

# A value adoption approach to sustainable consumption in retail stores

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## Abstract

**Purpose** – The United Nations Sustainable Development Goals (SDGs) have urged retail companies to transform by adopting more sustainable practices. One of the key goals is to motivate responsible consumption and production. How to facilitate sustainable consumption of retail consumers is a research question of high theoretical and practical relevance. This research investigates the drivers of less examined sustainable consumer behaviour (reuse) from the perspective of consumers by integrating a value-based adoption model and the theory of planned behaviour (TPB).

**Design/methodology/approach** – Two samples of data were collected by using offline and online surveys. The offline survey was conducted at a university in northern Taiwan emphasizing sustainability practices. The online survey was implemented by a market research firm. A total of 518 useable questionnaires were obtained for data analysis by using the structural equation modelling.

**Findings** – Consistent with TPB, perceived behavioural control, subjective norms, and attitude, generate reuse intention in retail stores. Furthermore, the results also show the validity of the value adoption approach in predicting reuse intention in retail stores. Economic benefits and identity expressiveness are key facilitators and perceived inconvenience is a key barrier to perceived value and perceived value influences reuse intention in retail stores.

**Originality/value** – This research contributes by moving beyond TPB and proposing a value-based adoption approach to explain sustainable consumer behaviour in retail stores from the consumer perspectives. Based on the findings, value adoption strategies for retailers to facilitate sustainable consumer behaviour are proposed.

**Keywords** Value-based adoption model, Theory of planned behaviour, Sustainable consumer behaviour, Reuse, Identity expressiveness, Retailing

**Paper type** Research paper

## 1. Introduction

The 2030 Agenda for Sustainable Development took effect on 1 January 2016. The core of the agenda is the 17 Sustainable Development Goals (SDGs). The SDGs serve as a guide to handle the most pressing global challenges, including promoting environmental sustainability, economic prosperity, and peace for all people in the world by 2030. The SDGs seek to create a better world that depends on interdependence and cooperation (Setó-Pamies and Papaoikonomou, 2020). The SDGs encourage private businesses to incite change by leveraging their financial power and striving to be key drivers of the 2030 Agenda (Storey *et al.*, 2017). There is an escalating interest in doing business in a sustainable way. Retail stores such as Nike, H&M, and Starbucks incorporate sustainability into their brands' DNA (Hardcastle, 2013). A recent report by PwC in 2018 revealed that although 72% of firms disclose information on the SDGs in their annual reports, only a small portion of these firms (27%) implement these goals in their business strategies to facilitate sustainable consumer behaviour (Baizley, 2019). How retailers shift consumer behaviour to be more sustainable is a key research issue (Fuentes, 2015; Tsarenko *et al.*, 2013; White *et al.*, 2019). However, numerous studies have focused on sustainable consumer behaviour in a nonretailing context (e.g. Maichum *et al.*, 2016;



Ting *et al.*, 2019; Wang *et al.*, 2018; Yarimoglu and Gunay, 2019; Zhang *et al.*, 2019). Most previous studies in the retailing context have focused on retail stores' sustainability practices, such as "the next day, free delivery" (Buldeo Rai *et al.*, 2019), "last mile fulfilment and distribution" (Hübner *et al.*, 2015), "in-store technology" (Jäger and Weber, 2020; Wiese *et al.*, 2015), and "sustainability services" (Fuentes and Fredriksson, 2016), where consumers play a passive role. By actively implementing sustainable behaviours in retail, consumers can create a substantial social effect. For example, approximately 16 billion paper to-go cups are discarded every year by coffee drinkers; yet one reused cup can replace 1,000 disposable cups (GreenMatch, 2021). Consumers using reusable products can substantially reduce waste. Therefore, deepening consumers' understanding of sustainable retail behaviours is crucial.

Previous research on sustainable consumer behaviour has utilised the theory of planned behaviour (TPB) (e.g. Han and Stoel, 2017; Heath and Gifford, 2002; Hosta and Zabkar, 2020; Yang *et al.*, 2018; White *et al.*, 2019). These studies have focused mostly on recycling, and the role of reuse has been ignored (Ertz *et al.*, 2017). As the reduction of waste recycling is less effective than reuse (Ertz *et al.*, 2017), more studies are needed to examine consumers' intention to use reusable products for consumption in retail stores. Although sustainable consumer behaviour such as reuse can have favourable social and environmental impacts, few studies have identified the negative effects or inconvenience of reuse practices (Ertz *et al.*, 2017; White *et al.*, 2019). The give-and-take between costs and benefits is not incorporated into existing research. Furthermore, responsible sustainable consumers have calculating minds since they tend to weigh their true needs and how these needs influence others (Hosta and Zabkar, 2020). These results suggest that reuse intention can be examined from the value adoption approach (e.g. Kim *et al.*, 2007). Although the value-based adoption model has been widely used in the fields of marketing, e-commerce, and information systems (IS) (Lee *et al.*, 2019; Kim *et al.*, 2011; Sheth *et al.*, 1991; Sweeney and Soutar, 2001), it has not been used to explain sustainable consumer behaviours such as reuse. Perceived value is the core construct of the value-based adoption model but has led to inconsistency in the conclusions of studies on sustainable consumption (Chaturvedi *et al.*, 2020; Fiandari *et al.*, 2019). Studies have not included either value facilitators or barriers in the model to represent trade-offs in the perceived value construct.

Based on a value-based adoption model and the TPB, the current research study aims to investigate the drivers of reuse intention in retail stores from the consumer perspective. This research contributes to the sustainable consumption literature by proposing a value-adoption approach to sustainable consumer behaviour in the retailing context in which the key value facilitators and barriers are identified. The relative effectiveness of the two theoretical approaches can be compared to provide important theoretical implications. Based on the findings, value adoption strategies for retailers to facilitate sustainable consumer behaviour are proposed. This study is crucial because it focuses on the role of companies in formulating value adoption strategies, facilitating sustainable consumption, and achieving the SDGs.

## 2. Theoretical foundations

### 2.1 Sustainable consumer behaviour and reuse behaviour

Sustainable consumer behaviour refers to consumers' awareness of the long-run consequences of their behaviour on the natural or social environment (Epstein, 2008). Based on the definition, sustainable consumer behaviour has two dimensions that focus on environmental and social issues/problems. Environmental problems include climate change, waste, global warming, and pollution, while social issues/problems include poverty, unemployment, and the relationships and treatment of others (Hosta and Zabkar, 2020). Most previous studies have focused on the environmental dimension. One key research stream is on green consumer behaviour (e.g. Arli *et al.*, 2018; Chen and Hung, 2016; Hsu *et al.*, 2017; Ko and Jin, 2017; Nuttavuthisit *et al.*, 2017; Paul *et al.*, 2016; Roberts, 1995; Wang *et al.*,

2018). Therefore, this research follows suit by focusing on environmentally sustainable consumer behaviour and defines it as the actions leading to the reduction in adverse environmental impacts and reduced use of natural resources across the lifecycle of a behaviour, product, or service (White *et al.*, 2019).

