brand was not anthropomorphised, excluded consumers and included consumers did not differ in their preference. In addition, the results revealed that those socially excluded consumers prefer the anthropomorphised brand more than the non anthropomorphised brand. In their second study, they indicated that socially excluded consumers are more willing to purchase the anthropomorphised brand comparing with included consumers when those excluded consumers did not actually have the chance to affiliate with another human directly before they purchase the anthropomorphised brand. However, when the brand was not anthropomorphised socially excluded and included consumers did not differ in their purchase intention. Nevertheless, the authors indicated that when consumers had the chance to affiliate with another person directly before the purchase process, participants showed no difference in their purchase intention when the brand is anthropomorphised and not anthropomorphised. Finally, the authors also indicated that those consumers who feel socially excluded are in fact separated into two type. Those who blame themselves and those who balm others for being excluded. And that those who balm themselves prefer partner anthropomorphised brand while those who blame others for being excluded prefer fling anthropomorphised brand. Partner brand is one associated with long relationship, high trust and commitment while the fling one require much less level of commitment and short period of relationship (Fournier, 1998).

Another example, young consumers are more likely to select a product with colour and bespoke characters to convince their parents to buy the product for them (Mzoughi, Bree and Cherif, 2017). Bespoke characters improve attitudes towards brands, trust in that brand, and willingness to pay a premium price for it (Folse, Netemeyer and Burton, 2012; Folse, Burton and Netemeyer, 2013). Marketing folklore advocates indicate that adding smiling elements to a product enhances the purchase intention of the product (Osselaer, 2006). Wan, Chen and Jin (2017) indicated the effect of anthropomorphism on purchases. They reported that people were more likely to use their money to purchase a charger with a superior appearance when the charger was anthropomorphised, compared to one that was not. Chowdhury et al. (2014) reported that a chair with a high level of anthropomorphism encouraged higher purchase intention than a chair with a low level of anthropomorphic features.

Related to the green context, a previous study has shown that anthropomorphism influences the purchase intention for green anthropomorphised products. For example, Chang, Huang and Liu (2018) indicated that using a sad/happy style of anthropomorphism for recycled paper ads improved purchase intention compared with non-anthropomorphised recycled paper ads. The same paper indicated that the use of sad/happy anthropomorphic features led to a higher level of donations to save the environment. An interaction was found between anthropomorphic style and issue proximity – when an environmental problem was proximal people shown the sad anthropomorphic condition donated more than those shown the happy anthropomorphic condition. In contrast, when the environmental problem is less proximal, a happy anthropomorphic style works better (Chang, Huang and Liu 2018).

Cooremans and Geuens (2019) reported that applying human-like elements on misshapen food products increases purchase intention. The authors used environmental concern as a moderator and a measure of behaviours in the grocery shopping context. For abnormally shaped products, the influence of anthropomorphism on purchase intention was moderated by

environmental concern. However, there is no moderation effect of environmental concern on the relationship between anthropomorphism and purchase intention for normally shaped food products (Cooremans and Geuens, 2019). Some previous studies seem to suggest that green product anthropomorphism has a positive effect on purchase intention. Nevertheless, this is not the complete picture of using anthropomorphism theory as this theory has downsides too. Puzakova and Aggarwal (2015) showed that human-like features are not always a successful marketing strategy for communicating with consumers. Puzakova and Aggarwal (2015) focused on using human-like qualities with a specific category of brands – luxury brands. Puzakova and Aggarwal (2015) indicated that when marketers think about using human-like features with brands with which consumers seek to increase their social statues (e.g. through luxury), using anthropomorphism is a wrong decision. The reason, as indicated by Puzakova and Aggarwal (2015), is that female consumers who are low in power are trying to maximise their social status and one way to do so is by increasing their social distance, as consumers who are aiming for luxury brands want to be considered different from others. Therefore, using anthropomorphism within luxury brands will drive those female clients to perceive the anthropomorphised luxury brand as less favourable than the same luxury brand when it is not anthropomorphised. Kwak, Puzakova and Rocereto (2015) indicated that anthropomorphism may not be a successful tool for brand promotion as when the price for an anthropomorphised brand is increasing, this will lead consumers to perceive this price increase as unfair. On the other hand, it is also problematic for marketers as consumers will perceive a lower price for an anthropomorphised brand as fairer (Kwak, Puzakova, & Rocereto, 2015). In particular, consumers who are agency-oriented value their own interests over those of others, and they will perceive the increase in the price of an anthropomorphised brand as unfair. Puzakova, Rocereto and Kwak (2013) also added to the literature on the downside of anthropomorphism by indicating that anthropomorphism has a predominantly negative effect on consumers'

attitudes towards advertisements. Attitudes can include many elements and purchase intention is one of the attitudes that we are discussing in our current research.

Anthropomorphism presentation is also found to influence purchase intention in an indirect way as anthropomorphism presentation will influence attitudes, which in turn will affect purchase intention (Hart, 2013). We are proposing perceived humour and perceived product attractiveness as attitudes that mediate the influence of product anthropomorphism on purchase intention, as we will discuss in the next section.

3.2.2 Perceived humour

The definition of humour is that when consumers see a message or object, its ingenuity, ability to communicate verbally or even its incongruity can make consumers laugh (Lee and Kleiner, 2005 cited by Bergeron and Vachon, 2008). Previous studies on green product anthropomorphism have been focusing on environmental concern and issue proximity as variables that moderate the effect of green product anthropomorphism on purchase intention. In this study, we investigate how product anthropomorphism affects perceptions of green products, which in turn affects purchase intention.

The literature related to product design indicates that humour and humanity are part of having fun; humour helps to humanise the product and adds a sense of happiness to the product (Demirbilek and Sener, 2003). As Doyle (1998) indicated, funny products can more easily reach out to people. This indicates that humour can be a vital element influencing how people evaluate humanised products. Humour helps to make people feel positive about the product (Duncan and Nelson 1985). Phua and Kim (2018) state that humour is a traditional tool used to enhance the recall and positive evaluation of a product or brand. They found that among consumers of Snapchat geofilter adverts, higher perceived humour was associated with greater purchase intention and better brand attitudes. Teixeira and Stipp (2013) found that the use of humour is associated with increasing purchase intention relative to other types of

entertainment. Eisend (2009) indicated that the use of humour is not always positive, but can sometimes be negative. Therefore, marketers should be careful about how and when to use it. Also, there is no positive universal agreement on the positive influence of humour in marketing applications (Weinberger and Gulas, 1992). Klein (2014) indicated that while using humour can create new connections, designers should pay attention to designing the product in a way that avoids alienating people. For example, too much humour can decrease purchase intention. Evidence contradictory to the above has also been reported – that non-humorous entertainment is associated with an increase in purchase intention (Teixeira and Stipp 2013). Furthermore, it is critical to understand that humour should be associated with a service, product or brand that is humorous in itself (Zhang and Zinkhan, 2006). In other words, when a comedian or comic book possess humor, this will make the message from the humours source as that the product are believable to have good quality. On the other hand, when humour is not relevant to the product or brand, this will cause counterarguments and unfavourable claims. For example, using a green product that is perceived as humorous may not be a logical move for use with serious problems (e.g. environmental problems). Chattopadhyay and Basu (1990) argued that there needs to be further investigation into when to use humour and when not to. Rossiter et al. (1991) and Gulas and Weinberger (2006, cited by Eisend, 2009) indicated that it is important that thematically the humour is related to the nature of the product or message. This is why we argue in the next lines that this is a reason why humour affects how consumers perceive the credibility of a product or message, which in turn influences their purchase intention. We also suggest that with a green product, consumers take time to process the information related to an issue, for example, environmental issues. Zhang and Zinkhan (2006) indicated that if humour is related to the product's claim, this will help to sell the product, but if the humour is not related to the product claim (e.g. environmental problems) this will not help to improve consumers'

attitudes towards the product or brand. Markowsky (1975) indicated that adding human-like types to non-human animals can be perceived to be funny by both adults and children. Markowsky (1975) also mentioned that adults and children's perception of this humour is based on the non-human animal picture and what this picture says. We argue that when consumers see a product with human-like features they will attribute specific characteristics to it, such as being funny or not funny. This will therefore influence their evaluation of the product and whether or not they intend to purchase it. People usually attribute characteristics to a person when they see them for the first time and we argue that this also happens with human-like products. People will see the human-like green product as humorous and hence this will affect how they evaluate it.

Here we argue that using humour which is a result of increasing human-like features is not recommended. We argue that instead of adding a sense of happiness to the product, a humorous green product decreases the credibility of the product in its mission to save the environment.

We thus form the following hypothesis:

H1: Perceived humour mediates the effect of anthropomorphised green products on purchase intention such that it decreases purchase intention.

3.2.3 Perceived attractiveness

As indicated by Chowdhury, Karmakar, Ghosh and Chakrabarti (2014), research has been conducted on anthropomorphism in product design, but rarely have researchers studied how anthropomorphic features influence purchase intention through visual attractiveness. Their study examined the effect of an anthropomorphised chair on purchase intention, considering visual attractiveness. The results showed that people perceived the chair with the highest level of anthropomorphism as the most attractive. Consumers are generally more attracted to

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products with higher anthropomorphic features. Therefore, it seems that anthropomorphism does not affect purchase intention directly, but that people purchase the anthropomorphised product because of attractiveness. Also, according to Mzoughi, Bree and Cherif (2017), even though their study was related to young consumers and toy packaging, attractive components such as graphic design elements, colours and the presence of a cartoon humanised character were usually included to help solve the problem of limited cognition. Their indication of graphic design and cartoon characters as attractive elements show that anthropomorphism, by adding human-like features, can be related to attractiveness and that this relationship will affect purchase intention. Furthermore, Hellen and Sääksjärvi (2011) concluded from their results that consumers are attracted to anthropomorphic products, but their focus was on childlike anthropomorphic features, which differs from our work in the environmental context. There is still a limited number of studies about this relationship within green products, using perceived attractiveness as a mediator for the relationship between the level of green product anthropomorphism and the purchase intention of green products. We argue that as indicated before that human-like features can negatively influence purchase intention and this influence is because human-like features effect green product perceived attractiveness. We hypothesise:

> H2: Perceived attractiveness mediates the effect of the anthropomorphism of green products on purchase intention.

3.3 Study 1

In this study, we examine the influence of green product anthropomorphisms type (low and high) on purchase intention. In addition, we investigate the mediation role of perceived humour in the relationship between green product anthropomorphism types (low and high) and purchase intention. We also test the mediation role of perceived attractiveness in the relationship between green product anthropomorphism type (low and high) and purchase

intention. We are aiming to determine whether increasing the anthropomorphism features will decrease the purchase intention of green products through perceived humour and perceived attractiveness.

3.3.1 Methods

3.3.1.1 Study design and procedure

To test our hypotheses, we designed a one-way between-subjects experiment, in which we manipulated the type of product anthropomorphism to be a low or high level of product anthropomorphism. We assigned respondents randomly to one of the two conditions and collected data through an online questionnaire that contained the general instructions, scenario descriptions, and a list of items to measure the products' anthropomorphism, perceived humour, perceived product attractiveness, ILOC and purchase intention. In addition, we collected demographic information such as gender.

We used two images of electric energy-saving kettles representing the two experimental conditions (see Figure 3.1). In both conditions, the manipulation of the product anthropomorphism was undertaken by: (1) designing the arm of the kettle to be a human-like arm; and (2) putting a tagline above the image "I save the energy". This was also to prime the participants that the kettles were eco-friendly products, and first-person language is one way of anthropomorphising objects (Aggarwal and McGill, 2007). In the high level of anthropomorphism condition, we added 'human' eyes and a nose to the kettle. We hired a professional designer to help with the designs of the anthropomorphised products. Note that the images of the electric energy-saving kettles used in the two conditions were the same in size, pixel quality and design. The two images were brand neutral, which means that no brand name was used in the images. This was to avoid the participants associating the product with an existing brand, which might create bias in their responses (e.g., familiarity with an existing brand name).

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Figure 3.1. Images used in each condition of the one-way between-subject experiment (study 1).

The scenarios asked the participants to imagine that they needed to purchase an electric kettle and that they did not want to pay more for their energy bill and were attracted to an energy-saving electric kettle. Next, they were presented with an image of an electric kettle. Afterwards, they were asked to answer a set of survey questions aimed at measuring their perceptions about the product's anthropomorphism, perceived level of humour, perceived attractiveness, and their purchase intention.

To measure product anthropomorphism, the participants were asked whether they thought that the features of the electric kettle were close to human-like elements on a 7-point Likert scale ranging from 1=strongly disagree to 7=strongly agree. The survey items were adapted from Hur et al. (2015), Puzakova and Kwak (2017) and Waytz et al. (2010). A sample item was "It almost seems as if this electric kettle has intentions." Perceived level of humour was

measured with adapted survey items from Zhang (1996) (i.e. not funny/very funny, not humorous/very humorous, not amusing/very amusing) on a 7-point semantic differential scale. The degree to which the participants felt that the products were attractive was measured using adapted survey items from Holzwarth, Janiszewski and Neumann (2006) on a 7-point Likert scale. A sample item was "In my opinion, the electric kettle is attractive/beautiful/good looking". Purchase intention towards the electric energy-saving kettle, was measured using a 7-point Likert scale adapted from Coyle and Thorson (2001), Li et al. (2002) and Moon et al. (2008). A sample item was "I will purchase this electric kettle, the next time I need an electric kettle". Participants also answered ILOC questions McCarty & Shrum, (2001). A sample item was "In the long run, I am responsible for saving energy" and these were measured using a 7-point Likert scale.[6] The researcher used McCarty and Shrum's (2001) questions as they appear in a high-ranking journal. The researcher used these questions after making sure that each question was loaded significantly to the ILOC construct in the CFA analysis. The researcher also used this article because it contains many questions related to the ILOC. This article was well read by the researcher after writing Chapter 2, which explains why different questions for ILOC appear in Chapter 2 to Chapter 3. However, the researcher ensured that all the questions in both chapters were used after careful CFA analysis to verify the quality of all constructs.

3.3.1.2 Data collection

We collected our survey-based experimental data through Prolific Academy, which is a UK-based crowdsourcing data service. We targeted UK participants aged 18 or older. The total number of participants was 539 after deleting incomplete questionnaires. The respondents were distributed randomly into one of the two conditions. The number of responses analysed in each condition was: 262 for the low anthropomorphic condition and 277 for the high

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[6] Internal Locus of control was measured as a potential control variable.

anthropomorphic condition. The following demographic profile emerged from the sample: the average age of the participants was 39 years old, 69.2% were female, 29.7% had a 4-year university education, 24.1% had a college education, and 16.7 % had a high school education.

