Factors Influencing Intention of Mobile Users Participating in Reverse Supply Chain Management in the UAE

Taher Benyahya, Noriza Mohd Jamal, Balan Sundarakani and Siti Zaleha

Factors Influencing Intention of Mobile Users Participating in Reverse Supply Chain Management in the UAE

Taher Ben Yahya
Noriza Mohd Jamal
Balan Sundarakani
Siti Zaleha

ali1978@graduate.utm.my , m-noriza@utm.my, BalanSundarakani@uowdubai.ac.ae, zaleha@utm.my

ABSTRACT

Purpose
This study is concerned with examining the factors that influence customers' intentions to participate in electronic recycling, focusing on studying the recycling of mobile devices because the used mobile is one of the major problems when it comes to managing electronic waste. Moreover, there is significant growth in mobile manufacturing, which increases mobile waste year after year. Meanwhile, another major problem with regard to mobile devices is that people tend to retain and store them, rather than sending them for recycling.

Design / methodology / approach
This study will adopt quantitative approach as a choice of research and a survey method as research strategy. Data collection will be conducted via self-administrated questionnaire using non-probability self-selection sampling technique.

Findings
By reviewing the literature on customer behaviour in this paper, the author identified a critical gap in the literature by, proposing an additional sub factors to be added to the Theory of planed behaviour (TPB) in order to increase customers' intention towards mobile recycling in general and in the UAE in particular.

Research limitations / implications
This study may not be suitable in other contexts and required to be modified by adding or removing some of the factors. And results may vary among different countries.

Practical implications
Lake to have statistics on the number of mobile users and the number of mobile phones recycled.

Originality / value
This study will help to provide a model for businesses and companies working in the mobile industry (either in the UAE or in any other country) to understand the factors that influence mobile users to send their mobile devices for recycling

Keywords: Reverse supply chain management; Mobile phone reuse; Mobile phone recycling; Waste mobile phone; Customer recycling Behavior; Theory of planned behaviour

1. INTRODUCTION

In today's modern world, the majority of people tend to use a mobile phone in their daily lives. The technology of this device has not only enabled people to use it as a phone, but also offered them access to the Internet while providing them with a wide range of applications with which to manage their work, access social platforms, play their favourite games, and even pay for products and services through the use of a wide range of financial services. Furthermore, rapid developments in mobile phone technology, especially in the UAE, have encouraged mobile phone users to change their devices frequently in order to cope with new features, designs and capabilities, which, as a result, has created a massive increase in the amount of mobile phone waste, and due to their small size, it is comfortable to store them at home or in an office. Thus, this study aims to address customers' intentions and behaviours with regard to participating in reverse logistics (RL) or recycling for mobile devices through reverse supply chain management (RSCM). Reverse logistics is an essential system for current industries and manufacturers; it is considered the most vital channel through which to process mobile recycling activity. In addition, this research aims to contribute to global efforts by trying to reduce mobile phone waste, whereby saving the environment and optimising natural resources. Therefore, this paper will discuss and analyse previous works of literature related to the RSCM and previous reviews on customers' behaviour and the different factors that affect intentions and behaviour towards recycling.

2. Literature Review.

1.1. The need for RL and RSCM

From consumer perspective, people who are working on saving natural resources and on environmental protection have worked to enhance RSCM as the main element for production sustainability (Xing *et al.*, 2010). Several variables have been classified in the literature as reasons for a return by either the manufacturer, the distributor or the customer. Xing *et al.* (2010) classified four types of returns, highlighting that those four types of returns might change depending on the situation's complicity: (1) product life cycle return (this type of return is linked to the sales process and product warranty) — it is better that this link be called the end of warranty because the product life cycle is usually linked with the product EOL; (2) reusable components (the return is related to the consumption of some parts); (3) end

of use (EOU) products (products that can be traded or resold); and (4) EOL return (this applies only to those products that might cause environmental issues or commercial loss).

Gupta (2016) distinguishes five different types of product returns: (1) commercial/customer return, (2) repair return (if the product is still under warranty), (3) EOL return (products are no longer used), (4) reusable container (bottles/cans) return, and (5) leased product return (electronic office equipment with a short life cycle).

John *et al.* (2018) argue that there is no most suitable design for an RL network because it depends on the product nature and the reuse financial values. Therefore, the main limitation derives from specifying the product and the deficiency of listing all of the possible recovery options.

