# Behavioural determinants of consumers' intention to reuse end-of-life garments in Australia

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## ABSTRACT

Literature on garment reuse focussing on consumer behaviour and end-of-life products is scarce. Our study addresses this gap by exploring significant predictors of end-of-life garment reuse by Australian consumers. Subsequently, this study extends the theory of planned behaviour (perceived behavioural control, attitude, and subjective norms) by general recycling behaviour, self-identity, quality consciousness, eco-literacy, and self-efficacy as predictors of reuse intention and behaviour. Structural equation modelling is conducted to analyse data from a sample of 428 questionnaire responses retrieved between 16 and 22 March 2022 from Australian consumers. Our findings support the notion that the fundamental predictors of the theory of planned behaviour, along with self-efficacy, and eco-literacy, are significant predictors in understanding sustainable behaviour such as reuse. However, no significant relationships were observed between self-identity, general recycling behaviour and quality consciousness. We made theoretical contributions to literature by addressing a gap in reuse, focusing on consumer behaviour and end-of-life garments. Extending on the theoretical implications, our study contends that engaging in reuse practices must be in collaboration with the entire supply chain. This study also provides a cultural context for reuse intention and behaviour amongst Australian consumers. In a broader context, the findings from this study could reduce the number of garments sent to landfills and promote the utilisation of garments beyond one lifecycle.

## 1. Introduction

In the past decade, consumers are consuming 60 % more clothes but own their garments for a shorter period than ever before (Ghoreishi, Bhandari, & Franconi, 2022). However, 87 % of these clothes are either thrown in landfills or incinerated every year (Bahl, Panwar, Padhye, & Nayak, 2023). Clothing utilisation has decreased by an average of 36 per cent between year 2000 and 2015 (Charnley et al., 2022). According to the Ellen MacArthur Foundation (2017), textile production annually releases more than 1.2 billion tonnes of greenhouse gases. Globally the fashion industry is recognised as the second-highest polluting industry (Huang, 2022). With knowledge of these negative impacts, the industry is slowly transitioning away from the take-make-waste model to a circular economy (CE) that encourages the extension of garment life beyond single use (Huang, 2022). The shift towards a CE offers a potential solution to these waste issues.

Few practices contribute towards CE. Articles by Joung and Park-Poaps (2013) and Diddi and Yan (2019) suggest that consumers can either reuse, recycle or resell their unwanted clothing as an alternative to throwing it away in municipal landfills. While Rotimi, Topple, and Hopkins (2021) identified four sustainable practices: reuse, recycling, education and engagement, and recovery and redistribution. The report by PBL (2019) (as cited in de Wagenaar et al., 2022, p. 1) explores the 10 R-ladder as sustainable practices towards achieving a CE. A common practice across all these articles is reuse, and hence this will be the focus of this study to achieve CE.

Reuse has been defined as the extension of the clothing lifecycle beyond one cycle or use and, in doing so, can address sustainability issues within the fashion industry (Rotimi, Topple, & Hopkins, 2021). Reusing clothes is beneficial to the environment and might offer a better solution than clothing recycling (Charnley et al., 2022). Reuse ensures that consumers can still attain satisfaction from buying used clothing as

they would from purchasing new clothing (Freudenreich & Schaltegger, 2020).

Consumers play an important role in transitioning to a sustainable economy and adopting sustainable practices, such as reuse (Taghikhah et al., 2019; Rotimi et al., 2021). According to de Wagenaar et al. (2022) increasing consumer awareness around fashion consumption and disposal and its impact on the environment is crucial in the fight towards sustainability. However, Charnley et al. (2022) states that the lack of acceptance and engagement of consumers towards the adoption of CE is one of the barriers to the transition.

Therefore, the aim of this study is to explore significant factors that predict consumers' intentions to reuse end-of-life garments within Australia. Our paper begins with a review of literature. Then we provide a discussion for the hypotheses developed and present the resulting conceptual model. We discuss the study's method and finalise the paper by providing the results and the key contributions (managerial and theoretical) of the study.

## 2. Literature review

### 2.1. Reuse

From an extensive search of the literature, we know that reuse is widely considered one of the preferred dimensions to attaining circularity (de Wagenaar et al., 2022; PBL, 2019; The Commonwealth of Australia, 2018). In Australia, reuse is listed as the third preferred method for disposing waste after avoidance and reduction of waste (The Commonwealth of Australia, 2018).

While there is knowledge of the positive impact that reuse could have on the environment, little research has focussed solely on reuse generally, and even fewer studies have focussed on reuse of garments. In an investigation of 41 studies on the environmental effect of textile recycling and reuse more generally, Sandin and Peters (2018) established that the majority of the articles (85 %) focused on recycling, 27 per cent cover both reuse and recycling topics and only 14 per cent of articles address textile reuse alone. They differentiate recycle as reprocessing textile waste as new textile or for use in another industry while reuse involves extending the lifecycle of a textile product through amendments or transfer to other persons (Sandin & Peters, 2018). While their study focusses on the textile industry, the studies main findings were on the how textile recycling and reuse can either be beneficially or detrimental to the environment at a general level and some roadblocks for achieving the benefits associated with both practices (Sandin & Peters, 2018). In a more recent review of the current literature, we found similar outcomes with limited studies focused solely on reuse and more specifically, garment reuse. For example, Kessler et al. (2021) addressed whether reuse and recycling could help to decrease the materials produced in the textile sector. Their exploration of reuse as a circular economy intervention provides suggestions of what may drive textile disposal and in turn may impact on reuse adoption, however, this was not the main focus of their study (Kessler et al., 2021). Therefore, whilst these studies have a focus on reuse and textile reuse specifically, they do not address the role and predictors of garment reuse.

Literature on reuse and consumers is similarly scant as identified by Ertz et al. (2017) in their research observations of student consumption of reusable containers across a Canadian and Chinese university. Lin et al. (2022) make similar assertions and call for studies to be conducted addressing reuse behaviour. While there research looked at consumers reuse intention within a retail store, others such as Kim (2021) addressed researchers satisfaction of data reuse, and Wang et al. (2022) studied consumers intentions to use reusable drinking cups. These studies have been useful for looking at reuse behaviour yet they do not specifically address consumers reuse of garments with a focus on end-of-life (unwanted) garments.

Of greater significance to the topic of this paper is Bahl et al. (2023) more recent research that investigated Australian consumers readiness to partake in reuse of clothing as a sustainable pathway. Their findings ultimately emphasise that more research is needed into clothing reuse in Australia with a clear, strong focus on consumers' attitudes, intentions, behaviours, and concerns (Bahl et al., 2023). While the study provides a comprehensive review of literature and their main contribution highlights the challenges to the adoption of second-hand clothing, the research neither focusses on the drivers of reuse nor provide empirical prove in the context of Australia. On the contrary, while the study by Potdar et al. (2023) provides an empirical evidence from four nations including Australia, New Zealand, Canada and the United State of consumers clothing repair behaviour, the study focussed only on fashion-sensitive consumers and has addressed a subset of our definition of reuse, that is extending the garment lifecycle through repair. Further, their study recommended that future research explore other garment lifecycle extending practices (Potdar et al., 2023).

