

Buy or Bye? Youth Recycling Fashion from Theory of Planned Behavior Perspective

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Abstract. Recycling is a potential solution to address the issue of fabric waste driven by fast fashion. This study aims to examine the influence of behavioral, normative, and control beliefs on attitude, subjective norm, and perceived behavioral control to predict fashion recycling intention based on Theory of Planned Behavior (TPB). Data were collected from 316 Generation Y and Z participants using a convenience sampling approach. The questionnaire was developed through an elicitation study based on TPB constructs. Structural Equation Modeling was conducted and produced an acceptable model fit: $\chi^2 (369) = 693.28$, $p < .001$; RMSEA = .060. This study found that behavioral, normative, and control beliefs significantly predicted their respective TPB variables. Crucially, subjective norm and perceived behavioral control directly predicted intention, with notable indirect effects from normative and control beliefs. This showed that interventions should focus on strengthening social influence and facilitating recycling behavior through increased perceived control.

Keywords: fashion recycling, intention, fast fashion, theory of planned behavior

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Introduction

Fast fashion is the production of clothing to have a shorter cycle in line with trends and ensure cheaper prices (Joung, 2014). The development of fast fashion in Indonesia has a negative impact on the environment. This is because the desire to dress according to trends causes individuals to exhibit consumptive behavior by wearing products incompletely or buying new clothing and discarding old ones (Abrishami et al., 2024; Hakim & Rusadi, 2022). A survey conducted by the Populix (2020) reported that the consumptive behavior toward clothing products was inspired by the activities of millennials (born 1981 - 1996) and Generation Z (born 1997 - 2012).

Data from National Waste Management Information System (SIPSN) of the Ministry of Environment and Forestry (KLHK) showed that the national waste generation in 2024 was 33.8 million tons and 2.53% (approximately 850 thousand tons) originated from clothing (Kementerian Lingkungan Hidup and Kehutanan, 2025). The accumulation of this waste caused water and soil pollution due to the dyes used in clothing (Defitri, 2022). Some of the products were buried and others were burned, leading to energy consumption and air pollution (Abrishami et al., 2024).

Environmental pollution increases the susceptibility of individuals living in an area to depression and anxiety (Hu et al., 2025) and reduces happiness in society (Tian et al., 2022).

The series of environmental impacts associated with fast fashion shows the need to promote cooperative behavior by implementing actions that are capable of benefitting several individuals for a longer period (Fujii, 2017). This can be achieved through two strategies and the first is the structural aspect which focuses on formulation of policies. The second is psychological aspect which is related to the factors in individuals such as knowledge, beliefs, and moral levels. The structural strategy was implemented through the formulation of Indonesian Ministry of Trade formulated Regulation Number 25 of 2022 regarding the prohibition of suppliers from importing used clothing from abroad (Islamiati, 2023). The psychological strategy focused on reducing consumptive behavior by emphasizing the formation of recycling habits. This concept of recycling is most often used as an indicator to measure environmental behavior due to the relatively simple and economical attributes (Huffman et al., 2014). The indicator is also

capable of saving energy such as water or other fuels (Abrishami et al., 2024).

Park and Ha (2014) defined recycling as the act of sorting the collection owned and not discarding used goods immediately. Joung (2014) also focused on clothing waste and reported that recycling could be reflected in the attitude of individuals toward other types of waste. An example is the act of reusing (reuse) old clothing, selling (resell), giving to family and friends, bartering, and donating to charities. Joung provides a complete description of recycling behavior which serves as a reference in this study.

Several theories can be used to explain the factors driving intention to exhibit recycling behavior. An example is value-belief-norm which emphasizes the existence of values, beliefs, and norms regarding pro-environment but does not consider the individual perspective on the behavior (Sun et al., 2024). The shortcomings of the theory can be explained by Theory of Planned Behavior (TPB) which considers more individual perspectives, norms formed from the environment, and self-control to exhibit a behavior. TPB also has the ability to add several other variables to extend the model as comprehensively explained in the following subsection (Ajzen, 2020).