3.3.1.3 Analysis of measurement items

Before testing each hypothesis, we conducted CFA to assess the quality of the measurement items. Structural equation modelling (SEM) software Amos 21.0 was used to perform CFA. The structured four-factor measurement model was composed of the products' anthropomorphism, purchase intention, perceived humour and perceived attractiveness. Before conducting CFA, we ensured that there were no missing data. Maximum likelihood methods were used to estimate the model. The results showed that model fit is acceptable (CFI=0.986, RMSEA=0.045, NNFI=0.982, Chi-square=261.810, df=125). All standardised loadings were above 0.7 with only one loading related to purchase intention slightly below 0.7 (i.e. 0.65) (see Table 3.1).

3.3.1.4 Common method bias

We checked the possibility of common method bias. We used Harman's one-factor test (Harman, 1976), we connected all items in our model to one single factor. The one-factor model indicated a very poor model fit (CFI= 0.177, RMSEA=0.309, NNFI=0.171; Chisq=7953.132, DF=152), and we also conducted a one-factor extraction method applying principal axis factoring by SPSS and the percentage of variance of this factoring test was 33.47% which is less than 50% and this help us evidencing that our model does not suffer from common bias method.

Table 3.1**: Result of CFA (Overall) of Study 1**

Constructs and items	SL*	t Value
Product anthropomorphism, AVE=0.76; CR= 0.90		
It almost seems as if this electric kettle has intentions.	.75	14.82
This electric kettle appears to have the ability to experience emotions.	.93	6.97
This electric kettle appears to have consciousness.	.94	6.25
Perceived humour of this product is: AVE=0.94, CR=0.98		
Not funny – Very funny	.96	11.86
Not humorous – Very humorous	.99	4.38
Not amusing – Very amusing	.96	12.92
Perceived attractiveness, AVE=0.81, CR= 0.92		
The electric kettle is attractive.	.86	12.92
The electric kettle is beautiful.	.91	10.32
The electric kettle is good looking.	.93	8.85
Purchase intention "How likely are you to purchase this electric kettle?", AVE=0.79, CR=0.93		
Very unlikely – Very likely	.97	7.34
Improbable – Probable	.96	9.91
Uncertain – Certain	.67	16.03
Definitely not – Definitely	.92	13.90
Internal locus of control "Please answer the following items" AVE=0.65, CR=0.90		
There is a lot that I, as a consumer, can do to save energy.	.84	12.06
I can help save energy.	.82	12.77
It is possible for me to play an important part in terms of saving energy.	.81	12.96
In the long run, I am responsible for saving energy.	.77	13.90
To a great extent, I can save energy through my own actions.	.79	13.48

Note: SL=standardised loadings.

3.3.1.5 Reliability, multicollinearity, heteroskedasticity and validity

We conducted a reliability test for the scales used in the model and all of them were above

0.7 for Cronbach's alpha, indicating that the questions are valid. We also checked the

problems of multicollinearity and heteroskedasticity. The situation where independent

variables are highly correlated is referred to as multicollinearity; we wanted to make sure that

there were no highly correlated independent variables in our model as this could have

prevented us from finding the individual contributions of the independent variables. We used

the collinearity diagnostic tool in SPSS to inspect the VIF (variance inflation factor) values.

The results show that no multicollinearity exists (VIF values < 10). We also checked whether

our data had heteroskedasticity problems by using the Breusch-Pagan and Koenker test. The

results were obtained with Daryanto's Heteroskedasticity SPSS Macro (2018) and showed

that our data did not suffer from heteroskedasticity problems. Finally, we assessed the

convergent and discriminant validities of our measures: the average variance extracted (AVE)

ranged from 0.65 to 0.94, which is above the threshold of 0.50 and the composite reliabilities

(CRs) ranged from 0.90 to 0.98, which is above 0.7, indicating good construct reliability.

3.4 Study 1 results

3.4.1 Descriptive results

In Table 3.2 we present the descriptive statistics (means and standard deviations) of the key

constructs: perceived anthropomorphism, perceived humour, perceived attractiveness and

purchase intention. To test whether there was a significant difference in purchase intention

between the two conditions, we conducted one-way ANOVA analysis, explained in the next

sections.

Table 3.2: **Descriptive statistics of Study 1**

Experimental conditions	Constructs	Mean (SD)
Low anthropomorphism	Product anthropomorphism	1.76 (1.25)
	Perceived humour	2.42 (1.49)
	Perceived attractiveness	3.84 (1.36)
	Purchase intention	3.89 (1.43)
High anthropomorphism	Product anthropomorphism	2.75 (1.66)
	Perceived humour	3.32 (1.75)
	Perceived attractiveness	3.33 (1.55)
	Purchase intention	3.26 (1.68)

3.4.2 Manipulation check

The participants indicated that the slightly anthropomorphised kettle (M=1.76) appeared significantly less human-like than the highly anthropomorphised kettle (M=2.75) ($F_{(1, 59.95)}$ =130.919; $p < .001$).

3.4.3 Main effect ANOVA

The results confirmed that the purchase intention for slightly anthropomorphised kettle (M=3.89) was significantly higher than for the highly anthropomorphised kettle (M=3.26) ($F_{(1, 21.833)}$ = 53.704; $p < .001$) (see Table 3.2).

3.4.4 Mediation

To test the mediational role of perceived humour and perceived attractiveness, we used PROCESS Model 4 (Hayes 2018) in SPSS. The hypothesised mediation effects can be confirmed when the lower (upper) bound of the confidence interval is greater (less) than zero for a positive (negative) mediation effect estimate. The analysis used the anthropomorphic level conditions (condition 1 "low", condition 2 "high") as the independent variable, perceived humour and perceived attractiveness as mediators, the purchase intention of the green product

as the dependent variable, and ILOC and gender as control variables. We used ILOC as control variable because it is influencing how consumers behave in term of protecting their environment (McCarty and Shrum 2001). Also, Rashed, Daryanto and Sutanto (2018) found that human-like features influence the effect of ILOC on purchase intention. In addition, Lee (2009) indicated that females for example found to be purchasing environmental product more comparing to males. Letheren et al. (2016) also considered gender as one of the individuals' factors wish can differ among the tendency of anthropomorphising non-human objects. Therefore, we used gender too as control variable. We did not use education or age because according to our knowledge no much evidence in their influence on the intentions to purchase anthropomorphised products which are environmentally friendly. Even studies such (Hellen and Sääksjärvi, 2011) was related to human-like features were related to childlike human which is not our focus and their study also was not related to environmental products. Therefore, we used ILOC and gender as control variables.

3.4.4.1 Mediation effect of perceived humour

The mediation effect of perceived humour is shown in the model in Figure 3.3. Firstly, it includes the direct effect of the anthropomorphic conditions (multi-categorical independent variable) on perceived humour and the direct effect of perceived humour on the purchase intention of the green product, controlling for anthropomorphic conditions. PROCESS Model 4 (Hayes 2018) simultaneously estimates the mediation effects of the high anthropomorphism condition with reference to the low anthropomorphism condition.

Table 3.3 shows the estimated perceived humour from the anthropomorphic type in the high anthropomorphism condition (vs. the low anthropomorphism condition). We found that the path is significant for the high anthropomorphism condition (a=0.908, p<0.01). We also estimated purchase intention from perceived humour, as we controlled for the anthropomorphic conditions. The path is significant (b= 0.231, p<0.01) (see Table 3.5). The

coefficients of the path contain the indirect effect of the anthropomorphic level conditions. The results indicated that the mediated effect of perceived humour on the relationship between the high anthropomorphic condition with reference to the low anthropomorphic condition and purchase intention (ab= 0.210, p <0.05) is significant and positive, given that the lower limit of the confidence interval (.126) is greater than zero. Therefore, the results indicate that the anthropomorphic levels affect perceived humour, which in turn affects the purchase intention of the green product.

3.4.4.2 Mediation effect of perceived attractiveness

The mediation effect of perceived attractiveness is shown in the model in Figure 3.3. Firstly, it includes the direct effect of the anthropomorphic conditions (multi-categorical independent variable) on perceived attractiveness and the direct effect of perceived attractiveness on the purchase intention of the green product, controlling for anthropomorphic conditions. PROCESS Model 4 (Hayes 2018) simultaneously estimates the mediated effects of the high anthropomorphic condition with reference to the low anthropomorphic condition.

Table 3.4 shows the regression results estimating perceived attractiveness from the high anthropomorphic condition (vs. low anthropomorphic condition). We found that the path is significant for the high anthropomorphic condition (a= -.473, p<0.01). We also estimated purchase intention from perceived attractiveness, as we controlled for anthropomorphic level conditions. The path is significant (b=0.590, p<0.01) (see Table 3.5). The coefficients of the path contain the indirect effect of the anthropomorphic conditions. The results indicated that the mediated effect of perceived attractiveness on the relationship between high anthropomorphic condition (vs. low anthropomorphic condition) and purchase intention (ab= -279, p <0.05) is significant, as the upper limit of the confidence interval (-0.126) is less than zero (see Table 3.7). Therefore, the results indicate that the high anthropomorphic condition

(vs. the low anthropomorphic condition) affects perceived attractiveness, which in turn affects the purchase intention of the green product.

Table 3.3**: Regression results of Study 1: The effects of the experimental conditions on perceived humour**

Variable	B	Se	P-Value	Lower CI	Upper CI
Constant	2.1143	.4725	.000	1.186	3.042
Kettle type	.9089	.141	.000	.630	1.187
ILOC	.055	.079	.491	-.101	.211
Gender	-.011	.151	.939	-.309	.286

Note: Kettle type= High condition (relative to low condition); ILOC= Internal locus of control; ILOC and Gender are control variables.

Table 3.4**: Regression results of Study 1: The effects of the experimental conditions on perceived attractiveness**

Variable	B	Se	P-Value	Lower CI	Upper CI
Constant	3.101	.419	.000	2.276	3.926
Kettle type	-.473	.126	.000	-.720	-.225
ILOC	.141	.071	.047	.001	.280
Gender	-.222	.134	.098	-.487	.041

Note: Kettle type= High condition (relative to low condition); ILOC= Internal locus of control; ILOC and Gender are control variables.

Table 3.5**: Regression results of Study 1 (DV=purchase intention)**

Variable	B	Se	P-Value	Lower CI	Upper CI
Constant	.411	.348	.237	-.272	1.095
Kettle type	-.522	.106	.000	-.731	-.3132
Humour	.231	.032	.000	.168	.295
Attractiveness	.590	.036	.000	.519	.662
ILOC	.117	.056	.036	.007	.227
Gender	-.058	.106	.580	-.267	.150

Note: Kettle type= high condition (relative to low condition); Humour= Perceived humour; Attractiveness= Perceived attractiveness; ILOC= Internal locus of control. Gender and ILOC are control variables.

Table 3.6**: Results of the indirect effect of kettle type on purchase intention through humour (Study 1)**

Variable	Effect	BootSe	Boot Lower CI	Boot Upper CI
Kettle type	.210	.045	.126	.306

Note: Kettle type= high condition (relative to low condition)

Table 3.7**: Results of the indirect effect of kettle type on purchase intention through perceived attractiveness (Study 1)**

Variable	Effect	BootSe	Boot Lower CI	Boot Upper CI
Kettle type	-.279	.076	-.429	-.126

Note: Kettle type= high condition (relative to low condition)

3.5 Discussion

Our data for this study illustrated the influence of the level of product anthropomorphism (high vs. low) on the purchase intention of a green product through perceived humour and perceived attractiveness. It appears that human-like features enhance humour and decrease perceived attractiveness which was the reason why purchase intention for high anthropomorphism green product was lower than purchase intention in low anthropomorphism green product.

3.6 Study 2

Previously we argue that instead of adding a sense of happiness to the product, a humorous green product decreases the credibility of the product in its mission to save the environment. Study 2 aims to investigate whether the product and message credibility indeed explain the

reason why a high anthropomorphised green product that is perceived to be humorous has low purchase intention. We examine the mediation role of perceived product and message credibility in **the** relationship between perceived humour of anthropomorphised green product and purchase intention.

3.6.1 Methods

3.6.1.1 Study design and procedures

We designed a one-way between-subjects experiment, in which we manipulated the type of product anthropomorphism to be a low or high level of product anthropomorphism. We assigned respondents randomly to one of the two conditions and collected data through an online questionnaire that contained the general instructions, scenario descriptions, and a list of items to measure the products' anthropomorphism, perceived humour, perceived product credibility, perceived message credibility, perceived attractiveness and purchase intention. In addition, we collected demographic information such as gender.

We used the same two images of electric energy-saving kettles as in study 1. The only difference is in this study, we asked a professional designer to put the tagline "I save the energy" on the kettle instead of above the image (see Figure 3.2).

Low anthrophomorphism   High anthrophomorphism

Figure 3.2. Images used in each condition of the one-way between-subject experiment (study 2)

We implemented the same procedure as in study 1 i.e. first, the participants were shown scenarios that asked them to imagine that they needed to purchase an electric kettle and that they did not want to pay more for their energy bill and were attracted to an energy-saving electric kettle. Next, they were presented with an image of an electric kettle. Afterwards, they were asked to answer a set of survey questions aimed at measuring their perceptions about the product's anthropomorphism, perceived level of humour, perceived attractiveness, perceived product credibility, perceived message credibility, ILOC and purchase intention. In addition, we asked for demographic information such as gender.

Perceived product credibility was measured with adapted survey items from Holzwarth, Janiszewski and Neumann (2006) on a 7-point Likert scale. A sample item was "The electric kettle is competent". Perceived message credibility was measured with adapted survey items from Marks and Kamins (1988) and Becker et al. (2019) on a 7-point Likert scale. A sample item was "The message of the kettle about energy-saving is exaggerated".

3.6.1.2 Data collection

We again collected our survey-based experimental data through Prolific Academy (a UK-based crowdsourcing data service). As in study 1, we targeted UK participants aged 18 or older. The total number of participants was 350 after deleting incomplete questionnaires. The respondents were distributed randomly into one of the two conditions. The number of responses analysed in each condition was: 178 for the low anthropomorphic condition and 172 for the high anthropomorphic condition. The following demographic profile emerged from the sample: 37.7% of participants aged between 25 to 34, 75.1% were female, 32.3%

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had a 4-year university education, 24.6% had a college education, and 16.6% had a high school education.