In sum, these studies highlight a void in the literature on garment reuse from the consumers' perspective. Our study directly engages with this topic by exploring consumers behaviour to reuse their end-of-life garments through applying and extending the theory of planned behaviour (TPB), one of the most credible theories in explaining human behaviour (Ogiemwonyi, 2022). This next section of the literature review will discuss the use of the TPB for this study and how we extend this theory before covering the development of hypotheses and the conceptual framework.

### 2.2. Theory of planned behaviour (TPB)

The TPB is widely used to explain sustainable and eco-friendly behaviours (Joshi, Uniyal, & Sangroya, 2021). The theory is used to explain consumer behaviour and beliefs (Mohiuddin et al., 2018; Valaei & Nikhashemi, 2017) and posits that three factors control consumer behavioural intentions (Ajzen, 1991): 1) A consumers predisposed willingness to partake in the said behaviour, termed as attitude; 2) A valued person's opinions may influence a consumer's behaviour (subjective norm), and; 3) the level of control and resources that a consumer believes they have available to carry out the behaviour, called perceived behavioural control (Ajzen, 1991). If a consumer possesses all three factors, that is, they have the willingness, their valued ones' believe in the behaviour and the consumer feels they have the necessary resources to carry out the behaviour, they will have the intention to partake in the behaviour (Ajzen, 1991).

According to Ogiemwonyi (2022), TPB is a widely used and tested theory in predicting individual's behaviour; however, the TPB is not without its limitations. Several authors have questioned the predictive nature of the theory (Adel et al., 2021; Mason et al., 2022). Ajzen and Fishbein (2005) and Joshi et al. (2021) suggest that a potential solution to this issue is to include and explore more factors beyond the three observed within the theory. Extending the TPB in this way is believed to be crucial for studies that address social and ethical issues (Hosta & Zabkar, 2021; Mason et al., 2022; Shaw et al., 2000).

Researchers have expanded the TPB when discussing various sustainability practices, especially around recycling. For example Ma et al. (2018, p. 339) included situational factors, that is factors that could influence households to manage their municipal solid waste in Guilin, Guangxi Zhuang Autonomous Regions in China. In another study by Jain et al. (2020), researchers explored the perceived cost and benefit on consumers' attitudes towards waste recycling from construction materials in India. Within the fashion industry, Maloney et al. (2014) has extended the TPB by adding the factors awareness and perceived expensiveness. Becker-Leifhold (2018) also included variables such as fashion involvement, status consumption, and interpersonal influence as predictors of collaborative clothing consumption. Al Mamun et al. (2018) extended the TPB by including self-efficacy, eco-literacy, and environmental concern as factors that could influence consumers' attitudes in low-income households towards sustainable products in Malaysia. The article by Rotimi et al. (2023) extended the theory of

planned behaviour by including self-identity, self-efficacy, eco-literacy, and general recycling behaviour in understanding the intention to recycle end-of-life garments amongst Australian consumers. This study adopts the model used by Rotimi et al. (2023) and adds an additional construct; quality consciousness to observe consumers reuse intentions of end-of-life garments in Australia.

## 3. Hypothesis development and conceptual model

A conceptual model is proposed in Fig. 1 that shows how additional predictors are incorporated into the TPB. Explanation is provided for the model development within the sub-sections below.

### 3.1. The theory of planned behaviour and reuse

We adopt the TPB as the theoretical framework that grounds our study in the explanation of end-of-life garment reuse behaviour. This theory is underlined by the fundamental assumption that a consumer's intention to behave drives actual behaviour (Ajzen, 2020). Thus, TPB argues that the there is a causal effect between intention and behaviour. This assumption is corroborated by the study by Ertz et al. (2017) that shows intention predicts consumers behaviour to engage in the consumption of reusable containers. Also, the article by Koshta, Patra and Singh (2022) show a positive significant relationship between intentions and the willingness to pay for recycled e-waste by Indian residents. Therefore, based on the TPB, we posit that if a person has the intention to reuse their end-of-life garment, they will follow through with the behaviour.

Intention is thus driven by three factors: subjective norm, attitude, and perceived behavioural control (Jain, Khan, & Mishra, 2017). The first and perhaps the strongest predictor within the TPB is attitude (Akbari et al., 2019; Sonnenberg et al., 2022). Attitude refers to level in which a consumer positively or negatively considers a specific behaviour (Ajzen, 1991). Within the fashion sector, previous studies have observed a positive link between attitude and consumers' intention and purchase intentions (Müller et al., 2021; Waris & Ahmed, 2020). The same is true in the study by Borusiak et al. (2020) that shows a positive link between attitude and intentions to purchase green products. Similar views are held around the reuse of products with Kianpour et al. (2017) confirming that attitude has a significant influence on consumers intentions to reuse, recycle, and repair their end-of-life electronic products. Similarly, Sumaedi et al. (2016) findings show that attitude has an influence on intentions to reuse public transport services. Lai and Chang (2020) provide contrary findings in that consumers have a low willingness to resell or reuse their clothing (Lai & Chang, 2020). Although this contradiction exists, in general, the previous studies imply that attitude has a positive relationship with sustainable practices such as reuse.

The second predictor stated in the TPB is subjective norm. It is believed that social pressure comes from those close to a person whether that is a family member or friends (Soomro et al., 2022). Subjective norm is therefore the implied pressure from social context that can influence a person's behaviour (Park & Ha, 2014). In the article by Soomro et al. (2022), there is evidence that society has an influence on a person's sustainable behaviour to recycle. They further state that reuse was one of the popular methods to managing solid waste in the Kingdom of Saudi Arabia (Soomro et al., 2022). Comparably, the articles by Ertz et al. (2017) and Maichum et al. (2016) show that subjective norm influences sustainable consumption including reuse. When looking at the predictors of data reuse intentions, subjective norm is found to be a significant driver (Kim, 2021). Consistent with these findings we anticipate
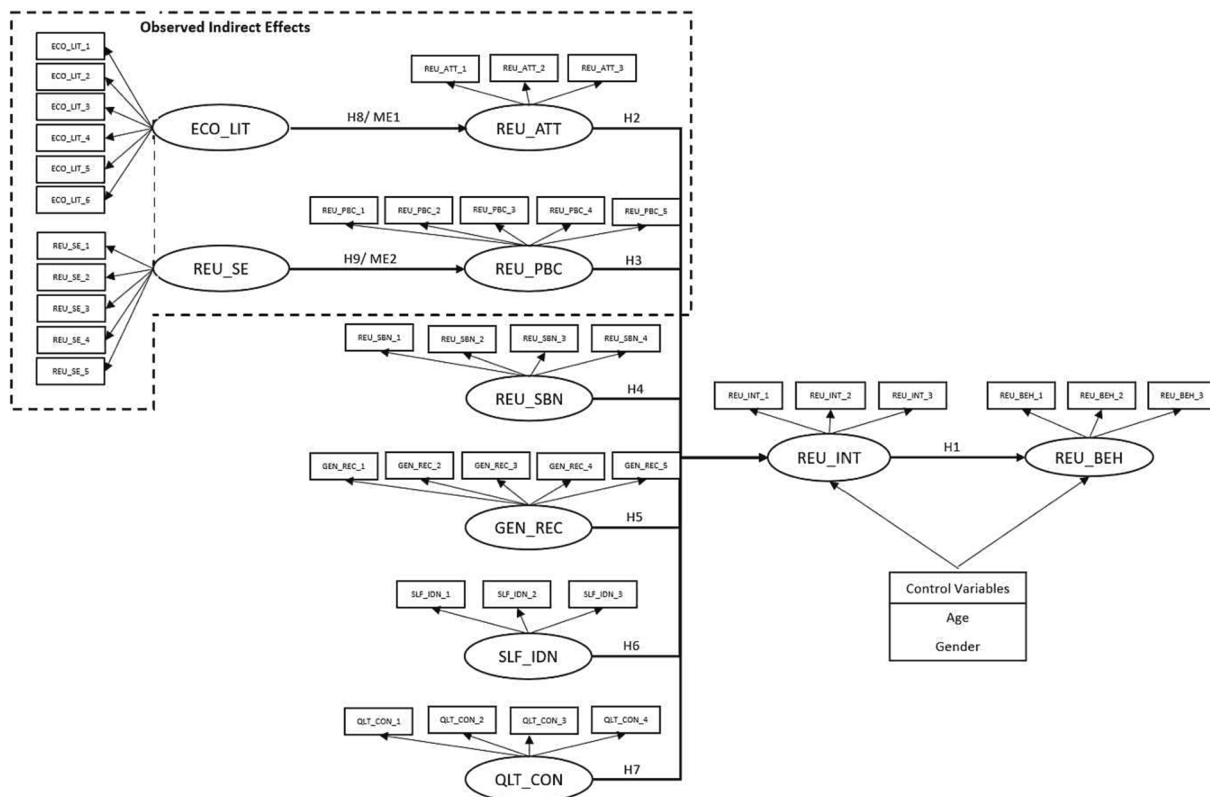