Theory of Planned Behavior (TPB)

TPB proposes that human behavior is determined through intention which is influenced by three main factors, including attitude toward the behavior, subjective norm, and perceived behavioral control (Ajzen, 1991). Attitude toward behavior refers to the positive or negative evaluation of an individual about the expected behavior. This is because individuals tend to exhibit certain behaviors based on the perception that the consequences are beneficial or positive (Fishbein & Ajzen, 2011). Meanwhile, subjective norm refers to the social pressure or expectations that individuals receive from the environment regarding the expected behavior (Ajzen & Fishbein, 2002). The pressure is necessary in determining the performance of the behavior by adjusting to the norms considered important (White et al., 2009). Finally, perceived behavioral control refers to the perception of the ability by individuals to exhibit the expected behavior. This is often accomplished through consideration of factors such as resources, abilities, and processing of existing external constraints in the form of time and possible obstacles (Ajzen & Fishbein, 2002; Armitage & Conner, 2001). The interaction of the three factors often leads to the formation of intention based on TPB. Moreover, a stronger intention leads to a higher probability of an individual engaging in a behavior (Madden et al., 1992). It was observed that TPB had a basis for designing interventions to change behavior in the fields of nutrition, hygiene, public health, HIV (Human

Immunodeficiency Virus) prevention, and pro-environmental behavior (Steinmetz et al., 2016).

Several studies have been conducted on recycling using TPB constructs. For example, Botetzagias et al. (2015) examined recycling behavior for objects produced through plastic and household waste. The study reported that perceived behavioral control had a stronger influence on intention to recycle. Saricam and Okur (2019) also showed that attitude toward behavior was the most influential factor in selecting sustainable clothing. Moreover, Aboelmaged (2021) reported that only attitude toward behavior influenced intention to recycle e-waste. A study conducted on recycling behavioral intention for pharmaceutical household waste also showed that only subjective norm and attitude toward behavior had a significant influence (Liao et al., 2023).

Recycling behavior has been studied in Indonesia and defined as all factors including attitude, subjective norm, and perceived behavioral control influencing intention to manage waste, and the effect of subjective norm was reported to be the highest (Soesanto et al., 2021). Similar results were also reported in a study on electronic waste (e-waste) recycling behavior where perceived behavioral control was the factor that most influenced intention (Suryanto et al., 2023). Meanwhile, a study on intention to recycle plastic conducted in Solo showed that attitude had a greater influence on intention (Arifani & Haryanto, 2018).

The application of TPB to the specific context of mitigating the impacts of fast fashion focused more on sustainable clothing purchase intention (Ma et al., 2024; Mason et al., 2022; Vlastelica et al., 2023) than clothing recycling behavior. However, Rotimi et al. (2023) reported that attitude and perceived behavioral control were related to clothing recycling intention.

The studies reviewed proved that TPB could explain recycling behavior, but only a few focused on the context of clothing recycling due to fast fashion. TPB constructs also have another advantage which is the possibility of adding several supporting variables to produce an extended model of the theory. This was observed from the addition of the latest variables in previous studies (Vilkaite-Vaitone & Jeseviciute-Ufartiene, 2021; Vlastelica et al., 2023). However, variables related to the ability of beliefs to trigger intention as well as the direct measurement of attitude, subjective norm, and perceived behavioral control are rarely added to TPB (Ajzen & Fishbein, 2002). Steinmetz et al. (2016) reported that beliefs could influence success in increasing behavioral intention. This was because the presence or absence of beliefs affects the understanding of the behavior to be exhibited and realized. Furthermore, each intention-forming factor has three different beliefs which include behavioral for attitude toward behavior, normative for

subjective norm, and control for perceived behavioral control (Ajzen & Fishbein, 2002).

Warner (2023) used beliefs to measure intention of individuals to cycle when slightly drunk. The results showed two differences which included the effectiveness of the direct measurement to predict intention to cycle when slightly drunk. Meanwhile, the measurement of beliefs provided a more fundamental explanation to understand the reasons individuals preferred to cycle when slightly drunk.

