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Determinants of Circular Economy Behavioural Intentions Among Malaysian Youth: Investigating The Roles of Structural, Socio-Psychological, and Communication Factors in the Digital Marketplace

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ABSTRACT

This study explores the influence of structural, socio-psychological, and communication factors on circular economy behavioural intentions among young adults in Malaysia. Employing a cross-sectional quantitative survey methodology, data were collected from 220 respondents aged 18-40. The findings reveal weak positive correlations between the examined factors and circular economy adoption intentions. Structural factors, which encompass cultural and relational aspects of social structure; socio-psychological factors, including attitudes, subjective norms, and perceived control; and communication factors, such as bi-directional communication and opinion seeking, all play a role in shaping young adults' intentions to engage in circular economy practices. However, the weak correlations indicate that a comprehensive approach targeting multiple factors may be necessary to effectively promote circular economy adoption. The study highlights the need for future research to explore the interplay between these factors and investigate potential moderators and mediators that may strengthen the relationship between the studied variables and circular economy behavioural intentions. The findings contribute to the understanding of the drivers behind circular economy behavioural intentions and provide valuable insights for policymakers and organisations aiming to foster sustainable practices among young adults in the digital marketplace. The study underscores the importance of adopting a holistic approach that addresses structural, socio-psychological, and communication factors to create an enabling environment for circular economy engagement.

Keywords: *Circular economy, communication, youth, Malaysia, digital marketplace.*

INTRODUCTION

The circular economy (CE) has emerged as a transformative approach to address the pressing challenges of resource depletion, waste accumulation, and environmental degradation (Geissdoerfer et al., 2017). As the world faces the urgent need to transition from a linear "take-make-dispose" model to a more sustainable and regenerative system, the engagement and active participation of youth in the circular economy movement have become increasingly crucial (Mendoza et al., 2019). Youth, as future leaders, innovators, and decision-makers, hold the key to unlocking the full potential of the circular economy and driving its widespread adoption (Fonseca et al., 2018).

The concept of a circular economy represents a paradigm shift in how we approach production, consumption, and resource management. Unlike the traditional linear economic model, which relies on extracting raw materials, manufacturing products, and disposing of waste, the circular economy aims to create closed-loop systems where resources are used,

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reused, and recycled efficiently (Kirchherr et al., 2017). This approach not only reduces waste and environmental impact but also creates new economic opportunities and fosters innovation (Ellen MacArthur Foundation, 2013).

Young people, particularly those in the age group of 18-35, are at the forefront of driving change towards a more sustainable future. Their unique position as digital natives, coupled with their heightened awareness of environmental issues, makes them critical agents in the transition to a circular economy (Kanchanapibul et al., 2014). As consumers, entrepreneurs, and future policymakers, youth have the potential to shape markets, influence business practices, and drive policy changes that support circular economy principles (Smol et al., 2018).

One critical aspect of youth engagement in the circular economy is their ability to seek and acquire relevant information. Information seeking plays a vital role in shaping young people's understanding, attitudes, and behaviours towards sustainability and the circular economy (Martins et al., 2020). By actively seeking information on circular economy principles, practices, and opportunities, youth can develop the knowledge and skills necessary to become effective advocates, entrepreneurs, and change agents in the transition towards a more sustainable future.

The digital marketplace has become an increasingly important platform for promoting and implementing circular economy practices. E-commerce, sharing economy platforms, and digital technologies have created new opportunities for circular business models, product-as-a-service offerings, and efficient resource management (Kalmykova et al., 2018). Young adults, as active participants in the digital economy, are well-positioned to leverage these platforms and technologies to drive circular economy adoption.

However, despite the critical importance of youth engagement in the circular economy, there is a lack of research examining the factors that influence their adoption of circular economy practices, particularly in the context of the digital marketplace. Previous studies have highlighted the potential role of structural factors, such as cultural and relational aspects of social structure (Gutmann, 2009; Putnam, 2016), socio-psychological factors, such as attitudes and subjective norms (Ajzen, 1985), and communication factors, such as bi-directional communication and opinion seeking (Schoop et al., 2010; Weimann, 1991), in shaping individual behaviour. However, the extent to which these factors influence young adults' circular economy behavioural intentions in the digital marketplace remains largely unexplored.

Understanding the determinants of circular economy behavioural intentions among youth is crucial for several reasons. First, it can inform the development of targeted interventions and communication strategies to promote circular economy practices. Second, it can help identify barriers and enablers to youth engagement in the circular economy, allowing for more effective policy and educational initiatives. Finally, it can contribute to the broader body of knowledge on sustainable consumption and production, particularly in the context of emerging economies like Malaysia.

Malaysia, as a rapidly developing nation with a young and digitally connected population, presents an interesting case study for examining circular economy adoption among youth. The country has made significant strides in promoting sustainable development and has outlined its commitment to transitioning towards a circular economy in its Shared Prosperity Vision 2030 (Economic Planning Unit, 2021). However, the success of these

initiatives depends largely on the active participation and engagement of young Malaysians in circular economy practices.

Recent studies have shown that while awareness of environmental issues is relatively high among Malaysian youth, there is often a gap between awareness and action (Coco Chin et al., 2023). This highlights the need for a deeper understanding of the factors that influence circular economy behavioural intentions among young adults in Malaysia. By examining the roles of structural, socio-psychological, and communication factors, this study aims to provide valuable insights into how to bridge this gap and promote more sustainable behaviours.

