MK028_2502

IMPACT OF GAMIFICATION IN ACTIVEWEAR MARKETING ON PURCHASING INTENTION AMONG GEN-Z IN MALAYSIA

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BY

TAN XIAO WEN
YEAK HUI YING

A final year project submitted in partial fulfilment of the requirement for the degree of

BACHELOR OF MARKETING (HONS)

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Degree Awarded: BACHELOR OF MARKETING (HONS)

Faculty: TEH HONG PIOW FACULTY OF BUSINESS AND FINANCE

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We hereby declare that:

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Name of Student:	Student ID:	Signature:
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2. YEAK HUI YING	23ABB606	YEAK HUI YING

Date: 17 September 2025

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Finally, we are deeply indebted to our families and friends for their unwavering support, patience, and understanding, which have been a source of strength throughout this academic journey.

DEDICATION

We would like to dedicate this Final Year Project to our beloved families, whose unwavering support, encouragement, and sacrifices have been the foundation of our academic journey. Their patience and understanding have given us the strength to persevere through every challenge.

We also dedicate this work to our supervisor, Ms. Uma Eswari a/p Punchanathan, whose guidance and dedication have inspired us to strive for excellence. Without her valuable advice and encouragement, the completion of this project would not have been possible.

Finally, this project is dedicated to all our lecturers, peers, and friends who have been part of our academic growth and who have motivated us to achieve our goals.

ABSTRACT

This study investigates the impact of gamification in activewear marketing on purchasing intention among Generation Z consumers in Malaysia using the Technology Acceptance Model (TAM) as the theoretical foundation. The model was extended with Perceived Social Influence (PSI) and Perceived Enjoyment (PE) to account for the social dynamics of gamified marketing. The framework includes Perceived Usefulness (PU), Perceived Ease of Use (PEoU), PE, and PSI as independent variables, Attitude (ATT) as the mediating variable, and Purchase Intention (PUI) as the dependent variable.

A quantitative approach was adopted, with data collected from 384 Malaysian Gen Z respondents who had prior exposure to gamified marketing campaigns in the activewear industry. Partial Least Squares Structural Equation Modelling (PLS-SEM) was used to analyze the data and evaluate the proposed relationships.

The findings demonstrate that PU, PEoU, PE, and PSI significantly influence ATT, which in turn positively affects PUI. The mediating effect of ATT was also confirmed, highlighting the importance of gamification in shaping attitudes and driving purchase intentions. These results provide both theoretical contributions and practical insights for marketers and activewear brands seeking to engage Gen Z consumers more effectively.

Keywords: Gamification; Perceived Usefulness (PU); Perceived Ease of Use (PEoU); Perceived Enjoyment (PE); Perceived Social Influence (PSI); Attitude (ATT); Purchase Intention (PUI); Generation Z; Activewear Marketing; Technology Acceptance Model (TAM)

Subject Area: HF5410-5417.5 Marketing. Distribution of products

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LIST OF ABBREVIATIONS

ATT	Attitude
AVE	Average Variance Extracted
CR	Composite Reliability
DV	Dependant Variable
Gen Z	Generation Z
HTMT	Heterotrait-monotrait Ratio
IV	Independent Variable
PE	Perceived Enjoyment
PEoU	Perceived Ease of Use
PLS-SEM	Partial Least Squares Structural Equation Modelling
PSI	Perceived Social Influence
PU	Perceived Usefulness
PUI	Purchase Intention
SEM	Structural Equation Modelling
TAM	Technology Acceptance Model
TRA	Theory of Reasonable Action
VAF	Variance Accounted For
VIF	Variance Inflation Factor

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PREFACE

This research project was undertaken to examine the impact of gamification in activewear marketing on purchasing intention among Generation Z consumers in Malaysia. The decision to pursue this topic stemmed from the recognition of two significant trends: the increasing relevance of gamification as a marketing strategy and the rapid growth of the activewear industry as both a functional and lifestyle segment. In particular, the unique characteristics of Generation Z as digital natives and key drivers of consumer demand highlight the importance of understanding how innovative marketing approaches influence their purchasing decisions.