Reuse behaviour is defined as any action that extends an item's life (Allegrini *et al.*, 2015). Following Ertz *et al.* (2017), this research focuses on consumers' intentions to use reusable products for consumption in retail stores; and the reuse of products refers to undisposable multiuse containers. These containers can be reused over time and are generic multiuse packaging, including containers for solid or liquid elements (Numata and Managi, 2012). Coffee mugs, drinking bottles, and thermal bottles are examples of undisposable multiuse containers (Ertz *et al.*, 2017). Consumers can bring these containers with them when purchasing products in retail stores, and this is one way to conduct sustainable consumption. In terms of achieving long-term sustainability, reuse is the most effective strategy to reduce waste (Haws *et al.*, 2014). However, the role of reuse has been largely neglected in the literature (Ertz *et al.*, 2017). Few studies have investigated the drivers of reuse intention. Ertz *et al.* (2017) found that context is a key driver of behavioural intention to use reusable products; however, more studies are needed to disclose the specific components of the context in fostering reuse intention.

### 2.2 Value-based adoption model

Consumer value has been proposed as an important driver of various consumer behaviours, such as initial purchases and repeat purchases, in the marketing, e-commerce, and IS literature (Lee *et al.*, 2019; Kim *et al.*, 2011; Sheth *et al.*, 1991; Sweeney and Soutar, 2001). Consumers pursue the maximisation of their value in transactions with companies in various phases of consumption (Lee *et al.*, 2019; Sirdeshmukh *et al.*, 2002). Consumer value has been defined differently by consumers as "value is what I get for what I give", "value is the quality I get for the price I pay", "value is whatever I want in a product", and "value is low price". Overall, consumer value can be defined as the overall evaluation (utilities) perceived by consumers for a target based on perceptions of what is received and what is given (Zeithaml, 1988). Following this definition, this research defines perceived value in the context of using reusable products. Since environmentally sustainable consumer behaviour such as reuse is cognitive and rational in nature, the "give" and "take" definitions of perceived value are relevant in the current research context.

Two key research streams exist. One has examined the composition of consumer value, and this research stream follows consumers' definition of value as whatever I want in a product. Two widely used frameworks categorise consumer value as functional, social, and emotional (Sweeney and Soutar, 2001) or as functional, emotional, social, conditional, and epistemic (Sheth *et al.*, 1991). Subsequent studies have applied these frameworks to identify specific subdimensions of value and reveal their relative effects on consumer behaviours in different contexts, such as social networking communities (Kim *et al.*, 2011), brand pages on social networking sites (Chow and Shi, 2015), and on-demand ride services (Lee *et al.*, 2019). Emotional value is more vital than social and functional value in social networking communities (Kim *et al.*, 2011) and on social networking sites (Chow and Shi, 2015). Functional and monetary values are more crucial than emotional, conditional, and epistemic values in the context of on-demand ride services (Lee *et al.*, 2019). To the best of the authors' knowledge, few studies have examined the composition of perceived value in the sustainable consumption context. Only one study indicated that health and monetary values are value components in the context of repetitive fish consumption and reported that these components have similar relative effects (Fiandari *et al.*, 2019). Additional studies are required to analyse the components of perceived value and examine their relative effects in the context of sustainable consumption. The second research stream has focused on the give-get trade-off of

consumer value (Zeithaml, 1988) and developed a value-based adoption model (Kim *et al.*, 2007). The two pillars of value are sacrifice and benefit with negative and positive influences. The value-based adoption model posits that value perception is determined by perceived sacrifices (costs) and benefits (Kim *et al.*, 2007). This model has been applied to various contexts, such as the mobile Internet (Kim *et al.*, 2007), e-book subscription services (Hsiao and Chen, 2017), mobile shopping for fashion products (Ko *et al.*, 2009), mobile coupon applications (Liu *et al.*, 2015), restaurant consumption (Parvin *et al.*, 2017), the Internet of Things (IoT) in agriculture (Jayashankar *et al.*, 2018), GPS navigation app purchases (Wang *et al.*, 2018), and online price matching guarantees (Lin *et al.*, 2020). Sustainable consumer behaviours, such as reuse, can have positive (e.g. monetary savings and social benefits) and negative (e.g. inconvenience) effects (Ertz *et al.*, 2017; White *et al.*, 2019), which correspond to the perceived benefit and perceived sacrifice antecedents of the value-based adoption model. The value composition approach, which focuses on gains alone, reflects the give-and-take nature of value less effectively than does the value-based adoption model. However, the value-based adoption model has not been used in research on sustainable consumer behaviour, and the antecedents of perceived benefits and sacrifices have not been identified. This study fills these gaps in the literature.

### 2.3 TPB

One of the most influential theories utilised to predict a variety of behaviours is Ajzen's TPB (1991) (Ertz *et al.*, 2017). It postulates that behavioural intention is facilitated by perceived behavioural control, subjective norms, and attitude. Attitude is described as the extent to which a consumer has a favourable or unfavourable evaluation of the targeted behaviour. Subjective norms are defined as consumers' beliefs about whether important others disapprove or approve of the targeted behaviour. Perceived behavioural control is described as an individual's perception of the degree of difficulty or ease of implementing the targeted behaviour. This research applies these definitions in the current research context.

The TPB has been examined in numerous contexts related to sustainable consumer behaviours, such as green hotels (Han *et al.*, 2010; Han, 2015; Ting *et al.*, 2019; Wang *et al.*, 2018; Yarimoglu and Gunay, 2019), ecofriendly destination visits (Ashraf *et al.*, 2020), green product purchases (Arlı *et al.*, 2018; Chen and Hung, 2016; Hsu *et al.*, 2017; Ko and Jin, 2017; Maichum *et al.*, 2016; Nuttavuthisit *et al.*, 2017; Paul *et al.*, 2016; Wang *et al.*, 2018; Zhang *et al.*, 2019), second-hand product purchases (Borusiak *et al.*, 2020), online shopping festivals (Yang *et al.*, 2018), and the use of reusable products (Ertz *et al.*, 2017). These studies show that attitude is a crucial driver of sustainable consumer behaviours since its influence is empirically confirmed in most studies. However, the influence of perceived behavioural control and subjective norms on behavioural intention is somewhat inconsistent. Although most studies have indicated positive effects, some studies have revealed that subjective norms (Borusiak *et al.*, 2020; Chen and Hung, 2016; Hosta and Zabkar, 2020; Paul *et al.*, 2016; Wang *et al.*, 2018; Zhang *et al.*, 2019) and perceived behavioural control (Hosta and Zabkar, 2020; Nuttavuthisit *et al.*, 2017; Yarimoglu and Gunay, 2019) have no influence on intentions. Given the inconsistent results and only one study examining reusable behaviour from the TPB, more studies are needed.

### 3. Research model and hypotheses

This study develops a research model based on a value-based adoption model and the TPB. Since the content of perceived benefits and sacrifices varies across studies (e.g. Kim *et al.*, 2007; Ko *et al.*, 2009; Liu *et al.*, 2015; Hsiao and Chen, 2017; Parvin *et al.*, 2017; Jayashankar *et al.*, 2018; Wang *et al.*, 2018; Lin *et al.*, 2020), this research identifies the key constituents of

perceived benefits and sacrifices in the context of using reusable products for consumption by referring to the SHIFT framework of sustainable consumption behaviour (White *et al.*, 2019). The model is presented in Figure 1.

3.1 Perceived benefits: economic benefits

Perceived benefits can be divided into extrinsic and intrinsic elements. The former concerns whether the performance of an act results in rewards, while the latter focuses on the process of performing the act. Extrinsic elements correspond to the utilitarian benefits and cognitive elements of products, while intrinsic elements correspond to the hedonic benefits and affective elements of products (Wang *et al.*, 2013; Liu *et al.*, 2015; Babin *et al.*, 1994).