To address this research gap, the current study aims to investigate the relationship between structural factors, socio-psychological factors, communication factors, and circular economy behavioural intentions among young adults in Malaysia. Specifically, the study seeks to achieve the following research objectives:

1. To examine the relationship between structural factors and circular economy behavioural intentions among young adults in Malaysia.
2. To investigate the relationship between socio-psychological factors and circular economy behavioural intentions among young adults in Malaysia.
3. To explore the relationship between communication factors and circular economy behavioural intentions among young adults in Malaysia.

By addressing these research objectives, the study contributes to the understanding of the factors influencing circular economy adoption among young adults in the digital marketplace. The findings of this study can inform the development of targeted interventions and communication strategies to promote circular economy practices and foster a more sustainable future.

This research is particularly timely given the growing global emphasis on sustainable development and the circular economy. The United Nations Sustainable Development Goals (SDGs), particularly SDG 12 on Responsible Consumption and Production, highlight the importance of promoting sustainable practices and resource efficiency (United Nations, 2015). By focusing on youth engagement in the circular economy, this study aligns with these global priorities and contributes to the broader discourse on sustainable development.

Furthermore, this study's focus on the digital marketplace reflects the rapidly evolving nature of consumer behaviour and business practices in the 21st century. As e-commerce and digital platforms continue to grow in importance, understanding how these digital environments influence circular economy behaviours becomes increasingly crucial. This research can provide valuable insights for businesses, policymakers, and educators seeking to leverage digital technologies to promote circular economy practices among youth.

The following sections of this paper will discuss the past literature related to this study, presenting a comprehensive review of circular economy concepts, youth engagement in sustainability, and the factors influencing pro-environmental behaviours. Then it will present the methodology employed in the study, detailing the research design, data collection methods, and analytical approaches used. The results obtained from the study will be presented, followed by a discussion of the findings in relation to the existing literature. Finally, the conclusions drawn from the research will be outlined, along with the study's implications for theory and practice and recommendations for future research.

By examining the determinants of circular economy behavioural intentions among Malaysian youth in the digital marketplace, this study aims to contribute to the growing body of knowledge on sustainable consumption and production. It is hoped that the insights gained from this research will help pave the way for more effective strategies to engage youth in the circular economy and accelerate the transition towards a more sustainable and regenerative economic model.

LITERATURE REVIEW

Circular Economy Evolution and Innovation

The linear "take-make-dispose" model, which has long dominated economic systems, is becoming increasingly unsustainable in the face of global challenges. As Geissdoerfer et al. (2017) note, the circular economy (CE) has emerged as a transformative approach to address the pressing issues of resource depletion, waste accumulation, and environmental degradation. This shift in thinking is driven by an array of challenges faced globally, including climate change, scarcity of natural resources, and environmental pollution since the advent of the 21st century.

Alarming projections underscore the urgency of this transition. The United Nations (2017) cautioned that the exploitation of natural resources would continue to increase between 2014-2040, with extracted oil growing by 12%, natural gas by 49%, and coal by 5%. Additionally, the demand for steel and copper is expected to increase by 120% in 2040 compared to 2010. Vidal, Goffé, and Arndt (2013) further warned that the shift towards renewable energy would escalate the demand for base and (near) critical metals. The usage of steel, for example, has been increasing at an average of 3.5% per year since the 20th century, rising from 50 million tonnes in 1900 to over one billion tonnes at the start of the 21st century (Senard, 2016).

In response to these challenges, the circular economy concept has gained significant traction. As defined by Kirchherr et al. (2017), CE represents an economic system that replaces the 'end-of-life' concept with reducing, reusing, recycling, and recovering materials in production/distribution and consumption processes. It operates at the micro level (products, companies, consumers), meso level (eco-industrial parks), and macro level (city, region, nation and beyond), with the aim to accomplish sustainable development.

The Ellen MacArthur Foundation has been instrumental in popularizing the CE concept through its "butterfly diagram," developed by McDonough and Braungart (2008). This diagram illustrates two primary material flows within a circular economy: biological and technical. The technical flow occurs in a closed-loop system through sharing, maintaining, reusing, remanufacturing, and recycling of products. The biological flow is open-ended, where renewables are used as resources, cascading through subsequent steps of extraction, production of bio-based materials, energy recovery, and returning nutrients to the biosphere (Velenturf & Purnell 2021).

The adoption of CE principles aligns with global efforts to combat climate change, as outlined in the United Nations Framework Convention on Climate Change (COP21) and the Paris Agreement, which seek to limit global warming to below 2°C. In response to these global imperatives, the European Commission developed the Circular Economy Package in 2015, setting ambitious targets for waste reduction and recycling across the EU (European Commission, 2019).

The benefits of implementing CE are multifaceted, including reduced energy and resource consumption, decreased waste generation, protection of the environment and human health, cost savings through reuse and recycling, and potential profit gains from waste valorisation. These advantages align with the United Nations Sustainable Development Goals, particularly SDG 12 on Responsible Consumption and Production (United Nations, 2015).

As the world faces increasing environmental and resource challenges, the role of youth in driving CE innovation becomes crucial. Young people, as digital natives and future leaders, are well-positioned to leverage new technologies and digital platforms to promote circular economy practices (Kanchanapibul et al., 2014). Their engagement in the digital marketplace, coupled with their heightened environmental awareness, presents unique opportunities for accelerating the transition to a more circular and sustainable economic model.