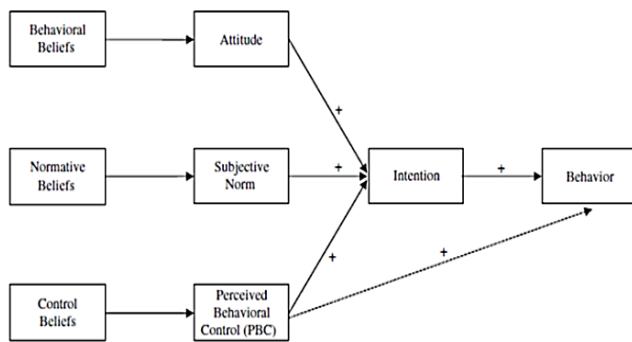


Figure 1. Theory of Planned Behavior, Source: Steinmetz et al., (2016)

Accord to Figure 1, this study aims to focus on the dynamics of beliefs held by individuals regarding clothing recycling behavior and direct measurement factors from TPB. Therefore, hypotheses are proposed based on the theoretical discussion of Ajzen and Fishbein (2002) as follows:

- H1: Behavioral belief toward clothing recycling behavior can increase attitude toward behavior.
- H2: Normative belief toward clothing recycling behavior can increase subjective norm.
- H3: Control belief toward clothing recycling behavior can increase perceived behavioral control.
- H4: Attitude toward behavior in clothing recycling can increase clothing recycling intention.
- H5: Subjective norm can increase clothing recycling intention.
- H6: Perceived behavioral control can increase clothing recycling intention.
- H7: Attitude toward behavior in clothing recycling can mediate the effect of behavioral belief on clothing recycling intention.
- H8: Subjective norm in clothing recycling can mediate the effect of normative belief on clothing recycling intention.
- H9: Perceived behavioral control in clothing recycling can mediate the effect of control belief on clothing recycling intention.

The results are expected to assist in understanding the psychological factors of clothing recycling intention based on TPB. The theory was applied to

explore attitude, personal motivations, and environmental factors influencing intention. Moreover, the determination of intention to recycle was the initial step in changing the behavior of individuals to overcome social problems, such as the accumulation of garbage or waste. The expectation was that the gradual evaluation at the individual level could lead to the systematic achievement of Indicator 12.5 in Sustainable Development Goals (SDGs) agenda on reducing waste production through prevention, reduction, recycling, and reuse (United Nations, 2024).

Methods

The non-experimental quantitative method with a cross-sectional design conducted through an online survey was used in this study. Ethical standards of the discipline of psychology, the University of Indonesia Research Code of Ethics, and Indonesian Psychology Association Code of Ethics with Number: 216/FPsi.Ethics Committee/PDP.04.00/2024 were fulfilled in the process. Moreover, the discussion was divided into two stages, including (1) instrument development which was the study elicitation stage and (2) the main study conducted to test the proposed hypotheses.

Results

Preliminary Study: Development of Measurement Instruments

The preparation of the measurement instrument in line with the guidelines proposed by Ajzen (2019) was preceded by an elicitation stage to determine the salient beliefs. The stage was subsequently followed by the preparation of items based on the results of the elicitation process.

Elicitation Stage

Participants

The initial study was conducted by providing open-ended questions to determine salient beliefs. Participants were 30 individuals with experience or interest in waste management issues, specifically in recycling any type of waste and not limited to clothing. Some did not have direct experience in recycling clothing but were also included based on the belief that the individuals had a similar pro-environmental value and attitude (Ajzen, 2019; Ajzen & Fishbein, 2002). This initial development stage aimed to explore broader beliefs related to relevant motivational factors and barriers in the context of clothing recycling.

Elicitation Instrument

The material used was an open-ended question to identify significant beliefs related to the target behavior which was recycling unused clothing. The operational definition of clothing recycling was based on the

reference provided by [Joung \(2014\)](#) which covered a broad group of behaviors and was in accordance with the behavior in Indonesia. Clothing recycling behavior was associated with one of the following activities:

1. Exchange or barter
2. Repeat usage after repair
3. Reuse as a blanket, rag, mat, or other function
4. Donation to be used as clothing by others
5. Resell or preloved
6. Gift to family or friends
7. Gift to institutions or agencies that can process unused clothing such as Waste Bank

The beliefs about the target behavior were further explored through several open-ended questions such as "What is your perspective on clothing recycling?" and "In your opinion, how do other individuals perceive you when you recycle clothing?" According to the guidelines proposed by [Ajzen and Fishbein \(2002\)](#), content analysis was conducted on the answers and the most frequent for each category were used to develop a belief-based measure of the constructs in TPB. The details are presented in Appendix A.