The study was motivated by the observation that gamification, while widely discussed in global marketing contexts, remains relatively underexplored in relation to the Malaysian market and the activewear sector specifically. This research therefore sought to address this gap by analyzing the extent to which gamified marketing elements can shape attitudes and intentions among Gen Z consumers. Through this investigation, the project aims to provide both theoretical contributions to the field of consumer behavior and practical insights for marketers and businesses seeking to enhance engagement through innovative strategies.

The completion of this research has provided valuable opportunities to integrate academic knowledge with practical application, particularly in the areas of marketing innovation and consumer psychology. It is our hope that the findings will serve as a useful reference for future studies and offer meaningful guidance to organizations navigating the evolving intersection of gamification, consumer engagement, and purchasing behavior.

CHAPTER 1: RESEARCH OVERVIEW

1.0 Introduction

1.1 Research Background

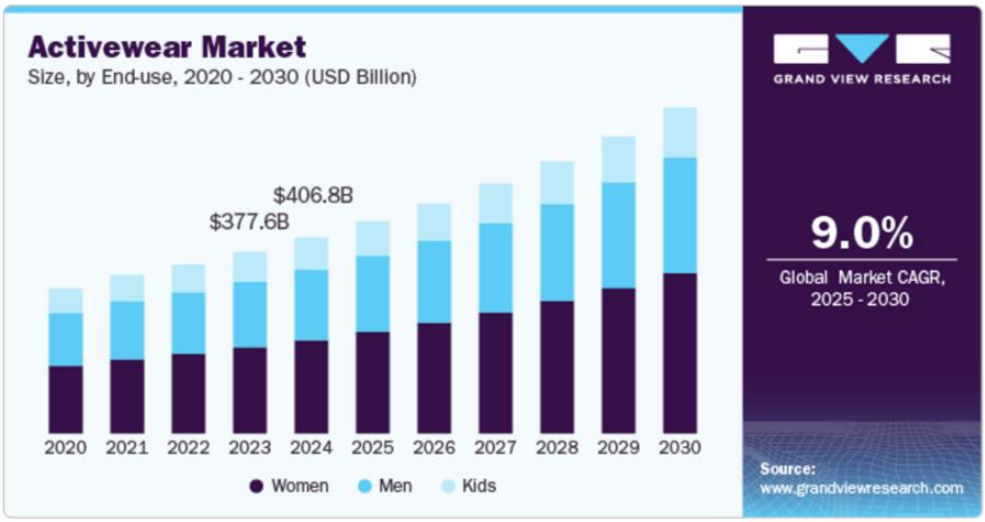

Figure 1.1. Activewear Market Size, by End-use, 2020-2030 (USD Billion) (Activewear Market Size, Share & Trends Analysis Report, n.d.)

The global activewear market has expanded significantly, fuelled by growing awareness of health and the increasing appeal of athleisure wear (Activewear Market Size, Share & Trends Analysis Report, n.d.). As reported by Grand View Research, the market is valued at approximately USD 406.83 billion in 2024 and is projected to grow at a CAGR of 9.0% between 2025 and 2030. Despite this

expansion, the industry has also witnessed significant **brand closures and restructuring**, illustrating the vulnerability of companies that fail to evolve strategically. For example, Exoticathletica, a once-popular Australian activewear brand, collapsed in 2025, owing more than AUD 13 million to creditors (Day, 2025). Similarly, global retailer JD Sports recently announced the closure of 50 stores worldwide as part of restructuring (Scott, 2025). Such closures highlight a critical issue—without innovative and engaging marketing strategies, especially in the digital era, activewear brands risk losing relevance and consumer trust.