In conclusion, the evolution of the circular economy concept represents a paradigm shift in how we approach production, consumption, and resource management. As we move forward, the integration of CE principles with digital technologies and the active engagement of youth will be critical in realizing the full potential of this innovative approach to sustainable development.

Socio-Psychological Factors

Socio-psychological factors, comprising insights and attitudes, play a crucial role in the acceptance of circular economy practices. The adoption of such practices is facilitated when they align with the perceived needs and attitudes of the adopting unit (Foguesatto et al., 2020). Young adults, for instance, may be disinclined to incorporate circular economy practices into their daily routines if they perceive no tangible benefits. Attitudes, defined as predispositions to respond to specific stimuli (Veeck et al., 2020), significantly influence the adoption of new ideas or practices; a positive attitude generally accelerates adoption, while a negative one impedes it.

The Theory of Planned Behaviour (TPB), proposed by Ajzen (1985), offers a framework for elucidating and potentially modifying individual behaviour, particularly in the context of adoption decisions. While primarily focused on voluntary behaviour, the theory acknowledges that actions may not always be entirely under volitional control (Senger et al., 2017). The TPB posits that three principal elements govern individual action:

1. Behavioural Beliefs: Anticipated outcomes of engaging in a particular behaviour
2. Normative Beliefs: Perceived societal expectations regarding the performance of a behaviour
3. Control Beliefs: Perceived factors that may facilitate or hinder behavioural performance

These elements are fundamental in shaping attitudes and behaviours towards practices such as circular economy adoption. Collectively, they contribute to the formation of behavioural intentions, which manifest as positive or negative response behaviours (Tey & Brindal, 2022). Behavioural beliefs typically inform attitudes, normative beliefs shape subjective norms, and control beliefs influence perceived behavioural control. The strength of these factors is hypothesised to correlate with the intensity of the resultant behavioural intention. In the context of Malaysian young adults' engagement with circular economy practices, the TPB provides a valuable framework for psychological analysis (Tey & Brindal,

2022). When contemplating the adoption of such practices, young adults often consider multiple factors, including potential benefits and drawbacks, social expectations, and perceived barriers or enablers.

Recent empirical studies have demonstrated the TPB's applicability in understanding pro-environmental behaviours, including those related to the circular economy. Khan et al. (2019) found that attitudes, subjective norms, and perceived behavioural control positively influence consumers' intentions towards plastic waste management. Similarly, Jain et al. (2020) applied the TPB to investigate recycling behaviour in the construction and demolition industry, emphasising the role of environmental consciousness alongside traditional TPB constructs. In examining youth engagement with the circular economy, Kanchanapibul et al. (2014) revealed that young consumers' environmental awareness and knowledge significantly impact their green purchasing behaviour. This finding underscores the importance of education and information dissemination in fostering positive attitudes towards circular economy practices among young adults. Lakatos et al. (2018) observed that young Romanians exhibit high awareness of environmental issues and positive attitudes towards sustainable production and circular business models. However, their study also revealed lower inclinations towards adopting sustainable consumption practices, highlighting a potential disparity between awareness and action that warrants further investigation.

From a research perspective, it is crucial to comprehend the self-reflective processes young adults undergo when deciding whether to adopt circular economy practices. A nuanced understanding of these socio-psychological factors can inform the development of targeted interventions and policies to guide young adults' decision-making processes (Foguesatto et al., 2020). By leveraging insights from the TPB and contemporary studies on youth sustainability engagement, policymakers and educators can formulate more effective strategies to promote circular economy adoption among young adults in Malaysia and beyond.

Structural Factors

The concept of 'structure' in social sciences refers to the interrelation of elements that exhibit coherence and stability. A fundamental debate in conceptualising social structure centres on the tension between individual and societal perspectives. This dichotomy is crucial for understanding how structural factors influence the adoption of circular economy practices among young adults.

The individualist perspective posits that social conventions emerge from the aggregated actions of individuals. As Elder-Vass (2010) articulates, this view considers how rational individual responses to various situations collectively produce social phenomena. Conversely, the structurationist approach emphasises the primacy of societal institutions in shaping individual action.

The institutional social structure perspective, as a prominent school of thought, incorporates norms, beliefs, and values as key components that delineate societal boundaries and drive collective behaviour (Bernardi et al., 2006). These elements serve as the foundational 'mortar and bricks' of social structure, offering clear antecedent values that elucidate members' behaviour and actions (Burt, 1992). Institutional theory posits that institutions play a pivotal role in dictating actors' behaviour (Zeyen et al., 2016).

Complementing this view is the relational vision of social structure, which focuses on the network of social relations connecting individuals, communities, and society (Bernardi et

al., 2006). This perspective has its roots in Marxist tradition, which conceptualises "social structure as a system of relations between class positions, with the basic relations being the relations of exploitation of the dominated classes by the dominant classes" (Marx, 1887, cited in Ettrich, 2017). These relationships are defined by the modes of production prevalent in a society during a particular historical period.

In the context of young adults' engagement with circular economy practices, both the institutional and relational aspects of social structure are pertinent. The cultural dimension, stemming from the institutional view, elucidates how actions are influenced by intergenerational transmission of values, which subsequently become integral to an individual's identity. Concurrently, the relational aspect emphasises the instrumental nature of social connections in shaping economic actions through the development of trust and societal norms.

Previous research has demonstrated the significance of cultural and relational factors in explaining societal behaviour (Gutmann, 2009; Putnam, 2016). These theories provide a framework for understanding how an actor's behaviour is influenced by social structure, thus offering insights into young adults' adoption of circular economy practices.