3.6.1.3 Analysis of measurement items

Before testing each hypothesis, we conducted CFA to test the quality of the measurement items. Structural equation modelling (SEM) software Amos 21.0 was used to perform CFA. The structured six-factor measurement model was composed of the products' anthropomorphism, purchase intention, perceived humour, perceived product credibility, perceived message credibility and perceived attractiveness. Before conducting CFA, we ensured that there were no missing data. Maximum likelihood methods were used to estimate the model. The results showed that model fit is acceptable (CFI=0.983, RMSEA=0.042, NNFI=0.980, Chi-square=374.255, df=231). All standardised loadings were above 0.7 (see Table 3.8).

3.6.1.4 Common method bias

We checked the possibility of common method bias. We used Harman's one-factor test (Harman, 1976), we connected all items in our model to one single factor. The one-factor model indicated a very poor model fit (CFI=0.224 , RMSEA=0.261, NNFI=0.221; Chisq=6790.716, DF=275), and we also conducted a one-factor extraction method applying principal axis factoring by SPSS and the percentage of variance of this factoring test was 32.23% which is less than 50% and this help us evidencing that our model does not suffer from common bias method.

Table 3.8**: Result of CFA (Overall) of Study 2**

Constructs and items	SL*	t Value
Product anthropomorphism, AVE=0.76; CR= 0.90		
It almost seems as if this electric kettle has intentions.	0.78	11.50

This electric kettle appears to have the ability to experience emotions.	0.90	7.34
This electric kettle appears to have consciousness.	0.93	5.26

Perceived humour of this product is: AVE=0.93, CR=0.97

Not funny – Very funny	0.97	7.58
Not humorous – Very humorous	0.97	7.95
Not amusing – Very amusing	0.96	9.54

Perceived attractiveness, AVE=0.86, CR= 0.94

The electric kettle is attractive.	0.93	8.57
The electric kettle is beautiful.	0.89	10.71
The electric kettle is good looking.	0.96	6.42

Purchase intention "How likely are you to purchase this electric kettle?" AVE=0.85, CR=0.95

Very unlikely – Very likely	0.97	8.02
Improbable – Probable	0.96	9.15
Uncertain – Certain	0.80	12.60
Definitely not – Definitely	0.95	9.55

Internal locus of control "Please answer the following items" AVE=0.69, CR=0.91

There is a lot that I, as a consumer, can do to save energy.	0.88	9.51
I can help save energy.	0.88	9.51
It is possible for me to play an important part in terms of saving energy.	0.84	10.62
	0.75	11.83
In the long run, I am responsible for saving energy.	0.82	10.96
To a great extent, I can save energy through my own actions.		

Product credibility "Please rate the following statements"

AVE=0.72, CR=0.91

	0.76	11.77
The electric kettle is sincere.	0.87	9.87
The electric kettle is competent.		

	SL	
The electric kettle is credible.	0.92	7.58
The electric kettle is trustworthy.	0.85	10.47
Message credibility "Please rate the following statements"		
AVE=0.82, CR=0.90		
The message of the kettle about energy-saving is exaggerated (reverse coded)	0.89	4.57
The message of the kettle about energy-saving is overstated (reverse coded)	0.92	3.17

Note: SL=standardised loadings.

3.6.1.5 Reliability, multicollinearity, heteroskedasticity and validity

As in study 1, we conducted a reliability test for the scales used in the model and all of them were above 0.7 for Cronbach's alpha, indicating that the questions are valid. We also checked the problems of multicollinearity and heteroskedasticity. The results show that no multicollinearity exists (VIF values < 10). We also checked that our data did not suffer from heteroskedasticity problems. Finally, we assessed the convergent and discriminant validities of our measures: the average variance extracted (AVE) ranged from 0.69 to 0.93, which is above the threshold of 0.50 and the composite reliabilities (CRs) ranged from 0.90 to 0.97, which is above 0.7, indicating good construct reliability.

3.7 Study 2 results

3.7.1 Descriptive results

In Table 3.9 we present the descriptive statistics (means and standard deviations) of the key constructs: perceived product anthropomorphism, perceived humour, perceived product credibility, perceived message credibility, perceived attractiveness and purchase intention. To test whether there was a significant difference in purchase intention between the two conditions, we conducted one-way ANOVA analysis, explained in the next sections.

Table 3.9**: Descriptive statistics of Study 2**

Experimental conditions	Constructs	Mean (SD)
Low anthropomorphism	Product anthropomorphism	1.63 (1.15)
	Perceived humour	2.37 (1.45)
	Perceived attractiveness	3.50 (1.52)
	Purchase intention	3.56 (1.61)
	Product credibility	4.68 (0.96)
	Message credibility	4.17 (0.95)
High anthropomorphism	Product anthropomorphism	2.91 (1.61)
	Perceived humour	3.46 (1.75)
	Perceived attractiveness	3.11 (1.70)
	Purchase intention	3.19 (1.83)
	Product credibility	4.41 (1.26)
	Message credibility	4.04 (1.08)

3.7.2 Manipulation check

The participants indicated that the slightly anthropomorphised kettle (M=1.63) appeared significantly less human-like than the highly anthropomorphised kettle (M= 2.91) ($F_{(1, 72.68)}$ =142.44; $p < .001$).

3.7.3 Main effect ANOVA

The results confirmed that the purchase intention for slightly anthropomorphised kettle (M=3.56) was significantly higher than for the highly anthropomorphised kettle (M=3.19) ($F_{(1, 4.20)}$ = 12.52; $p < .05$) (see Table 3.9).

3.7.4 Mediation

This study confirmed the mediation role of perceived humour and perceived attractiveness. The analysis used the anthropomorphic level conditions (condition 1 "low", condition 2 "high") as the independent variable, perceived humour and perceived

attractiveness as mediators, the purchase intention of the green product as the dependent variable, and ILOC and gender as control variables. We used the same control variables in the previous study. We used ILOC as control variable because it is influencing how consumers behave in term of protecting their environment (McCarty and Shrum 2001). Also Rashed, Daryanto and Sutanto (2018) found that human-like features influence the effect of ILOC on purchase intention. In addition, Lee (2009) indicated that females for example found to be purchasing environmental product more comparing to males. Letheren et al. (2016) also considered gender as another one of the individuals factors wish can differ among the tendency of anthropomorphising non-human objects. Therefore, we used gender too as control variable. We did not use education or age because according to our knowledge no much evidence in their influence on the intentions to purchase anthropomorphised products which are environmentally friendly. Even studies such as Hellen and Sääksjärvi (2011) related to human-like features were related to childlike human-like features which is not our focus and their study also was not related to environmental products. Therefore, we used ILOC and gender as control variables.

Table 3.10 shows the estimated perceived humour in the high anthropomorphism condition (vs. the low anthropomorphism condition). We found that the path is significant for the high anthropomorphism condition (a =1.07, $p < 0.01$). We also estimated purchase intention from perceived humour, as we controlled for the anthropomorphic level conditions. The path is significant (b= *0.093*, $p = 0.019$) (see Table 3.10). The coefficients of the path contain the indirect effect of the anthropomorphic level conditions. The results indicated that the mediation effect of the high anthropomorphic condition with reference to the low anthropomorphic condition on purchase intention through perceived humour (*ab*= 0.099, p <0.05) is significant and positive, given that the lower limit of the confidence interval (.011) is greater than zero. The upper level of the confidence interval is (.204). Therefore, the results

indicate that the anthropomorphic level affects perceived humour, which in turn affects the purchase intention of the green product. Furthermore, we investigated whether product credibility mediates the influence of perceived humour on purchase intention. We found that perceived humour significantly affects product credibility ($b =.126$, $p < 0.001$) for the high anthropomorphism type (vs. low anthropomorphism type). We also found that product credibility significantly influences purchase intention ($b= .433$, $p < 0.001$). By using a bootstrap mediation method in AMOS structural equation model, we found that the path from product anthropomorphism level (high vs. low), perceived humour and perceived product credibility have an indirect effect on purchase intention (the lower limit of the confidence interval = .027 and the upper limit of the confidence interval = .115) (see Table 3.11). In addition, we investigated whether message credibility mediates the influence of perceived humour on purchase intention. We found that perceived humour does not affect message credibility ($b =.054$, $p > 0.05$) for the high anthropomorphism type (vs. the low anthropomorphism type) (see Table 10) although message credibility significantly influences purchase intention ($b =.302$, $p < 0.001$) (see Table 3.10). By using the bootstrap method in AMOS structural equation model, we found that the path from product anthropomorphism level (high vs. low), perceived humour, perceived message credibility and purchase intention has (lower limit confidence interval =

-.009 and upper limit confidence interval = .054 (see Table 3.11), which means that there is no mediation effect. Therefore, product credibility mediates the influence of perceived humour on purchase intention, but message credibility does not. Finally, we confirmed the results of study 1 that perceived product attractiveness mediates the effect of product anthropomorphism level (high vs. low) on purchase intention. Furthermore, a mediation role for perceived attractiveness is confirmed as the lower limit of the confidence interval= -.521 and the upper limit of the confidence interval= -.057.

Our mediation model is unique that the focal predictor variable is a dichotomous variable, which contains series of mediation or paths. To fully interpret the mechanism through which perceived humour affects purchase intention via product credibility within high vs low anthropomorphism condition, it is imperative to examine the mean level of the product credibility within each condition. As can be seen in Table 3.9, the mean of the perceived humour for highly anthropomorphised kettle (M=3.46) was significantly higher than for the slightly anthropomorphised kettle (M=2.37) (t (348)=104.04; p < .001); whereas the mean of the perceived product credibility for highly anthropomorphised kettle (M=4.41) was significantly lower than for the slightly anthropomorphised kettle (M=4.68) (t (348)=6.63; p < .05).
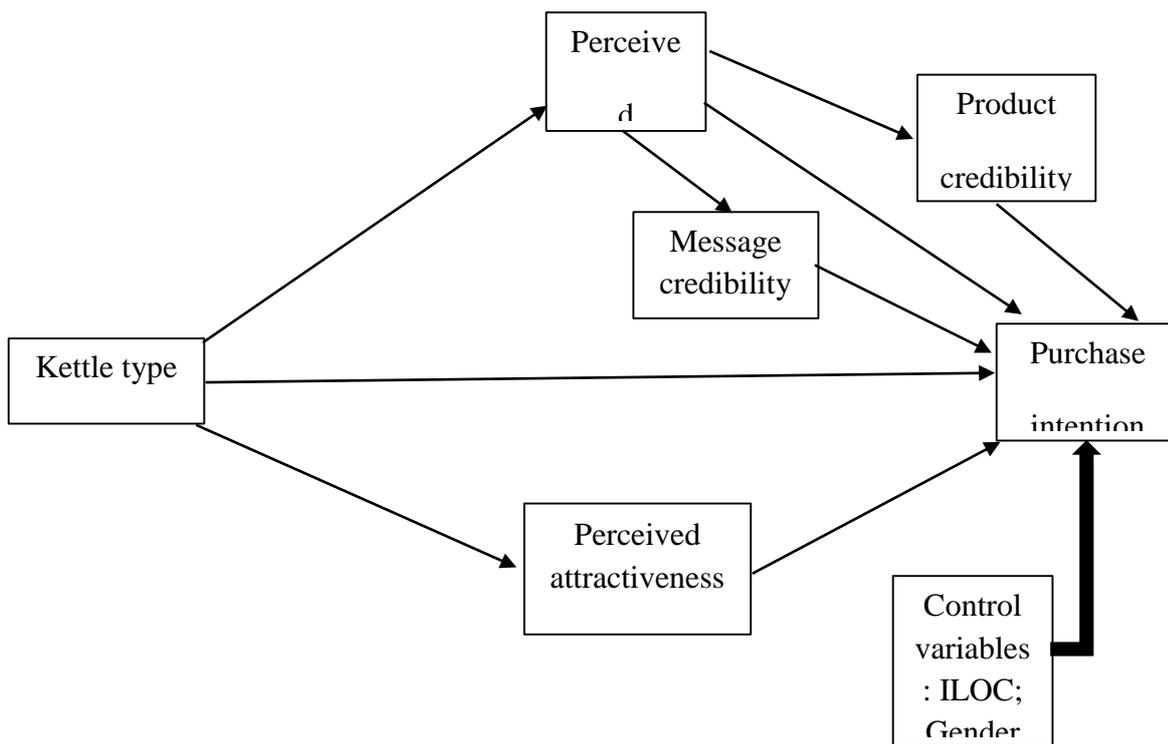
Figure 3.3 Mediation model

Note: This model shows the experimental conditions' indirect effect (Kettle type) on purchase intention. Kettle type= High anthropomorphism (relative to low anthropomorphism); Perceived humour; Perceived attractiveness; Product credibility; Message credibility; Control variables: ILOC= Internal locus of control; Gender.

Table 3.10

Relationships	Estimate	S.E.	C.R.	P
Kettle type→Humour	1.074	.171	6.280	***
Humour→Product Credibility	.126	.032	3.882	***
Kettle type→Attractiveness	-.465	.181	-2.563	.010
Humour→Message Credibility	.054	.041	1.305	.192
Product Credibility→PI	.433	.073	5.918	***
Attractiveness→PI	.619	.041	15.029	***
Humour→PI	.093	.040	2.341	.019
Message Credibility→PI	.302	.060	5.044	***

Note: Kettle type= high condition (relative to low condition); Humour= Perceived humour; Attractiveness= Perceived attractiveness; PI= Purchase intention.

Table 3.11**: Indirect effects for study 2**

Indirect effects	Estimate	Lower	Upper	P
K type → Humour →PI	.099	.011	.204	.029
K type→ Humour→P_Credibility→ PI	.058	.027	.115	.000
K type→ Humour→ M_Credibility>PI	.017	-.009	.054	.216
K type → Attractiveness →PI	-.288	-.521	-.057	.013

Note: K type= high condition (relative to low condition); Humour= Perceived humour; Attractiveness= Perceived attractiveness; PI= Purchase intention; M_Credibility= Message credibility; P_ Credibility= product credibility.

3.8 Discussion

Our data for this study confirmed the influence of level of product anthropomorphism (high vs. low) on the purchase intention of a green product through perceived humour and perceived attractiveness. This study also shows that perceived product credibility mediates the influence of perceived humour on the purchase intention of green products. But message credibility does not mediate the influence of perceived humour on the purchase intention of green products.

3.9 General discussion

Previous work related to the degree of humanisation such as the work done by Reavey et al. (2018) compared between an "overt" human-like advert where the human-like qualities are easily discernible and the "subtle" version where the human-like qualities are not easily noticed. To the best of our knowledge, our work is the first to test the mediation role of perceived humour and perceived attractiveness on the relationship between product anthropomorphism (low vs. high) and purchase intention. Our results add an interesting finding to the anthropomorphised product design literature by describing the mechanism of how increasing the anthropomorphism level decreases purchase intention of the human-like

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products. Our research also provides additional insights because it is conducted in the green product context.