**Fig. 1.** Proposed conceptual model. Legend: REU_BEH (reuse behaviour), REU_INT (reuse intention), REU_ATT (attitude), REU_PBC (perceived behavioural control), REU_SBN (subjective norm), GEN_REC (general recycling behaviour), SLF_IDN (self-identity), QLT_CON (quality consciousness), ECO_LIT (eco-literacy), REU_SE (self-efficacy). Note: The latent constructs are presented in the oral shapes, the items are within the rectangular shapes, the indirect relationships explored are noted within the doted box, and the directional arrows indicate the hypothesised relationships. The mediating relationships are marked as ME. There are two mediating relationships explored within this study.

that subjective norm has a significantly positive relationship with the reuse of end-of-life garments.

PBC is an individual relative effort required to perform a specific behaviour (Reysen, Chadborn and Plante, 2018). The article by Ertz et al. (2017) found that PBC has one of the strongest impacts on intentions to consume reusable containers. While the study by Sonnenberg et al. (2022) that PBC has a strong and positive relationship with intention to dispose of post-consumer textile waste sustainably. However, it is the weakest of the three TPB predictors. On the contrary, the study by Wang et al. (2022) findings show that PBC has a strong relationship on intentions to use reusable cups from the data collected within 12 universities in Pakistan.

H1: Intention to reuse has a strong and positive association with reuse behaviour of end-of-life garments.

H2: Attitude significantly and positively relates to reuse intention for end-of-life garments.

H3: Perceived behavioural control significantly positively relates to reuse intention for end-of-life garments.

H4: Subjective norm significantly and positively relates to reuse intention for end-of-life garments.

### 3.2. General recycling behaviour and intention to reuse

Several literatures have shown that a consumer's general recycling behaviour of common household items like paper, plastic and glass could influence pro-environmental behaviour. For example, the Morgan and Birtwistle (2009) study found that consumers who partake and exhibit such recycling habits are more engaged with pro-environmental behaviours. Further, relationships have been discovered between an individual's general recycling behaviour and their clothing disposal behaviour (Bianchi & Birtwistle, 2010). For example, an early work by Shim (1995) found that general recycling behaviour has an influence on the two reuse clothing disposal patterns they observed which included environmentally motivated and economically motivated reuse. In a more recent article by McNeill et al. (2020a,b), general recycling was found to have a significant relationship with garment repair. The article further elaborates the importance of these findings as there exists a link between general recycling behaviour and sustainable waste management behaviours that look at the extension of garment lifecycles (McNeill et al., 2020a,b). We therefore infer that there is an association between general recycling behaviour and intentions to reuse end-of-life garments.

H5: General recycling behaviour significantly and positively relates to reuse intention for end-of-life garments.

### 3.3. Self-identity and intention to reuse

Sparks and Shepherd (1992) state that self-identity is synonymous with the concept of self which is how an individual view themselves and this is said to have an important effect on behaviour. Self-identity in this study can be explained in line with Balundė, Jovarauskaitė and Poškus (2020) as an individual that considers themselves to be environmentally friendly and tries not to harm the environment. Several authors have noted that self-identity relates to pro-environmental behaviours. For example, the article by Lalot et al. (2019) observed that self-identity, that is how much a person considers themselves to be an environmentalist has an impact on their intention to reduce their energy consumption. Lin et al. (2022) findings highlight self-identity as a vital driver of reuse intention amongst retail consumers in Northern Taiwan. Although the article by Van der Werff and Steg (2016) uses different models (the value-identity-personal norm model (VIP) and value-belief-norm theory (VBN)) compared to the TPB used within our study, they learnt that strengthening self-identity could lead to more favourable pro-environmental behaviours. Hence, it could conceivably be hypothesised that self-identity has an influence on consumers reuse intentions.

H6: Self-identity significantly and positively relates with intention to reuse end-of-life garments.

### 3.4. Quality consciousness and intention to reuse

The quality of a garment has an effect on a person's intentions to dispose garments. Degenstein et al. (2020) found that damage to garments is one of the key factors in determining a person's disposal method. In the article by Gibson and Stanes (2011) garment repair through mending is an essential part of maintaining and extending the life of garments. However, they found that most consumers are reluctant to engage in garment repair because of perceived lack of time, skills, and convenience of affordable options. In a more recent article, the participants in the study by McNeill, Hamlin, McQueen, Degenstein, Wakes, et al. (2020) mainly dispose their severely damaged garments in bins or use as rags instead of extending its life. Conversely, garments that are in good condition and not disposed of due to functionality, participants often extend the lifecycle of the garments through selling, gifting, donating or amendment(McNeill, Hamlin, McQueen, Degenstein, Wakes, et al., 2020). These findings suggests that the quality of a garment impacts on whether a person reuse or dispose of their unwanted garments. Thus, we hypothesise that the better the quality of a garment, the more a person has the intention to reuse the garment.

H7: Quality consciousness significantly and positively relates to reuse intentions of end-of-life garments.

### 3.5. Eco-literacy (consumer sustainability knowledge) and attitude

Based on the works by Ajzen and Fishbein (1977) and Fishbein and Ajzen (1980), eco-literacy can either have a direct or indirect relationship with behaviour. As early as 1996, Laroche et al. (1996) highlighted the indirect impact of eco-literacy on eco-friendly behaviour. More recently, Sonnenberg et al. (2022) found in their study that an awareness of environmental problems tends to lead to willingness to engage in pro-environmental behaviour. Similarly, Wang et al. (2022) found a positive effect of environmental concern on attitude to reuse reusable drinking cups. On the contrary, while the authors Zaidi et al. (2022) hypothesised that eco-literacy will significantly influence household's attitude to reduce food wastage, their findings suggest otherwise. They found no considerable statistical influence between eco-literacy and attitude to reduce food wastage (Zaidi et al., 2022). While there appears to be conflicting findings on the association between eco-literacy and attitude, there is a direct and/ or indirect relationship between the two constructs. This calls for further investigation. Hence, we seek to explore how eco-literacy relates to attitude in the reuse of end-of life garments. We therefore posit that:

H8: Eco-literacy significantly and positively relates to attitude.