Preparation Stage for the Main Instrument Item

The instrument prepared for data collection was based on a scale used in a previous elicitation study by [Ajzen and Fishbein \(2002\)](#). TPB instrument consisted of three constructs which were the attitude toward behavior, subjective norm, and perceived behavioral control. Moreover, instruments related to behavioral, normative, and control beliefs were added. Academics in the fields of social psychology and psychometrics conducted expert judgment on the items to assess the suitability of the content to TPB domain and the context of clothing recycling. The items completed through the assessment were subsequently tested for readability on participants representing millennials and Generation Z according to certain criteria. This effort was made to assess the extent to which each item in the questionnaire could be understood by the target participants clearly and consistently ([Azwar, 2012](#)). Examples of the items for each construct are presented in Appendix B.

Table 1
Instrument Model Test Results

Instrument	CFI	TLI	RMSEA	SRMR
TPB	.965	.956	.056	.045
<i>Behavioral Belief</i>	.990	.979	.080	.025
<i>Normative Belief</i>	.997	.992	.057	.015
<i>Control Belief</i>	.982	.970	.066	.032

Description *Comparative Fit Index (CFI), Tucker-Lewis Index (TLI), Root Mean Square Error of Approximation (RMSEA), and Standardized Root Mean Square Residual (SRMR)

A total of 35 items were initially developed for all main instruments based on the observation from [Warner \(2023\)](#). The rating scale ranged from 1 for strongly disagree to 7 for strongly agree. Furthermore, an analysis was conducted through factor loading using confirmatory factor analysis (CFA). The instruments compiled were later tested on 300 participants according to individual criteria, including millennials born in 1980 - 1996 and Generation Z in 1997 - 2010 ([McCrindle & Wolfinger, 2009](#)).

Results

The results showed that only 28 of the 35 items fulfilled the criteria for valid factor loading according to [Hair et al. \(2019\)](#) by being $>.5$. These included 13 items on the planned behavior theory instrument which consisted of four for attitude, four for subjective norm, and five for perceived behavioral control. The others were six for behavioral, four for normative, and six for control belief. The complete results for the factor loading of each item are shown in Appendix C.

The normality assumption test was performed before CFA model fit analysis. The results showed that there was an indication of a deviation from the normal distribution in the residual data (skewness) and did not fulfill the indicator of the value range of -1 to 1 required by [Hair et al. \(2019\)](#). Therefore, this study adopted Maximum Likelihood Robust (MLR) estimator to conduct CFA test using R application version 4.2.2.

CFA model test conducted on four constructs using 300 participants in [Table 1](#) showed that the models for TPB as well as the behavioral, normative, and control beliefs fulfilled the criteria for a very good fit with $CFI > .9$ ([Baumgartner & Homburg, 1996](#); [Hulland et al., 1996](#); [Tanaka, 1993](#)), good $RMSEA \leq .08$ ([Hair et al., 2019](#)), and $SRMR \leq .08$. However, there was acceptable tolerance for SRMR with a value of $> .08$ ([Hu & Bentler, 1999](#)). The next stage was to conduct a reliability test on each factor in the instrument. The omega coefficient was used as an estimate of reliability because it was more appropriate for the congeneric measurement model. The measurement items had different factor loadings and the omega provided a more accurate estimate of reliability in this context ([Cho & Kim, 2015](#); [Yang & Green, 2011](#)). The reliability test results are presented in the following [Table 2](#).

The results showed that subjective norm and perceived behavioral control as well as the behavioral, normative, and control belief factors had omega coefficient values $> .8$, indicating good reliability. The attitude factor with a reliability value between .6 and .7 was considered adequate, specifically in the context of exploratory and correlational studies ([Hair et al., 2019](#)). The development of the measuring instrument remained in the exploration stage which led to the

revision of the item wording to clarify the meaning. Expert judgment was also requested before subsequent application in the main study.

Main Study

The main study was conducted using a quantitative method with an online survey. Samples were selected using the non-probability sampling method with convenience methods. The number of participants was determined through G*Power application version 3.1.9.7. This was based on a chi-square goodness-of-fit analysis with the assumption of a moderate effect size according to Cohen (2013) of .3, a significance level of .05, and a power of .80. The results showed that the minimum sample size needed to achieve the power was 143 participants ($\lambda = 12.87$; χ^2 critical = 11.07; df = 5). Moreover, the hypotheses formulated were analyzed using Structural Equation Model (SEM) analysis with R version 4.2.2.