The majority of past studies encourage the marketers to imbue products with some social and human-like features for commercial success. It is no surprise, therefore, that we are now seeing products treated with human-like features (Aggarwal and McGill 2007). However, our results indicate that this is not absolutely true for green products. As the marketers imbue green products with human-like features, they should make sure that the products are not perceived as being humorous (funny). Perceived humour was found in our research to explain the negative effect of green product anthropomorphism on purchase intention. One explanation for this is that the transposition of humour involves placing the object (i.e. product) in a context that it is not usually associated with (Klein 2014). People did not expect green product to be humorous. A humorous green product was perceived as being less credible, which in turn decreases purchase intention. In addition, the more we anthropomorphise the green product, the less attractive the product is, which may also explain the decreasing purchase intention.

According to Teixeira, Picard and El Kaliouby (2014), most of the past literature has focused on the positive side of using humour in adverts, but very few researchers have studied the downside of using humour. As indicated by Belch and Belch (2007, cited by Teixeira, Picard and El Kaliouby, 2014), humour can be boring, stale or offensive. This shows that humour can negatively affect consumers' evaluations of products. Some authors argue that a medium level of positive entertainment (compared to a low or high level) leads to higher purchase intention for an advertised brand (Teixeira, Picard and El Kaliouby, 2014). Interestingly, in our case, we found that the lowest level of humour of green product (the lowest level of anthropomorphism) led to the highest purchase intention.

The current study makes important contributions to both practice and theory. We offer an empirical evaluation of a relatively unexplored phenomenon in green marketing and in particular, green product anthropomorphism. Previous studies mainly focus on consumers' environmental concern as a moderating variable of green marketing. Our study revealed that anthropomorphising green products might have an undesirable effect on purchase intention if the product is perceived to be humorous due to its anthropomorphic features. Our results can further explain some existing findings in the literature. For example, Alden, Mukherjee and Hoyer (2000) stated that the amount of humour has to match the product category. We show that green products may not be the right product to imbue human-like features because the human-like features may make the products look funny which in turn decrease the product credibility. Through past studies related to perceived humour in advertising, there are conflicting results about the right and appropriate level of perceived humour that should be used. We recommend that future studies should do similar research using different designs for humorous human-like green products to see if they can confirm the negative results that our study found.

Our study also differs from previous studies that indicated that anthropomorphism increases product attractiveness (e.g. Hellen and Sääksjärvi, 2011). For example, Hellen and Sääksjärvi (2011) tried in their work to explain that consumers actually do not only see a product as anthropomorphised when we add human-like qualities to it, but in addition to that consumers can also have specific attributions about the anthropomorphised product. For example, seeing the anthropomorphised brand as "sophisticated" or "friendly" or other personal attributes (Aaker, 1997). Hellen and Sääksjärvi (2011) focused on childlike characteristics of human-like product in addition to studying how consumers react to these human-like childlike characteristics. As indicated by Hellen and Sääksjärvi (2011) that previous studies indicated that people usually respond positively to children and therefore they propose that the same

happen when people interact with product with children characteristics (Morreall 1991; Serpell 2003). Hellen and Sääksjärvi (2011) indicated that they found that there are four dimensions for the childlike human-like product and they are sweetness, sympathy, simplicity, and smallness. Hellen and Sääksjärvi (2011) indicated that the childlike human-like positively influence consumers' evaluation. Furthermore, they indicated that childlike human-like qualities positively influence willingness to attachment. They concluded that people are attracted to childlike human-like products. Nevertheless, we differ from their studies as we used environmental product and we found different results that too much human-like features are not recommended to green marketers. In addition, our focus in term of product design was not about childlike human-like qualities.

Limitations of the paper and future research

There are several limitations of our study. First, our study only examined the effects of two anthropomorphism levels of a green product. Future research should investigate the effects that the varying degrees of anthropomorphised green product. Second, our study examined an electric kettle, which is a household product and can be categorised as utilitarian product. Future research should conduct similar study with different green products for example an electric car that is both utilitarian and hedonic products. Third, our study focused on the direct meaning of anthropomorphism by adding eyes and a nose to a green product. Future research could use other ways of anthropomorphising a green product such as use product which can speak or move and compare it with those which cannot move or speak and find if participants will differ in their answers about liking the product. Moreover, as consumers may react differently to humour (Eisend 2009), future research should be conducted with different consumer population to test the generalizability of our findings. Also, future research should explore further to find for example when does human-like product should be

attributed with humour? Because as mentioned earlier humour was not found to be always a

negative strategy.

Chapter 4: Case of Saudi Arabia: The Influence of Product Trust on the Relationship Between Product Anthropomorphism and Purchase Intention for Non-green and Green Products

Abstract

Previously, the use of anthropomorphised objects has been limited in Saudi Arabia because it is not recommended by some religious scholars, who base their opinion on religious transcripts. It is important to explore whether this is an obstacle that will prevent marketers from promoting anthropomorphised products (green and non-green) in Saudi Arabia. Study 1 tested the mediation role of product trust in the relationship between product anthropomorphism and purchase intention for a non-green product. Study 2 tested the same mediation role, but for a green product. The results revealed that Saudi consumers intend to purchase the anthropomorphised version of both types of product. Product anthropomorphism positively and significantly affected purchase intention for non-green and green products. Additionally, product trust is the reason why Saudi consumers buy a product. Our results show that the Saudi market is eligible and ready for anthropomorphised products.

David Hume, Scottish philosopher (1757/ 1957, p. xix) "There is a universal tendency among mankind to conceive all beings like themselves and to transfer to every object, those qualities" cited by Lee and Oh (2019).

4.1 Introduction

Anthropomorphism can be defined as applying human-like characteristics to non-human objects (Epley, Waytz, & Cacioppo, 2007) and this may mean that consumers see more than is actually visible (Hart, Jones, & Royne, 2013). Hart et al. (2013) indicated that consumers are not the only reason for applying human-like features to products; marketers attract people to an object by anthropomorphising it, as this leads consumers to view it as human. One example is Motorola, who designed eyes on their phone. Other researchers have tried to explore the influence of anthropomorphism on consumers' psychology rather than how they communicate with or react to the product itself. Hart et al. (2013) indicated that anthropomorphism also generates deep communication as when a product is anthropomorphised, human features such as emotions and intelligence are applied. Consumers then see the product as human. In the advertising context, Folse, Netemeyer and Burton (2012) indicate that marketers have found that spokes-characters such as Tony the Tiger are a very important tool that helps them to successfully differentiate their brands from others. In their research, Folse et al. (2012) indicate that the definition of a spokes-character is a visual image that includes human-like qualities. Marketers use it to show the brand's attributes (Garretson & Burton, 2005). In addition, it was found that using spokes-characters plays a vital role in strengthening the relationship between consumers and brands (Fournier, 1998). Mourey, Olson and Yoon (2017) state that nowadays anthropomorphism is applied to many products, from automobiles to vacuum cleaners. An example of anthropomorphism

within brands was reported by Chandler and Schwarz (2010), who show that the anthropomorphism of brands increases loyalty towards brands.

With regard to children, anthropomorphism can be used with toys and with technologies. For example, the Cortana app by Apple is an example of anthropomorphism as it gives a name to a non-human object (Mourey et al., 2017). The challenge nowadays, as indicated by De Visser et al. (2016), is that most of our communication is human-to-human. Nonetheless, interestingly, we find ourselves communicating more and more with objects that look like humans. De Visser et al. (2016) argued that due to this massive interaction we have with anthropomorphised objects, it is difficult to distinguish whether we are communicating with real people or with anthropomorphised objects (Turing, 1950).

Product anthropomorphism is an important tool which marketers use to promote their products. For example, Aggarwal and McGill (2007) indicated that adding human-like qualities to products and brands is a vital tool that can enhance communication between consumers. A paper by Miesler (2012) investigated the idea that some products are designed by adding human-like qualities and that this can motivate consumers to purchase these products. Nevertheless, even though there are studies related to anthropomorphism in the marketing literature, Brown (2010) indicates that there is still a need for guidelines for marketers on the appropriate use of anthropomorphism. Another study of human-like products by Hur, Koo and Hoffman (2015) shows that anthropomorphism makes consumers evaluate the product more as indicated in pervious chapters.

In addition to non-green products, our research also focuses on green products. Issues related to saving the environment have been the focus of scholars, not only in the marketing literature, but also in literature related to other topics (e.g., Alwitt & Pitts, 1996). To be more specific, this paper studies green products, aiming to raise the level of adoption of green

products in Saudi Arabia because the adoption of these products is still a global issue (Alam, Almotairi, & Gaadar, 2012). In addition, past studies have tried to find ways to give consumers a greater choice of sustainable products and to increase their willingness to pay for green products (Tangari, Burton, & Smith, 2015; Tully & Winer, 2014, cited by Ketron & Naletelich, 2019). By reviewing previous work done on sustainable products, we can see that efforts related to enhancing sustainable behaviours focused on direct messages that encouraged people to engage in conservation actions, such as those related to saving water or toilet paper, as they are commonly used resources. Nevertheless, when we compare these direct sustainable messages to other efforts related to promoting and advertising sustainable products, we can see that there are other effective methods of communication that are worth investigating to promote sustainable and green behaviours (Bergquist & Nilsson, 2016, cited by Ketron & Naletelich, 2019). Hence, here we propose anthropomorphism as one tool that should be investigated with Saudi consumers. Ketron and Naletelich (2019) carried out a study related to sustainable behaviours, by adding human-like features to the sustainable message. Their results showed that human-like qualities, such as adding a sad face to the message, encourage people to performing better sustainable behaviour. Another example of work related to anthropomorphism in the green context is that by Zhou, Kim and Wang (2019), which focused on charitable behaviour. Zhou et al. (2019) indicated that adding human-like features to money enhanced the behaviour of giving to charity. Furthermore, the same authors mentioned that adding human-like qualities enhanced the sense of warmth and competence. Nevertheless, the authors indicated that only warmth, not competence, strengthened the charity-giving behaviour of people. In addition, the authors found that this influence was only related to anthropomorphising money – when they tried other financial methods such as credit cards, the same influence was not observed.

Another work related to anthropomorphism in the environmental context is that by Tam, Lee and Chao (2013). They investigated whether humanising nature would influence the way that people behaved towards nature. They found that when nature is humanised, conservation behaviours increase as indicated in pervious chapters. Nevertheless, this study did not focus on green products and the sample was from Singapore and Hong Kong, which differs from our sample. Tam (2014) showed that people who have a high tendency to humanise nature have a higher level of belief in their capacity to understand and predict crises related to nature. In addition, these people believe that their environmental actions will be able to solve problems related to nature. The same authors also found that the relationship between the dispositional anthropomorphism of nature and nature conservation is mediated by action efficacy.

Our research examines the effect that human-like features have on purchase intention for non-green and green products because purchase intention is an important measurement for marketers; it shows whether a consumer has the intention to purchase a product or not (Grewal, Monroe, & Krishnan, 1998). We are proposing that product trust is the reason why consumers purchase a product or not. De Visser et al. (2016) explained the meaning of trust as "the attitude that an agent will help achieve an individual's goals in a situation characterized by uncertainty and vulnerability" (Lee & See, 2004, p. 54). According to Garbarino and Johnson (1999, cited by Guo, Tu, & Cheng, 2018) product trust shows the level of confidence that consumers have in the reliability and quality of a product. This study aims to extend past studies related to how anthropomorphism affects product trust and therefore enhances purchase intention.

Our research questions are as follows:

(1) Will Saudi consumers purchase non-green or green products that are accompanied by human-like features?

(2) Why will Saudi consumers purchase or decline to purchase this type of products?

We argue that our research will contribute to the positive application of anthropomorphised products in Muslim Middle East countries, specifically in Saudi Arabia. We propose that anthropomorphising non-green and green products will lead Saudi consumers to purchase these products because they will trust them. Our assumption is based on the anthropomorphism literature, based mostly in Western countries. The current research will investigate whether these positive results regarding anthropomorphism are also positive in the context of a Muslim country such as Saudi Arabia. This requires investigation because some scholars indicate that Muslims should not use anthropomorphism. For example, Abdul-Hadi (1999, p.173) indicated that drawing creatures that have a soul such as humans or animals is not allowed in Islam. We therefore want to see whether Saudi consumers (Muslims) will purchase human-like products or not and why. We present two studies that examine these questions, and conclude with a discussion of our results, the study's theoretical and managerial contributions, and ideas that future researchers should consider.

4.2 Conceptual background

4.2.1 Anthropomorphism theory and application

According to previous studies, there are three anthropomorphic ways of positioning brand. They are: 1) adding human-like features, i.e. adding physical attributes such as eyes, a nose or any other human element; 2) adding human qualities related to the mind such as motivations and intention; and 3) having human qualities related to personality such as the brand being friendly (MacInnis & Folkes, 2017, cited by Lee and Oh, 2019). These three strategies are also applicable to products and strategies 1 and 2 are used in our research. According to the literature, anthropomorphism tactics can be applied through visual (Zhou et

al., 2019) or linguistic presentations (Wan, Chen, & Jin, 2017), or by both (Newton, Newton, & Wong, 2017). Lee and Oh's (2019) explanation of visual presentation is what consumers see in M&M's advertisements when the chocolate sweets have eyes, mouth etc. This portrays physical human qualities in the object. Lee and Oh (2019) indicated that linguistic presentations happen when the object communicates with the audience in direct ways (Aggarwal & McGill, 2012). An example is Alexa or Siri when they give assistance to the consumers as a virtual helper (Lee and Oh, 2019). Shin and Kim (2018, cited by Lee et al., 2019) indicated that the three-factor theory of anthropomorphism explains that there are two types of determinants. First is elicited agent knowledge, which is the cognitive determinant. Secondly, sociality and effectance are motivational determinants. The elicited agent knowledge determinant plays an important role because it helps consumers to make judgements of human-like objects such as products and brands (Wang, 2017). In addition, consumers have their own need to connect with other people and connecting to a non-human object that has human-like features helps to fulfil this need (Wang, 2017). Effectance determination is used by consumers as a motivational way to understand certain situations in life. This is done by having a strong sense of making predictions about the human-like object and trying to lower the level of uncertainty that consumers experience around them (Wang, 2017). Anthropomorphism theory has been a hot topic in marketing in the previous decade. Aggarwal and Folkes (2015) introduced a new idea related to anthropomorphising a product. They said that people will be more likely to humanise a product when they know things about the person who designed or built this product. The reason, as indicated by the authors, is that when people know information about the person who created the product, they believe that this person will share some of his or her own self when creating the product (Aggarwal and Folkes, 2015). The authors therefore hypothesised that when people know that the product is created by a person, they are more likely to humanise this product, compared with when they

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do not see that a product is created by a person. The results confirmed this hypothesis. The authors explained that the reason for this is that the essence of the creator goes into the product through the process of creating it.