### 3.6. Self-efficacy and perceived behavioural control

Ajzen (2020) argues that there is no theoretical difference between PBC and self-efficacy, noting that there is a difference between the two constructs at an operational level. On the contrary, George and Nair (2022) and Povey et al. (2000) state that self-efficacy differs from PBC. Bandura (1977, 1982) and Garay, Font and Corrons (2019) defines self-efficacy as the resources and technologies available to individuals that could increase their confidence to perform a behaviour. According to Block and Keller (1995) if an individual has high self-efficacy, they have perceived confidence to perform a behaviour which in turn will lead to the expected action. Another article by Janmaimool (2017) discovered that self-efficacy positively influences various sustainable waste management behaviours, with reuse being one of the observed behaviours. Similarly, the study by Kraleva and Ivanov (2020) shows that self-efficacy influences sustainable behaviour with regards to consumption and involvement. There are still some discrepancies in literature on whether the connection between self-efficacy and intention is direct or indirect. We therefore postulate that the relationship is indirect and

mediated by PBC.

H9: Self-efficacy significantly and positively affects perceived behavioural control.

### 3.7. Control variables: age and gender effect

Gender and age have an impact on waste disposal methods and on garment reuse. Shim (1995) found in their study of 468 undergraduate university students that the older the student, the more likely it is that they will donate clothing and partake in reuse for environmental reasons. Similarly, they found that females tend to resell or donate their old garments and reuse them both for economic and environmental reasons than the male students in the study (Moussaoui et al., 2022). According to Moussaoui et al. (2022) gender has an effect on organic waste sorting behaviour. Their research found that females are more likely to use publicly funded kitchen scraps recycling bins than their male counterparts (Moussaoui et al., 2022). This finding is mirrored in several articles that state that females are generally more environmentally conscious than males (Davidson & Freudenburg, 1996; Xiao & McCright, 2015; Zelezny, Chua, & Aldrich, 2000). The literature review carried out by Gazzola et al. (2020) showed that females within the ages of 18 and 34 are often more informed and interested in sustainability endeavours than males. Younger consumers are also believed to be more environmentally friendly (Balderjahn, 1988; Birtwistle & Moore, 2007; Gazzola et al., 2020). Therefore, we control for the effect of age and gender within our study.

Based on these discussions, we present the proposed conceptual model in Fig. 1. The model is established by extending the Theory of Planned Behaviour (TPB). This was achieved by including self-identity, general recycling behaviour, and quality consciousness as factors that could influence reuse intentions and further the reuse behaviour of end-of-life garments. We also investigate the indirect effects (eco-literacy and self-efficacy) in this study. These factors represent the latent constructs, and their observable items are shown in Fig. 1.

## 4. Materials and methods

The methodology for this study is similar to the works by Kumar (2019), Nikhashemi et al. (2019), Valaei and Nikhashemi (2017), and Vlastelica et al. (2023), that observes consumers' pro-environmental behaviours within the fashion industry. These works prove that the use of questionnaires analysed through structural equation modelling is an ideal methodology for studies of a similar nature to ours.

### 4.1. Sampling

Purposive sampling was utilised by a marketing research organisation to identify respondents for this study. Purposive sampling was used as the researchers intentionally wanted to target consumers that have knowledge on consumer behaviour and sustainability practices, consume fashion products, reside in Australia and are over the age of eighteen (Rahi, 2017). Using a marketing research company ensured distance between the researchers and the participants. The company were responsible for distributing the questionnaire online and incentivising the participants on completion of the survey. The survey was self-administered, and information was provided about the study, with contact information provided for the primary investigator, should further information be required.

### 4.2. Survey design instrument

Observed variables (items) are questions asked of the participants. Each item for the 10 latent variables observed were sourced from existing literature published in high-ranked journals and with high citation count. The items have good internal consistencies and were modified to the context of our study. All items were rated based on a seven multi-point scale. The constructs were measured on a seven-point scale. All constructs excluding PBC and self-efficacy were measure on a Likert-type continuum ranging from strongly disagree (1) to strongly agree (7) (Dane, 1990). The measurement items for PBC and self-efficacy are measured on a seven multi-point scale ranging from absolutely no control (1) to completely in control (7), very little (1) to numerous (7), extremely unlikely (1) to extremely likely (7), extremely difficult (1) to extremely easy (7) or absolutely uncertain (1) to completely certain (7) (Povey et al., 2000). The constructs, items, sources of each item, including the descriptive statistics such as the mean, standard deviation (SD) and factor loading for each item are presented in Table 1.

Definition of reuse was provided at the beginning of the study and was adopted from Rotimi et al. (2021). Reuse was defined to participants as "either the repair or re-purpose of an unwanted garments. This means garments end up being used for a longer time either by the same person or disposing of garments to a different person(s). Reuse therefore can include mending your clothes for further use or using the clothes for alternative purposes. It could also be achieved through giving or handing down clothing between family, friends, and charity (op) shops, swapping, or selling of clothing in garage sales."

We undertook several processes to ensure quality of responses and data. Firstly, three questions were asked to ensure the participants understood the difference between recycling and reuse as it pertains to this study. Secondly, two screening questions were asked to ensure appropriate participants were recruited; 1) What is your age group? and, 2) In which state or territory do you live? To be eligible to complete the questionnaire, participants had to older than 18 years old and reside in one of the eight Australian states or territories. Thirdly, two questions were included in the questionnaire (one in the middle and one towards the end) to ensure participants concentration and quality of responses were maintained when completing the questionnaire.

### 4.3. Data collection

Data was gathered between 16 and 22 March 2022. The questionnaire was sent out to 500 participants. We cleaned-up the data by removing questionnaires that were completed on or under 5 min, patterned responses such as participants that gave the same responses for all items or alternative responses to the different items, and participants that fail any of the attention check questions. A total of 428 responses were deemed valid and appropriate for use within this study.

## 5. Findings

### 5.1. Demographic profile

Of the 428 responses, respondents were aged over 18 with the highest distribution between the age range of 55 to 64 years, with 17.8 percent and 65 to 74 years, with 17.1 percent. Most of the respondents attended school with the majority (35.5 percent) having graduated from high school with a further 32 percent holding a certificate or diploma degree. Most respondents earned between AUD25 000 to AUD49 999. Most respondents resided in New South Wales, Victoria and Queensland with 31.8 percent, 26.6 percent and 19.4 percent, respectively. These demographic profiles are provided in Fig. 2.

### 5.2. Correlation analysis

The results obtained from the correlation analysis and the Cronbach's alpha scores for each construct are presented Table 2. All correlations are significant at either 1 % or 5 % levels except for three inter-construct correlations. All non-significant relations are observed with the quality consciousness construct and the relationship with reuse attitude, PBC, and self-efficacy. There is also a negative relationship noted, however this is the non-significant relationship between quality consciousness and PBC.