The SHIFT framework indicates that incentives are a component of the habit formation dimension driving sustainable consumer behaviour (White *et al.*, 2019). Economic benefits, defined as the monetary savings consumers receive by using reusable products (Li, 2018), correspond to the incentive component in the SHIFT framework and are used in this study to represent the utilitarian/cognitive dimension of perceived benefits. Economic benefits play a pivotal role in driving sustainable consumption (Tran, 2021). The extant literature has revealed that environmentally sustainable behaviour is more likely to trigger consumers' cognitive responses than their affective responses (Catlin *et al.*, 2017; Hosta and Zabkar, 2020). Since reuse behaviour is a type of environmentally responsible behaviour, the affective/hedonic dimension of perceived benefit is not considered in this research.

Past studies have revealed that value perception is determined by the utilitarian benefits of sales promotion and refund depth (Lin *et al.*, 2020; Sinha and Verma, 2020). However, few studies have investigated the role of economic benefits in generating consumer value perception in the current research context. Drawing on the value-based adoption model, it is expected that economic benefits generate the value perception of using reusable products in retail stores. Thus, the following hypothesis is developed:

H1. Economic benefits positively influence perceived value.

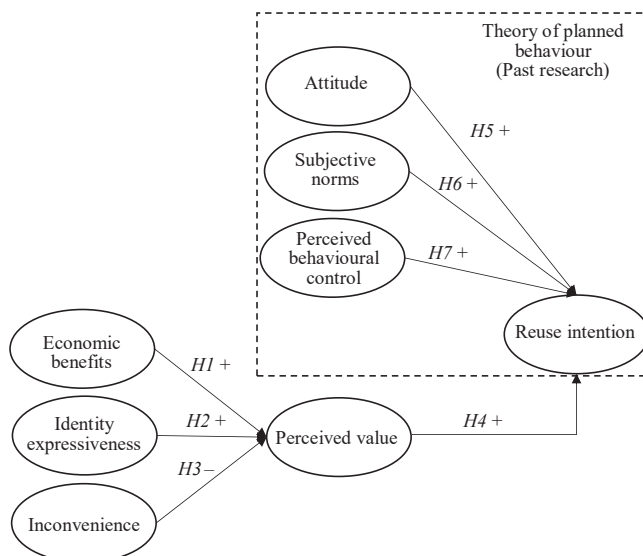


Figure 1. Research framework

### 3.2 Perceived benefits: identity expressiveness

The social influence dimension in the SHIFT framework indicates the importance of social identity in promoting sustainable consumer behaviour (White *et al.*, 2019). If ingroup members participate in sustainable actions, consumers tend to follow suit (Goldstein *et al.*, 2008; Han and Stoel, 2017). Self-expression is a key driver of green purchase and recycling behaviours (e.g. Jahanshahi *et al.*, 2018; Terry *et al.*, 1999). If products are consumed publicly, expressiveness is a strong driver of intention and behaviour (Johar and Sirgy, 1991; Richins, 1994). Since reuse behaviour involves consumers' explicit use of containers to purchase products, self-expression plays an important role in influencing consumer behaviour.

Identity expressiveness refers to consumers' perceptions of a product's ability to express personal and social identity dimensions (Thorbjørnsen, 2007). Since the definition of identity expressiveness corresponds to the social identity component in the SHIFT framework and the self-expression needs of consumers, identity expressiveness is identified by this research as a key driver of reuse behaviour. Social identity expressiveness is defined as how and to what degree consumers expressively use reusable products to connect with other in-group persons (Thorbjørnsen, 2007). Self-identity expressiveness refers to how and to what degree consumers use reusable products to display their own identities and values (Thorbjørnsen, 2007). Identity expressiveness satisfies consumers' motivation to express themselves explicitly and implicitly and, thus, corresponds to the extrinsic element of perceived benefit. Based on the value-based adoption model, it can be anticipated that if consumers perceive greater identity expressiveness when using reusable products in retail stores, they tend to have a greater perception of the value of using reusable products in retail stores. Thus, we develop the following hypothesis:

*H2.* Identity expressiveness positively influences perceived value.

### 3.3 Perceived sacrifice: perceived inconvenience

Perceived sacrifice includes monetary and nonmonetary dimensions (Kim *et al.*, 2007; Zeithmal, 1988). The monetary dimension is consumers' perceptions of the product price. The nonmonetary dimension includes time, effort, and other unsatisfactory spending when purchasing and consuming products (Kim *et al.*, 2007). The research contexts define the components of perceived sacrifice. Past studies have examined search costs in online price search (Lin *et al.*, 2020), perceived fees and technicality in mobile Internet adoption and online content services (Kim *et al.*, 2011; Wang *et al.*, 2013), and complexity and perceived costs in purchasing GPS navigation apps (Wang *et al.*, 2018). In the current research context, nonmonetary costs play a greater role. The SHIFT framework of sustainable consumer behaviour postulates that since many sustainable actions take considerable time and effort and are difficult for consumers to implement (Mckenzie-Mohr, 2000), making the action easier to perform is one strategy to encourage sustainable consumer behaviour (Houten *et al.*, 1981; White *et al.*, 2019).

Perceived inconvenience, defined as how inconvenient consumers perceive it is to reuse products (Laroche *et al.*, 2002), corresponds to the making-it-easy component of the habit formation dimension in the SHIFT framework. Past studies have indicated that perceived personal inconvenience decreases the intention to purchase eco-friendly products for green and nongreen consumers (Barbarossa and De Pelsmacker, 2016), the perceived inconvenience of switching to green electricity discourages consumers from adopting green electricity (Ozaki, 2011), and the inconvenience of being environmentally friendly is negatively related to green hotel visit intention (Han *et al.*, 2010). According to the value-based adoption model, if consumers perceive using reusable products to be inconvenient, the nonmonetary cost decreases the perceived value of using reusable products in retail stores. Thus, we posit the following:

*H3.* Perceived inconvenience negatively influences perceived value.

### 3.4 Perceived value and reuse intention

The value-intention framework postulates that an individual's willingness to perform a certain type of behaviour is directly affected by the value perception of behavioural consequences (Dodds and Monroe, 1985). Following this framework, Zeithmal (1988) conceptualised perceived value and its influence on consumer behaviour. Building on the perceived value construct, the value-based adoption model postulates that since consumers pursue utility maximisation, if an object brings greater transaction utility (perceived value) to consumers, they tend to approach the object (Kim *et al.*, 2007). Subsequent studies have empirically confirmed the role of value perception in predicting various behavioural intentions (e.g. Lin *et al.*, 2020; Parvin *et al.*, 2017; Wang *et al.*, 2018). It is expected from the perspective of the value-based adoption model that if consumers consider reuse behaviour in retail stores valuable, they tend to have a high intention of engaging in reuse behaviour in retail stores. Thus, we posit the following:

*H4.* Perceived value positively influences reuse intention.