As narrowing down to the context of Malaysia, according to the research conducted by Statista, Malaysia's Sports and Swimwear market is forecasted to generate a revenue of MYR 85.12 million in 2025. The market is expected to experience an annual growth rate of 6.69% during the 5 years period from 2025 to 2029 (CAGR 2025-2029) (Statista, n.d.). Yet this growth occurs in a highly competitive environment, dominated by global names like Nike and Adidas and populated by creative local brands such as Ash Be Nimble, Hwoofit, and Aina Collective. Notably, some ventures have not survived this challenging landscape. For instance, Fit Rebel, a Malaysian sports legging brand, shut down after six years due to supply chain issues and operational burnout (Khaw & Khaw, 2023). Similarly, homegrown apparel brands Thousand Miles and Bottoms Lab were discontinued by RPG Commerce in 2024 after five years of operation (Maharani, 2024). These cases underscore the risks faced by local activewear brands that lack robust and adaptive marketing strategies.

Gen Z consumers are leading this transformation. Being digital natives, they place high value on interactive and personalized brand experiences over traditional marketing messages (Djafarova & Bowes, 2020). Gen-Z accounted for approximately 26% of the total Malaysian population as of 2025 and exhibits high levels of internet usage and increasing purchasing power as well as interest in lifestyle-related product including activewear (DOSM, 2025). Studies show that their purchase intentions are heavily influenced by immersive digital engagement and brand interactivity (Alexander & Van Volkinburg, 2025), placing additional pressure on brands to adapt.

Gamification, a technique that consists of implementing game mechanics, such as challenges, rewards, points, and leaderboards, into areas outside of gaming, like marketing, to enhance consumer engagement and drive desired behaviors (Harwood & Garry, 2015; Spais et al., 2022). While global brands like Nike have successfully integrated gamified experiences, for instance, Nike Run Club, there is limited empirical evidence regarding its effectiveness within Malaysia's activewear industry, particularly targeting Gen Z.

Recent studies show that many activewear consumers in Malaysia, particularly Gen-Z, do not exhibit strong purchasing intentions toward local brands, largely because these brands fail to provide interactive and engaging experiences comparable to global competitors Djafarova & Bowes, 2020). While Gen-Z respondents are highly active online and value personalized engagement, most activewear marketing strategies in Malaysia remain traditional and underutilize innovative tools such as gamification. Consequently, Gen-Z consumers often perceive these brands as less relevant or exciting, which limits their willingness to purchase from them. Recent studies show that many activewear consumers in Malaysia, particularly Gen-Z, do not exhibit strong purchasing intentions toward local brands, largely because these brands fail to provide interactive and engaging experiences comparable to global competitors (Priporas et al., 2017; Djafarova & Bowes, 2021). While Gen-Z respondents are highly active online and value personalized engagement, most activewear marketing strategies in Malaysia remain traditional and underutilize innovative tools such as gamification. Consequently, Gen-Z consumers often perceive these brands as less relevant or exciting, which limits their willingness to purchase from them.

1.2 Research Problem

Gamification in non-gaming contexts has become one of the fastest-growing business strategies, particularly in marketing (Lim et al., 2021). While it shows potential in shaping consumer attitudes and behaviours, many businesses have reported high failure rates due to poor design and lack of integration into business processes (Gartner, 2012; Lim et al., 2021). This suggests that the understanding of

how gamification effectively influences consumer behaviour remains limited. In activewear marketing, purchase intention is a key factor of consumer behaviour (Xie, 2023), yet the effectiveness of gamification in this context remains unclear (Salen & Zimmerman, 2004).

Although Gen Z in Malaysia are highly connected with nearly all owning smartphones and having internet access (Nielsen, 2019), businesses still face challenges in influencing their purchase intention. Sport-branded apps, such as Nike+ and Map My Run, have been criticized for limited functionality and ineffective gamification features (Welch, 2016; Weissman, 2020). Poorly designed elements and the novelty effect may reduce perceived usefulness over time (Hamari, 2013; Farzan et al., 2008), weakening gamification's impact on consumer decisions. This study aims to examine the positive impact of gamification in influencing perceived usefulness in activewear marketing on purchase intention.