**Table 1**
Constructs, items, sources, descriptive statistics and factor loading.

| Item ID | Items \| Sources | Mean | SD | Factor Loading |
|---|---|---|---|---|
| **Reuse Behaviour (REU_BEH)** \| Cruz-Cárdenas, Guadalupe-Lanas and Velín-Fárez (2019) | | | | |
| REU_BEH_1 | When I decide that I no longer want my garments, it is very important to me to reuse it. | 5.49 | 1.370 | 0.862 |
| REU_BEH_2 | When I decide that I no longer want my garments, I prefer to reuse it rather than store it, sell it, or throw it away. | 5.60 | 1.392 | 0.886 |
| REU_BEH_3 | When I decide that I no longer want my garments, my first option is to reuse it. | 5.32 | 1.542 | 0.852 |
| **Reuse Intention (REU_INT)** \| Jain, Khan and Mishra (2017) | | | | |
| REU_INT_1 | In future, I will try to reuse garments that I no longer want | 5.64 | 1.340 | 0.891 |
| REU_INT_2 | Within the next 12 months, the probability that I would reuse garments that I no longer want is high | 5.51 | 1.408 | 0.920 |
| REU_INT_3 | Within the next 12 months, I intend to reuse garments that I no longer want | 5.56 | 1.407 | 0.948 |
| **Reuse Attitude (REU_ATT)** \| Paul, Modi and Patel (2016) | | | | |
| REU_ATT_1 | I like the idea of reusing garments that I no longer want | 5.84 | 1.225 | 0.955 |
| REU_ATT_2 | I have a favourable attitude toward reusing the garments that I no longer want | 5.80 | 1.254 | 0.931 |
| REU_ATT_3 | Reusing the garments that I no longer want is a good idea | 6.00 | 1.147 | 0.890 |
| **Subjective Norm (REU_SBN)** \| Paul, Modi and Patel (2016) | | | | |
| REU_SBN_1 | Most people who are important to me think I should reuse the garments that I no longer want | 5.11 | 1.299 | 0.914 |
| REU_SBN_2 | Most people who are important to me would want me to reuse the garments that I no longer want | 5.15 | 1.244 | 0.947 |
| REU_SBN_3 | People whose opinions I value would prefer that I reuse the garments that I no longer want | 5.14 | 1.250 | 0.935 |
| REU_SBN_4 | My friend's positive opinion influences me to reuse the garments that I no longer want | 4.80 | 1.410 | 0.761 |
| **Perceived Behavioural Control (REU_PBC)** \| Povey et al. (2000) | | | | |
| REU_PBC1 | It is mostly up to me whether or not I reuse my unwanted garments | 6.55 | 0.701 | 0.700 |
| REU_PBC2 | How much control do you have over reusing your unwanted garments from now on? | 6.64 | 0.698 | 0.856 |
| REU_PBC3 | The number of events outside my control which could prevent me from reusing my unwanted garments from now on are… | 5.45 | 1.959 | – |
| REU_PBC4 | How much personal control do you feel you would have over whether or not you reuse your unwanted garments from now on? | 6.56 | 0.795 | 0.900 |
| REU_PBC5 | How much control do you have over whether you do or do not reuse your unwanted garments from now on? | 6.57 | 0.770 | 0.904 |
| **Reuse Self-Efficacy (REU_SE)** \| Povey et al. (2000) | | | | |
| REU_SE1 | If I wanted to, I could easily reuse my unwanted garments from now on | 6.14 | 1.168 | 0.817 |
| REU_SE2 | For me, reusing my unwanted garments would be… | 6.01 | 1.190 | 0.874 |
| REU_SE3 | What is the likelihood that if you tried you would be able to reuse your unwanted garments from now on? | 6.03 | 1.236 | 0.891 |
| REU_SE4 | How certain are you that you could reuse your unwanted garments from now on? | 5.93 | 1.300 | 0.881 |

**Table 1** (*continued*)

| Item ID | Items \| Sources | Mean | SD | Factor Loading |
|---|---|---|---|---|
| REU_SE5 | For me to reuse my unwanted garments from now on would be… | 5.94 | 1.260 | 0.884 |
| **Self-Identity (SLF_IDN)** \| Fielding, McDonald and Louis (2008) | | | | |
| SLF_IDN_1 | I think of myself as someone who disposes off items sustainably | 5.59 | 1.201 | 0.821 |
| SLF_IDN_2 | To engage in sustainable disposal of items is an important part of who I am | 5.43 | 1.276 | 0.916 |
| SLF_IDN_3 | I am the type of person who would be involved in sustainable disposal of items | 5.54 | 1.205 | 0.921 |
| **Eco-Literacy (ECO_LIT)** \| Cruz-Cárdenas, Guadalupe-Lanas and Velín-Fárez (2019) | | | | |
| ECO_LIT_1 | It is important to me that the garments I own do not harm the environment, society or economy. | 5.57 | 1.198 | 0.840 |
| ECO_LIT_2 | I consider the potential environmental, social or economic impact of my actions when making many of my decisions | 5.25 | 1.342 | 0.861 |
| ECO_LIT_3 | My disposal habits are affected by my concerns about our environment, society or economy. | 5.37 | 1.389 | 0.855 |
| ECO_LIT_4 | I am concerned about wasting the resources of our planet. | 5.82 | 1.213 | 0.789 |
| ECO_LIT_5 | I would describe myself as an environmentally, socially or economically responsible person. | 5.36 | 1.249 | 0.821 |
| ECO_LIT_6 | I am willing to be inconvenienced to take actions that are more environmentally, socially or economically friendly. | 5.16 | 1.407 | 0.792 |
| **General Recycling Behaviour (GEN_REC)** \| Bianchi and Birtwistle (2010) | | | | |
| GEN_REC_1 | I recycle plastic | 6.38 | 0.834 | 0.832 |
| GEN_REC_2 | I recycle glass | 6.41 | 0.851 | 0.789 |
| GEN_REC_3 | I recycle paper | 6.41 | 0.832 | 0.834 |
| GEN_REC_4 | Compared with the people I know, I make a greater effort to recycle | 5.40 | 1.295 | – |
| GEN_REC_5 | I make an effort to find and use recycling bins | 6.16 | 0.976 | 0.688 |
| **Quality Consciousness (QLT_CON)** \| Lang, Armstrong and Brannon (2013) | | | | |
| QLT_CON_1 | I make a special effort to choose the very best quality garments | 4.39 | 1.538 | 0.874 |
| QLT_CON_2 | In general, quality is an important factor I look for when I am shopping | 5.00 | 1.370 | 0.821 |
| QLT_CON_3 | I usually own high quality brands | 3.79 | 1.742 | 0.797 |
| QLT_CON_4 | I care a lot about the fabric quality of the garments I own | 4.74 | 1.534 | 0.855 |

SD = Standard deviation

## 5.3. Common method bias

Common method variance is the consistent error in data caused by using the same method to measure study constructs (Kock, Berbekova, & Assaf, 2021). Common method bias often arises from external factors affecting measured items and that poses a potential concern in behavioural research, especially in self-administered surveys like this study (Kock et al., 2021; Podsakoff et al., 2003). Similar to the studies of Parkinson et al. (2017) and Cunningham and Petzer (2022), we conduct Harman (1976) single factor analysis to test for common method variance in our data. The results of this test showed that no single factor accounted for most of the variance (35.8 %) in our study. Consequently, this indicates that common method bias does not impact on the results of our study.