### 3.5 TPB antecedents and reuse intention

According to the TPB, behavioural, normative, and control beliefs drive attitudes, subjective norms, and perceived behavioural control, respectively. These, in turn, generate behavioural intention (Ajzen, 1991). Most studies have used the TPB to explain sustainable behaviour (e.g. Borusiak *et al.*, 2020; Heath and Gifford, 2002; Han and Stoel, 2017; Hosta and Zabkar, 2020; Maichum *et al.*, 2016; Ting *et al.*, 2019; White *et al.*, 2019; Yang *et al.*, 2018; Yang and Zhang, 2018; Zhang *et al.*, 2019). Beliefs, normative influence, and perceived behavioural control factors influence purchase intention for recycled clothing (Chaturvedi *et al.*, 2020). A meta-analysis indicated that attitudes, subjective norms, and perceived behavioural control as predictors of planned behaviour have a medium-to-strong mean correlation with purchase intention in the context of socially responsible behaviour (Han and Stoel, 2017). Ertz *et al.* (2017) applied the theory to reusable products and discovered that perceived behavioural control, subjective norms, and attitudes increase reuse intention. Thus, we propose the following hypotheses:

*H5.* Attitude has a positive effect on reuse intention.

*H6.* Subjective norms have a positive effect on reuse intention.

*H7.* Perceived behavioural control has a positive effect on reuse intention.

## 4. Research methodology

### 4.1 Samples

Data were collected through purposive sampling. Participants with experience using reusable products were invited to participate in a survey. Two sources of data were used. The first is a university in northern Taiwan. The university demonstrates its dedication to sustainability education by offering courses on sustainability management and by releasing sustainability reports. The researchers recruited 300 business students from management science, statistics, and human resource management courses for the survey. None of these students had taken courses related to sustainability management to avoid bias. Because participation was required for students to obtain course credit, all students participated, yielding a 100% response rate. The definition of "reusable products" was provided at the beginning of the questionnaire and followed by a screening question, questions on the constructs, and demographic questions. The screening question was whether respondents had experience using reusable products in retail. Participants with no or little experience were

excluded, leaving 254 valid questionnaires. Before the questionnaire, the participants were informed that the questions had no right answers, that they could share their viewpoints freely, and that their anonymity was guaranteed. This reduced the likelihood of response bias occurring from social desirability, lenience, acquiescence, or consistency (Podsakoff *et al.*, 2003). A Taiwanese market research firm was used to recruit respondents from its membership database and through advertisements on [Yahoo.com](#), [Google.com](#), and [Facebook.com](#). This data collection method increased the diversity of the sample (Tseng, 2021). A total of 350 individuals were reached, and 300 responses were obtained, for a response rate of 85.71%. The same questionnaire structure was used. On the basis of the screening criteria, 36 questionnaires were excluded, leaving 264 valid responses. In total, 518 valid questionnaires were obtained.

A consensus on the adequate sample size for structural equation modelling has not been reached (Bagozzi and Yi, 2012). Studies have followed Hair *et al.* (2010) and used a minimum sample size of 500 for models with a large number of constructs, some of which consist of fewer than three items. The sample size is larger than 500 and thus adequate.

Tables 1 and 2 summarise the characteristics of the sample from the two sources. For the classroom sample, female respondents comprise the majority (55.5%). All of the respondents are students. The majority of respondents were in the 18–22 age group (84.3%). Of all the reusable products, most of the responses belonged to thermal bottles, refillable bottles, and reusable bags (75.8%). For the market research sample, consistent with the classroom sample, female respondents comprise the majority (53.4%), and most of the respondents use thermal bottles, refillable bottles, and reusable bags (70.2%). Compared to the classroom sample, the market research sample covers different age groups, and most of the respondents are nonstudents (98.1%) with various jobs.

#### 4.2 Measures

All the constructs were measured by adapting from previous scales to fit the research context of using reusable products for retail store consumption. The items for measuring economic benefits were adapted from Li (2018). Identity expressiveness was measured by adapting items developed by Thorbjørnsen *et al.* (2007). The items for measuring inconvenience were adapted from Laroche *et al.* (2002) and McCarty and Shrum (1994). Perceived value was measured by adapting the scale developed by Lin *et al.* (2012). Attitudes towards using reusable products for consumption were measured by adapting the scale by Ertz *et al.* (2017). A seven-point semantic differential response scale was used to measure attitude. Perceived behavioural control and subjective norms were measured according to Ertz *et al.* (2017) using

Variable	Category	Frequency	Proportion (%)
Age	18–22	214	84.3
	23–25	37	14.6
	26–30	3	1.1
Job	Student	254	100.0
Reusable Products (Multiple Selection)	Thermal bottles	216	28.7
	Refillable bottles	177	23.5
	Reusable bags	178	23.6
	Reusable food containers	88	11.7
	Coffee mugs	84	11.2
	Others	10	1.3
Gender	Female	141	55.5
	Male	113	44.5

**Table 1.** Characteristics of the classroom sample ( $n = 254$ )



Variable	Category	Frequency	Proportion (%)	
Age	18-22	23	8.7	
	23-25	30	11.4	
	26-30	33	12.5	
	31-35	50	18.9	
	36-40	46	17.4	
	41-45	28	10.6	
	46-50	31	11.7	
	51 and above	23	8.8	
	Job	Student	5	1.9
		Housekeeper	25	9.5
Manufacturing		41	15.5	
Traditional Industry		7	2.7	
Technology		18	6.8	
Transportation, telecommunication, electricity, gas, medical services		13	4.9	
Military men, policemen, government employees, teachers		27	10.2	
Finance, insurance, real estate		19	7.2	
Services (Restaurant, leisure)		44	16.7	
Freelancers		33	12.5	
Others		32	12.1	
Reusable Products (Multiple Selection)		Thermal bottles	220	24.2
		Refillable bottles	196	21.6
	Reusable bags	222	24.4	
	Reusable food containers	138	15.2	
	Coffee mugs	115	12.7	
Gender	Others	18	1.9	
	Female	141	53.4	
	Male	123	46.6	

**Table 2.**  
Characteristics of the  
market research  
sample ( $n = 264$ )

seven-point response scales. The items for measuring behavioural intention to use reusable products were adapted from [Ertz et al. \(2017\)](#). In addition to items measuring perceived behavioural control, subjective norms, and attitude, all of the item responses utilised seven-point Likert scales with anchors ranging from strongly disagree (1) to strongly agree (7).

A pretest was conducted to improve the questionnaire. Two experts in the field of sustainability participated, each with at least 3 years of experience teaching business ethics, corporate social responsibility, and sustainability management in universities. The experts completed the questionnaire independently and then identified ambiguous items. These items were revised on the basis of the experts' consensus. The experts then determined the content validity of the items. Based on the procedure in [Hardesty and Bearden \(2004\)](#), the experts were provided the definitions of the target research constructs and asked to determine whether the items adequately reflected their respective constructs. For all items, all the experts judged the items to be completely representative, which is greater than the threshold of at least 50% of experts. Hence, all items had content validity. [Table 3](#) presents the final measurement items.