Users expect sport-branded apps to provide both sports-specific and brand-related features, but system complexity often reduces ease of use (Li et al., 2025). Inadequately designed gamification features can make systems harder to navigate, lowering perceived ease of use (Dominguez et al., 2013; Dong et al., 2012). This study aims to examine the positive impact of gamification in influencing perceived ease of use in activewear marketing on purchase intention.

Poorly integrated gamification design can also reduce enjoyment. For example, ineffective ranking systems may demotivate users (Sadeghi et al., 2022), while excessive competition can create negative experiences (Hakulinen et al., 2013). If gamified systems fail to satisfy psychological needs such as autonomy and engagement, perceived enjoyment declines (Xu & Chen, 2020), which may weaken purchase intention. This study aims to examine the positive impact of gamification in influencing perceived enjoyment in activewear marketing on purchase intention.

Social influence also shapes how users respond to gamification. While peer competition and community recognition can motivate participation, poorly designed leaderboards or sharing features may lead to disengagement (Hamari & Koivisto, 2015; Sadeghi et al., 2022). For Gen Z, who are highly active on social media, these social factors can either enhance or reduce purchase intention (Djafarova & Bowes, 2021). This study aims to examine how perceived social

influence in gamification positively affects Gen Z's purchase intention in activewear marketing.

Many studies have adopted the Technology Acceptance Model (TAM) as a framework in gamification-related marketing studies (Lim et al., 2021; Dhahak & Huseynov, 2020). However, it has been criticized for being overly simplified and lacking depth in explaining social processes of technology adoption (Alshammari & Rosli, 2020; Malatji et al., 2020). Moreover, perceived social influence is rarely included in TAM applications, despite its relevance in social and gamified contexts. This highlights a research gap. Therefore, this study extends TAM by incorporating perceived usefulness, ease of use, enjoyment, and social influence to investigate their impact on Malaysian Gen Z's purchase intention toward gamified activewear marketing.

1.3 Research Questions

Based on the discussed statement of problems in the previous section, the following research questions are raised.

i. To what extend do **Perceived Usefulness (PU)** influence Malaysian Gen-Z's **Attitude (ATT)** toward gamification in activewear marketing?

ii. To what extend do **Perceived Ease of Use (PEoU)** influence Malaysian Gen-Z's **Attitude (ATT)** toward gamification in activewear marketing?

iii. To what extend do **Perceived Enjoyment (PE)** influence Malaysian Gen-Z's **Attitude (ATT)** toward gamification in activewear marketing?

iv. To what extend do **Perceived Social Influence (PSI)** influence Malaysian Gen-Z's **Attitude (ATT)** toward gamification in activewear marketing?

v. To what extend **Attitude (ATT)** have mediating effect on relationship between **Perceived Usefulness (PU), Perceived Ease of Use (PEoU), Perceived Enjoyment (PE), Perceived Social Influence (PSI)** and Malaysian Gen-Z's **Purchase Intention (PUI)** toward gamification in activewear marketing?

1.4 Research Objectives

1.4.1 General Objectives

This study focusses to achieve a comprehensive understanding of the impact of gamification in activewear marketing that influence purchase intention among Gen-Z in Malaysia.

1.4.2 Specific Objectives

i. To examine the positive impact of **Perceived Usefulness (PU)** on Gen-Z's **attitude (ATT)** toward gamification in activewear marketing in Malaysia.

ii. To examine the positive impact of **Perceived Ease of Use (PEoU)** on Gen-Z's **attitude (ATT)** toward gamification in activewear marketing in Malaysia.

iii. To examine the positive impact of **Perceived Enjoyment (PE)** on Gen-Z's **attitude (ATT)** toward gamification in activewear marketing in Malaysia.

iv. To examine the positive impact of **Perceived Social Influence (PSI)** on Gen-Z's **attitude (ATT)** toward gamification in activewear marketing in Malaysia.

v. To examine the positive impact of Gen-Z's **attitude (ATT)** toward gamification in activewear marketing on their **purchase intention (PUI)** in Malaysia.