Research by Mourey et al. (2017) studied anthropomorphised products. They explored whether being exposed to human-like products, including those built to look like humans or with emotional intelligence or any other human attributes, can partially fulfil consumers' social needs. The authors furthermore indicated that communicating with human-like products compared with non-human-like products after an experience of social exclusion can have a significant effect. First, it decreases needs related to maximising current social relationships. Second, it reduces the need to have engagements in the future with close others. Finally, it decreases the desire for pro-social behaviours. The authors explained that this occurs because consumers' need for social assurance is satisfied. Chen, Sengupta and Adaval (2018) showed that anthropomorphism can help people to satisfy their connectedness and competence needs. The same researcher also indicated that satisfying the needs of connectedness and competence increases people's levels of vitality and it therefore strengthens consumers' self-control.

Related to anthropomorphism with brands, Puzakova and Aggarwal (2015) showed the anthropomorphism of brands from a different point of view. They indicated that within luxury brands, using anthropomorphism could have a down side. Puzakova and Aggarwal (2015) argued that when consumers are close to an anthropomorphised luxury brand this may cause negative results. Puzakova and Aggarwal (2015) argued that female consumers who have a low level of perceived power who seek being in high status would be sensitive to the negative signal of the anthropomorphism of luxury brands. The authors indicated that people who focus on the expectation of having a high level of power would negatively evaluate a humanised luxury brand more than a non-humanised brand.

The use of anthropomorphism in the marketing context has been tested by several researchers. For example, it was explored within brands (Guido & Peluso, 2015), food waste (Cooremans & Geuens, 2019), products (Wan et al., 2017), and money (Zhou et al., 2019, cited by Lee and Oh, 2019).

Work related to anthropomorphism within green products is limited, especially in the context of the Middle East. For example, Cooremans and Geuens (2019) studied the influence of the anthropomorphism of misshapen products such as misshapen vegetables. They found that the anthropomorphism of these misshapen products enhances the purchase intention for them. In addition, Cooremans and Geuens (2019) indicated that environmental concern moderates the influence of the anthropomorphism of misshapen food products on purchase intention. Nevertheless, their study was concerned with food products, which is different from the focus in this research. Also related to using human-like elements, research by Chang, Huang and Liu (2018) explained the environmental problems in two situations: first when the environmental problem is proximal and second, when the environmental problem is less proximal. The results of Chang et al.'s (2018) study showed that sad anthropomorphism influenced people to donate more when the environmental problem was proximal. Nevertheless, when the environmental problem was less proximal, happy anthropomorphism had a greater influence on donating to solve the environmental problem. These previous studies were mostly related to non-green products and they were not related to Middle East consumers, especially Saudi consumers. Also, none of the previous studies related to green products used the mediation effect of product trust. As indicated earlier, it is important to examine this problem in Saudi Arabia due to the problematic background related to using human-like objects.

4.2.2 A conceptual model

In this research, we use anthropomorphism theory. Our research specifically explains the effect that product anthropomorphism has on purchase intention. We propose that adding anthropomorphism to products will enhance product trust. Therefore, because consumers trust the product, their intention to purchase it will increase, for both non-green and green products (see Figure 4.1).
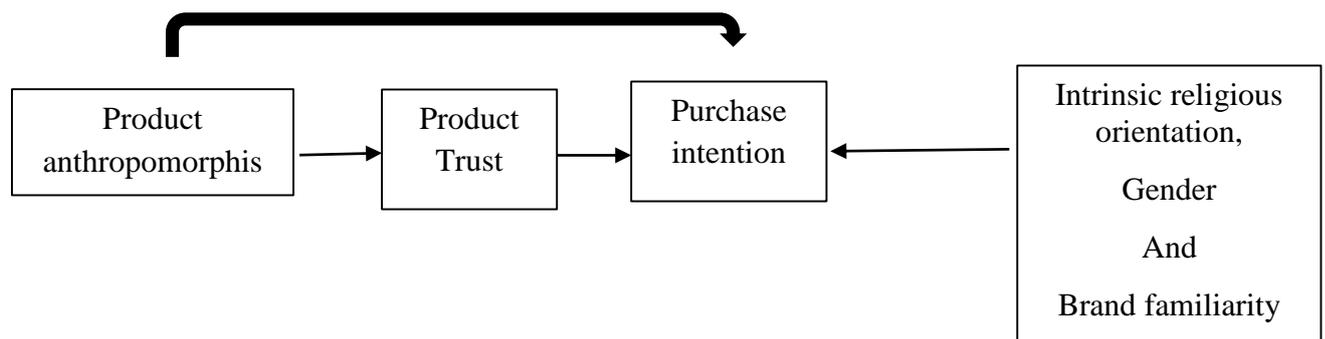
Figure 4.1. Conceptual framework

4.3 Hypothesis development

4.3.1 Product anthropomorphism and purchase intention

Some researchers have indicated that anthropomorphism can have a dark side and that it may affect consumers negatively. For example, Puzakova and Aggarwal (2018) argue that when consumers aim to be distinctive and special, adding human-like qualities to a brand may not be a successful tool. Consumers will be less likely to favour a brand with human-like features compared with those that do not have human-like features. Another example is research by Dong and Aggarwal (2016). They suggested that consumers who feel shame will probably avoid contact in public places. The authors indicated that based on this, consumers who feel shame will make a less positive evaluation of human-like products than non-human-like products. The authors explained that consumers will act towards a human-like product in a similar way to how they interact with real people. When consumers deal with a human-like product, this will give them the sense that they are being watched by that product (Bateson, Nettle, & Roberts 2006). Dong and Aggarwal (2016) also indicated that this effect would be stronger when it occurs with interdependent consumers compared with independent consumers. In contrast, this influence will be weaker when it happens in a public place such as a school, compared to when it happens in a private place such as a consumer's home. They

also mentioned that this effect is related only to the emotion of shame, and not to other emotions such as being sad or frightened. These findings by Dong and Aggarwal (2016) show that marketers should pay attention to these details when they aim to promote products that give people a sense of shame such as Head lice shampoo.

These previous examples were related to the downside of using anthropomorphism. Nevertheless, the majority of the anthropomorphism literature is related to the positive influence of using anthropomorphism in marketing strategies.

Previous research has shown that anthropomorphising a product will enhance its evaluation (Aggarwal & McGill, 2007). According to Chen (2017), anthropomorphism features influence how people react towards advertisements and this will influence their attitudes towards brands. MacKenzie, Lutz and Belch (1986) also indicated that consumers' responses to messages is a tool that can be used to predict their attitudes towards an advertisement and therefore, this can be transferred to attitudes towards the brand, as part of the whole process of evaluation. Other researchers have indicated that using anthropomorphism as a marketing tool enhances the ability to understand consumers' attitudes and behaviours (Letheren, Kuhn, Lings, & Pope, 2016). Anthropomorphism theory has been studied recently in different contexts. For example, Lee and Oh (2019) examined the anthropomorphism within hotels brand and its influence on the visit intention of consumers. Previous research has indicated that studying consumers' behavioural responses is an important way of determining whether humanising in marketing affects consumers or not (MacInnis & Folkes, 2017). We used purchase intention as a dependent variable in this research. Purchase intention shows the extent to which consumers are likely to actually purchase the product (Grewal et al., 1998).

Hadi and Valenzuela (2014) showed that some qualities such as affection, when applied to an object with human-like features, positively affect purchase intention. Other research by Wan

et al. (2017) focused on adding human-like features in their experiment featuring a charger with a superior appearance. Their results revealed that people were more willing to purchase the charger when it had human-like features.

Furthermore, in the green context, as indicated earlier, Cooremans and Geuens (2019) found that adding anthropomorphism to an object enhanced purchase intention. We are arguing here that purchase intention could be one of the actions that can help to save the environment (Tam et al., 2013) and hence we hypothesise:

H1: product anthropomorphism positively affects purchase intention.

4.3.2 Product anthropomorphism positively affects product trust

Previous studies related to brands found that spokes-characters lead to favourable outcomes towards brands and more specifically, that when brands are enhanced with spokes-characters, consumers trust the character (Garretson and Niedrich, 2004, cited by Folse et al., 2012). Waytz, Heafner and Epley (2014) examine the influence of using humanised features on vehicles. For example, when a vehicle was supported by human-like qualities such as assigning it a gender or a name, this appeared to make people believe that it would perform better. The authors indicated that this provided insights into future anthropomorphised technology and the positive influence of humanising technology on people's trust in the competent performance of this technology. Waytz et al. (2014) tested this with an experiment. Using a Driving Simulator, the participants were randomly assigned to one of three conditions: normal, agentic or humanised. In the normal condition, the car was normal and they drove it. The agentic condition differed in that the car performed extra tasks such as controlling the wheels. The humanised condition was the same as the agentic condition but human-like qualities were added to the car, such as it having a name and gender, and the ability to talk. The results indicated that people trusted the humanised vehicle more, and they trusted the agentic car more than the normal one. Furthermore, the results showed that

anthropomorphism acted as a mediator, which explained the relationship between the three conditions and trusting the vehicle.

Research has also been carried out on anthropomorphism within human trust and not product trust. For example, Touré-Tillery and McGill (2015) indicated that consumers considered to be low in interpersonal trust are willing to be persuaded more by anthropomorphised objects than by actual humans. The reason, as explained by Touré-Tillery and McGill (2015) is that consumers with low interpersonal trust think that the actual human lacks goodwill. Consumers who had a high level of interpersonal trust did not differ in terms of who was most likely to persuade them. Nevertheless, the authors indicated that when prompted to be attentive, people high in interpersonal trust were persuaded more by humans than by anthropomorphised object. The authors also revealed that people with both high and low levels of trust were not affected by the messenger who was persuading them when their attentiveness was down.

It is indicated in the literature that having a high level of anthropomorphism enhances trust related to robots (i.e. Waytz et al., 2014, cited by Pinxteren, Wetzels, Rüger, Pluymaekers and Wetzels, 2019). Gong (2008, cited by Pinxteren et al., 2019) reported that when human-like elements are added to virtual characters, this human-like element helps to make the characters more willing to make a decision and this will make the character more trusted. We propose that product anthropomorphism positively affects product trust. According to our knowledge, there are no studies related to product trust in Saudi Arabia and no studies related to green products that consider the mediating effect of product trust. We here hypothesise

H2: product anthropomorphism positively influences product trust.

4.3.3 Product trust positively affects purchase intention

Trusting a brand is a positive indicator of favourable brand outcome, as indicated by

Garbarino and Johnson (1999) and Moore, Wilkie and Lutz (2002). For example, brand trust

enhances the willingness of consumers to pay more money for the brand, compared with

other brands (Aaker, 1996). The meaning of trusting a brand is that consumers perceive a

brand to have a high level of reliability and they believe that this brand will always meet their

needs (Aaker, 1996). We propose here that product trust will enhance purchase intention.

Similar to the previous proposal, we argue that our research is the first to explore the context

of Saudi Arabia related to the effect of product trust on purchase intention, especially for

green products. We here hypothesise

H3: Product trust mediate the influence of product anthropomorphism on purchase
intention.

4.3.4 Control variables

We are considering several control variables in our studies to make sure that our results are as

pure as possible. First, we look at intrinsic religious orientation. One study by Khan and

Kirmani (2018) indicated that religiosity is one of the vital factors that should be taken into

account by green marketers when they aim to promote green products. Furthermore, the same

authors emphasised that it is important for green marketers in Islamic markets to display

green products in a way that will attract Muslim consumers. For example, they can present

the environment that we live in as something that Allah (God) gave as a gift and therefore,

Muslim consumers need to carry out environmental conservation actions as a way to thank

Allah (Khan and Kirmani, 2018). In a general overview, it can be seen that the actions people

should take to help protect the environment are related to many religious scriptures (e.g.

Dwivedi, 1997). Religions, in general, advise and support people to take actions to protect the

environment, which is presented mostly as the planet Earth in Islam, Hinduism, Buddhism,

Judaism and Christianity (Khan and Kirmani, 2018). Since our paper focuses on Muslim consumers, an example of the importance of green actions is seen in the quote: "Corruption has appeared on the land and sea because of what men's hands have done" (Quran, 30:41, Dutton, 1998, p. 57 cited by Khan and Kirmani, 2018). Therefore, Muslim consumers obey Allah's orders by being responsible in their actions to protect the environment. Another example is: "Excess in the use of water is forbidden, even if you have the resources of a whole river" (Tirmidhi, Haleem, 1998, p. 116 cited by Khan and Kirmani, 2018). A study by Felix and Braunsberger (2016) was concerned with finding out whether intrinsic religious orientations have an influence on variables such as purchasing green products and environmental attitudes. Their results suggested that environmental attitudes have a strong influence on the actual purchase of green products. Furthermore, the same authors indicated that consumers who have a high religious orientation have a greater tendency to purchase green products. Nevertheless, the same consumers with both high and low religiosity did not significantly differ in terms of favourable environmental attitudes. The authors indicated that the results of their paper contribute socially as they make green marketers think about which religious norms specifically cause an increase in the purchasing of green products. Therefore, religious centres such as churches or mosques can help to enhance behaviours that protect the environment (Felix and Braunsberger, 2016). One of the earliest definitions of religiosity is the extent or degree of religious values, motivations and beliefs (Allport and Ross, 1967). Studying religion is crucial for green marketers because it is an important factor affecting consumers' sustainable decisions (Delener, 1990). Hasnah Hassan (2014) focused in his study in Malaysia on the influence that religious values have on the intention to purchase green products. He indicated that there are few studies on ethical consumption in contexts such as Malaysia. Studying religiosity in the marketing context is important because many people in the world relate to religiosity. For example, information from the Pew Research

Centre in 2016 indicated that 82% of people aged above 20 in 192 countries related themselves to religious groups (cited by Sarofim and Cabano, 2018). Another example is that 89% of people in the USA have faith in the existence of God (Gallup, 2016, cited by Sarofim and Cabano, 2018). This shows why marketers should pay attention to studying the influence of religiosity on consumer behaviour.

Second, in this research, gender was used as a control variable as it was found in previous studies that females and males may differ in their green purchasing behaviours. For example, Lee (2009) indicated that female adolescents were higher in terms of their green purchasing behaviour than males in Hong Kong. Third, we used a product that has a brand so we controlled the influence of brand familiarity.