## 5.4. Measurement model assessment

The measurement model within this study was analysed by confirmatory factor analysis (CFA) using IBM SPSS AMOS (version 28.0). We tested the extended TPB model for the goodness of fit measures based on the criteria and threshold recommended by (Collier, 2020; Hair et al.,
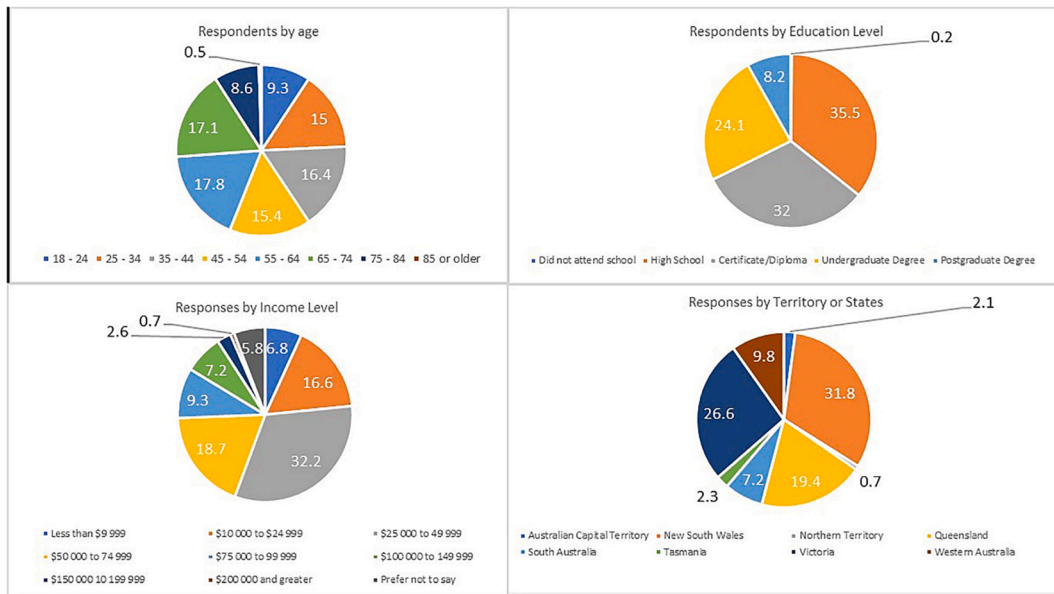
**Fig. 2.** Demographic profile.

**Table 2**
Correlations matrix between constructs and Cronbach's Alpha.

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1) REU_BEH | 1 |  |  |  |  |  |  |  |  |  |
| 2) REU_INT | 0.800** | 1 |  |  |  |  |  |  |  |  |
| 3) REU_ATT | 0.748** | 0.825** | 1 |  |  |  |  |  |  |  |
| 4) REU_SBN | 0.515** | 0.584** | 0.551** | 1 |  |  |  |  |  |  |
| 5) REU_PBC | 0.181** | 0.179** | 0.270** | 0.051 | 1 |  |  |  |  |  |
| 6) REU_SE | 0.572** | 0.600** | 0.608** | 0.422** | 0.379** | 1 |  |  |  |  |
| 7) SLF_IDN | 0.395** | 0.339** | 0.379** | 0.357** | 0.233** | 0.291** | 1 |  |  |  |
| 8) ECO_LIT | 0.385** | 0.398** | 0.467** | 0.438** | 0.200** | 0.325** | 0.749** | 1 |  |  |
| 9) GEN_REC | 0.243** | 0.279** | 0.333** | 0.183** | 0.245** | 0.173** | 0.457** | 0.458** | 1 |  |
| 10) QLT_CON | 0.125** | 0.118* | 0.051 | 0.255** | −0.085 | 0.080 | 0.260** | 0.340** | 0.121* | 1 |

n = 464; ** Significant at the 0.01 level (2-tailed); * Significant at the 0.05 level (2-tailed).

2017): $x^2 = 1315.366$, $df = 657$, $x^2/df = 2.002$ (p-value = 0.000), GFI = 0.864, IFI = 0.957, CFI = 0.957, RMSEA = 0.048, SRMR = 0.0479, TLI = 0.952. All measurements show an acceptable fit. Therefore, we conclude that the measurement model is a good fit for our data sample.

Analyses provided in Table 3 reveals that our data is reliable and valid. The reliability of the constructs is tested using the Cronbach's alpha. According to Hair et al. (2010), the Cronbach's alpha value should be equal to or greater than 0.7. The Cronbach's alpha of constructs within our study ranged from 0.858 to 0.946 indicating that all constructs met the thresholds. Therefore, our constructs are reliable, and the measurement items adapted within our study are adequate for the

constructs.

Convergent validity is assessed using two methods; composite reliability (CR) and average variance extracted (AVE). CR is used to assess the internal consistency of a latent construct. It is often regarded as a more appropriate measure than Cronbach's Alpha, particularly in the context of CFA. As outlined in Raykov (1997), the formula for calculating CR is as follows (see Equation (1);

$$CR = \frac{\left(\sum \lambda_i\right)^2}{\left(\sum \lambda_i\right)^2 + \sum \vartheta_i} \tag{1}$$

**Table 3**
Discriminant and convergent validity and reliability scores.

|  | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1) REU_BEH | **0.867** |  |  |  |  |  |  |  |  |  |
| 2) REU_SE | 0.626 | **0.870** |  |  |  |  |  |  |  |  |
| 3) REU_PBC | 0.189 | 0.402 | **0.844** |  |  |  |  |  |  |  |
| 4) ECO_LIT | 0.423 | 0.342 | 0.203 | **0.827** |  |  |  |  |  |  |
| 5) GEN_REC | 0.263 | 0.177 | 0.239 | 0.463 | **0.788** |  |  |  |  |  |
| 6) REU_SBN | 0.542 | 0.444 | 0.062 | 0.452 | 0.195 | **0.892** |  |  |  |  |
| 7) REU_INT | 0.866 | 0.639 | 0.175 | 0.425 | 0.284 | 0.600 | **0.920** |  |  |  |
| 8) SLF_IDN | 0.441 | 0.311 | 0.240 | 0.817 | 0.463 | 0.389 | 0.369 | **0.887** |  |  |
| 9) REU_ATT | 0.812 | 0.648 | 0.271 | 0.498 | 0.341 | 0.578 | 0.868 | 0.419 | **0.926** |  |
| 10) QLT_CON | 0.147 | 0.088 | −0.085 | 0.390 | 0.135 | 0.272 | 0.137 | 0.299 | 0.063 | **0.837** |
| CR | 0.901 | 0.939 | 0.908 | 0.928 | 0.867 | 0.940 | 0.943 | 0.917 | 0.947 | 0.904 |
| AVE | 0.751 | 0.757 | 0.712 | 0.684 | 0.621 | 0.796 | 0.846 | 0.787 | 0.857 | 0.701 |
| Cronbach's Alpha | 0.898 | 0.942 | 0.946 | 0.934 | 0.905 | 0.939 | 0.916 | 0.927 | 0.858 | 0.900 |

Note: $\lambda_i$ represents the factor loading of the ith indicator, and $\vartheta_i$ is the error variance of the ith indicator (1 minus the squared factor loading).