1.5 Research Significance

1.5.1 To Practitioners perspective

In Malaysia, gamification has gained popularity in the marketing of activewear especially among Gen Z consumers. Nevertheless, their popularity and entertaining experiences can eventually get stale or irritating, which will result in the discontinuation of some users (Goldberg and Nel, 2022). Moreover, technical challenges, ineffective reward programs, or the lack of proper integration with the local social platforms may make gamification strategies even less efficient (Zainoddin et al., 2022). These aspects underscore the danger of the local brands with weak and unresponsive strategies. Thus, in the process of creating gamified marketing strategies, the brands should pay attention to improving the user experience, boosting engagement, and drive the purchase intention.

From a practitioner's perspective, this study emphasizing the mediating role of attitude (ATT) among gamification constructs and purchase intention. The findings suggest that even when users find gamification useful, easy to use, or fun, these perceptions will not translate into purchase intention unless they foster a positive attitude toward the brand. For marketers, this means gamification should not only provide rewards but also cultivate favorable brand attitudes through fair challenges, transparent reward systems, and activities that reflect brand values.

Moreover, the extension in this study is particularly relevant for Gen Z consumers, who spend significant time on social media, are more attracted to fun experiences, and are heavily influenced by peers and community (Persada

et al., 2021). The results show that gamification effectiveness depends not only on technical competence or entertainment but also on its ability to foster favorable attitudes in consumers. Therefore, these insights provide practical guidance for practitioners to reduce design failures, ensure sustained engagement, and improve the efficiency of gamification strategies in the activewear industry.

This finding delivers useful insights that can help activewear brands and retailers in Malaysia refine their gamification approaches and sustain competitiveness. The findings highlight the key areas for improvement in gamification design: if perceived usefulness (PU) is low, rewards should be redesigned to increase value and clarity; if perceived ease of use (PEoU) is low, the interface should be simplified; if perceived enjoyment (PE) is insufficient, more interactive and engaging features should be added; and if perceived social influence (PSI) is weak, peer-to-peer or group activities should be emphasized. Previous studies also indicate that gamification features such as immersion, achievement, and social interaction can enhance consumer experience, strengthen brand loyalty, and boost purchase intention in the long term (Li & Aumeboonsuke, 2025).

1.5.2 To Academic perspective

From an academic perspective, this study uses the Technology Acceptance Model (TAM) to examine how the constructs influence attitude and further impact purchase intention toward gamification in activewear marketing among Malaysian Gen-Z. Many studies have adopted TAM as a framework in technology-related studies (Lim et al., 2021; Dhahak & Huseynov, 2020). But limited study has extended it in the context of gamification. This study contributes to theory development by incorporating perceived enjoyment (PE) and perceived social influence (PSI) as additional constructs, and attitude (ATT) as a mediating variable, addressing the limitations of the original TAM which only included PU and PEoU.

Besides, this research helps to bridge the literature gap as few studies have examined purchase intention toward gamification in activewear marketing from the perspective of Malaysian Gen-Z. Overall, the mediated influence, the extended PE and PSI constructs have contributed to understanding the predictive power of gamification on purchasing intention in activewear marketing, by incorporating internal, external, direct and indirect influence components. This extended model offers a foundation for future studies in similar context including but not limited to the new technologies or gamified activewear e-commerce.