4.4 Study 1

In order to select a product that would present the anthropomorphism features clearly to participants in Saudi Arabia, we conducted short semi-structured interviews with four participants. We used two pictures and each picture represented a product. Each picture was printed on a separate sheet of paper. The first piece of paper showed a picture of a vacuum cleaner from the Henry brand. The second piece of paper showed a picture of a kettle. Both pictures have human-like features. We showed the pictures at the same time and made them available during the interviews. The first participant was a female and she said "I think the vacuum cleaner is more cute and attractive than the kettle" and she also said "I am willing to purchase the vacuum cleaner because I liked it and I feel more attached to it than to the kettle". The second participant was a male and after he was shown the two pictures, he said "the vacuum cleaner looked nice and attractive". He felt more attached to it as the face of the vacuum was more convincing than the face of the kettle. He said, "I am somewhat willing to purchase the Henry vacuum cleaner, but not the kettle". The third participant was also male and he said "I am more convinced that the Henry vacuum cleaner looks more like a human as

it has bigger eyes and an attractive nose which looks like a nose for the vacuum cleaner". The fourth participant was a female and she said that the first time she saw the vacuum she felt attached to it as she felt that the vacuum cleaner looked like "a pure and cute friendly friend compared with the kettle". She also said "The kettle also looks like a human but I feel the vacuum is more alive". Therefore, we decided to use the Henry vacuum cleaner in our research as it looks more human than the kettle (see Figures 4.2 and 4.3).

Please imagine that you need to buy a vacuum cleaner. You are attracted to a vacuum cleaner as shown in the picture below. After looking at the image below, please answer the following questions.

Figure 4.2. Product used in Study 2

Please imagine that you need to buy an electric vacuum cleaner. In general, electric vacuum cleaners can consume a lot of energy. You don't want to pay for a high energy bill. You are attracted to an energy-saving vacuum cleaner as shown in the following image. After you look at the image, please provide your responses to the following statements.

I save energy

Figure 4.3. Product used in Study 3

4.5 Study 2

For this study, we wanted to test the influence of the anthropomorphism of non-green

products on purchase intention for Saudi consumers. In addition, we aimed to find whether

product trust mediates the influence of product anthropomorphism on purchase intention.

4.5.1 Method

4.5.1.1 Study design and procedures

For this study, we employed product anthropomorphism for one type of product, which was a

non-green product. The scenario for the anthropomorphised non-green product encouraged

the consumer to imagine that they needed a vacuum cleaner. They were shown a Henry

vacuum cleaner that had human element (i.e. eyes and a smile) (see Figure 4.2). The

researcher avoided using any environmental phrases in the scenario and in the product design

to ensure that the consumer perceived this product as a non-green product. This scenario was

included at the beginning of the online survey, before the participants started answering the

survey questions. In this survey, the participants answered 7-point scale questions. The first

question was about intrinsic religious orientation as a control variable (Felix and

Braunsberger, 2016). The second question was related to brand familiarity, also as a control

variable, adapted from Kent and Allen (1994). Third, the participants answered questions related to product trust, which were adapted from Arnott, Wilson and Sichtmann (2007). Next, the participants answered questions related to product anthropomorphism. Items were used from previous measurements (Hur et al., 2015; Puzakova & Kwak, 2017; Waytz, Morewedge, Epley, Monteleone, Gao, & Cacioppo, 2010). After the respondents had answered these questions, they were asked to answer questions related to purchase intention (Li, Daugherty, & Biocca, 2002; Moon, Chadee, & Tikoo, 2008; Coyle & Thorson, 2001) (see Table 4.1). The last part of the survey included demographic questions related to age, education and gender. Gender was also used as a control variable for this study.

Table 4.1 Measurement scales for the main constructs for Studies 2 and 3

Product anthropomorphism (Hur et al., 2015; Puzakova & Kwak, 2017; Waytz et al., 2010)
(Study 2: M= 3.041, SD= 1.925, α = .946; Study 3: M= 3.054, SD= 1.797, α = .916)
It almost seems as if this electric vacuum has intentions.
This electric vacuum appears to have the ability to experience emotions.
This electric vacuum appears to have consciousness.
1= Not at all, 7=Very much

Product trust (Arnott et al., 2007)
(Study 2: M= 4.295, SD= 1.239, α =.879; Study 3: M= 4.276, SD= 1.284, α = 0.964)
Please answer the following items:
This electric vacuum is reliable.
This electric vacuum is trustworthy.
This electric vacuum is dependable.
1 = strongly disagree, 7 = strongly agree

Purchase intention (Li et al., 2002; Moon et al., 2008; Coyle and Thorson 2001)
(Study 2: M= 3.751, SD= 1.811, α = 0.935; Study 3: M= 4.245, SD= 1.684, α =0.925)
How likely are you to purchase this electric vacuum?
Very unlikely -Very likely
Improbable - Probable
Uncertain - Certain
Not Definitely – Definitely

Intrinsic religious orientation (adapted from Felix and Braunsberger, 2016)
(Study 2: M= 6.462, SD= .775, α =0.747; Study 3: M= 6.427, SD= 0.884, α = 0.794)
I try hard to carry my religion over into all my other dealings in life.
I read the Quran to strengthen my faith.
My religious beliefs are really what lie behind my whole approach to life.

Brand familiarity (Adapted from Kent and Allen,1994). Study 2: M= 2.05, SD= 1.38, α = 0.87 ; Study 3: M= 1.95, SD= 1.37 , α = 0.88)
Unfamiliar – familiar
Inexperienced – Experienced
Not knowledgeable/knowledgeable

1 = strongly disagree, 7 = strongly agree

Table 4.2: Result of CFA (Study 2 – Non-green)

Constructs and items	SL*	t Value
Product anthropomorphism, AVE =.85; CR = .94		
It almost seems as if this electric vacuum has intentions.	.91	6.77
This electric vacuum appears to have the ability to experience emotions.	.96	3.95
This electric vacuum appears to have consciousness.	.91	7.06
Product trust, AVE =.81, CR =.92		
This electric vacuum is reliable.	.94	4.98
This electric vacuum is trustworthy.	.95	3.96
This electric vacuum is dependable.	.81	8.67
Intrinsic religious orientation, AVE=.52, CR= .76		
I try hard to carry my religion over into all my other dealings in life.	.69	6.77
I read the Quran to strength my faith.	.70	6.66
My religious beliefs are really what lie behind my whole approach to life.	.78	4.92
Purchase intention "How likely are you to purchase this electric vacuum?", AVE=.78, CR=.93		
Very unlikely- Very likely	.94	5.28
Improbable- Probable	.91	6.73
Uncertain - Certain	.83	8.41
Not Definitely - Definitely	.86	8.11
Brand familiarly, indicate how familiar are you with the vacuum brand AVE=.71, CR=.88		
Unfamiliar - familiar	.76	8.25
Inexperienced – Experienced	.85	6.76
Not knowledgeable- Knowledgeable	.92	3.87

Note: SL=standardised loadings.

4.5.2 Data collection

An online survey was used to collect data. The online questionnaire, designed by Qualtric.com, was used to collect data from 186 participants. The participants were from Saudi Arabia from Saudi platforms such as Saudi students' pages on Twitter. In addition, WhatsApp was used to gather data through the online questionnaire. The questionnaire was written in Arabic because it is the mother language of Saudi Arabia. Before starting the analysis, we conducted CFA with AMOS software to make sure that the loading for each item was above 0.70, as shown in Table 4.2. We tested the reliability of each construct used in the model for this study. The results revealed that all the constructs are above Cronbach's alpha of 0.70 (Hair, Black, Babin, Anderson & Tatham, 2006). Considering each of the constructs used in this study, there was no cognitive or discriminant validity problems, composite reliability was above 0.7 and the AVE was above the value of 0.5 (Fornell & Larcker, 1981). These values were obtained by using the macro proposed by Gaskin (2011). The number of participants was 312 and after excluding non-complete answers, 186 participants were used for the analysis.

4.5.3 Common method bias

We checked the possibility of common method bias. We used Harman's one-factor test (Harman, 1976), we connected all items in our model to one single factor. The one-factor model indicated a very poor model fit (CFI=0.274, RMSEA=0.279, NNFI=0.267; Chisq=1828.428, DF=119), and we also conducted a one-factor extraction method applying principal axis factoring by SPSS and the percentage of variance of this factoring test was 36.76% which is less than 50% and this help us evidencing that our model does not suffer from common bias method.

4.6 Study 2 results

4.6.1 Demographics

62.2% of the participants were males. Most of the respondents were in the age range 25–34 (45.2%). 39.2% of the participants had a four-year Bachelor degree and 29.6% had a Master's degree.

4.6.2 Main effect

The main effect of product anthropomorphism on purchase intention for this study is positive and significant b= 0.22(t = 3.88, p<0.01). The effect of product anthropomorphism on product trust is positive and significant b= 0.14 (t= 3.98, p<0.001). In addition, the main effect of product trust on purchase intention is positive and significant b=0.41 (t=3.80, p<0.01).

4.6.3 Mediation effect

The researcher aimed to test the mediation effect of product trust on the relationship between product anthropomorphism and purchase intention for the non-green product. We conducted mediation analysis using PROCESS Model 4 (Hayes, 2017). The results of this analysis revealed that product anthropomorphism has an indirect effect on purchase intention as this relationship is mediated by product trust. The indirect effect is significant and positive (b=0.06, SE =0.02, 95% CI [0.01, 0.11]).

Table 4.3**: Study 2: Effect of product anthropomorphism on product trust. (Non-green)**

	Coeff	se	t	p	LICI	ULCI
Constant	3.37	.59	5.65	.00	2.19	4.55
AN	.14	.03	3.98	.00	0.07	.22
IRO	-.06	.09	-.73	.46	-.25	.11
BF	.52	.05	9.96	.00	.41	.62
Gender	-.25	.14	-1.74	.08	-.55	.03

Note: AN= Product anthropomorphism; IRO= Intrinsic religious orientation; BF= Brand familiarly; PI= Purchase intention.

Table 4.4: Study 2: Regression results (DV= Purchase intention)

1.	Coeff	se	t	p	LICI	ULCI
Constant	.04	.95	.04	.96	-1.84	1.93
AN	.22	.05	3.88	.00	.11	.33
PT	.41	.11	3.80	.00	.20	.63
IRO	.07	.13	.57	.56	-.19	.35
BF	.40	.09	4.16	.00	.21	.59
Gender	-.18	.22	-.82	.41	-.61	.25

Note: AN= Product anthropomorphism; IRO= Intrinsic religious orientation; BF= Brand familiarly; PI= Purchase intention; PT=Product trust.

Table 4.5**: Study 2: Results of the mediation effect of product trust**

	Effect	BootSE	BootLICI	BootULCI
PT	.06	.02	.01	.11

Note: PT=Product trust.

4.6.4 Discussion

Our data illustrate the positive impact of product anthropomorphism on purchase intention for non-green products. The results also reveal the mediating role of product trust in the relationship between product anthropomorphism and purchase intention for non-green products, supporting the majority of the anthropomorphism literature in marketing.

4.7 Study 3

For this study, we aimed to examine the effect of product anthropomorphism on purchase intention related to green products for Saudi consumers. Furthermore, we tested the mediation role of product trust in the relationship between product anthropomorphism and purchase intention for green products.

4.7.1 Method

4.7.1.1 Study design and procedures

This study aimed to discover the effect of product anthropomorphism on purchase intention

for green products. This study is similar to the previous one in terms of testing the mediation

effect of product trust, but a green anthropomorphised product was used. The product shown

to the participants was the same Henry vacuum cleaner (see Figure 4.3) but the participants

were asked to imagine that they wanted to reduce their energy bill and that this vacuum

cleaner was an energy-saving product. We added the words "I save environment", using the

first person as recommended by Aggarwal and McGill (2007) to make sure that the

respondents understood that the vacuum cleaner was environmentally friendly (see Figure

4.3).

4.7.2 Data collection

The questionnaire for this study was designed using Qualtrics.com. The same procedures

were used for collecting data as in study 2. The total number of participants was 309 and after

removing incomplete questionnaires, the number remaining for analysis was 182. Before

analysing the results, we conducted CFA with AMOS software to make sure that the loading

for each item was above 0.70, as shown in Table 4.6. We checked the reliability of each

construct used in the model. The reliability of the measurements indicated that Cronbach's

alpha >0.70 (Hair et al., 2006). There were no cognitive or discriminant validity problems. In

addition, composite reliability was above the value of 0.7 and AVE was above the value of

0.5 (Fornell & Larcker, 1981).

Table 4.6: Result of CFA (Study 3 – Green)

Constructs and items	SL*	t Value
Product anthropomorphism, AVE=0.79; CR= 0.92		
It almost seems as if this electric vacuum has intentions.	0.85	7.50
This electric vacuum appears to have the ability to experience emotions.	0.95	3.11
This electric vacuum appears to have consciousness.	0.87	6.91
Product trust, AVE=0.90, CR=0.96		
This electric vacuum is reliable.	0.94	6.90
This electric vacuum is trustworthy.	0.98	2.61
This electric vacuum is dependable.	0.92	7.83
Intrinsic religious orientation, AVE=0.57, CR= 0.80		
I try hard to carry my religion over into all my other dealings in life.	0.74	6.44
I read the Quran to strength my faith.	0.71	7.00
My religious beliefs are really what lie behind my whole approach to life.	0.82	4.48
Purchase intention "How likely are you to purchase this electric vacuum?", AVE=0.75, CR=0.92		
Very unlikely- Very likely	0.92	6.12
Improbable- Probable	0.93	5.79
Uncertain - Certain	0.86	7.82
Not Definitely - Definitely	0.77	8.63
Brand familiarly, indicate how familiar are you with the electric vacuum cl brand AVE=0.73, CR=0.89		
Unfamiliar - familiar	0.82	7.20
Inexperienced – Experienced	0.82	7.16
Not knowledgeable- Knowledgeable	0.92	4.05

Note: SL=standardised loadings.

4.7.3 Common method bias

We checked the possibility of common method bias. We used Harman's one-factor test (Harman, 1976), we connected all items in our model to one single factor. The one-factor model indicated a very poor model fit (CFI=0.324, RMSEA=0.274, NNFI=0.318; Chisq=1733.318, DF=119), and we also conducted a one-factor extraction method applying principal axis factoring by SPSS and the percentage of variance of this factoring test was 38.08% which is less than 50% and this help us evidencing that our model does not suffer from common bias method.