According to Hair et al. (2017) and Kline (2015), a CR score of 0.7 or above implies that the constructs have good reliability. Within our study, all CR scores are above 0.7, with the lowest value belonging to the general recycling behavior construct with 0.867.

AVE quantifies the proportion of variance in its indicators that a construct accounts for, as compared to the variance attributable to measurement error. Serving as an indicator of convergent validity, AVE's calculation is based on the methodology established in Fornell and Larcker's (1981) study. The formula for calculating AVE is outlined in Equation (2);

$$AVE = \frac{\sum \lambda_i^2}{\sum \lambda_i^2 + \sum \vartheta_i} \qquad (2)$$

Note: As before, $\lambda_i$ is the factor loading of the ith indicator, and $\vartheta_i$ is the error variance.

Hair et al. (2010) suggests that an AVE score of 0.5 or greater indicates high level of convergence. Fornell and Larcker (1981) also recommends that the AVE value should be less than the CR scores. Our AVE scores are above 0.5, with the lowest value being 0.621 for general recycling behavior. All AVE scores were also less than their corresponding CR scores. This implies excellent validity for all ten constructs examined.

Discriminant validity measures the diversity between constructs and whether each construct explains different concepts (Hair et al., 2009). The discriminant validity within this study is also measured using two methods: calculating the shared variance and the square root of the AVE. We first calculated the shared variance between the construct by observing the correlation between pairs of constructs. According to Kline (2016), correlation values of 0.9 or below signify little chance that a measurement item loads on multiple constructs. The correlation values within our study range between $-0.085$ and 0.868. Secondly, we assess the square root of AVE. The values showing the square root of AVE are presented in bold on the diagonals of Table 3. Based on Fornell and Larcker (1981), the value for the square root of AVE should be higher than the correlations between pairs of constructs. The highest correlation value of 0.868 between reuse attitude and intention has an associated square root of AVE value of 0.920. Based on these two methods, we contend that the discriminant validity levels of the ten constructs analysed within this study are satisfactory.

Based on our conclusion that the 10 constructs satisfy the requirements for validity and reliability; we can conduct structural equation modelling on the constructs and relationships provided in Fig. 1.

## 5.5. Structural equation modelling

The structural model was assessed using structural equation modelling (SEM) conducted on IBM SPSS AMOS 28.0. With age and gender controlled, the structural model was assessed for goodness-of-fit based on the thresholds, chi-square ($x^2$)/degrees of freedom (*df*) $\leq$ 3, the goodness of fit (GFI) $\geq$ 0.80, incremental fit index (IFI) $\geq$ 0.90, Comparative Fit Index (CFI) $\geq$ 0.90, Root Mean Square Error of Approximation (RMSEA) $\leq$ 0.08, Standardised Root Mean-square Residual (SRMR) $<$ 0.06, and Tucker-Lewis Index (TLI) $>$ 0.90 (Collier, 2020; Hair et al., 2017). The structural model reveals an acceptable fit ($x^2 = 1717.042$, *df* $= 738$, $x^2$/df $= 2.327$ (p-value $= 0.000$), GFI $= 0.840$, IFI $= 0.937$, CFI $= 0.937$, RMSEA $= 0.056$, SRMR $= 0.1020$, TLI $= 0.930$) (Collier, 2020; Hair et al., 2017). Although the SRMR value is above the threshold of 0.06, Hair Jr. et al. (2015) suggests that model fit analysis should not compromise the theory that grounds the study. We present the results of the hypothesis tested in the structural model in Table 4.

Hypothesis 1 to 4 tests the original factors within the TPB and its

**Table 4**
Result of hypothesis testing.

| Paths | Estimate | S.E. | C.R. | P | Result |
|---|---|---|---|---|---|
| REU_INT → REU_BEH | 0.86 | 0.046 | 18.953 | *** | H1 accepted |
| REU_ATT → REU_INT | 0.79 | 0.038 | 19.491 | *** | H2 accepted |
| REU_SBN → REU_INT | 0.144 | 0.033 | 4.091 | *** | H3 accepted |
| REU_PBC → REU_INT | −0.089 | 0.072 | −2.777 | ** | H4 accepted |
| GEN_REC → REU_INT | 0.034 | 0.056 | 0.961 | 0.336 | H5 not accepted |
| SLF_IDN → REU_INT | 0.077 | 0.065 | 1.322 | 0.186 | H6 not accepted |
| QLT_CON → REU_INT | 0.053 | 0.027 | 1.588 | 0.112 | H7 not accepted |
| ECO_LIT → REU_ATT | 0.517 | 0.055 | 10.846 | *** | H8 accepted |
| REU_SE → REU_PBC | 0.402 | 0.027 | 7.475 | *** | H9 accepted |

Note: *** p $\leq$ 0.001; ** p $\leq$ 0.01; * p $\leq$ 0.05.

relationship with reuse intention and behaviours. As is shown in Table 4, H1 to H4 are all supported, and their p-values are less than or equal to 0.001 or 0.01. However, the significant negative relationship between PBC and reuse intension is noteworthy. This suggests that contrary to what has been observed in the literature, the more difficulty, and less control a person feels, the more likely they are to reuse. This contradicts the findings by Sonnenberg et al. (2022) and Wang et al. (2022) that there is a positive relationship between PBC and reuse. Most especially, our results oppose the findings by Ertz et al. (2017) that PBC has the strongest relationship with reuse intentions. Instead our findings support Akbari et al., (2019) that attitude is the main predictor of behavioural intention. Our findings also show a significant relationship between reuse intention and behaviour. This is in line with the studies by Ajzen (1991), Maichum, Parichatnon and Peng (2016) and Sheoran and Kumar (2022) that an individual with intent will most likely execute the said behaviour.

Hypothesis 5 to 7 tests the direct relationships with the factors we added to the TPB and its relationship with reuse intentions. From Table 4, it is evident that general recycling behaviour, self-identity and quality consciousness do not have significant relationships with reuse intention. Hence, H5 to H7 are not supported.

Further, we observed the relationship between eco-literacy and attitude to reuse end-of-life garments. We hypothesised that there is a positive relationship between an individual's understanding of the environmental effects of the fashion industry on their attitude to engage in the reuse of the end-of-life garments. Our test reveals that our hypothesis, H8 is supported and there is a positive and significant relationship between eco-literacy and attitude to reuse end-of-life garments with p-value less than 0.001. Our findings is similar to that by Laroche et al. (1996), Sonnenberg et al. (2022) and Wang et al. (2022) that eco-literacy has an indirect effect on pro-environmental and sustainable behaviour through consumers attitude.

Lastly, we hypothesise that if a person has the confidence in the resources available to them (self-efficacy), they will feel capable to reuse (PBC) their end-of-life garments (H9). Table 4 shows the hypothesis, H9 is accepted at a p-value equal to or less than 0.001 level. Our findings supports that self-efficacy should be included as a separate construct to PBC (George & Nair, 2022; Povey et al., 2000).