CHAPTER 2: LITERATURE REVIEW

2.1 Underlying theories

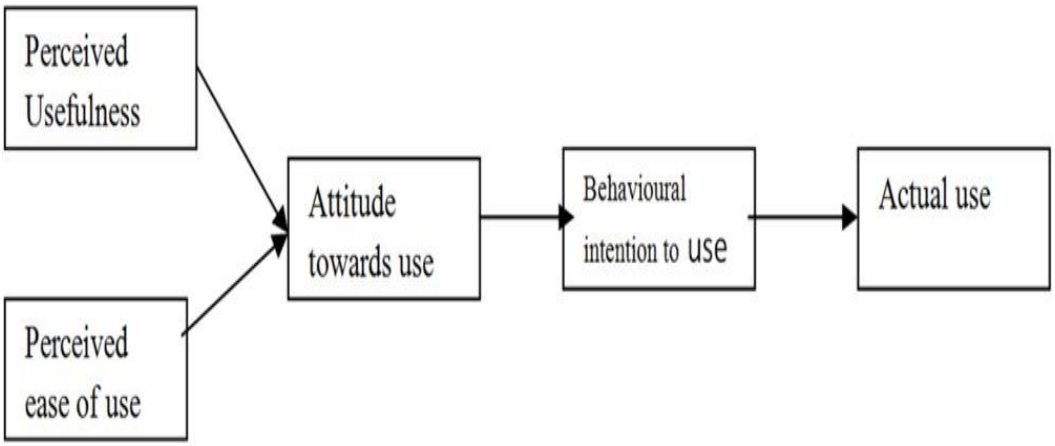

Figure 2.1. The original Technology Acceptance Model TAM (Davis, 1989)

The Technology Acceptance Model (TAM) (Davis, 1989) was initially conceptualized by Davis (1989) to explain and predict individuals' behavioural intentions toward the adoption of technologies and information systems (Wilkins et al., 2007). Derived from the Theory of Reasoned Action (TRA) (Fishbein & Ajzen, 1975), TAM emphasizes the role of individual perceptions in shaping attitudes and subsequent behavioural intentions, particularly in contexts such as gamified platforms (Syaharani & Yasa, 2022). The original TAM is comprised of four primary variables, namely Perceived Usefulness (PU), Perceived Ease of Use (PEoU), Attitude Towards Use (ATT) and Behavioural Intention to Use (BI), with Actual Use (AU) considered the ultimate outcome variable (Davis, 1989).

According to the model, PU and PEoU directly influence ATT, which subsequently affects BI, with ATT functioning as a mediating variable.

The original TAM was further extended by Davis et al. (1992) by incorporating **Perceived Enjoyment (PE)** as an intrinsic motivational factor. PE is explained as "the extent to which the activity of using a technology is recognized as enjoyable in its own right, apart from any utilitarian or practical outcomes" (p.1113) (Venkatesh, 2000, p. 351). Prior research has indicated that users experiencing PE and satisfaction from gamified applications are more inclined to continue their engagement in the gamified applications (Hakulinen et al., 2015), ultimately fostering their purchase intention (Yang et al., 2017; Yang et al., 2018). Therefore, the present study extends the TAM framework by integrating PE as an additional predictor. Similarly, in technology adoption research, Similarly, in technology adoption research, **Perceived Social Influence (PSI)** has been found to significantly affect users' attitudes and intentions, particularly when the technology or behavior is visible or socially relevant (Venkatesh & Davis, 2000; Lewis et al., 2003). In gamification contexts, social elements such as peer competition, recognition, and community participation have been shown to enhance motivation and increase engagement (Hamari & Koivisto, 2015). Therefore, applied PSI in the current study provides a more thorough insight regarding the impact of gamification in activewear marketing influences Gen-Z consumers' purchase intention.

2.2 Review of variables

2.2.1 Independent Variable (IVs)

2.2.1.1 Perceived Usefulness (PU)

Perceived Usefulness, PU denotes "the degree to which a person believes that using a particular system would enhance his or her job performance in a given organizational context" (Davis et al., 1989, p. 985). PU is the extent to which the overall advantages and utilities experienced by users that can stimulate their willingness to conduct transactions through the application Kahar et al. (2019).