1.2. Mobile phone industry and the need for RSCM

Govindan and Popiuc (2014) focus on the profit that can be generated from the 3Rs (Repair, Reuse and Recycle) activities in the revere supply chain (RSC) or from the disposal of EOL products, and then collecting the value returned from those activities. They argue that maximising RSC profit can be achieved by applying a revenue-sharing contract (or what is called the "coordination contracts concept") signed with different partners involved in the RSC. For example, retailers can offer financial value to a customer for the exchange of recycled devices, and then collect part of this offer from the manufacturer by signing a revenue-sharing contract.

Kumar (2017) explains that businesses and enterprises in the last 10 years have considered RSCM to be a vital and essential economic activity, as well as a competitive advantage for environmental sustainability, especially with regard to recycling products with a short life cycle, such as smartphones, which are characterised by high demand and as fast-moving items. To ensure maintaining environmental sustainability, governments are required to introduce new regulations for environmental safety strategies and recycling rules.

1.3. Key Issues in RSCM

One of the critical issues in RL or RSCM is the massive amount of expenditure involved in RL processes. Many companies are concerned with minimising expenditure by adopting systems and technologies that provide savings in energy, collection methods, and transportation (Jayant *et al.*, 2012; Lee and Dong, 2008). According to Jayant *et al.* (2012), the RL cost is around 4% of the total logistical cost. In addition, Jayant *et al.* (2012) mentioned that the total processing cost of returned products is usually higher than the total cost of manufacturing. However, companies find that (strategically) collected products can drive a second purchase, which will reduce the cost of raw materials.

Blackburn *et al.* (2004) argue that the time factor is one of the main issues in RSCM. The value of a product declines over time, especially that of electronic products. Due to the delay in processing returned products, manufacturers should take into consideration the value of time for returned products. Blackburn et al. (2004) found that the average time for returned products waiting for processing is three to four months. Furthermore, during this period the product value simply erodes. A short product life cycle (PLC), such as that of computers and mobile phones, has a high marginal value of time compared with power gadgets or disposable electronics, which are less time-sensitive and have a low marginal value of time. Therefore, from the above, the author concludes that there is a direct relationship between the selling price and product return responsiveness. In order to solve the delay in processing we need to determine the capacity of collection and inspection points and provide high-tech facilities in order to speed up recycling or reuse activities (Alumur et al., 2012; Kilic et al., 2015).

The information and experience in RSC do not achieve the maturity achieved in the forward supply chain. It is not easy to find a company with recycling experience of more than 10 years. Reusing goods is not a common practice, as the majority of companies produce products. Moreover, with businesses applying RSC activities, it is challenging to collect data that provide measurements on the impact on the environment (Kumar et al., 2014; Pishvaee and Razmi, 2012). However, studies like this research will help to increase the awareness of RSCM activities and, most importantly, influence customers to participate in RL, as the customer is the vital factor in the RL process. Another complicity that can be related to information is the high rate of uncertainty in collecting returned products, which becomes a

factor in increasing the overall cost in the whole supply chain value (Batarfi et al., 2017; Han and Trimi, 2018).

Jayasinghe et al. (2019) stressed that the lack of quality and environmental standards in RSC operational activities could affect the whole RSCM processes negatively. By not applying proper standards with regard to handling waste materials, especially in the dismantling RL activity, it might lead to generating salvage materials. Weak manufacturing and a lack of direction are other issues that generate low quality in RL operations. Nevertheless, employing the right resources and designing the right infrastructure (specifically for RSC activities) will help to increase work efficiency and enhance operational quality.

1.4. Customers' behaviour towards mobile recycling

This section will discuss consumer behaviour and the different literature on this topic, the customer is the key to starting RL processes; therefore, studying customer behaviour is essential in understanding the gap or problems with respect to completing the 3Rs stages.

Starting with the customer behaviour definition, "consumer behaviour is the study of individuals, groups, or organizations and the processes they use to select, secure, use, and dispose of products, services, experiences, or ideas to satisfy needs and the impacts that these processes have on the consumer and society" (Deepika and Neeraja, 2014; Gabbott and Hogg, 2016; Hawkins and Mothersbaugh, 2010).

Schiffman and Kanuk (2010) define customer behaviour as a process in which a customer analyses and studies a wanted product in order to make a purchasing decision.

As illustrated by the two definitions above, a behavioural decision comes after different processes have analysed the benefits or cons of a specific purchase or deception such as mobile recycling; thus, those decisions are impacted by different factors which will be summarised in the section below.

1.5. Customers' behaviour factors

Due to the importance of studying customer behaviour, many studies have investigated the internal or external factors that influence individuals' green behaviour or decisions. This section will highlight some of those studies and the behavioural influence factors studied.