Participants

Participants were 316 individuals with different characteristics compared to the previous measuring instrument test ($M_{age} = 29.8$, $SD = 5.28$). The composition was 176 millennials (55.7%) and 140 Generation Z (44.3%). Moreover, the majority were women with 263 individuals (83.2%). A total of 253 were married (8.1%) and 220 participants had a senior or vocational high school education (69.6%). A higher percentage was housewives with 161 individuals (5.9%) and had a monthly expenditure range of IDR 3,000,001 – IDR 5,000,000 or socio-economic status category B according to Central Statistics Agency (BPS) (33.5%). The description of recycling activities conducted by participants is presented in the following Table 3.

Assumption Test

Assumption test was conducted before the hypotheses were tested. This was necessary to fulfill the requirement for testing using SEM according to Kaplan (2009).

Multivariate Normality

Multivariate normality assumption test was conducted using Mardia's test (Korkmaz et al., 2014) and the results showed deviations with a multivariate skewness value of $\chi^2 = 1255.2$, $p < .001$ and a kurtosis $z = 42.21$, $p < .001$. The values showed that multivariate normality assumption was not fulfilled. Therefore, the skewness and kurtosis values in the answer choices for each construct did not satisfy the range of values from -1 to 1 according to the criteria of Hair et al. (2019). The trend showed that the data was not normally distributed.

Missing Completely at Random (MCAR)

Missing data patterns could be examined using R package MissMech. However, the results showed there was no missing data, and MCAR test was not performed.

Sufficiently Large Sample Size

The main study was conducted using 316 participants. The adequacy of the sample size was determined using commonality estimation. Commonality refers to the variance proportion of an indicator or item that can be explained by latent factors. In this study, six constructs had a commonality value (h^2), including attitude (.23-.38), subjective norm (.62-.87), perceived behavioral control (.32-.70), behavioral belief (.50-.75), normative belief (.52-.85), and control belief (.31-.63). The values showed that most items had good commonality (≥ 0.5) and were quite capable of representing the latent construct. Based on Hair et al. (2019), a sample size of 300 was considered sufficient to produce stable and reliable estimates for a model containing seven constructs or fewer with moderate to high commonality (≥ 0.5) recorded for the indicators.

Model Specifications

The structural model was determined theoretically according to TPB framework. The model consisted of six latent constructs, including three mains in the form of attitude, subjective norm, and perceived behavioral control as well as three belief-based which were behavioral, normative, and control beliefs. The constructs were measured using 29 indicators tested for validity and reliability. Moreover, the model was based on the following mathematical specifications:

$$\begin{aligned} INT &= \beta_1 . ATT + \beta_2 . SN + \beta_3 . PBC + \varepsilon INT \\ ATT &= \gamma_1 . BB + \delta ATT \\ SN &= \gamma_2 . NB + \delta SN \\ PBC &= \gamma_3 . CB + \delta PBC \end{aligned} \quad (1)$$

Where:

- β_1, β_2 , and β_3 are the structural regression coefficients from attitude (ATT), subjective norm (SN), and perceived behavioral control (PBC) to intention (INT).
- $\gamma_1, \gamma_2, \gamma_3$ are the regression coefficients from behavioral belief (BB), normative belief (NB), and control belief (CB).
- ε and δ are the error or residual of the endogenous construct.

Assumption results showed that the hypotheses should be tested using MLR estimator for SEM analysis. This robust estimate allows the use of data that do not fulfill the normality assumption test (Kline, 2023).

Table 2

Reliability Test Results

Instrument	Total Omega Coefficient (ω_t)
Theory of Planned Behavior	
Attitude	.65
Subjective norm	.92
Perceived behavioral control	.85
Behavioral Belief	.90
Normative Belief	.89
Control Belief	.85

Table 3

Data on the Description of Recycling Activities

Characteristics	n	%
Last Recycling Behavior		
Less than 3 months ago	224	7.9
3 - 6 months ago	60	19
6 - 9 months ago	12	3.8
9 - 12 months ago	11	3.5
More than 12 months ago	9	2.8
Types of Recycling Activities*		
Reused clothing after repair	279	88.3
Used clothing for other purposes	207	65.5
Bartered or exchanged clothing	82	25.9
Gave clothing to family or friends	82	25.9
Donated clothing	214	67.7

*Note: recycling activities can be conducted with more than one type per individual.