## 5.6. Indirect effects

Table 5 presents the results of the two mediating paths examined within our model. To test these direct and indirect effects, we conduct a decomposition test using the bootstrapping method IBM SPSS AMOS 28.0. The result of the test shows a full mediation between eco-literacy and reuse intentions. The relationship between eco-literacy and reuse intention is only significant with reuse attitude as a mediating factor. The second relationship between self-efficacy and reuse intention is

**Table 5**
Result of indirect effects.

| Path(s) | Direct Effect | Indirect Effect | Result |
|---|---|---|---|
| ECO_LIT → REU_ATT → REU_INT | −0.141 (ns) | 0.408*** | Full mediation |
| REU_SE → REU_PBC → REU_INT | 0.206*** | −0.036* | Partial mediation |

Note: *** $p \leq 0.001$; ** $p \leq 0.01$; * $p \leq 0.05$.

significant both with and without the presence of PBC as a mediating factor. Therefore, a partial mediation is observed in the relationship between self-efficacy and reuse intentions.

## 6. Conclusion and contributions

### 6.1. Theoretical contributions

We offer four unique contributions to theory within the sustainability, fashion, and consumer behaviour space. Firstly, as is highlighted in the study by Sandin and Peters (2018), few studies have solely focussed on the concept of reuse. Thus, this study offers significant contributions to the existing literature by primarily focussing on garment reuse intentions and behaviour. We answer the call by Lin et al. (2022) for research that explores consumers reuse behaviour. In so doing, we offer greater understanding as to how consumers could engage in reuse as a sustainable practice for achieving circularity in the fashion industry.

Secondly, we discovered in our review of the literature that few studies (Ertz et al., 2017; Kim, 2021; Lin et al., 2022; Wang et al., 2022) have focussed on the consumer behaviour of garment reuse. No study to our knowledge has explored reuse intentions of end-of-life products within the fashion industry. Thus, a key contribution of our study is the development of a conceptual model that shows the significant predictors of consumer's reuse behaviour. These predictors are insightful as they enrich theoretical knowledge on the different influencers of consumers' reuse behaviour of garments. In addition, the current study addresses a significant gap by explaining garment reuse behaviour from consumer's perspective.

Thirdly, our findings support extant literature (Joshi, Uniyal, & Sangroya, 2021; Ogiemwonyi, 2022) that the theory of planned behaviour is a robust theory for understanding sustainable practices, most specifically reuse behaviour. We found that the three predictors, attitude, subjective norm and PBC all significantly influence intentions to reuse end-of-life garments and further intention leads to behaviour. Garment reuse is an important sustainable practice that consumers can engage in. Thereby, establishing the significant relationships of attitude, subjective norm and PBC with reuse intention and behaviour enhances theoretical understanding of reuse in the context of consumer behaviour and sustainability. There is also a case for extending the theory by adding more predictors to the model. For example, our study found that eco-literacy and self-efficacy significantly predict intentions to reuse end-of-life garments through attitude and PBC, respectively.

Fourthly, this study found that predictors such as general recycling behaviour, self-identity and quality consciousness do not have significant relationships with intentions to reuse. There may be various reasons for this lack of association within our study. For example, an individual might partake in general recycling behaviour because it is accessible and well publicised in society, but this eco-friendly/sustainable practice may not be a core believe of the consumer. Also, while a consumer may identify themselves as environmentally conscious, they may value or engage in forms of sustainability practices other than reuse. Similarly, while we suggested that the quality of garment might impact on its longevity, the increase in underutilisation of garments implies that consumers may still wish to dispose of their garments even if it is in good quality. Therefore, our study calls for further theoretical explorations into the significance of these predictors (general recycling behaviour, self-identity and quality consciousness) on the reuse of end-of-life garments.

### 6.2. Managerial contributions

While our research focus is on the consumers perspective in the reuse of garments, it is important to note that the effort towards improving reuse as a sustainable practice to achieving circularity needs to be a collaborative process. In line with the findings by Rotimi, Topple and Hopkins (2021), we agree that while consumers are an important agent in the drive for sustainability, achieving circularity requires a committed effort from all the supply chain agents both upstream and downstream. These extend to include designers, manufacturers, fashion retailers and government agents. For example, designers could consider garments areas that are easily damaged can be easily amended to extend its life span. Similarly, manufacturers could use quality materials that would allow for longer use. The government could provide subsidies for companies that use long-lasting materials so that these can be affordable to consumers. Furthermore, by understanding significant factors that influence consumers to reuse their garments, retailers and governing bodies can better tailor their messages and campaigns to emphasise the importance of reuse behaviour in the drive towards circularity. However, it is crucial to note that none of these suggestions can be achieved in silos but rather, there needs to be a collaborative effort across the various supply chain agents.

This study is placed within the Australian context. According to Ertz et al. (2017) and Lin et al. (2022) 'context' is a key driver of behavioural intentions. Thus, the current findings add substantially to our understanding of consumer's intentions and behaviour within Australia. This could have implications for the Australian government, retailers and the wider fashion industry as it highlights what factors they need to consider when trying to engage consumers about garment reuse.

Lastly, at a broader level, extending the life cycle of a garment through reuse could have considerable implications for reducing garments being sent to landfill. This has important implication on the environment by minimising the pollution caused by fashion waste. Moreover, less garments would be manufactured due to increase in reuse practices which could result in the preservation of natural resources and reduce the negative impact that garment manufacturing could have on the environment and communities in which they are made.

## 7. Limitations and future research

We observed an unexpected result in our study with a negative significant relationship observed between PBC and reuse intention. This was contrary to the expected results from the seminal work by Ajzen and Fishbein (1977) and studies by Ertz et al. (2017), Sonnenberg et al. (2022) and Wang et al. (2022) that have applied the TPB in their study of reuse intentions. A possible reason could be the context in which our study was undertaken. Donations to charities are a common practice is Australia and this is an aspect of reuse (Bianchi & Birtwistle, 2010). Therefore, consumers may overestimate their level of control to reuse or may have a skewed definition of reuse towards donation practices. Consequently, future research should conduct a comparative analysis to identify whether the negative relationship between PBC and reuse intention is specific to the context of Australia or the fashion industry.

Another limitation of this study is that the reuse behaviour was measured through self-reporting. As reuse is a form of sustainable practices and the general social norm is that people should engage in sustainable behaviours, the self-reported results may be subject to bias. Therefore, to provide more reliable insights, future research should observe actual behaviour through experimentation or observation methods as a more rigorous method of data collection.

Finally, given the focus of the study is on Australia, this could limit

the generalisability of the results. Australians generally have high income level, and they tend to be more educated (as seen in Fig. 2) and as consumers, they engage in donation practices. These characteristics of Australian consumers could influence the results of our study. Thus, it would be advantageous to replicate the study in other developed countries that have similar characteristics as Australia to compare similarities or differences in results. A cross-context study would provide richer understanding of reuse as a sustainable practice, can provide cultural insights into context-specific behaviours, and could enable generalisation of some findings.

## CRediT authorship contribution statement

**Esther Oluwadamilola Olufemi Rotimi:** . **Hassan Kalantari Daronkola:** Writing – review & editing, Supervision, Methodology. **Cheree Topple:** Writing – review & editing, Supervision. **Lester Johnson:** .

## Declaration of competing interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

## Data availability

The data that has been used is confidential.

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