A study conducted by Park and Ha (2014) provides practical findings by combining the TPB (theory of planned behaviour) and NAM (Norm Activation Model) theories; the results illustrated that recycling intention was impacted significantly by personal norms as the main factor, in addition to the impact of other factors (attitude and perceived behavioural control). Moreover, the results found that recycling intention was influenced indirectly by subjective norms, as well as other factors. Moreover, attitude and perceived behavioural control did not directly influence recycling intention. Finally, the researchers examined how awareness of consequences was correlated with the TPB, as well as affecting other factors in the TPB. The survey responses in this study constitute 5.61% only, which is too deficient a response rate to give the above conclusion; moreover, the study did not specify the types of recycled materials.

Yin *et al.* (2014) conducted a survey to analyse consumers' behaviour towards mobile waste in China and found that the average life cycle for mobile phones in China is three years. This is smaller than the lifetime announced by the designer. Due to the high demand for new functions and styles, around 47.1% of customers stored their phones at home, which is a dangerous indicator for environmental hazards. The study found that educational level and monthly income are vital values in encouraging customers' WTP (willingness to pay) for mobile recycling. Moreover, the study recommends having a law that governs mobile waste. In addition to the 12 laws already available in China that cover electronic waste, such a law would enforce customers' mobile recycling. The authors in this study did not focus more on other behavioural factors that encourage customers' mobile recycling. They also did not specify the recommended WTP amount that the customer might pay for recycling.

Du and Lang (2015) provide an example of an e-commerce and online platform mode for mobile phone recycling which can effectively enhance the logistical process in order to reduce the handling cost. It is a style that will not require investing in infrastructure, reducing the process cost, and is the best channel for customers' convenience to be influenced and for them to participate in mobile recycling due to internet availability nowadays. Although this

study is a very high-level paper, it discusses one channel for collecting mobile waste, i.e. through e-commerce or online portals. Today, however, the majority of companies recommend having an online portal through which to initiate first contact with customers in order to provide some information on returned devices. Moreover, it could be used to estimate the payback value.

Echegaray and Hansstein (2017) argue that there is a positive recycling intention towards e-waste. By studying the sociodemographic factor, the authors found that women and middle-aged people with low income are more willing to participate in electronic waste recycling than are other demographic groups. The authors focused on the TPB, and also argued that perceived social acceptance significantly elaborates on an individual's intention towards recycling. However, this article did not cover in detail the TPB's main component or conduct an in-depth analysis of the theory's factors. The authors focused on sociodemographic factors only.

Martinho et al. (2017) published a paper that illustrates that the number of smartphones is higher than that of tablets (with an average of 3.34 smartphones compared to 1.06 tablets per person). In terms of behaviour towards recycling the authors found that there is no difference between those two types of devices. Many people prefer to retain old devices at home or give used ones to friends or relatives, rather than sending those devices for recycling due to a lack of information on recycling channels. Moreover, the paper studied through sociodemographic variables (gender, age, income, education, and region of residence) behavioural intentions towards recycling, finding that family size and gender have the biggest influence on consumption behaviour, whereas adding income will have an influence on recycling behaviour. The paper did not link the study and the findings with any specific theory, only discussing sociodemographic variables.

Bovea et al. (2018) demonstrate that many e-waste regulations and economic factors encourage customers to participate in reusing, repairing or recycling their old electronic devices in order to have a better environment and increase resource activities. This study found that many customers are still not in a position to adopt such practices, particularly with regard to small electronic equipment. According to the study results, there is an intention to store such devices rather than recycle them. An alternative option is repair (due to the fixing cost

compared with the original price). Socioeconomic variables should be taken into consideration, where household size, education, and age influence customers towards repair, whereas household income does not. This article did not connect the study with specific behavioural theories or analyse each factor. However, the article addressed socioeconomic variables and the effect on customer behaviour.

Khan *et al.* (2019) observe that perceived behavioural management is (additionally) a critical predictive factor of reuse, return or recycling intention. Self-efficacy and reachable opportunities are two factors within the form of perceived behavioural control that change customers' intentions towards recycling. This study provides an assumption that individuals do not intend to be part of recycling due to the scarcity of infrastructure, recycling channels or facilities. This study only studied one product (i.e. plastic) and did not discuss the channels that help recycling. As for behaviour, the authors discussed many aspects, in addition to the TPB.