PU is encapsulated as users' expectations regarding the advantages and enhancements that could gained from the purchasing process attributed to new technological systems, thereby highlighting the innovation's functional and utility value (Ibrahim et al., 2024). The review of literature above motivates the project's researchers to examine the impact of gamification's PU in activewear marketing on Gen-Z consumers' purchasing intention in Malaysia.

2.2.1.2 Perceived Ease of Use (PEoU)

Perceived Ease of Use, PEoU denotes "the degree to which a person thinks that the use of particular system does not require any effort" (Davis et al., 1989, p. 985). Besides, PEoU is explained as the simplicity of a technological system in terms of its clarity, user-friendliness, and ease of comprehension, as well as its capability to navigate users efficiently through the process of utilizing the technological system towards achieving a desired outcome (Weijters et al., 2007). In addition, PEoU could be understood as the perceived effortlessness (as well as convenience) experienced by consumers when interacting and utilizing a specific technological system (Ha and Stoel, 2009; Stocchi et al.,2019). PEoU is described as the amplitude to which consumers are inclined to adopt and utilize gamified business applications, noting that consumers perceived it as user-friendly and will not involve substantial cognitive effort (Rodrigues, Oliveira and Costa, 2013). From the discussion above, this project examines the impact of gamification's PEoU in activewear marketing on Gen-Z consumers' purchasing intention in Malaysia.

2.2.1.3 Perceived Enjoyment (PE)

Perceived Enjoyment, PE is defined by Davis et al. (1992) as "the extent to which the activity of using a technology is recognized as enjoyable in its own right, apart from any utilitarian or practical outcomes" (p.1113) (Venkatesh, 2000, p. 351). Besides, Davis, Bagozzi, and Warshaw (1992) define PE as the extent to which using a technology is considered enjoyable in its own right,

independent of any expected performance outcomes (Teo & Noyes, 2011). Furthermore, PE pertains to the hedonic value of new technology and shows the extent to which one finds using the technology intrinsically enjoyable or pleasurable (Holdack et al., 2022). Besides, PE denotes the factor that enables users to derive pleasure and a sense of enjoyment while interacting with the application (Oyman et al. 2022). Therefore, this project examines the impact of gamification's PE in activewear marketing on Gen-Z consumers' purchasing intention in Malaysia.

2.2.1.4 Perceived Social Influence (PSI)

Social influence is often defined as a subjective norm, that is, an individual's perception of how important a certain behaviour is to others, whether they approve of it, and whether they expect the individual to carry it out (Bechthold et al., 2025; Zhang et al., 2025). Besides, social influence refers to the change in behaviour, thoughts, feelings, or attitudes that occurs when a person or group affects another, either intentionally or unintentionally (Dhahak & Huseynov, 2020). Subjective norm is defined as "a person's perception that most people who are important to him think he should or should not perform the behaviour in question" (Fishbein & Ajzen, 1975). Drawing on this literature, the present study examines the impact of gamification-related PSI in activewear marketing on Gen-Z consumers' purchase intention in Malaysia.

2.2.2 Mediator: Attitude (ATT)

Orhan and Kan (2025) described attitude as a psychological tendency to assess a specific object either positively or negatively. Attitude is generally defined as an internal and evaluative state directed at an object, such as a brand, it involves the perception of the object as good or bad (Shi et al., 2021). According to Ghaffarisadr and Nobakht Sareban (2024), attitude also reflects an internal evaluation formed within the individual. The review of literature above motivates the project's researchers to examine the impact of Gen-Z consumers'

ATT towards gamification in activewear marketing on their purchasing intention in Malaysia.

2.2.3 Dependent Variable (DV): Purchase Intention (PUI)

Purchase intention has often been applied as an indicator for evaluating the effectiveness of new distribution channels, assisting managers in making strategic decisions (Garcia, 2020). It is also closely related to consumers' willingness to purchase products or services (Hasanah & Anjaningrum, 2023). Beyond willingness, purchase decisions are further shaped by consumers' essential daily needs (Abbas et al., 2020). Overall, purchase intention is recognized as a key concept in consumer behavior, reflecting the likelihood of choosing a particular brand (Wang et al., 2023).