4.8 Study 3 results

4.8.1 Demographics

54.4% of participants in this study were males, and 40.1% of the sample fell in the age range 25– 34 years. In addition, 42.3% had a four-year Bachelor degree.

4.8.2 Main effect

The results here confirmed the previous study – product anthropomorphism influenced purchase intention b= 0.17 (t =3.07, p < 0.01). This effect was positive and significant. The effect of product anthropomorphism on product trust is positive and significant b= 0.22 (t= 5.18, p< 0.01). Furthermore, consistent with the previous study, product trust's effect on purchase intention for the green product was found to be positive and significant b=0.49 (t= 5.34, p < 0.01).

4.8.3 Mediation effect

The mediation role of product trust explains the influence of product anthropomorphism on purchase intention for the green product. This was tested using the macro proposed by Hayes (2017). The results with regard to mediation were the same as in the previous study – the indirect effect of product anthropomorphism on purchase intention of green product was

indeed mediated by product trust. This indirect effect was positive and significant (b= 0.11, SE =0.03, 95% CI [0.04, 0.18]).

Table 4.7: Study 3: Effect of product anthropomorphism on product trust. (Green)

	Coeff	se	t	p	LICI	ULCI
Costant	1.54	.57	2.66	.00	.40	2.67
AN	.22	.04	5.18	.00	.13	.30
IRO	.20	.08	2.39	.01	.03	.37
BF	.44	.05	7.88	.00	.33	.55
Gender	-.26	.15	-1.71	.08	-.56	.04

Note: AN= Product anthropomorphism; IRO= Intrinsic religious orientation; BF= Brand familiarly; PI= Purchase intention.

Table 4.8: Study 3: Regression results (DV= Purchase intention)

	Coeff	se	t	p	LICI	ULCI
Costant	.22	.73	.30	.75	-1.21	1.66
AN	.17	.05	3.07	.00	.06	.28
PT	.49	.09	5.34	.00	.31	.68
IRO	.13	.10	1.21	.22	-.08	.34
BF	.34	.08	4.21	.00	.18	.50
Gender	-.31	.19	-1.63	.10	-.69	.06

Note: AN= Product anthropomorphism; IRO= Intrinsic religious orientation; BF= Brand familiarly; PI= Purchase intention; PT=Product trust.

Table 4.9**: Study 3: Results of the mediation effect of product trust**

	Effect	BootSE	BootLICI	BootUICI
PT	.11	.03	.04	.18

PT=Product trust.

4.8.4 Discussion

Our data revealed that product anthropomorphism positively affects purchase intention for green products. The results also show that product trust mediates the relationship between product anthropomorphism and the purchase intention towards green products. This confirms the expectation related to anthropomorphism in the marketing literature.

4.9 General discussion

Previous research has indicated that using faces to promote a marketing message is an effective strategy, as faces induce a variety of consumer behaviours and reactions such as strong emotions, liking the humanised object and drawing attention to it (Landwehr, McGill and Herrmann, 2011).

Anthropomorphism theory describes the effect of adding the elements and attributes related to actual human beings to a non-human object (Kim & McGill, 2011). An increasing number of companies are looking for strategies and tools to maximise their chances of selling their products to consumers. In addition, companies who are concerned about saving the environment want to encourage purchases of their green products, but they find that although consumers may intend to purchase green products, in reality they often do not (Sendrow, 2013). Therefore, we are looking here at using human-like features to attract consumers to green products. Furthermore, we argue that this research differs from previous research – not only because it examines trust in green products, which to the best of our knowledge has not yet been examined, but also because this research focuses on studying this research problem in Saudi Arabia. This is an important area because there is a complicated background related to preventing Muslims from having human-like objects in their homes. Interestingly, we found that the human-like features on the vacuum cleaner did not discourage Saudi consumers at all from saying that they would purchase anthropomorphised green/non-green

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products. Our study is also novel because it examines the mediation effect of product trust within purchase intention as a dependent variable for green and non-green products.

The results of these studies showed that using human-like features on a vacuum cleaner encouraged Saudi consumers to purchase it. Study 2 revealed that this positive effect of anthropomorphism on purchase intention was due to the fact that the anthropomorphism enhanced product trust, which in return increased consumers' purchase intention towards the vacuum cleaner. Study 3 revealed the same results related to an environmentally friendly vacuum cleaner.

This is the first study to examine the effect of anthropomorphism on non-green and green products in the Saudi context. Furthermore, there is a conflict in the literature related to the use of anthropomorphism in Islamic countries such as Saudi Arabia. Some religious transcripts do not recommend and may actually forbid the drawing or building of objects that have a soul, and this includes anthropomorphism, as indicated by Ibn Taymiyyah, an early Islamic religious scholar (Abdul-Hadi, 1999, p. 173). Nevertheless, some modern Islamic scholars such as Yousif-Al Qaradthwi and Mohammed Najib Alomotaieie indicate that the drawing of soul creatures is fine (Abdul-Hadi, 1999, p. 175). We found that consumers in Saudi Arabia would like to purchase anthropomorphised products, both non-green and green, because they trust the product. One of the explanations for this is that there are some modern opinions from Islamic scholars about allowing the use of human-like objects. For example, contemporary scholars such as Mohammed Najib Alomotaieie indicate that it is fine to use objects (i.e. products) with human-like drawings for the purpose of decoration and art, provided they are not worshipped (Abdul-Hadi, 1999 p.175). This view has also been expressed by another contemporary scholar, Yousif-Al Qaradthwi (Abdul-Hadi, 1999, p. 185). The third explanation is that human-like features are an effective marketing tool – it is hardwired in humans to link survival with seeing another human being (Guthrie, 1993), and

this can subconsciously be applied to anthropomorphised products. We argue that our research is the first seed to provide promising signs that the Saudi market is ready to experience humanised products. Our results are consistent with previous results in the marketing literature that using tools such as spoke-characters enhances brand trust (Folse et al., 2012). We also explore human-like features with non-green and green products in Saudi Arabia, the first study to do so.

4.9.1 Theoretical implications

Our results show that the anthropomorphism theory is applicable in the context of Muslim Middle Eastern culture (i.e. Saudi Arabia). Our data adds to the anthropomorphism theory within both non-green and green products by revealing that indeed, anthropomorphism is a successful tool in Saudi Arabia. Second, our results show that anthropomorphism has a positive influence on purchase intention because adding human-like features to the product enhances product trust. This motivates Saudi consumers to purchase the product. As it is now widely accepted that human-like drawings and objects can be used for art and decoration in Saudi Arabia, this is no longer a barrier to the use of anthropomorphised products.

4.9.2 Managerial implications

The results of this research provide important results for companies interested in promoting humanised products in Saudi Arabia. Research on anthropomorphism in the marketing context had not previously been conducted in Saudi Arabia. Our results for both green and non-green products show that Saudi consumers trust anthropomorphised products. This gives marketers the insight that the Saudi market is ready to welcome this type of product, even though some Islamic scholars indicated many years ago that using creatures that have a soul is forbidden. This view is changing however, and this was one of the key motivators behind this research. Some modern Islamic scholars have indicated that it is fine to use humanised objects, such as Yousif-Al Qaradthwi and Mohammed Najib Alomotaieie (Abdul-Hadi, 1999,

p. 175). This may explain why consumers now trust anthropomorphised products. One of the female interviewees said that when she saw the vacuum cleaner, she did not think about it from a religious prospective, but she thought it looked cute and trustworthy as it had a friendly face. We chose to use a vacuum cleaner for our studies as to the best of our knowledge, this product has not been previously used in the anthropomorphism literature. For example, previous studies used products such as automobiles (Aggarwal & McGill, 2007) or cell phones (Aggarwal & McGill, 2007). This motivated us to use a different product.

4.9.3 Limitations and future research

Even though our study indicated valuable results related to non-green and green products, our paper has its limitations. Firstly, our paper considered only one type of household product and it would be interesting for future studies in the Saudi market to consider other household products such as a fridge or other energy-saving products used in the kitchen or in the house in general. Furthermore, future research could use high and low involvement products because it would be interesting to see whether there is a difference in how consumers evaluate such products. Another point is that by collecting data through social media we have not reached the full sample as not everyone uses social media platforms such as Twitter or WhatsApp. Future research may also explore which features Saudis like particularly about anthropomorphised product, e.g. a smile, the eyes? Future research could also use more than one level of anthropomorphism, including for example low, medium and high levels of anthropomorphism to find out which is preferred by Saudi consumers. According to Epley and Waytz (2010), attributes related to humanised objects play an important role in how consumers respond to the humanised object. Future research may specifically look into which emotional factors enhance favourable attitudes towards human-like products in the context of Saudi Arabia. The researcher recommends the use of qualitative interviews in the future in order to achieve more in-depth findings about the reasons behind consumers' trust in this type of products nowadays.

Future studies can also ask questions in order to determine how this process of trusting a brand developed through the past few years and to focus more on female participants as they were in the minority in this research. It would be interesting to find more in-depth reasons behind consumers' trust and acceptance of these products, especially as this would be a new opportunity for researcher to find out more about consumers' evaluations in Saudi Arabia.

Chapter 5: Conclusion

5.1 Introduction

This section is to introduce slightly about past studies in the literature mentioned earlier The motivation for this research was the lack of studies related to the use of human-like features with green products. In addition, the researcher aimed to discover consumers' evaluations of human-like products in Saudi Arabia and to stress the importance of research on green products. This section also wraps up the results of previous chapters in a summary table (see Table 5.1).

The researcher in this thesis contributes to green product adoption by using anthropomorphism with green products. Furthermore, the researcher showed the practical benefits of anthropomorphism, showing marketers examples of its use with green products. Finally, the researcher carried out research in Saudi Arabia showing Saudi consumers' acceptance of human-like products. Previous chapters showed that using anthropomorphism theory in marketing applications is a successful tool in some green product situations, but on the other hand marketers also need to be careful when they use this tool as it can be harmful sometimes too. Using anthropomorphism in marketing has been a hot topic and it has been discussed by researchers in the past few years (e.g. Kwak, Puzakova and Rocereto, 2015; Puzakova & Kwak, 2017; Touré-Tillery & McGill, 2015). For instance, Levy et al. (2017) found that people with high moral identity are more willing to purchase a brand when it is anthropomorphised. Another example of the positive effect of anthropomorphism on purchase intention is Wan, Chen and Jin's (2017) study, which indicates that people are more willing to purchase a charger with superior appearance when it is anthropomorphised than when it is non-anthropomorphised. Nevertheless, anthropomorphism theory is a topic that should be explored further in the marketing literature because studies in this field have

reported different and opposite results related to the effect of anthropomorphism on purchase intention. Furthermore, there is a dearth of studies related to the effect of anthropomorphism on purchase intention for green products.

Our research revealed three main results related to using anthropomorphism theory with green products. First, in Chapter 2 we found that consumers with medium and high levels of ILOC have a greater intention to purchase a green product when this green product is anthropomorphised. This demonstrates to green marketers that consumers with an ILOC are a target audience that should be given attention. This result contributes to the positive applications of using anthropomorphism theory with green products. In contrast, in Chapter 3, we highlighted the downside of using anthropomorphism theory with green products. Chapter 3 revealed that when we examined two types of anthropomorphism for green products (low level of anthropomorphism and high level of anthropomorphism), consumers indicated a lower purchase intention for the highly anthropomorphised green product compared with the slightly anthropomorphised green product. Consumers showed a lower purchase intention for the highly anthropomorphised green product because they perceived it as too humorous and less attractive. In Chapter 3 we uncovered why consumers perceived the highly anthropomorphised green product as too humorous and the reason was that the anthropomorphism made them evaluate this product as having less product credibility. Finally, in Chapter 4, we aimed to determine the influence of using human-like features in different cultural contexts. We found that Saudi consumers wanted and liked to purchase anthropomorphised green products because they trusted the product. Chapter 4 result includes both non-green and green human-like products.

Our results above help to address the gap in the literature on adapting and purchasing green products and finding which tools marketers should use and which tools they should avoid. Previous decades act as an emergency warning sign that researchers should pay more

attention to environmental challenges as their impact is becoming very noticeable. For example, Dembkowski and Hanmer-Lloyd (1994, cited by Schlegelmilch, Bohlen & Diamantopoulos, 1996) stated that there is an urgent global need to find out ways to solve or reduce these environmental challenges. This is not something only agreed on by researchers, as 82% of consumers in the UK indicate that they perceive environmental problems as an issue that concerns them and they believe that it is important to find ways to reduce this problem. Therefore, our results help to show the useful side of using human-like features with green products and also that in other contexts, using human-like features can cause negative marketing outcomes for green products.

Another example of the lack of adoption of environmentally friendly products is that consumers support the idea of adopting green products, but this does not lead to actual purchase or purchase intention (Magnusson et al., 2001, cited by Schuitema & De Groot, 2015), which leads us to claim that our results discussed earlier , especially results related to the positive side of using anthropomorphism theory, show one vital useful tool which should be used by marketers to enhance the idea of green product adoption. Our research enriches marketers' knowledge about when to use (or avoid) using product anthropomorphism, which made us realise that adding human-like features to green products is not globally agreed to be positive, as for example in Wan, Chen and Jin (2017) and also using human-like features is not always negative, as happened for example in Puzakova, Rocereto and Kwak (2013). Chapters 2 and 4 provided positive promising results that encouraged marketers to adopt human-like strategies within their green products. Chapter 3 indicated the downside of using human-like qualities within green products and that increasing anthropomorphism can cause a drop in purchase intention for a green product. We used purchase intention as a dependent variable in our research in Chapters 2, 3 and 4 because the literature shows that the purchase intention of a green product is an important element that is a successful evaluation indicator

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for marketing management (Wu, Wu, Lee & Lee, 2015). Furthermore, purchase intention is a way of guiding marketers to make marketing decisions and enhancing marketers' ability to make product innovations (Wu, Wu, Lee & Lee, 2015).

5.2 Discussion

In Chapter 2 we indicated that using human-like qualities is a useful tool to be used with consumers who have ILOC. This supports and adds to the previous literature on green marketing. For example, consumers who are concerned about the environment are affected by what they buy. Therefore, our results are important because they motivate companies to modify their products to meet those consumers' needs and desires by manufacturing products that are friendly to the environment (Schuhwerk & Lefkoff-Hagius, 1995). Chapter 2 results are vital because of other aspects. For example, they show that using human-like features is one successful tool for modifying and editing green product design. We discovered that human-like features will enhance purchase intention for a green product. Our research contributes mainly to the field of energy- saving products because it helps to reduce the problem of the limited purchasing of green products. Our research stresses the point that consumers who are predicted to have intentions to purchase the green product are those with medium and high levels of ILOC. In addition, according to our knowledge, the use of energy-saving products with anthropomorphism theory is very limited in the marketing literature as previous studies used cars or phones (Aggarwal and McGill, 2007), but they did not focus on energy-saving products. This highlights the importance of our results. For example, according to Wu, Wu, Lee and Lee (2015), high energy generation costs and high prices are barriers that limit the adoption of green products. Therefore, our research results help consumers to overcome these barriers by showing that anthropomorphism features are a vital positive tool that can be used to increase purchase intention for consumers with ILOC towards protecting the environment via the behaviour of purchasing green humanised products.