Sun and Wang (2019) provide factors additional to the TPB in order to predict consumer behaviour, such as product knowledge and price consciousness, the latter of which impacts negatively upon customers' buying intention. Furthermore, the authors highlight that in shop experience marketing, TPB factors (attitude, subjective norms, and perceived behavioural control) can be useful factors in predicting green customer purchasing. However, those factors have limitations in predicting customers' purchase behaviour when dealing with social media due to the exchange information and reviews that different customers will provide for a specific product. As a limitation, this research focuses on purchase behaviour towards green products instead of focusing on purchase behaviour in general.

3. Theoretical Framework and propositions.

The proposed theoretical framework in this study is developed based on the literature review presented in previous sections, as well as the critical points highlighting customer behaviour and environmental concerns. The main aim of this study is to identify the factors that influence UAE consumers to be part of RSCM and participate in mobile recycling.

3.1. Theory of Planned Behaviour (TPB)

Davis *et al.* (2015) investigated 82 theories of behaviour in different articles and found that the theory of planned behaviour (TPB) (Ajzen, 1991) applied in 13% of those articles. This feedback provides a picture of how vital this theory is in studying customer behaviour; therefore, it is worth mentioning that the TPB is an extension of the theory of reasoned action (TRA) proposed by (Fishbein and Ajzen, 1977).

To understand this theory, we need to understand how a behavioural intervention changes based on this theory (i.e. how this theory can predict behaviour). Based on this theory, behaviours can be deliberate and planned; moreover, behaviour can be determined by a person's intention to perform a specific behavioural belief. Behavioural beliefs produce a positive or unfavourable attitude towards a behaviour; furthermore, social pressure can influence this belief, as well as the ability to apply a positive belief. These behavioural beliefs will translate into an intention and this intention is determined by three factors, i.e. the attitude towards a specific behaviour (What do I think?), the subjective norm (What do others think?), and the perceived behavioural control (the ability and having the tools with which to perform a given behaviour). In general, the more favourable, positive or beneficial the attitude and subjective norm, the more the perceived control will give intense predation that the person intends to perform the behaviour in question. Fig. 3.1 illustrates the TPB framework. The following paragraphs will clarify the model's values.
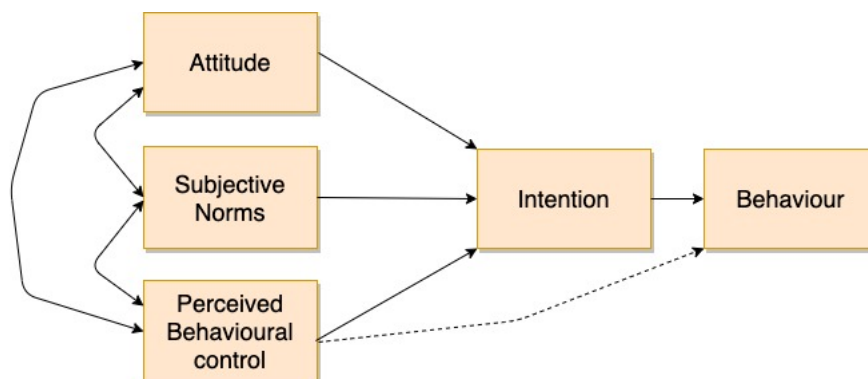

Fig. 3.1. Theory of planned behaviour (Ajzen, 1991; Sharma and Foropon, 2019)

3.1.1. Attitude

To contribute to this study, it is important to concentrate on the factors and values that affect customers' attitudes towards mobile recycling through RSCM specifically.

Consequently, in addition to attitude being the main factor in the TPB, it is essential to add sub-values that affect attitudes, particularly towards mobile recycling.

Park and Ha (2014) examined the TPB in recycling and found that attitude influences the intention to recycle indirectly. Attitude (as per the TPB) refers to a person's overall evaluation of performing a particular behaviour. This study found that customers' intention to recycle increases with a positive attitude towards recycling.

Kumar (2017) recent work focused on an extended TPB to investigate mobile selling behaviour in India, finding that an attitude mandated by a sense of duty has a stronger influence on recycling behaviours through RSCM than do other TPB values. The author measured the attitude towards recycling through customers' feelings of favourability (happy/unhappy, good/unfortunate, comfortable/painful, etc.).

In another study, Rosenthal (2018) argues that knowledge and awareness factors decrease the connection between behaviour and intention. The author linked procedural information seeking and behaviour, assuming that the attitude towards recycling may change based on customers' knowledge.

More recently, Zhang *et al.* (2020) concluded that in regards to mobile and smartphone recycling, conscientiousness and good faith positively affect recycling and reuse intention through the attitude factor. Therefore, individuals with high conscientiousness will have high subjective norms and emotional standards towards the environment and participate positively in recycling.