Table 4

Indirect Effect Analysis Results

Path	β	SE	p
BB via ATT*	.23	.15	.12
NB via NB*	-.05	.02	.01
CB via PBC*	.72	.12	.00

Description: ATT = attitude toward behavior, SN = subjective norm, PBC = perceived behavioral control, BB = behavioral belief, NB = normative belief, CB = control belief, β = standardized coefficient, SE = standard error.

Hypothesis Test

SEM analysis conducted in accordance with the hypothesis showed that the model fit indices were χ^2 (369) = 693.284, $p < .00$, CFI (Comparative Fit Index) = .905, RMSEA (Root Mean Square Error of Approximation) = .060, SRMR (Standardized Root Mean Square Residual) = .063, and TLI (Tucker–Lewis Index) = .896. RMSEA and SRMR values were below the threshold of .08 which showed a fairly good model fit (Hair et al., 2019). CFI and TLI values that approached or exceeded .90 also showed the model had an acceptable fit to the data (Hu & Bentler, 1999).

The path analysis showed in Figure 2 that behavioral belief significantly predicted attitude ($\beta = .77$, $p = .011$), normative belief predicted subjective norm ($\beta = .39$, $p < .001$), and control belief was significantly positively related to perceived behavioral control ($\beta = .98$, $p < .001$). Attitude was not

significantly related to intention ($\beta = .15$, $p = .098$) but subjective norm was significantly negatively related to intention ($\beta = -.13$, $p = .004$). However, perceived behavioral control exhibited a significant positive relationship with intention ($\beta = .62$, $p < .001$).

Indirect effects were determined in SEM model presented in Table 4. The results showed that normative belief significantly predicted clothing recycling intention through subjective norm ($\beta = -.05$, $p = .01$). Similarly, control belief predicted clothing recycling intention through perceived behavioral control ($\beta = .72$, $p = .00$).

Discussion

This study aims to determine the role of attitude toward behavior, subjective norm, and perceived behavioral control on clothing recycling intention in order to reduce the impact of fast fashion. The results showed that H1, H2, H3, H5, H6, H8, and H9 were accepted

while the hypotheses related to attitude toward clothing recycling intention including H4 and H7 were rejected.

Perceived behavioral control generally had the greatest contribution to the generation of intention (H6) followed by subjective norm (H5). The results supported previous studies that perceived behavioral control influenced clothing recycling intention (Rotimi et al., 2023) as well as plastic and household waste (Botetzagias et al., 2015). According to Ajzen (1991), perceived behavioral control refers to the perceptions of individuals about their ability to perform an action based on the ease of overcoming obstacles. Furthermore, behavior that requires greater resources affects perceived behavioral control. The resources in clothing recycling behavior can be in the form of time, energy, and other parties who assist in developing the behavior (Mannetti et al., 2004). The feeling that the resources required for recycling behavior can be achieved strengthens clothing recycling intention of individuals.

Another factor explained by Ajzen (1991) to be influencing perceived behavioral control was past behavior. The results of this study showed that 224 participants (7.9%) recycled clothing less than 6 months after filling out the questionnaire. The trend showed that clothing recycling behavior of participants was new or exhibited in less than 1 year. This could motivate the perceptions of having the capacity to

perform similar behavior, leading to clothing recycling intention in the next 3 months.

Perceived behavioral control was influenced by control belief (H3) in addition to the role in influencing clothing recycling intention. Control belief was defined by Ajzen (2020) as the subjective belief of individuals regarding the existence of factors capable of facilitating or hindering a behavior in a particular situation. These factors include skills and abilities, the availability of time, money, and other resources, as well as support or obstacles from others. Each control belief contributes to perceived behavioral control, depending on the extent the factor is considered to be able to assist or hinder clothing recycling behavior. Higher control belief was observed to have led to stronger perceptions of individuals about their ability to recycle clothing.

The results further showed that perceived behavioral control acted as a mediator to bridge the effect of control belief on intention (H9). Subjective belief in factors for recycling clothing made individuals feel more capable of controlling obstacles inhibiting clothing recycling behavior and increased intention to recycle.