#### 4.3 Analytical methods

Since structural equation modelling (SEM) is designed to investigate the construct relationships, this research utilises SEM to analyse the data. The data were analysed based on the two-step approach ([Anderson and Gerbing, 1988](#)). Confirmatory factor analysis

Item	Loading	T-value
<i>Economic benefits</i> ( $\alpha = 0.88$ , CR = 0.88)		
I have lower financial costs by using reusable products for consumption	0.84	22.52
I spend less by using reusable products for consumption	0.86	23.31
Overall, I save money by using reusable products for consumption	0.83	22.26
<i>Identity-expressiveness</i> ( $\alpha = 0.88$ , CR = 0.88)		
Using reusable products for consumption is part of how I express my personality	0.75	19.16
Using reusable products for consumption can express my personal values	0.76	19.59
I use reusable products for consumption to express who I want to be	0.85	22.94
I often talk to others about using reusable products for consumption	0.74	18.80
I often provide messages on reusable products to others	0.74	18.82
<i>Perceived inconvenience</i> ( $\alpha = 0.85$ , CR = 0.85)		
Using reusable products for consumption is troublesome for me	0.75	18.93
Using reusable products for consumption is too much trouble	0.86	22.48
Using reusable products for consumption is inconvenient	0.81	20.86
<i>Perceived value</i> ( $\alpha = 0.82$ , CR = 0.82)		
Taking all the pros and cons into consideration, using reusable products for consumption is beneficial to me	0.81	21.09
Using reusable products for consumption is worthwhile for me	0.81	21.28
Overall, using reusable products for consumption gives me good value	0.72	18.11
<i>Attitude</i> ( $\alpha = 0.92$ , CR = 0.92)		
For me, using reusable products (mug/tumbler, drinking/thermal bottles, and shopping bags) for consumption is . . .		
Wise (7) ~ Foolish (1)	0.79	21.08
Good (7) ~ Bad (1)	0.83	22.80
Beneficial (7) ~ Harmful (1)	0.84	23.17
Favorable (7) ~ Unfavorable (1)	0.83	22.53
Positive (7) ~ Negative (1)	0.85	23.62
<i>Subjective norms</i> ( $\alpha = 0.88$ , CR = 0.88)		
If I use reusable products for consumption, most people who are important to me would . . .		
Strongly approve (7) ~ Strongly disapprove (1)	0.77	20.25
Appreciate it completely (7) ~ Not appreciate it at all (1)	0.75	19.34
Find it very desirable (7) ~ Find it very undesirable (1)	0.86	23.56
Strongly support it (7) ~ Not support it at all (1)	0.85	23.37
<i>Perceived behavioural control</i> ( $\alpha = 0.85$ , CR = 0.86)		
How much control do you have over whether to use reusable products for consumption (Complete control (7) ~ Little control (1))	0.71	17.92
For me to use reusable products for consumption is . . . (Extremely easy (7) ~ Extremely difficult (1))	0.84	22.43
If I wanted to, I could easily use reusable products for consumption (Extremely likely (7) ~ Extremely unlikely (1))	0.89	24.74
<i>Reuse intention</i> ( $\alpha = 0.91$ , CR = 0.91)		
I will use reusable products for consumption in the future	0.92	26.16
I will consider using reusable product for consumption	0.90	25.40

**Note(s):** Factor loadings are standardised. All loadings are significant at  $p < 0.001$  with degree of freedom of 322. Respondents are asked to answer the above items in the context of retail stores

**Table 3.**  
Assessment of  
convergent validity

(CFA) is the first step to evaluate model fit, discriminant validity, convergent validity, and reliability. The model fit is assessed by using fit indices, including the chi-square statistic, NNFI, CFI, and RMSEA. The criteria of “NNFI  $\geq 0.9$ ” (Bentler and Bonett, 1980), “CFI  $\geq 0.9$ ”, and ‘RMSEA  $< 0.08$ ’ (Hair *et al.*, 2010) are suggested. The internal consistency reliability is assessed by using composite reliability (CR) and coefficient alpha. The threshold values of CR and the coefficient alpha are set as 0.70 (Nunnally, 1978; Hair *et al.*, 2010). Discriminant validity is supported if the 95% confidence interval for the construct correlations does not include 1.0 (Anderson and Gerbing, 1988). Alternatively, if both the average variance extracted (AVE) estimates of a given pair of constructs are greater than the square of the construct correlation, discriminant validity is obtained. All significant item loadings support convergent validity (Anderson and Gerbing, 1988) and if the threshold value of AVE estimates surpasses 0.50 (Fornell and Larcker, 1981). With an adequate measurement model, empirically testing the hypotheses with SEM is the second step. Anderson and Gerbing (1988) recommend that the adequate sample size for structural equation modelling is at least 150. The sample size of 518 in this study greatly exceeds the adequate sample size.

## 5. Results

### 5.1 Measurement invariance tests

The measurement invariance tests were conducted across classroom and market research samples. The results indicated that the configural invariance between the two sample groups is achieved since the model fit indices are acceptable ( $\chi^2 = 1281.68$ ,  $df = 644$ ,  $p < 0.001$ ,  $\chi^2/df = 1.99$ ; RMSEA = 0.044; NNFI = 0.92; CFI = 0.93). The metric invariance test was conducted and the results yielded an acceptable model fit ( $\chi^2 = 1307.93$ ,  $df = 664$ ,  $p < 0.001$ ,  $\chi^2/df = 1.97$ ; RMSEA = 0.043; NNFI = 0.92; CFI = 0.93). Furthermore, the Chi-square difference test indicated that the model fit of the unconstrained model is not significantly better than the metric invariance model ( $\Delta\chi^2(20) = 26.25$ ,  $p = 0.158$ ). Given above, subsequent analyses were conducted based on the combination of two sources of data.

### 5.2 Measurement model

The results of CFA are shown in Tables 3 and 4. The measurement model resulted in an acceptable fit since all values of the fit indices surpass the threshold value ( $\chi^2 = 801.28$ ,  $df = 322$ ,  $p < 0.001$ ,  $\chi^2/df = 2.49$ ; RMSEA = 0.054; NNFI = 0.98; CFI = 0.98). The internal consistency reliability is acceptable as CR and alpha coefficient values all surpass the 0.70 threshold value. The convergent validity is established since all the standardised loadings are significant ( $p < 0.001$ ) and the 0.50 threshold of AVE estimates for all constructs are surpassed. Moreover, the discriminant validity is established, from Table 4, none of the 95% confidence intervals for the construct correlations contains one and AVE values all surpass the squares of construct correlation values.

Construct reuse intention comprises two items. A construct should be represented by at least three items. However, if items are strongly correlated with each other, a factor of two items can be used (Eisinga *et al.*, 2013; Wijnen *et al.*, 2021). The factor loadings of the two items with respect to reuse intention are 0.92 and 0.90, respectively, indicating a high correlation. Constructs with fewer than three items can be used if the sample is larger than 500 (Hair *et al.*, 2010). Only one construct has fewer than three items (i.e. reuse intention), and the sample size (i.e. 518) surpasses the threshold of 500, justifying the use of two items.