For studying mobile device storing behaviour, Bovea *et al.* (2018) investigated customers' habits and behaviour towards storing, repairing or purchasing a second-hand device. The study focused in particular on small electronic devices, e.g. mobiles, tablets, cameras and laptops. The study, which was conducted in Spain, found that around 73.91% of the customers who answered the survey stored their small devices at home, and 87.6% had never bought a second-hand device; however, around 65.5% never practised repairing their devices. In conclusion, the study recommends improving customers' awareness of the benefits that could be gained by repairing and purchasing second-hand devices instead of storing EOL

devices. Accordingly, the more awareness there is of the recycling channels and benefits, the greater the intention that UAE mobile customers will participate in recycling rather than storing EOL and EOU mobile devices.

Based on the discussion above, the following propositions are suggested:

1. **UAE mobile phone users' positive attitude towards recycling positively influences their intention to recycle mobile devices in RSCM.**
2. **The greater a mobile user's knowledge of recycling, the greater the recycling intention and recycling behaviour.**
3. **A mobile user's conscientiousness has a positive effect on recycling attitude.**
4. **Awareness of the recycling channels and benefits positively influences UAE mobile users' intention towards recycling.**

3.1.2. Subjective norms

Subjective norms indicate the belief that a group of people will approve and support a specific behaviour. Subjective norms determine (through social pressure towards a personal approach) behaving in a specific way or undertaking an action that will be appreciated by a group of people (Ham *et al.*, 2015).

(Wan *et al.*, 2017) examined the experiential and instrumental effects on subjective norms; the study found that subjective norms performed positively with experiential attitudes, resulting in a positive influence on recycling. However, recycling intention, along with subjective norms, will impact on the recycling intention prediction negatively. Therefore, in summary, stronger subjective norms with an experiential attitude will lead to a more definite intention towards recycling, where the effect of instrumental attitude will become pointless in this case.

In a different context, research conducted by Wang *et al.* (2018), which studied how information publicity influences people's intention towards e-waste recycling, provided a different view on the effect of subjective norms upon recycling. The study found that all TPB factors affected recycling attitudes. However, subjective norms did not affect these recycling attitudes significantly.

Zhang *et al.* (2020) measured the conscientiousness factor and how it predicts smartphone recycling intention; the study found that the subjective norm interfered with the connection between conscientiousness and smartphone recycling intention. It also found that subjective norms for smartphone recycling were lesser than those for e-waste recycling. By comparing the study results with (Wang *et al.*, 2018) results on subjective norms influencing e-waste recycling behaviour, there is proof that mobile recycling behaviour is different from electronics recycling.

An interesting, in-depth study was conducted by Passafaro *et al.* (2019) on social norms by focusing on local norms (e.g. neighbours, inhabitants, a quarter/city, and housemates/family). The authors argue that subjective norms may fail to be an active influential factor for people who are sharing the same spatial proximity. Therefore, the authors studied the effect of local norms upon behavioural intention within the TPB and explored self-intention towards household waste recycling behaviour. The results confirmed that adding the local norms factor to the TPB produces meaningful and additional variance in behavioural intentions. Besides, the study confirmed that local norms might be able to seize the effects of some heuristic processes or methods. However, with today's technology, social pressure (subjective norms) might be more effective through social media and friends on social media, since it is more accessible to people and it is easy to give criticism through social comments and feedback.

Talking about the impact of social media upon subjective norms, Sujata *et al.* (2019) determined recycling intention and behaviour by studying attitudes, social norms, social media, and self-efficacy factors. Social media applications can be a tool for developing environmental awareness, since they reach in a short timeframe a wide range of people with low cost. However, the study conducted by Sujata *et al.* (2019) provides an insight into the use of social media and how it can influence individuals to recycle. Nevertheless, the study found that attitude and self-efficacy have the highest power for recycling intention, while social norms and social media offer a lower degree of predicting recycling intention.

Based on the discussion above, the following propositions are suggested:

5. **Subjective norms can significantly influence UAE mobile phone users' attitude towards mobile recycling.**

6. **Subjective norms and experiential attitude will positively influence UAE recycling intention towards mobile phones.**

3.1.3. Perceived behavioural control (PBC)

Perceived behavioural control (PBC) is the third factor in the TPB, which reflects the estimation of how easy or challenging individuals find it to perform a specific activity or carry out a particular behaviour; besides, perceived behavioural control includes the availability of resources or tools that will facilitate completing an action (Strydom, 2018). Studying behavioural control is essential in the field of recycling because perceived behavioural control can be the helping tool and infrastructure with which to strengthen an intention (Chu and Chiu, 2003; Onel and Mukherjee, 2017; Rosenthal, 2018).