Subjective norm was significant in clothing recycling intention but the impact was negative (H5). This showed that higher subjective norm led to lower clothing recycling intention. The result was not in line with the report of a previous study by Sun et al. (2024)

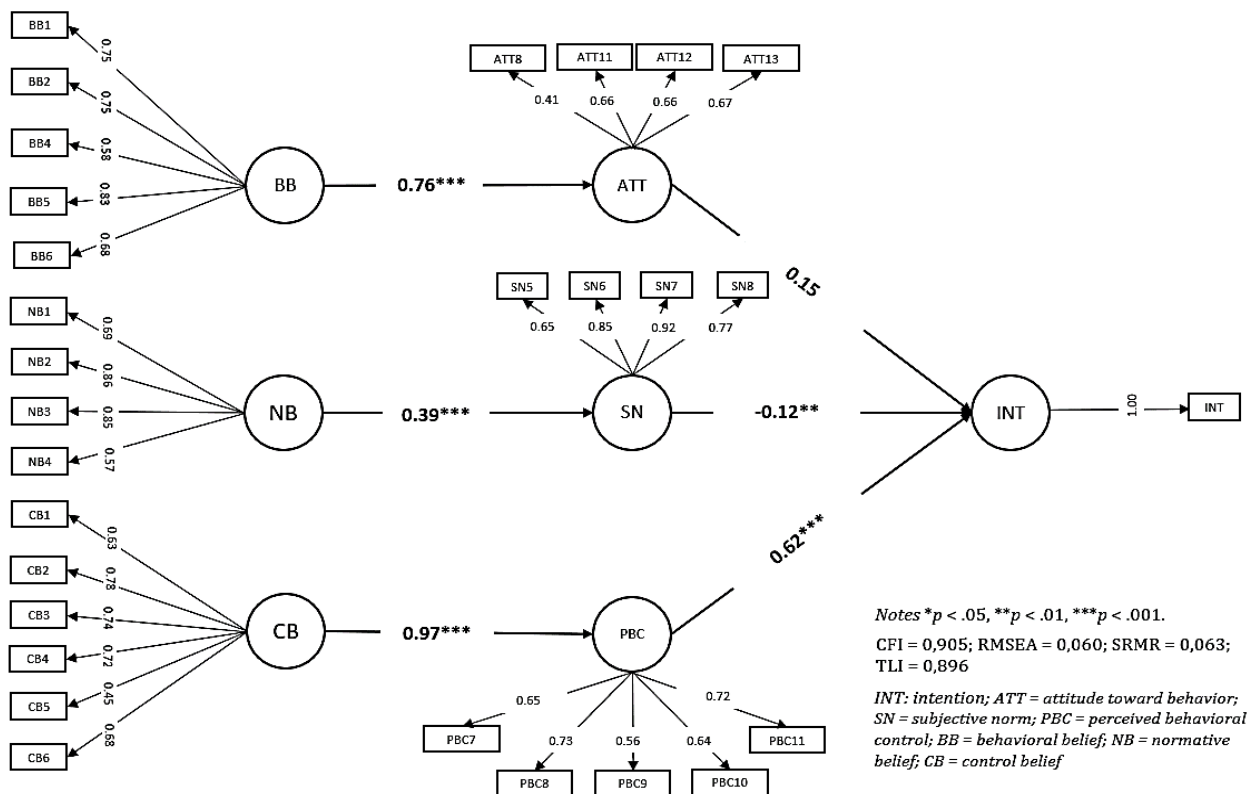


Figure 2. SEM Path for Hypothesis Test

that higher subjective norm led to higher intention using students as participants.

The effect of subjective norm on this intention was previously discussed by [Botetzagias et al. \(2015\)](#). The study showed that re cycling was more motivated by internalized personal moral obligations to engage in the right activities and not by the need for conformity to standards or avoid social sanctions. This showed that individuals could be pressured and receive opinions from close individuals to recycle clothing as proven in the result (H2). However, clothing recycling intention ultimately depended on the internalization of each individual. [Ajzen \(2020\)](#) explained that subjective norms originated from two types of normative beliefs. The first is injunctive which is a belief in the role of the closest individuals to approve of a behavior. The second is descriptive which is the existence of social pressure on an individual to perform certain behaviors. Therefore, the presence of pressure from the environment enhanced the tendency of individuals in this study to internalize the lack of intention to recycle and vice versa.