Recent studies have further substantiated the importance of structural factors in shaping pro-environmental behaviours. For instance, Geissdoerfer et al. (2017) highlight how institutional frameworks and societal norms significantly influence the transition towards a circular economy. Similarly, Kirchherr et al. (2017) emphasise the role of cultural barriers in impeding the widespread adoption of circular economy principles.

In the specific context of youth engagement, Smol et al. (2018) found that social and cultural factors play a crucial role in shaping public awareness and attitudes towards circular economy practices. Their study underscores the need for tailored approaches that consider the unique structural factors influencing young adults' decision-making processes.

By integrating these perspectives, researchers can develop a more nuanced understanding of how structural factors influence young adults' engagement with circular economy practices. This comprehensive approach can inform policy interventions and educational initiatives aimed at fostering a more sustainable and circular economy among the younger generation.

Communication Factors

Communication, as a multifaceted concept, spans various disciplinary contexts, including partnership dynamics, political discourse, relationship management, group negotiations, and organisational studies (Prahinski & Fan, 2007; Redza et al., 2014). These diverse applications engender a plethora of definitions, each tailored to its specific purpose and dimensional focus. In the realm of communication quality, three predominant paradigms emerge: socio-relational, interactive, and pragmatic perspectives (Schoop et al., 2010). A nuanced understanding of these paradigms is crucial when examining communication policies and circular economy ideologies among young adults, as it necessitates a comprehensive yet contextually appropriate definition of communication quality.

The socio-relational perspective, as exemplified by Druck (2018), posits that high levels of intimacy, positivity, and supportiveness characterise quality communication. However, this definition may not be entirely suitable in the context of young adults' adoption of circular economy practices, where quality is often evaluated in terms of decision-making outcomes (Schoop et al., 2010). Nonetheless, it is important to note that while short-term,

market-based interactions may prioritise immediate outcomes, the adoption of circular practices among young adults should be viewed as a long-term investment. Consequently, policymakers and other stakeholders must comprehend the nuances of communication quality and its potential impact on young adults' commitment to sustaining circular economy practices.

From a mechanistic standpoint, communication quality is intrinsically linked to the relational understanding between the sender and the recipients (Prahinski & Fan, 2007). This understanding serves to mitigate noise and uncertainty in information transfer, thereby increasing the probability of commitment from the end recipients. Thus, it is imperative that communication quality accounts for the relational aspect between young adults and policymakers. However, fostering such a relationship is not a trivial endeavour. As Schoop et al. (2010) note, it is not uncommon for relationships to commence with information asymmetries and a lack of intimacy.

To address these challenges and cultivate a robust relationship, parties should engage in bi-directional communication. This approach not only facilitates the development of intimacy and trust among young adults but also nurtures a democratic space that accommodates multiple perspectives (Mohr & Sohi, 1995; Schoop et al., 2010). Consequently, this can engender commitment from the involved parties or organisations. Therefore, bi-directional communication emerges as a crucial construct in building communication quality and influencing young adults' decisions to adopt circular economy practices. The role of opinion-seeking in catalysing individual decisions, although often overlooked, is a necessary component of persuasive communication (Weimann, 1991). Scholars have investigated the role of opinion-seeking as a vital intermediary and information broker on various matters, including climate change, innovation diffusion, and political agendas. The concept of opinion-seeking can be traced back to John Stuart Mill's seminal work, "On Liberty," which explored personal influence (Weimann, 1991). Since then, research on an individual's susceptibility to influence from one or multiple influencers and information sources has proliferated.

In the contemporary context, the rapid expansion of communication and information technologies has accelerated the opinion-seeking process, providing multiple sources of information, particularly in relation to circular economy practices. This proliferation of information sources underscores the importance of opinion-seeking as a critical factor in communicating circular economy practices to young adults.

Recent studies have further elucidated the significance of communication factors in promoting circular economy practices. For instance, Geissdoerfer et al. (2017) emphasise the role of effective communication in facilitating the transition towards a circular economy. They argue that clear and consistent messaging is essential for raising awareness and fostering engagement among various stakeholders, including young adults. Moreover, Kirchherr et al. (2017) highlight the importance of addressing communication barriers in the implementation of circular economy principles. Their research underscores the need for targeted communication strategies that resonate with different demographic groups, particularly the younger generation. In the specific context of youth engagement, Kanchanapibul et al. (2014) demonstrate that effective communication of environmental knowledge significantly influences young consumers' green purchasing behaviour. This finding underscores the potential of well-crafted communication strategies in promoting circular economy practices among young adults.

To further enhance the effectiveness of communication in promoting circular economy practices among young adults, future research could explore the role of digital platforms and social media in information dissemination and opinion formation. Additionally, investigating the interplay between communication factors and other socio-psychological and structural factors could provide a more holistic understanding of young adults' decision-making processes regarding circular economy adoption. In conclusion, the quality of communication, encompassing bi-directional exchanges and opinion-seeking behaviours, plays a pivotal role in shaping young adults' engagement with circular economy practices. By leveraging these communication factors effectively, policymakers and stakeholders can foster a more sustainable and circular future, driven by the informed and committed participation of the younger generation.

Hypothesis Development

Based on the discussed literature, here are the developed hypotheses for this study:

H1: There is a positive relationship between the structural factors and the circular economy behavioural intention among young adults in Malaysia.

H2: There is a positive relationship between the socio-psychological factors and the circular economy behavioural intention among young adults in Malaysia.