Kianpour *et al.* (2017) examined three variables and linked them to PBC in the TPB: (1) it was suggested that the collection method is a factor that can influence customers' PBC with regard to returning or recycling their EOL electronic devices; (2) information on how and where to recycle EOL electronic products can positively influence customers' PBC with respect to recycling those devices through RSCM; (3) self-efficiency: it is argued that if the customer has confidence and belief in having the required resources to participate in returning EOL products for recycling through RSCM, it will strengthen the customer's PBC.

Rosenthal (2018) added the information-seeking factor to the TPB and analysed how that would affect perceived behavioural control. This study argues that certain behaviours, such as recycling, can attract attention when individuals understand how to achieve an activity. Gaining knowledge on recycling channels, processes, and all of the information that will facilitate recycling will lead to a firm intention towards recycling behaviour. The study discussed what matters are required for recycling, locations and how we can correctly distribute recycled items. The study concluded that the link between recycling intention and behaviour is more effective when people have full information on what, how and where to recycle.

Khan *et al.* (2019) identified factors that affect customers' recycling intention and behaviour in the field of plastic waste. In the context of perceived behavioural control, the

study indicates that this factor is not a vital factor in predicting recycling intention. The authors suppose that confidence and opportunities are the variables with which to form PBC. The study results confirmed that customers usually do not intend to participate in recycling due to a shortage of resources or facilities. However, this study was conducted in Pakistan, whose facilities and living standards are not equal to those of other countries such as the UAE.

Sultan *et al.* (2020) examined the PBC gap in the TPB. The authors mentioned that, according to (Armitage and Conner, 2001), the TPB could "explain 39% of the variance in behavioural intention and 27% of the variance in reported behaviour". Individuals can have feelings of enjoyment and happiness towards a specific behaviour but not have the motivation to make final decisions. Although this study focuses on food purchase behaviour, not recycling, the authors increased three variables (communication, trust and satisfaction) within the TPB and examined PBC. The study found a decrease in the gap between intended behaviour and PBC. In the context of recycling, we believe that satisfaction is an important variable to consider and ensure in order to increase customers' desire towards continuous mobile recycling.

Based on the discussion above, the following propositions are suggested:

7. **UAE mobile users' perceived behavioural control (PBC) positively influences participation intention towards mobile recycling through RSCM.**

Fig. 3.2 illustrates the theoretical framework proposed by this research; this framework will be further developed by adding different hypotheses and examine the results, through a self-administrated questionnaire.
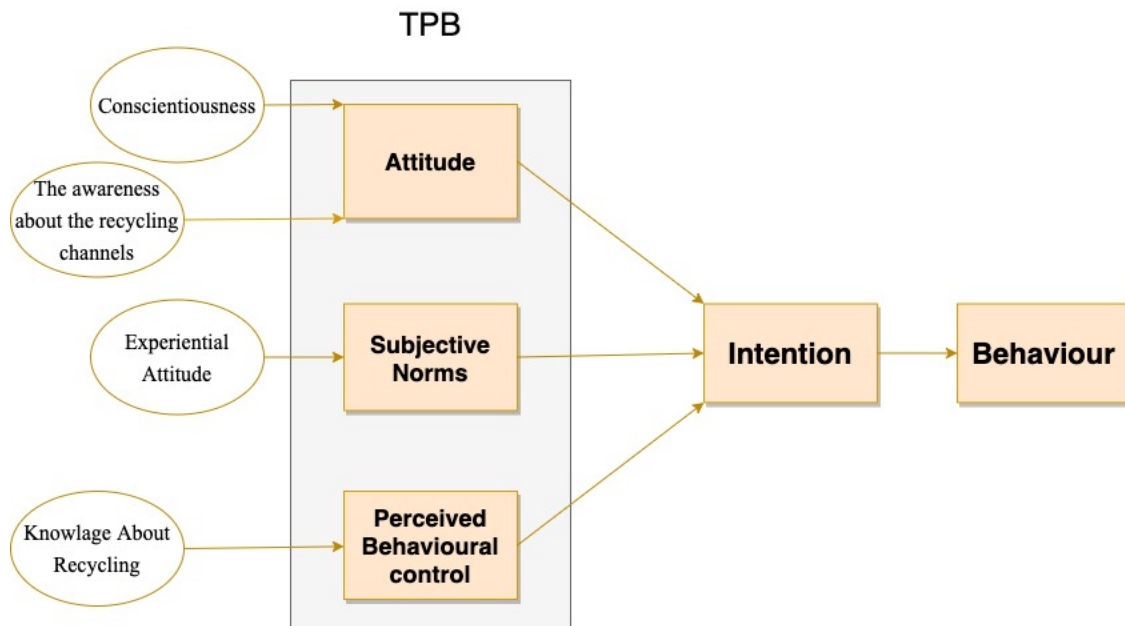
Fig. 3.2. Proposed Theoretical model

4. References

Ajzen, I. (1991). The theory of planned behavior. *Organizational behavior and human decision processes, 50*(2), 179-211.