[Ly and Furukawa \(2024\)](#) studied clothing recycling behavior in Japanese society and suspected the influence of another factor, habits, on the internalization of norms. The habit of sorting clothing was only performed at home independently without the influence of others. Despite the explanation regarding the condition, subjective norm mediated the effect of normative belief on clothing recycling intention negatively (H8). This showed that higher normative belief in individuals increased the norm perceived about recycling clothing. However, high pressure or norms form reduced clothing recycling intention of individuals. The inference was that normative belief indirectly influenced clothing recycling intention.

This study showed an effect of favorable behavioral belief on attitude toward behavior (H1). The interpretation was that easily accessible behavioral belief could lead to a more positive attitude. However, unlike previous studies, there was no effect of attitude toward behavior on clothing recycling intention which led to the rejection of H4. The results were not in line with the report of [Sun et al. \(2024\)](#) regarding clothing recycling and [Wicaksono et al. \(2024\)](#) on intention to purchase preloved clothing in order to reduce waste. The difference could be explained basically by the position of [Ajzen \(1991\)](#) that there were implications of the "expectancy-value model of attitude". This shows that the perception of positive impacts in behavior is expected to better attitude and behavior with a possible increase in behavioral intention, and vice versa.

The explanation showed that the attitude related to intention could be transferred to the process of recycling and afterward. Moreover, the elicitation

study compared the attitude toward the impact during and after clothing recycling process and the results led to different perceptions.

A previous study showed that analysis of the relationship between beliefs and TPB constructs was rare ([Warner, 2023](#)). However, several other explanations were provided on beliefs by [Joung \(2014\)](#) using the value-belief-norm theory. It was reported that biospheric belief could indirectly influence the increasing clothing recycling intention. Biospheric beliefs are related to the activity performed by individuals to ensure balance and goodness in the environment ([Ünal et al., 2019](#)). The focus is to perform activities based on environmental values targeted specifically and directly to produce different results compared to the use of beliefs associated with TPB constructs. The trend is observed from the specific list of beliefs in several previous studies such as [Wicaksono et al. \(2024\)](#).

Limitations and Suggestions

This study aims to contribute to theoretical developments, specifically in the discussion of clothing recycling behavior. However, several limitations were identified and the first was the focus on only factors influencing clothing recycling intention generally without directly examining the actual behavior. This showed the need for further studies to investigate actual clothing recycling behavior. More tests should also be conducted on the attitude factor with a reliability of less than $<.7$ to ensure more reliable measurements.

The second limitation was the development of belief items and specific calculations according to [Ajzen and Fishbein \(2002\)](#) despite the elicitation process initially conducted. The calculation could be performed based on a weighted composite to determine the most influential belief in forming attitude toward behavior, subjective norm, and perceived behavioral control. However, [Ajzen \(2020\)](#) recently explained that the application of direct or reflective items was sufficient to predict intention. Further studies need to consider the most important usage and focus on the development of items with due consideration for belief-based values. There is also the need to focus on a more specific type of belief in relation to the environment, the goodness of others, or altruism ([Wicaksono et al., 2024](#)).

Conclusion

In conclusion, this study focused on determining the role of each variable construct in clothing recycling intention. The results showed the significant role of subjective norm and perceived behavioral control in intention. Moreover, subjective norm mediated the effect of normative belief on intention and perceived behavioral control mediated the effect of control belief

on intention. The results showed the need to consider interventions to increase clothing recycling behavior as a psychological strategy through the belief formation factor in individuals. Environmental activists and educators are expected to conduct socialization regarding environmentally friendly or socially humanitarian values related to clothing recycling. Furthermore, socialization needs to be executed through the inclusion of supporting factors capable of ensuring easier recycling of clothing. This can be accomplished by explaining the importance of institutions in distributing clothing. Government institutions also need to implement a structural strategy to support the intervention by providing facilities and policies regarding clothing recycling. This is useful in addressing problems related to the growth of fast fashion and the accumulation of waste in an integrated manner. The results are also expected to assist in achieving Indicator 12 of SDGs which is focused on Responsible Consumption and Production.

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