### 5.3 Common method bias analysis

Since self-administered questionnaires are used, common method variance (CMV) needs to be assessed. Following Mossholder *et al.* (1998), a CFA approach was utilised to examine the

Construct	1	2	3	4	5	6	7	8
1. Economic benefits	<i>0.71</i>							
2. Identity expressiveness	0.36 (0.04)	<i>0.59</i>						
3. Perceived inconvenience	-0.37 (0.04)	-0.16 (0.05)						
4. Perceived value	0.64 (0.03)	0.49 (0.04)	<i>0.65</i>					
5. Attitude	0.43 (0.04)	0.40 (0.04)	-0.37 (0.04)	<i>0.61</i>				
6. Perceived behavioural control	0.44 (0.04)	0.44 (0.04)	-0.50 (0.04)	0.58 (0.04)	<i>0.69</i>			
7. Subjective norms	0.42 (0.04)	0.47 (0.04)	-0.32 (0.05)	0.57 (0.04)	0.64 (0.03)	<i>0.68</i>		
8. Reuse intention	0.41 (0.04)	0.36 (0.04)	-0.41 (0.04)	0.73 (0.03)	0.73 (0.03)	0.66 (0.03)	<i>0.66</i>	
Mean	5.30	4.38	3.31	5.56	5.90	5.34	5.47	0.83
SD	1.06	1.13	1.27	0.87	0.92	1.01	0.93	0.95

**Note(s):** The values on the diagonal (in italics) are average variance extracted (AVE) estimates. The values in the parentheses are standard errors

**Table 4.**  
Assessment of discriminant validity

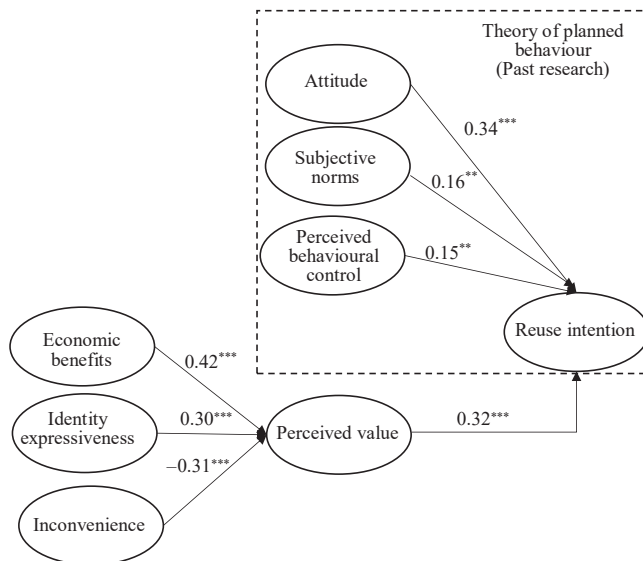
degree of CMV. More specifically, Harman’s single factor test was conducted where one common factor reflects on all items (Mossholder *et al.*, 1998). The poor model fit of the CFA model indicates the problem of CMV is negligible ( $\chi^2 = 4367.42$ ,  $df = 350$ ,  $p < 0.001$ ,  $\chi^2/df = 12.48$ ; RMSEA = 0.17; NNFI = 0.85; CFI = 0.86).

5.4 Structural model

The structural model can be evaluated following acceptable quality of the measurement model. The results are reported in Figure 2. In terms of the fit of the structural model, it is above the threshold values of the reported fit indices ( $\chi^2 = 911.84$ ,  $df = 328$ ,  $p < 0.001$ ,  $\chi^2/df = 2.78$ ; RMSEA = 0.06; NNFI = 0.98; CFI = 0.98). In terms of the research model, significant path coefficients are obtained. Economic benefits ( $\gamma = 0.42$ ;  $t = 8.75$ ,  $p < 0.001$ ) and identity expressiveness ( $\gamma = 0.30$ ;  $t = 6.98$ ,  $p < 0.001$ ) positively influence perceived value, which supports H1 and H2, respectively. Perceived inconvenience negatively influences perceived value ( $\gamma = -0.31$ ;  $t = 7.11$ ,  $p < 0.001$ ), supporting H3. Perceived value positively influences reuse intention ( $\gamma = 0.32$ ;  $t = 7.32$ ,  $p < 0.001$ ), supporting H4. Furthermore, attitude ( $\gamma = 0.34$ ;  $t = 6.76$ ,  $p < 0.001$ ), subjective norms ( $\gamma = 0.16$ ;  $t = 3.11$ ,  $p < 0.01$ ), and perceived behavioural control ( $\gamma = 0.15$ ;  $t = 2.86$ ,  $p < 0.01$ ) positively influences reuse intention, confirming H5, H6, and H7, respectively. Hence, the data support all the hypotheses. Overall, the results indicated that other than TPB, value-based adoption model can increase explanatory power to reuse intention since perceived value can facilitate reuse intention when perceived behavioural control, subjective norms, and attitude are controlled for.

5.5 Mediation analysis

Additional analysis was conducted to examine whether perceived value mediates the relationships between its antecedents and reuse intention. The direct effects from economic benefits ( $\gamma = -0.14$ ;  $t = -2.09$ ,  $p < 0.05$ ) and identity expressiveness ( $\gamma = -0.12$ ;  $t = -2.59$ ,



Note(s): \*\* $p < 0.01$ ; \*\*\* $p < 0.001$

Figure 2. Hypothesis testing results

$p < 0.01$ ) to reuse intention are significant while the direct effect from inconvenience to reuse intention is not significant ( $\gamma = 0.03$ ;  $t = 0.54$ ,  $p > 0.10$ ). The indirect effects from economic benefits to reuse intention (Indirect effect = 0.20;  $t = 5.58$ ,  $p < 0.001$ ), from identity expressiveness to reuse intention (Indirect effect = 0.15;  $t = 5.05$ ,  $p < 0.001$ ), and from perceived inconvenience to reuse intention (Indirect =  $-0.15$ ;  $t = -5.06$ ,  $p < 0.001$ ) are all significant. Based on the above, perceived value partially mediates the effects from economic benefits to reuse intention and from identity expressiveness to reuse intention. Perceived value fully mediates the relationships from inconvenience to reuse intention.

## 6. Discussion

In response to the United Nations SDGs, many retail stores have recognised the importance of sustainability practices. However, only a small portion of them have integrated SDGs into their strategies to facilitate sustainable consumer behaviour. How to shift retail consumer behaviour to be more sustainable is a research question of increasing importance (Tsarenko *et al.*, 2013; White *et al.*, 2019). A majority of previous research has focused on recycling and reduction, yet few studies have examined reuse. The role of reuse is emphasised, as it is the most crucial strategy to achieve long-term sustainability (Ertz *et al.*, 2017). However, few studies have examined the drivers of reuse intention in retail stores utilising the TPB (Ertz *et al.*, 2017). Since reuse is concerned with trade-offs between benefits and costs, a value adoption approach can be used. This research extends past studies by developing a research framework based on a value-based adoption model and TPB. The results indicate that perceived value can generate reuse intention in retail stores when controlling for perceived behavioural control, subjective norms, and attitude. Thus, this confirms the validity of the value adoption approach to sustainable consumer behaviour in retail stores. The contribution of this research lies in integrating the TPB and the value-based adoption model to study consumers' reuse intention in retail stores. The following sections discuss the implications for theory and practice according to the findings of this research.

### 6.1 Theoretical implications

Past research in the retailing context has emphasised retailers' own investment in sustainability practices such as in-store technology and e-commerce platforms in which consumers play a passive role (e.g. Buldeo Rai *et al.*, 2019; Fuentes and Fredriksson, 2016; Jäger and Weber, 2020; Wiese *et al.*, 2015). However, this research study contributes by emphasising that retailers can also use strategies to promote sustainable consumer behaviour. In line with the prediction of the TPB (Ajzen, 1991) and past studies on sustainable consumption (e.g. Ertz *et al.*, 2017; Maichum *et al.*, 2016; Yang *et al.*, 2018), the findings of this study show that perceived behavioural control, subjective norms, and attitude generate the behavioural intention to engage in sustainable consumption such as reuse. To the best of the authors' knowledge, only one study (i.e. Ertz *et al.*, 2017) used the TPB to explain reuse behavioural intention. However, the ability to predict reuse intention differed by construct; perceived behavioural control had a greater ability than did attitudes and subjective norms in Ertz *et al.* (2017), whereas attitudes had the greatest ability in this study. This difference in findings can be attributed to the fact that this study applies both the TPB and value-based adoption model to explain reuse intention, whereas Ertz *et al.* (2017) used the TPB. By extending the TPB with the value-based adoption model, this study reveals the pure effects of the TPB antecedents on reuse intention and develops a comprehensive model to explain consumer reuse behavioural intention.