H3: There is a positive relationship between the communication factors and the circular economy behavioural intention among young adults in Malaysia.

METHODOLOGY

This study was conducted in February 2023 among young adults in Malaysia, aged 18 – 40 years old through a simple random sampling method. A total of 220 respondents answered the online survey questionnaire to determine the impact of psycho-sociological, structural, and communication factors on young adults' circular economy behaviour in the Malaysian digital marketplace. The online survey questionnaire comprises seven sections, with the majority of the questions in the linear-scale format. The data gathered were then analysed quantitatively by using the Statistical Package for Social Sciences (SPSS Version 26).

Instrument

The study was conducted through cross-sectional quantitative research using the survey method with an online survey questionnaire in Google Forms as the research instrument for data collection. Compared to other research tools or methods, data collection through online survey questionnaires is the most cost-effective way to collect large amounts of data in a short period of time (Queiros, Faria & Almeida, 2017). The high representativeness of the data elicits a reliable and accurate trend or phenomenon of the population being studied, in the context of this study, the young adults in Malaysia.

Sample Size

The study's population involved young adults in Malaysia of various genders, races, educational backgrounds, and socioeconomic statuses. According to Sekaran and Bougie (2016), a sample size of 30 to 500 respondents is considered reasonable and appropriate for social science studies. This study involved 220 respondents selected through simple random sampling.

Data Collection

The data collection for this study comprised two phases: pilot study and actual study. The first phase or pilot study was conducted in January 2023 on a smaller scale in order to identify any possible issue areas and weaknesses in the research instruments and methodology prior to the main data collection. Therefore, only 33 respondents were included in determining the reliability and validity of the questions in the online survey questionnaire. Meanwhile, the second phase of the actual study is a self-administered survey using an online questionnaire or Google Form. The respondents comprised 220 young adults from all over Malaysia. The data collection for the study was conducted throughout February and March 2023.

Data Analysis

The Statistical Package for the Social Sciences (SPSS) version 26 was used to analyse the data collected since this study is quantitative in nature. Therefore, all the data collected was keyed, analysed, and derived findings based on the Statistical Packages for the Social Sciences (SPSS) to obtain the descriptive statistic for this study.

Validity and Reliability

The concept of reliability and validity was used to assess the quality of the research. Both reliability and validity described the accuracy of the method, approach, or test in measuring something (Middleton, 2019). To be more specific, validity relates to how well an approach measure what it is supposed to measure. When research has a high level of validity, it delivers results that relate to real-world traits, characteristics, and variances. Meanwhile, reliability refers to how consistently a method measures the items. The measurement is deemed reliable if the same result can be obtained using the same procedures and circumstances. For each construct, reliability was checked based on Cronbach's alpha. It usually measures between 0 and 1, where 0 equals no relationship between the items on a scale in an instrument and 1 shows an absolute internal consistency between items. The scores for the reliability test are presented in Table 1.

Table 1: Reliability test for selected variables

Section	Variable	No. of Items	No. of Items Deleted	Cronbach's Alpha	
				Pilot Study (*N* = 33)	Actual Study (*N* =220)
1	Structural factor	11	-	0.933	0.926
2	Socio-psychological	14	-	0.897	0.913
3	Communication factor	19	9	0.893	0.889

RESULTS

Demographic Background of the Respondents

Table 2 reveals the personal demographics of the respondents. The female respondents dominated the study by 69.5% while the remaining 30.5% of the total respondents were male. The majority (63.6%) of the respondents are at the early stage of young adulthood (18-22 years old) and only a small number (1.0 %) of the respondents are at late stage of young adulthood. Nine-tenths (93.6%) of the respondents' highest education level is Bachelor's Degree followed by Matriculation (3.2%), and the remaining are Master's (2.7%) and PhD

(0.5%) holders. Overall, the data represents Malaysian female young adults aged 18-22 years old with Bachelor's Degree holder as the most participative in the study.

Table 2: Personal demographics of respondents

Variable	Category	Frequency	Percentage
Gender	Male	67	30.5
	Female	153	69.5
	Total	**220**	**100.0**
Age (years old)	18 – 22	140	63.6
	23 - 27	69	31.4
	28 - 32	9	4.0
	33 - 37	1	0.5
	38 - 40	1	0.5
	Total	**220**	**100.0**
Highest Education Level	Matriculation	7	3.2
	Bachelor Degree	206	93.6
	Masters	6	2.7
	PhD	1	0.5
	Total	**220**	**100.0**

Online Shopping Behavior of the Respondents

Table 3 demonstrates the online shopping behaviour of young adults in Malaysia. More than half (55.9 %) of the respondents spent on average, 6 – 10 hours online on a daily basis. The majority (50.5%) of the respondents purchase online products once every month. While the minority (1.4%), purchase online products more than 10 times a month. Shoppe (76.8%) dominates the data as the most preferred online shopping platform followed by TikTok Shop (14.2 %) and Lazada (5.0 %). The highest percentage of respondents spend RM 50 per month (39.5%) online and the lowest percentage of respondents spend more than RM 200 per month (4.5%). The top three most common goods purchased online are Fashion and apparel, Entertainment (74. 5%), Technology and electronics (51.4%), and Beauty and Personal Care (50.9%). As a whole, the majority of young adults in Malaysia spent an average of RM 50 per month to purchase fashion and apparel products on Shopee.