Alumur, S. A., Nickel, S., Saldanha-da-Gama, F., and Verter, V. (2012). Multi-period reverse logistics network design. *European Journal of Operational Research, 220*(1), 67-78.

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

Batarfi, R., Jaber, M. Y., and Aljazzar, S. M. (2017). A profit maximization for a reverse logistics dual-channel supply chain with a return policy. *Computers & Industrial Engineering, 106*, 58-82.

Blackburn, J. D., Guide Jr, V. D. R., Souza, G. C., and Van Wassenhove, L. N. (2004). Reverse supply chains for commercial returns. *California management review, 46*(2), 6-22.

Bovea, M. D., Ibanez-Fores, V., Perez-Belis, V., and Juan, P. (2018). A survey on consumers' attitude towards storing and end of life strategies of small information and communication technology devices in Spain. *Waste Management, 71*, 589-602.

Chu, P. Y., and Chiu, J. F. (2003). Factors influencing household waste recycling behavior: test of an integrated model 1. *Journal of Applied Social Psychology, 33*(3), 604-626.

Davis, R., Campbell, R., Hildon, Z., Hobbs, L., and Michie, S. (2015). Theories of behaviour and behaviour change across the social and behavioural sciences: a scoping review. *Health Psychology Review, 9*(3), 323-344.

Deepika, J., and Neeraja, T. (2014). Lighting impact on consumer's shopping behaviour in retail cloth stores. *International Journal of Science and Research, 3*(11), 933-938.

Du, Z., and Lang, M. (2015, 27-29 July 2015). *Building reverse supply chain of waste mobile phones based on e-commerce platform.* Paper presented at the 2015 International Conference on Logistics, Informatics and Service Sciences (LISS), 1-5.

Echegaray, F., and Hansstein, F. V. (2017). Assessing the intention-behavior gap in electronic waste recycling: the case of Brazil. *Journal of Cleaner Production, 142*, 180-190.

Fishbein, M., and Ajzen, I. (1977). Attitude-behavior relations: A theoretical analysis and review of empirical research. *Psychological bulletin, 84*(5), 888.

Gabbott, M., and Hogg, G. (2016). Consumer behaviour. In *The marketing book* (pp. 173-187): Routledge.

Govindan, K., and Popiuc, M. N. (2014). Reverse supply chain coordination by revenue sharing contract: A case for the personal computers industry. *European Journal of Operational Research, 233*(2), 326-336.

Gupta, S. M. (2016). *Reverse supply chains: issues and analysis*: CRC Press.

Ham, M., Jeger, M., and Frajman Ivković, A. (2015). The role of subjective norms in forming the intention to purchase green food. *Economic research-Ekonomska istraživanja, 28*(1), 738-748.

Han, H., and Trimi, S. (2018). A fuzzy TOPSIS method for performance evaluation of reverse logistics in social commerce platforms. *Expert Systems with Applications, 103*, 133-145.

Hawkins, D. I., and Mothersbaugh, D. L. (2010). *Consumer behavior: Building marketing strategy*: Boston: McGraw-Hill Irwin.

Jayant, A., Gupta, P., and Garg, S. (2012). Perspectives in reverse supply chain management (R-SCM): A state of the art literature review. *JJMIE, 6*(1), 87-102.

Jayasinghe, R. S., Chileshe, N., and Rameezdeen, R. (2019). Information-based quality management in reverse logistics supply chain A systematic literature review. *Benchmarking-an International Journal, 26*(7), 2146-2187.

John, S. T., Sridharan, R., and Kumar, P. R. (2018). Reverse logistics network design: a case of mobile phones and digital cameras. *The International Journal of Advanced Manufacturing Technology, 94*(1-4), 615-631.

Khan, F., Ahmed, W., and Najmi, A. (2019). Understanding consumers' behavior intentions towards dealing with the plastic waste: Perspective of a developing country. *Resources, Conservation and Recycling, 142*, 49-58.