Also, in Chapter 2, we showed that consumers who internally believe that they have control over environmental challenges (Rotter, 1966) are more willing to purchase a green product when it is humanised. This finding is significant for marketers as it provides them with a possible segmentation that they can focus their efforts on. When consumers have an internal self-decision to purchase green products this increases the possibility that they will buy green products (Hill, 2011). This will therefore open marketers' eyes to a valid segmentation and allow them to avoid taking risks by promoting green products to other segmentations.

The important finding within Chapter 2 is the moderation effect of green product anthropomorphism on the relationship between ILOC and purchase intention. Our results revealed that consumers with ILOC are more willing to purchase a green product (e.g. energy-saving kettle) when it is anthropomorphised. This is very useful tool for marketers as they can add or remove (control) the human-like features of green products.

Chapter 3 is related to the mediation role of perceived humour, product credibility and product attractiveness on the relationship between anthropomorphism type (high/low) and the purchase intention of green products. The use of human-like features can enhance purchase intention in some situations. For example, a study indicated that anthropomorphism influences the purchase intention for green products (Chang, Huang & Liu, 2018). It has also been found in other marketing contexts such as the advertisement context that using products that can speak makes consumers perceive these brands as human-like (Reavey et al., 2018). This drives consumers to like the object more (Aggarwal and McGill, 2007, cited by Reavey et al., 2018). Even though these studies provided a great result for anthropomorphism with green products, our results were different and Chapter 3 demonstrated the downside of using anthropomorphism within green products. Our research is not the first to address the negative influence of anthropomorphism as this has been done by several researchers in the past, for example Puzakova, Rocereto and Kwak (2013) Puzakova, Kwak and Rocereto, (2011) and

Kwak, Puzakova, and Rocereto (2015). Our results in Chapter 3 found that using anthropomorphism is sometimes a wrong marketing strategy when marketers have the goal of enhancing the purchase intention for green products. In our research related to green products and especially energy-saving kettles, we answered the question: Do consumers treat increasing anthropomorphism features as likeable or not? There is a dearth of studies on anthropomorphism within green products as most studies have focused on brands and non-green products. Our research presented in Chapter 3 provided important results. It indicated that increasing human-like features will decrease purchase intention. Our research results contributed to the anthropomorphism theory by examining the influence of perceived humour, product attractiveness and product credibility on the relationship between anthropomorphism type (high level of anthropomorphism vs. low level of anthropomorphism) and purchase intention. The deep meaning of our results is that increasing human-like features will decrease purchase intention because consumers think that the green product is then less attractive and too funny. Participants thought that the product was too funny because they perceived the highly human-like green product as having less product credibility. According to our knowledge, no previous research has investigated this. For example, Ketron and Naletelich (2018) indicated that humanised elements, especially sad faces, create sympathy, which encourages consumers to save the product because it is portrayed as a victim. This is different from our findings. Therefore, our research supports the idea that anthropomorphism is a tool whose effect is not agreed upon as sometimes it appears to be a useful tool, as in Chapter 2, and sometimes its use is not recommended, as in Chapter 3.

Finally, Chapter 4 investigated a novel idea in terms of testing human-like features in a new context as we conducted this part of the research in Saudi Arabia. The results of this chapter supported the majority of previous anthropomorphism studies, which suggested that human-

like features are a recommended tool to be used with products (e.g. Cooremans and Geuens, 2019). The novel contribution of the results of this chapter is to provide the insight that Saudi markets and Saudi consumers are ready to purchase human-like products, whether or not they are green. The results of our research show that Saudi consumers have the intention to purchase human-like products, both green and non-green. The findings indicated that the reason behind these intentions is that consumers trust human-like products. These are important findings because they demonstrate that Saudi consumers have no problem with purchasing human-like products. This is significant because in the past Islamic scholars have indicated that Muslims as consumers are not allowed to deal with objects that have human-like features (Abdul-Hadi, 1999, p. 173). Nevertheless, one of the explanations for this result is that modern Islamic religious opinions indicate that there is no problem with using human-like objects if, for example, they are to be used in the house or for decoration (Abdul-Hadi, 1999 p.175). The mediator in the relationship between product anthropomorphism and purchase intention was found to be product trust and this means that consumers buy human-like products because they trust them.

5.3 Summary of key findings

Table 5.1: Summary of key findings

Chapter	Key finding
Chapter 2	1-Internal locus of control positively influencing purchase intention for anthropomorphised green product.
	2-Green product anthropomorphism moderates the positive influence of ILOC on purchase intention.
Chapter 3	1-Highly anthropomorphised green product are negatively influencing purchase intention. The mediation mechanism explaining this is that human-like features of green product enhancing perceived humour and decrease attractiveness which make consumers evaluate highly anthropomorphised green product less favourably comparing with low anthropomorphised green product.
	2-We found that consumers perceived the green highly anthropomorphised product as too humorous because consumers perceived this product as having less product credibility comparing with the low anthropomorphised green product. Therefore, product credibility mediates the influence of perceived humour on purchase intention for the highly anthropomorphised green product
Chapter 4	1-Product anthropomorphism for green/non-green product found to be positively effecting purchase intention for Saudi consumers.

2-The mediation mechanism is product trust. That Saudi

consumers want to purchase the anthropomorphised

green/non-green products because they trust the

anthropomorphised green/non-green product.

5.4 Direction for future studies

Future studies related to the anthropomorphism of green products are still required. Future

researchers can contribute further inputs to our research by conducting similar research in

different cultural contexts, because even though we conducted our studies with a large

number of participants, some of our research was conducted in the UK. For example, it would

be interesting and valuable to see what the case would be if the research was conducted in a

different country, for example one that has strong governmental regulations related to saving

the environment. Will the ILOC still be the moderator of the relationship between green

product anthropomorphism and purchase intention for green products, or the story will be

different? Would the external locus of control play a role if our study was conducted in

another country instead of the UK? In our study we did not find a focus in the literature on

the effect of external locus of control on the relationship between green product

anthropomorphism and purchase intention. Also, future research can extend the results of this

chapter by exploring external locus of control because according to Kalamas et al. (2014),

internal responsibilities and intentions to protect the environment are not always enough,

therefore external factors should be considered by marketers too.

In addition, Chapter 2 in particular focused on ILOC and therefore future studies may try to

use other environmental factors such as consumers' green values or consumers' green

attitudes, and find the effect of these on the purchase intention of green products.

In relation to Chapter 3, further research may explore similar ideas, but outside the environmentally friendly context, and try to explore this research problem within advertisements and brand contexts. Researchers could aim to determine whether perceived humour, product credibility and perceived attractiveness play a role as mechanisms that can explain the effect of the anthropomorphism type (high vs. low) of such advertisements or brands on purchase intention. And if so, will the results will be similar to those we obtained with green products in Chapter 3? As mentioned by Eisend (2009), different consumers show different attitudes towards humour and from here we suggest that conducting this research in a different cultural context would be valuable to determine whether the results differ from ours in Chapter 3.

Finally, Chapter 4, which is the third paper in our research, investigated anthropomorphism theory within green products. The research in Chapter 4 was conducted in Saudi Arabia. We suggest that future researchers try to find further reasons behind why Saudis have the intention to purchase both non-green and green products with human-like features. For example, future research in Saudi Arabia can explore if internal/external locus of control plays a role in how consumers evaluate human-like products. We explored this in Chapter 2 within UK consumers and it would be interesting to explore this further with Saudi consumers. Future research could also explore more than one type (level) of human-like features for both green and non-green products and find out what specific type of human-like features Saudi consumers prefer. In addition, future researchers are encouraged to study more emotional elements, which may influence the relationship between human-like features for green and non-green products and purchase intention.

Also related to our overall dissertation, future studies may conduct research in a broader sense by using not only energy-saving green products, but also other types of green products such as recycled products. Future work can also investigate more deeply by testing different

types of wording for anthropomorphism; we only used one phrase with all the green products we used in our research and future studies can find out whether different phrases have different effects on the intention to purchase a green product. Also we need to mention that in our research in Chapters 2, 3 and 4 we used one type of green product related to saving energy, which was an electric kettle and future research may use more than one type of green product related to saving energy, such as electric cars or solar-powered cars, to avoid the limitation of product-specific effects (Cooremans and Geuens, 2019). It should be mentioned that to collect data for this research we used an online platform to distribute our questionnaire (Prolific.com). And therefore, we may have missed some participants who, for example, do not use the internet, and therefore future research needs to make sure that those samples are included to obtain data that covers as many consumers as possible.

5.5 Final thought

We found in Chapter 2 that people with ILOC intended to purchase the green product and that those people would be more willing to purchase it if it was anthropomorphised. Therefore, we suggest that marketers focus their promotion efforts for green products on consumers with an internal responsibility towards the environment. The implication of this is expected profits and revenue for those green companies that provide human-like green products.

Nevertheless, Chapter 3 shows that the story of anthropomorphism through marketing tactics and strategies is not that simple, and that using human-like features with green products could be a negative tool. Chapter 3 concluded that when the green product looks more like a human, this leads to a lower purchase intention towards the product. We suggest that marketers avoid using physical human-like features such as eyes and a mouth when promoting green products for UK consumers. When marketers avoid using human-like features, this will keep purchase intention at a successful level. Therefore, green marketers

are recommended to be careful when considering which human-like features should be added to a green product.

In Chapter 4, we suggested that Saudi consumers have the intention to purchase human-like products, both non-green and green. The reason behind this is that Saudi consumers trust the product. The implication of this is a vital profit window that can be used in the Saudi product market. The researcher in this thesis contributes to green product adoption by using anthropomorphism with green products. In addition, the researcher showed in his research the practical benefits of using anthropomorphism with green products. Finally, the researcher carried out this research in Saudi Arabia, indicating Saudi consumers' acceptance of human-like products.

Appendix: Tables\ Awards and certificates

Chapter 2

Study 1: Correlations and reliability

	CR	AVE	Cronbach's alpha	ILOC	PI	Ex_LOC
ILOC	0.866	0.684	0.860	**0.827**		
PI	0.926	0.676	0.925	0.252	**0.822**	
Ex_LOC	0.850	0.587	0.840	-0.326	-0.149	**0.766**

ILOC=Internal locus of control; PI=Purchase intention; Ex_LOC= External locus of control.

Study 2: Correlations and reliability

	CR	AVE	Cronbach's alpha	Anthro	ILOC	PI	Ex_LOC
Anthro	0.893	0.736	0.876	**0.858**			
ILOC	0.874	0.698	0.871	0.085	**0.836**		
PI	0.925	0.759	0.917	0.128	0.190	**0.871**	
Ex_LOC	0.896	0.743	0.892	0.259	-0.239	-0.029	**0.862**

ILOC=Internal locus of control; Anthro=product anthropomorphism; PI=Purchase intention; Ex_LOC= External locus of control.

Chapter 3

Study 1: Correlations and reliability

	CR	AVE	Cronbach's alpha	ILOC	Humour	Attrack	PI	AN
ILOC	0.904	0.653	0.902	**0.808**				
Humour	0.980	0.941	0.979	0.009	**0.970**			
Attrack	0.929	0.813	0.927	0.103	0.304	**0.901**		
PI	0.937	0.792	0.933	0.146	0.363	0.684	**0.890**	
AN	0.908	0.768	0.900	0.003	0.319	0.145	0.169	**0.876**

ILOC=internal locus of control; Humour=perceived humour; Attrack= Perceived attractiveness; PI=Purchase intention; AN= product anthropomorphism.

Study 2: Correlations and reliability

	CR	AVE	Cronbach's alpha	Cred	Humour	Attrack	PI	ILOC	AN	MC
Cred	0.911	0.719	0.909	**0.848**						
Humour	0.977	0.935	0.977	0.220	**0.967**					
Attrack	0.949	0.861	0.946	0.550	0.280	**0.928**				
PI	0.958	0.851	0.956	0.612	0.291	0.754	**0.922**			
ILOC	0.919	0.696	0.918	0.121	-0.022	0.104	0.146	**0.834**		
AN	0.905	0.761	0.897	0.174	0.471	0.134	0.094	0.085	**0.872**	
MC	0.905	0.827	0.904	0.485	0.074	0.388	0.513	0.196	0.022	**0.909**

ILOC=internal locus of control; Humour=perceived humour; Attrack= Perceived attractiveness; PI=Purchase intention; AN= product anthropomorphism; Cred=product credibility; MC=Message credibility.

Chapter 4

Study 2 Correlations and reliability

	CR	AVE	Cronbach's alpha	PI	AN	IRO	PT	BF
PI	0.936	0.785	0.935	**0.886**				
AN	0.946	0.854	0.946	0.359	**0.924**			
IRO	0.768	0.525	0.747	0.187	0.142	**0.724**		
PT	0.929	0.814	0.925	0.553	0.293	0.113	**0.902**	
BF	0.882	0.715	0.875	0.539	0.120	0.214	0.638	**0.845**

PI=Purchase intention; AN=product anthropomorphism; IRO= Intrinsic religious orientation; PT= Product trust; BF= Brand familiarity.

Study 3 Correlations and reliability

	CR	AVE	Cronbach's alpha	PI	AN	IRO	PT	BF
PI	0.926	0.758	0.925	**0.870**				
AN	0.920	0.794	0.916	0.394	**0.891**			
IRO	0.800	0.572	0.794	0.108	0.083	**0.756**		
PT	0.965	0.903	0.964	0.610	0.394	0.139	**0.950**	
BF	0.891	0.732	0.884	0.508	0.140	-0.069	0.506	**0.856**

PI=Purchase intention; AN=product anthropomorphism; IRO= Intrinsic religious orientation; PT= Product trust; BF= Brand familiarity.

Awards and certificates:

- Attendance and presentation of the paper, The Relationship between Internal Locus of Control and Purchase Intention of Green Products: The Moderation Effect of Product Anthropomorphism, *at the 2019 Academy of Marketing Science World Marketing Congress held July 9-12 in Edinburgh, Scotland.*

- Recipient of award *(Lancaster university management school research conference, poster competition).*September, 2018.

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