Table 3: Online shopping behaviour of respondents

Variable	Category	Frequency	Percentage
The average number of hours spent online on a daily basis	Less than 5 hours	38	17.3
	6 – 10 hours	123	55.9
	11 – 15 hours	39	17.7
	More than 15 hours	20	9.1
	Total	**220**	**100.0**
The frequency of online shopping in a month	None	25	11.4
	Once a month	111	50.5
	2 – 5 times	73	33.2
	6 -10 times	8	3.6
	More than 10 times	3	1.4
	Total	**220**	**100.0**

The most preferred online shopping platform	Shopee	169	76.8
	Lazada	11	5.0
	TikTok Shop	29	14.2
	Others	8	4.0
	Total	**220**	**100.0**
The average spending on online shopping in a month	RM 0 - RM 50	87	39.5
	RM 51 -RM 100	71	32.3
	RM 101 - RM 150	40	18.2
	RM 151 - RM 200	12	5.5
	More than RM 200	10	4.5
	Total	**220**	**100.0**
The most common categories of items purchased online	Fashion & Apparel	164	74.5
	Entertainment, Technology & Electronics	113	51.4
	Beauty & Personal Care	112	50.9

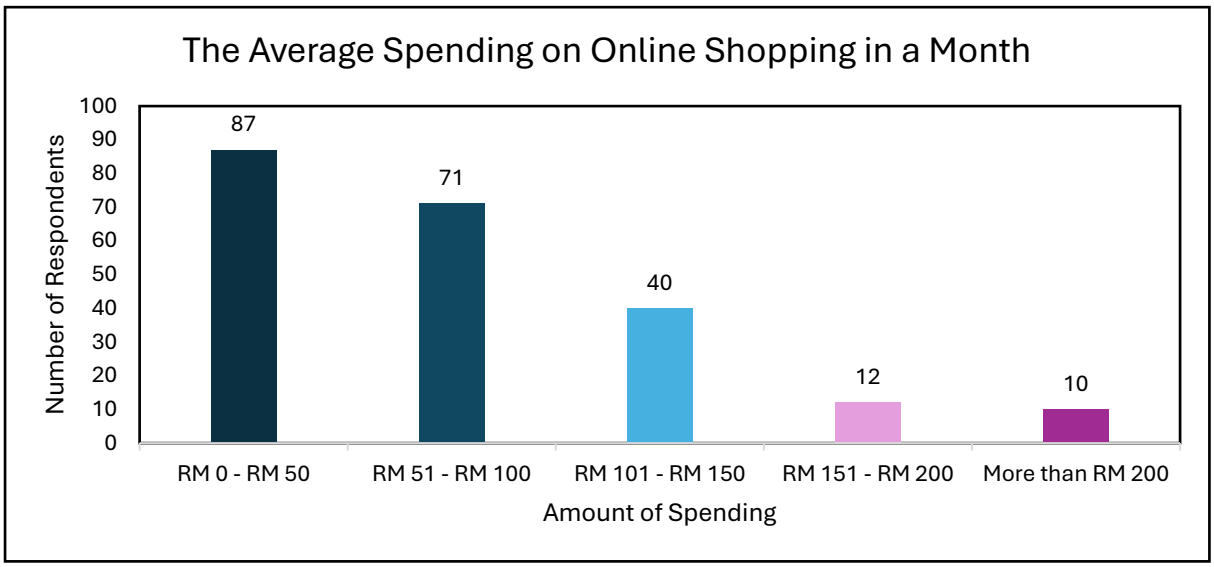

Figure 1: Average spending in a month

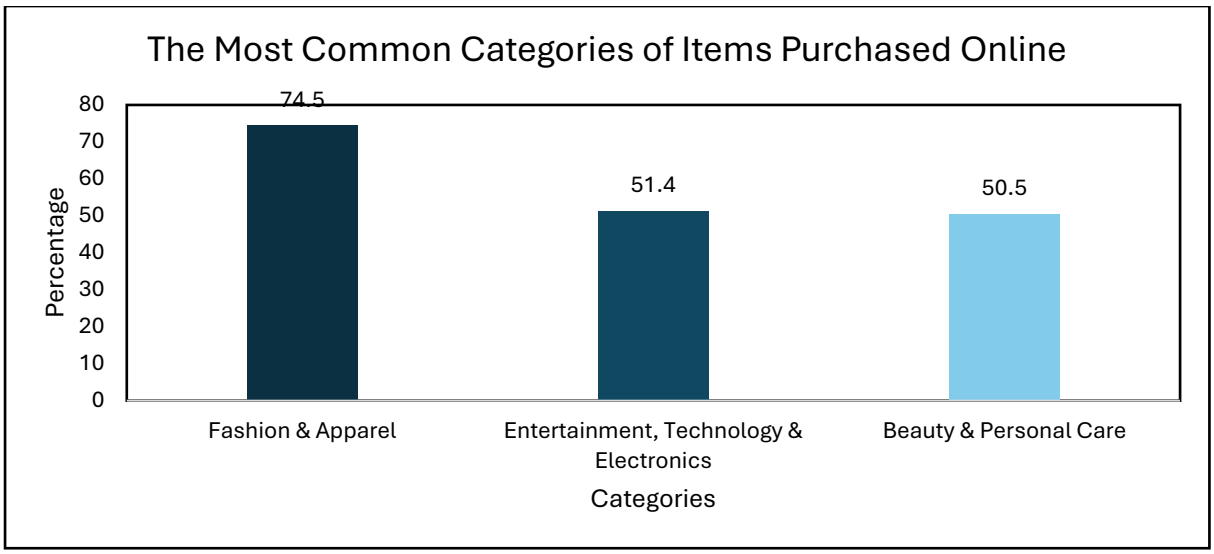

Figure 2: Common categories of items purchased online

Correlation Analysis

Table 4 illustrates the zero-order correlation between circular economy behavioural intentions and three variables in the study: structural factors, socio-psychological factors, and communication factors. Overall, there is a very weak, positive relationship between the independent variables and dependent variables. As evidence, structural factors scored a correlation coefficient value of r = .074 and p-value < .027. Meanwhile, the correlation coefficient value of socio-psychological factors is r = .098, p-value < .014. Finally, the communication factors scored the highest correlation coefficient value among the variables tested with a value of r = .121, p-value < .047. However, it's considered a very weak relationship. In conclusion, all of the three hypotheses tested are accepted and supported by most of the empirical studies investigated.

Table 4: Pearson correlation between circular economy behavioural intentions, structural factors, socio-psychological factors, and communication factors

Variable (*N* = 220)	**Circular Economy Behavioural Intentions**	**Structural Factors**	**Socio-Psychological Factors**	**Communication Factors**
Circular Economy Behavioural Intentions	1			
Structural Factors	r = .074 *p* =.027	1		
Socio-Psychological Factors	r =.098 *p* =.014	r =.670 *p* =.000	1	
Communication Factors	r =.121 *p* =.047	r =.558 *p* =.000	r =.658 *p* =.000	1

DISCUSSION

This study investigated the relationships between structural factors, socio-psychological factors, communication factors, and circular economy behavioural intentions among young adults in Malaysia within the context of the digital marketplace. The findings reveal weak positive correlations between all three independent variables and circular economy behavioural intentions, prompting a nuanced examination of these relationships in light of existing literature and the specific context of the study.

Structural Factors and Circular Economy Behavioural Intentions

The weak positive relationship between structural factors and circular economy behavioural intentions (r = .074, p = .027) suggests that while cultural and relational aspects of social structure play a role in shaping young adults' intentions to engage in circular economy practices, their influence may be less direct or potent than anticipated. This finding partially aligns with previous research highlighting the importance of social structure in influencing individual behaviour (Gutmann, 2009; Putnam, 2016). However, the weakness of the correlation raises questions about the applicability of these theories in the context of circular economy practices among Malaysian young adults.

One potential explanation for this weak relationship lies in the rapidly evolving nature of the digital marketplace, which may be disrupting traditional social structures and their influence on economic behaviours. As Geissdoerfer et al. (2017) note, the transition towards a circular economy often requires significant shifts in established societal norms and practices. In the digital context, young adults may be more influenced by global trends and