Kianpour, K., Jusoh, A., Mardani, A., Streimikiene, D., Cavallaro, F., Nor, K. M., et al. (2017). Factors influencing consumers' intention to return the end of life electronic products through reverse supply chain management for reuse, repair and recycling. *Sustainability, 9*(9), 1657.

Kilic, H. S., Cebeci, U., and Ayhan, M. B. (2015). Reverse logistics system design for the waste of electrical and electronic equipment (WEEE) in Turkey. *Resources, Conservation and Recycling, 95*, 120-132.

Kumar, A. (2017). Extended TPB model to understand consumer "selling" behaviour Implications for reverse supply chain design of mobile phones. *Asia Pacific Journal of Marketing and Logistics, 29*(4), 721-742.

Kumar, M., Tiwari, M. K., Wong, K. Y., Govindan, K., and Kuah, C. T. (2014). Evaluating reverse supply chain efficiency: manufacturer's perspective. *Mathematical Problems in Engineering, 2014*.

Lee, D.-H., and Dong, M. (2008). A heuristic approach to logistics network design for end-of-lease computer products recovery. *Transportation Research Part E: Logistics and Transportation Review, 44*(3), 455-474.

Martinho, G., Magalhaes, D., and Pires, A. (2017). Consumer behavior with respect to the consumption and recycling of smartphones and tablets: An exploratory study in Portugal. *Journal of Cleaner Production, 156*, 147-158.

Onel, N., and Mukherjee, A. (2017). Why do consumers recycle? A holistic perspective encompassing moral considerations, affective responses, and self-interest motives. *Psychology & Marketing, 34*(10), 956-971.

Park, J., and Ha, S. (2014). Understanding consumer recycling behavior: Combining the theory of planned behavior and the norm activation model. *Family and Consumer Sciences Research Journal, 42*(3), 278-291.

Passafaro, P., Livi, S., and Kosic, A. (2019). Local norms and the Theory of Planned Behaviour: understanding the effects of spatial proximity on recycling intentions and self-reported ecological behaviour. *Frontiers in psychology, 10*, 744.

Pishvaee, M. S., and Razmi, J. (2012). Environmental supply chain network design using multi-objective fuzzy mathematical programming. *Applied Mathematical Modelling, 36*(8), 3433-3446.

Rosenthal, S. (2018). Procedural Information and Behavioral Control: Longitudinal Analysis of the Intention-Behavior Gap in the Context of Recycling. *Recycling, 3*(1), 5.

Schiffman, L. G., and Kanuk, L. L. (2010). Consumer Behaviour (ed.): New Jersey: Prentice Hall.

Sharma, A., and Foropon, C. (2019). Green product attributes and green purchase behavior: A theory of planned behavior perspective with implications for circular economy. *Management Decision, 57*(4), 1018-1042.

Strydom, W. (2018). Applying the Theory of Planned Behavior to Recycling Behavior in South Africa. *Recycling, 3*(3), 43.

Sujata, M., Khor, K.-S., Ramayah, T., and Teoh, A. P. (2019). The role of social media on recycling behaviour. *Sustainable Production and Consumption, 20*, 365-374.

Sultan, P., Tarafder, T., Pearson, D., and Henryks, J. (2020). Intention-behaviour gap and perceived behavioural control-behaviour gap in theory of planned behaviour: moderating roles of communication, satisfaction and trust in organic food consumption. *Food Quality and Preference, 81*, 103838.

Sun, Y., and Wang, S. (2019). Understanding consumers' intentions to purchase green products in the social media marketing context. *Asia Pacific Journal of Marketing and Logistics*.

Wan, C., Shen, G. Q., and Choi, S. (2017). Experiential and instrumental attitudes: Interaction effect of attitude and subjective norm on recycling intention. *Journal of Environmental Psychology, 50*, 69-79.

Wang, Z., Guo, D., Wang, X., Zhang, B., and Wang, B. (2018). How does information publicity influence residents' behaviour intentions around e-waste recycling? *Resources, Conservation and Recycling, 133*, 1-9.

Xing, B., Gao, W.-J., Battle, K., Marwala, T., and Nelwamondo, F. V. (2010). Artificial intelligence in reverse supply chain management: the state of the art. *arXiv preprint arXiv:1012.4046*.

Yin, J. F., Gao, Y. N., and Xu, H. (2014). Survey and analysis of consumers' behaviour of waste mobile phone recycling in China. *Journal of Cleaner Production, 65*, 517-525.

Zhang, Y., Wu, S., and Rasheed, M. I. (2020). Conscientiousness and smartphone recycling intention: The moderating effect of risk perception. *Waste Management, 101*, 116-125.