The findings of this study elucidate the inconclusive findings of other studies regarding the effects of subjective norms and perceived behavioural control on behavioural intention.

Studies demonstrating nonsignificant effects have focused on purchase intention for green products, organic products, second-hand products, and remanufactured products (e.g. [Borusiak et al., 2020](#); [Chen and Hung, 2016](#); [Hosta and Zabkar, 2020](#); [Nuttavuthisit et al., 2017](#); [Paul et al., 2016](#); [Wang et al., 2018](#); [Yarimoglu and Gunay, 2019](#); [Zhang et al., 2019](#)), whereas studies reporting significant effects have focused on reuse intention (e.g. [Ertz et al., 2017](#) and this study). Reuse behavioural intention differs from purchase intention because it requires more long-term commitment. Studies have indicated that perceived behavioural control and subjective norms have strong effects in the long run. Perceived behavioural control has stronger effects on behavioural intention for experienced information technology users than for inexperienced information technology users ([Taylor and Todd, 1995](#)). In a longitudinal study, perceived interpersonal influence and perceived behavioural control positively affected continuance intention for online shopping ([Hsu et al., 2006](#)). Thus, subjective norms and perceived behavioural control can more effectively predict long-term behavioural intention than short-term behavioural intention; this warrants further investigation.

This study also extends the TPB and the findings of their studies by using a value-based adoption model to explain sustainable consumer behaviour in retail stores. Although this model has been applied to marketing and IS (e.g. [Hsiao and Chen, 2017](#); [Jayashankar et al., 2018](#); [Kim et al., 2007](#); [Ko et al., 2009](#); [Lin et al., 2020](#); [Liu et al., 2015](#); [Parvin et al., 2017](#); [Wang et al., 2018](#)), it has not been used previously to explain sustainable consumer behaviour in retail stores. Although studies have emphasised the role of perceived value in encouraging sustainable consumption behaviour ([De Toni et al., 2018](#); [Gadeikiene and Svarcaite, 2021](#); [Hou and Sarigöllü, 2022](#)), value facilitators (perceived benefits) and inhibitors (perceived sacrifices) have received little attention. Few studies have examined broad antecedents, such as environmental awareness ([De Toni et al., 2018](#)) and environmental consciousness ([Gadeikiene and Svarcaite, 2021](#)), or methodological antecedents, such as numerical scales ([Hou and Sarigöllü, 2022](#)). Thus, retailers may be unable to formulate strategies to shift consumer behaviour towards sustainability. This study identifies actionable value facilitators and inhibitors that can be used by practitioners to formulate strategies for encouraging reuse behaviour. As the findings of this research indicated, perceived value is a crucial facilitator of reuse intention, which corroborates the validity of the value-based adoption model to predict sustainable consumer behaviour in retail stores. Furthermore, according to the SHIFT framework ([White et al., 2019](#)), this research identifies economic benefits and identity expressiveness as facilitators of perceived value, and perceived inconvenience is identified as a barrier. The findings of this research indicate that value adoption is a useful approach to sustainable consumer behaviour in retail stores. The research model of this study serves as an initial model to be extended by subsequent studies to reveal different combinations of value facilitators and barriers for different types of sustainable consumer behaviour in the retailing context.

This study uses the value-based adoption model to explain reuse behaviour in retailing. Although studies have emphasised the role of perceived value in driving sustainable consumption, they have either focused on the perceived value construct ([Chaturvedi et al., 2020](#); [Confente et al., 2020](#); [De Toni et al., 2018](#); [Hou and Sarigöllü, 2022](#); [Marzouk and Mahrous, 2020](#)) or the value composition model ([Fiandari et al., 2019](#)). The value-based adoption model, including constructs of perceived value, perceived benefits, and perceived sacrifices, has received little attention. Because reuse behaviour involves both positive and negative effects ([Ertz et al., 2017](#); [White et al., 2019](#)), a value-based adoption model incorporating the trade-offs of reuse is required to explain reuse behaviour. This study improves the value-based adoption model by identifying economic benefits and identity expressiveness as representative perceived benefits and perceived inconvenience as a representative perceived cost in the context of reuse behaviour. The results indicate that perceived value is a crucial driver of reuse behaviour and are consistent with those studies

emphasising the role of perceived value in sustainable consumption behaviours such as recycling clothing (Chaturvedi *et al.*, 2020), using green products (Hou and Sarigöllü, 2022), consuming organic food (De Toni *et al.*, 2018), and purchasing bioplastic products (Confente *et al.*, 2020). However, the results of this study contrast with those studies on repetitive fish eating (Fiandari *et al.*, 2019) and the conservation of water and energy (Marzouk and Mahrous, 2020), which have indicated that perceived value does not affect sustainable consumption behaviours. The inconsistency in these findings can be explained by the ease with which consumers calculate value. Compared to noncommercial contexts, in the context of retail consumption of green products and organic food, consumers can easily determine the pros and cons of a transaction; thus, perceived value plays a key role in this context.

The findings of the mediation analysis indicate that value antecedents (economic benefits, identity expressiveness, and inconvenience) influence reuse intention via perceived value. This suggests that consumers are more rational when they decide whether to perform sustainable consumer behaviour such as reuse in retail stores. The TPB assumes that consumers are rational since they weigh all types of beliefs (control, normative, and behavioural beliefs) to form perceived behavioural control, subjective norms, and attitudes (Ajzen, 1991), which in turn generate reuse intention. The value-based adoption model further postulates that consumers focus on the trade-offs between perceived benefits and costs and develop overall utility (perceived value) (e.g. Kim *et al.*, 2007), which drives reuse intention. The high rationality assumption can be explained by the heuristic-systematic model (HSM) of information processing (Chaiken, 1980). Consumer involvement in performing sustainable consumer behaviour, such as reuse in retail stores, is high since sustainable consumer behaviour requires consumers to actively make efforts and long-term commitments. Based on the HSM, highly involved consumers tend to adopt systematic processing and, in the current research context, focus on using a calculating mind to evaluate the give-and-take of performing reuse behaviour.

According to the SHIFT framework of sustainable consumer behaviour, this research pinpoints the factors that foster and discourage reuse intention in retail stores. Our findings confirmed that habit formation and social influence dimensions as making it easy (inconvenience), incentives (economic benefits), and social norms (social identity expressiveness) (White *et al.*, 2019). This study demonstrates self-identity expressiveness as a new component of the individual self-dimension in the SHIFT framework. The individual self-dimension only consists of self-identity and self-consistency, and the role of self-expression is ignored. The findings of this study reveal that self-identity expressiveness subsuming identity expressiveness is a key driver of reuse intention in retail. Thus, in addition to passive components, active components of the self-dimensions, such as self-expression, should be included as constituents of the individual self-dimension. This echoes the active role of consumers in influencing others to adopt sustainable consumer behaviours.