online communities than by local cultural and relational structures, potentially diluting the impact of traditional structural factors.

Socio-psychological Factors and Circular Economy Behavioural Intentions

The weak positive relationship between socio-psychological factors and circular economy behavioural intentions ($r = .098$, $p = .014$) provides limited support for the Theory of Planned Behavior (TPB) (Ajzen, 1985) in this context. While the positive correlation aligns with the TPB's postulation that behavioural beliefs, normative beliefs, and control beliefs contribute to the formation of behavioural intentions, the weakness of the relationship suggests that these factors may not be as influential as the theory proposes for circular economy practices among Malaysian young adults.

This finding contrasts with studies such as Khan et al. (2019), which found stronger relationships between TPB constructs and intentions towards dealing with plastic waste. The discrepancy may be attributed to the broader and more complex nature of circular economy practices compared to specific behaviours like plastic waste management. Additionally, as Lakatos et al. (2018) observed in their study of young Romanians, there can be a significant gap between awareness and action in sustainable practices. This phenomenon may be particularly pronounced in the digital marketplace, where the disconnect between online intentions and real-world actions could be more substantial.

Communication Factors and Circular Economy Behavioural Intentions

The slightly stronger, albeit still weak, positive relationship between communication factors and circular economy behavioural intentions ($r = .121$, $p = .047$) underscores the potential importance of communication quality and opinion-seeking behaviours in shaping young adults' intentions. This finding aligns with previous research emphasising the role of bi-directional communication and opinion-seeking in catalysing individual decision-making (Weimann, 1991; Schoop et al., 2010). The relatively stronger correlation of communication factors compared to structural and socio-psychological factors may reflect the increasing importance of information dissemination and peer influence in the digital age. As Kanchanapibul et al. (2014) demonstrated, effective communication of environmental knowledge significantly influences young consumers' green purchasing behaviour. In the digital marketplace, where information is abundant and easily accessible, the quality of communication and the ability to seek and process opinions may play a more crucial role in shaping behavioural intentions than traditional structural or psychological factors.

Interplay of Factors in the Digital Marketplace

The weak correlations across all factors, coupled with the strong inter-correlations between the independent variables (e.g., $r = .670$ between structural and socio-psychological factors), suggest a complex interplay of influences on circular economy behavioural intentions. This complexity may be particularly pronounced in the digital marketplace, where the boundaries between structural, socio-psychological, and communication factors are increasingly blurred. For instance, social media platforms can simultaneously serve as a structural element (shaping social norms), a socio-psychological influence (affecting attitudes and perceived control), and a communication channel. This convergence may explain why no single factor emerges as a strong predictor of behavioural intentions, as young adults navigate a multifaceted digital environment that influences their decision-making processes in

interconnected ways. Moreover, the digital marketplace's global nature may be contributing to a homogenisation of influences across different factors. Young adults in Malaysia may be exposed to similar structural, socio-psychological, and communication influences as their peers in other countries through digital platforms, potentially explaining the uniformly weak correlations observed across all factors.