This study also contributes to the SHIFT framework by identifying perceived value as a crucial mediator between the SHIFT dimensions and sustainable consumption behaviour. Inconvenience, reflecting the habit formation dimension of SHIFT, has no direct effect on reuse intention unless mediated through perceived value. Monetary savings and identity expressiveness, reflecting the habit formation and social identity dimensions of SHIFT, respectively, positively and indirectly affect reuse intention through perceived value but negatively and directly affect reuse intention. These results can be attributed to exchange relationship norms (Aggarwal, 2004; Clark and Mills, 1979). The retail practices of increasing perceived benefits and decreasing perceived sacrifices to facilitate reuse behaviour may trigger the norms of the exchange relationship because of the commercial nature of this phenomenon. Consumers tend to have a calculating mind and focus on whether dimensions reflecting SHIFT are sufficiently valuable to perform reuse behaviour. SHIFT dimensions alone can have detrimental effects on reuse behaviour because of norm misfit



(Aggarwal, 2004). The utilitarian nature of some SHIFT dimensions (monetary savings and identity expressiveness) may trigger exchange relationship norms, contradicting the communal relationship norms of sustainable consumption behaviours such as reuse. Therefore, the SHIFT framework should be integrated into the value-based adoption model to frame consumer value as a mediator between the SHIFT dimensions and sustainable consumption behaviour.

### *6.2 Managerial implications*

This research contributes to practice by proposing a value adoption approach to sustainable consumer behaviour in retail stores. Based on the reusable products examined in this study, the term “retail stores” applies to restaurants, cafés, tea shops, convenience stores, supermarkets, hypermarkets, and other stores. Some strategies can be used by retail stores to educate consumers and make them feel that it is valuable to conduct sustainable consumption behaviour.

The first strategy is to provide an incentive. This strategy is frequently adopted by practitioners to facilitate sustainable consumption, such as providing discounts if consumers bring their own containers when they buy foods and beverages. Consistent with practical knowledge, economic benefits (incentives) can be used to shift retail consumer behaviours to be more sustainable. Practitioners can use marketing communications to educate consumers that using reusable products saves money. Additionally, an online calculator can be established to inform consumers how much they will save if they keep reusing products for a given period of time. A reward card can be created to help consumers form the habit of using reusable products in retail stores. If consumers keep using reusable products, they will collect more stars, and if certain numbers of stars are collected, they will obtain certain economic benefits.

Other than the first strategy, this research proposes additional novel strategies that leverage the power of social media influencers and mobile technologies to promote sustainable consumption, making the process effortless and one related to self-expression. “Making the process effortless” involves informing consumers that using reusable products does not require as much effort as they think. Troublesomeness is a key enemy to promoting sustainable consumer behaviour, and practitioners must persuade consumers that using reusable products is convenient. Social media activities in which other consumers are invited to share their successful experiences on how they change their habits towards using reusable products can also be conducted. Consumers whose posts obtain the most engagement can be given the title of ambassador of sustainability and featured on company websites and social media. Since consumers trust other consumers more than firms on social media (Jaffe, 2010; Tsekouropoulos, 2019), the success stories of other consumers are likely to function as a very useful source of information to persuade consumers that leading a sustainable lifestyle is not so inconvenient and difficult and to promote more sustainable consumption.

In addition to reducing consumers’ perceived effort in using reusable products, a creative strategy can be used to increase consumer pride in their effort to lead a sustainable life. Practitioners can highlight the ease of leading a sustainable life by using reusable products in retail stores and by increasing customers’ pride with slogans such as “Nothing can stop a sustainability ambassador” and the hashtag “#NothingStopsSustainability.” Brands can recruit local influencers interested in sustainability by using social media tools such as Buzzsumo and Hype Auditor, as recent research has indicated the effectiveness of social media influencers in facilitating sustainable consumption (Chaturvedi *et al.*, 2022). Influencers can work as sustainability ambassadors by posting on social media outlets such as Instagram about negative experiences with reusable products and the inconvenience of sustainability, to which other influencers respond by sharing positive experiences.

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This interaction will demonstrate that influencers are willing to sacrifice convenience for the sake of achieving sustainable living. This effect can be strengthened by engaging YouTube videos on companies' social media sites that stimulate online discussion, teach consumers to handle inconveniences, and encourage consumers to use reusable products in retail stores.

Self-expression is another useful strategy to facilitate sustainable consumer behaviour, and this can be carried out in two ways: to appeal to self-identity expressiveness and to social self-expressiveness. First, to appeal to self-identity expressiveness, practitioners can use marketing communications to embed sustainable consumption into the lifestyles of consumers. Alternatively, practitioners can develop an online platform on which consumers can express themselves through user-generated content showing that using reusable products is part of their lifestyles. For instance, JouleBug is a mobile app through which consumers can freely upload pictures with some descriptions to show off their lifestyles when performing sustainability activities in their daily lives. Practitioners can incorporate this function in their retail apps to allow consumers to self-express their personal impacts on different aspects of sustainability. Second, to appeal to social identity expressiveness, practitioners can tell consumers that using reusable products can connect them to other consumers doing the same thing. A physical or virtual community in which consumers can meet and share their experiences of using reusable products can be established. On JouleBug, consumers know there are like-minded people pursuing sustainability. Consumers can befriend others and join different types of physical or virtual challenges that support sustainability.

### **7. Limitations and future studies**

This research has the following limitations. First, although this research identifies the antecedents of perceived value based on the SHIFT framework of sustainable consumer behaviour, only a portion of the framework is examined. Future studies can investigate other dimensions of the independent self, feelings, cognitions, and tangibility. Second, this research adopted a cross-sectional design, and the results obtained are, thus, tentative. Since sustainable consumer behaviour is long-term, future studies can use a longitudinal design to further investigate the research model. Third, this research focuses on reuse behavioural intention in retail stores, and future researchers can measure actual reuse behaviour. Fourth, the reusable product examined in this research is an undisposable multiuse container. Future studies can examine disposable multiuse containers such as plastic bags to investigate the external validity of our model. Fifth, this research fails to examine the role of personal norms in driving reuse intention. Future studies can integrate and compare the relative effectiveness of the TPB, the value-based adoption model, and the norm activation model to increase the theoretical comprehensiveness of the current study. Sixth, this study expands the TPB by adding key constructs from the value-based adoption model that explain reuse behaviour. A compelling avenue for subsequent studies would be to examine the link between the TPB constructs and the constructs of the value-based adoption model. For example, one study could examine whether perceived inconvenience negatively affects perceived behavioural control, and vice versa, with adequate theoretical support. Seventh, this study does not investigate moderators. Subsequent studies should examine whether consumer involvement moderates the proposed relationships. Highly involved consumers tend to exhibit systematic thinking (Chaiken, 1980) and evaluate whether they can achieve sustainable consumption behaviours and whether a given behaviour is valuable. Uninvolved consumers tend to make decisions on the basis of heuristics (i.e. positive attitudes towards behaviour and social consensus) (Chaiken, 1980). Thus, the effects of perceived behavioural control and perceived value on reuse intention are likely stronger for highly involved consumers, and the effects of attitudes and subjective norms on reuse intention are stronger for uninvolved consumers.

Subsequent studies can examine these relationships. Last, as sustainability practices in omnichannel retailing have been rising (e.g. Buldeo Rai *et al.*, 2019; Hübner *et al.*, 2016), future studies can also extend the value adoption approach of sustainable consumption to the omnichannel retailing context.

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