Implications for Circular Economy Adoption

The weak positive relationships across all factors suggest that promoting circular economy practices among young adults in the digital marketplace may require a multifaceted approach that simultaneously addresses structural, socio-psychological, and communication aspects. As Kirchherr et al. (2017) emphasise, overcoming barriers to circular economy implementation often requires coordinated efforts across multiple domains. The slightly stronger correlation of communication factors hints at the potential effectiveness of targeted communication strategies in promoting circular economy practices. However, the weakness of this relationship also indicates that communication alone may not be sufficient. Instead, a holistic approach that leverages the interconnectedness of structural, socio-psychological, and communication factors in the digital marketplace may be necessary to significantly influence young adults' circular economy behavioural intentions. In conclusion, this study reveals a complex landscape of influences on circular economy behavioural intentions among young Malaysian adults in the digital marketplace. The uniformly weak positive relationships across structural, socio-psychological, and communication factors challenge simplistic models of behaviour change and highlight the need for nuanced, multi-dimensional approaches to promoting circular economy practices in the digital age. Future research and practical interventions should consider the unique characteristics of the digital marketplace and its potential to reshape traditional influences on economic behaviour.

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CONCLUSION

This study investigated the relationships between structural factors, socio-psychological factors, communication factors, and circular economy behavioural intentions among young adults in Malaysia within the context of the digital marketplace. The findings reveal weak positive correlations between all three independent variables and circular economy behavioural intentions, with communication factors showing a slightly stronger relationship compared to socio-psychological factors and structural factors. These results provide valuable insights into the complex dynamics influencing circular economy adoption among young adults in the digital age.

This research contributes to the existing body of knowledge in several ways. Firstly, it extends the application of the Theory of Planned Behaviour (Ajzen, 1985) and social structure theories (Gutmann, 2009; Putnam, 2016) to the specific context of circular economy practices in the digital marketplace. The consistently weak correlations across all factors challenge the straightforward applicability of these theories in this context, suggesting a need for more nuanced frameworks that account for the unique characteristics of digital environments and circular economy behaviours. Secondly, this study provides empirical evidence on the relative importance of structural, socio-psychological, and communication factors in shaping circular economy behavioural intentions among young adults. The slightly stronger correlation of communication factors highlights the potential significance of information dissemination and opinion-seeking behaviours in the digital age, aligning with and extending previous research

on environmental communication (Kanchanapibul et al., 2014). Lastly, this research offers insights into the circular economy adoption process in Malaysia, contributing to the growing body of literature on sustainable practices in developing economies. The findings suggest that the factors influencing circular economy adoption may operate differently in this context compared to more extensively studied Western contexts.

Practical and Policy Implications

The results of this study have several implications for practitioners, policymakers, and industry stakeholders aiming to promote circular economy practices among young adults. The weak positive relationships across all factors suggest that a multifaceted approach is necessary to effectively influence behavioural intentions. Policymakers and industry leaders should consider developing integrated strategies that simultaneously address structural, socio-psychological, and communication aspects of circular economy adoption. The slightly stronger correlation of communication factors implies that targeted communication strategies may be particularly effective in promoting circular economy practices. However, these strategies should be designed to leverage the unique characteristics of the digital marketplace, such as peer-to-peer information sharing and online opinion leaders. Furthermore, the findings underscore the need for policies and initiatives that bridge the gap between awareness and action in sustainable practices, as highlighted by Lakatos et al. (2018). This may involve creating more tangible incentives or reducing barriers to participation in circular economy initiatives within digital platforms.

Limitations and Recommendations for Future Research

Several limitations should be considered when interpreting the results of this study. Firstly, the sample was predominantly composed of female young adults aged 18-22 with a Bachelor's degree, which may limit the generalizability of the findings to other demographic groups. Secondly, the study relied on self-reported data, which may be subject to social desirability bias, potentially inflating the reported behavioural intentions. Additionally, the cross-sectional nature of the study precludes causal inferences and does not capture potential changes in behavioural intentions over time. The focus on behavioural intentions rather than actual behaviours also limits our understanding of the translation of intentions into actions within the circular economy context. Future studies should address these limitations and further explore the complexities of circular economy adoption in the digital age. Longitudinal studies could provide insights into how behavioural intentions translate into actual behaviours over time. Research incorporating a more diverse sample in terms of age, education, and gender would enhance the generalizability of the findings.

Moreover, qualitative research methods could offer deeper insights into the underlying reasons for the weak correlations observed in this study. Mixed-methods approaches might be particularly valuable in unravelling the complex interplay between structural, socio-psychological, and communication factors in the digital marketplace. Future research should also explore potential moderating or mediating variables that might explain the weak relationships observed. For instance, investigating the role of digital literacy, environmental knowledge, or perceived economic benefits could provide a more comprehensive understanding of circular economy adoption processes. Lastly, comparative studies across different cultural contexts and levels of economic development could shed light

on the universality or specificity of the factors influencing circular economy behavioural intentions among young adults in the digital marketplace.

In conclusion, while this study reveals weak relationships between the investigated factors and circular economy behavioural intentions, it provides a foundation for future research and highlights the need for innovative, multifaceted approaches to promoting sustainable practices in the digital age. As the world continues to grapple with environmental challenges, understanding and influencing the behaviour of young adults in the digital marketplace will be crucial for realising the potential of the circular economy.

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