2.3 Proposed Theoritical/ Conceptual Framework

Based on the projected relationships between PU, PEoU, PE, and PSI of gamification in activewear marketing and Gen-Z consumers' PUI in Malaysia, with ATT as the mediating variable, the project's research model is shown below.

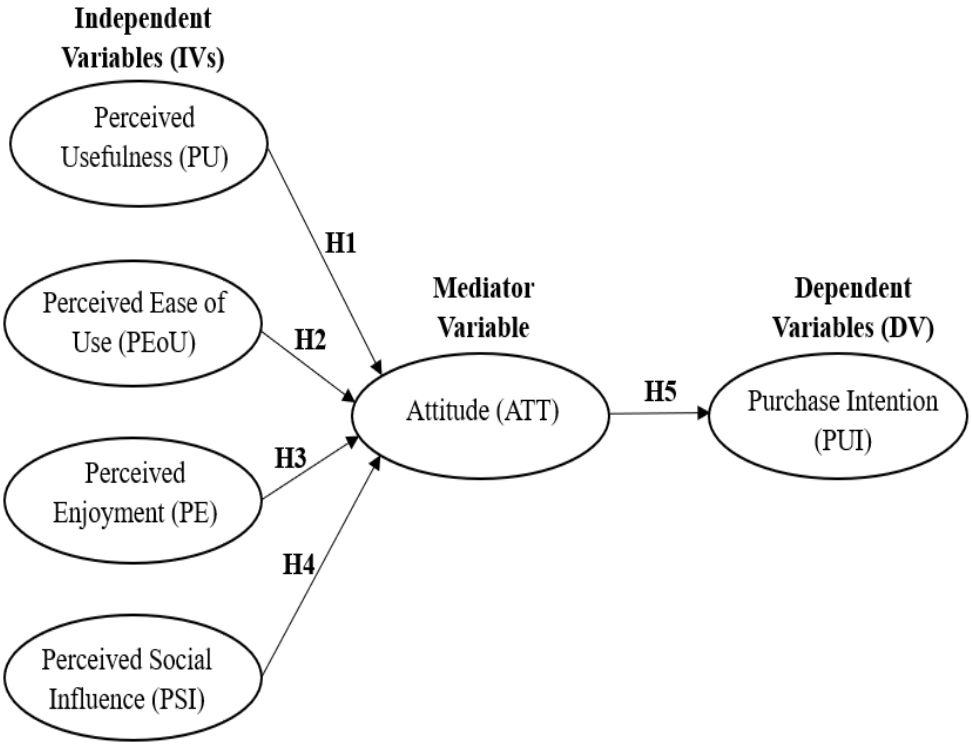

Figure 2.2. Proposed Conceptual Framework

2.4 Hypotheses Development

2.4.1 The Relationship Between Perceived Usefulness (PU) and Attitude (ATT)

Empirical evidence from IT adoption studies highlights the strong impact of perceived usefulness (PU) on users' attitude (ATT) and behavioural intentions (Na et al., 2022). In the gamification context, PU has been proved to strongly influence the gamification attitudes (Vanduhe et al., 2020; Yang et al., 2017). PU is recognized as one of the two primary factors in determining individuals' attitudes toward adopting new systems or technologies (Biehal et al., 2016). This result is consistent wiith earlier research findings by Jessica Hani Sianadewi, et.al (2017), Rajendra Prasada Bangkara, Ni Putu Sri Harta Mimba (2016), Wasfi Abdul Kareem Alkasassbeh (2014), and Yudianto Oentario, et.al

(2017), all of whom concluded that PU has a positive impact on consumer attitude. Furthermore, research has found that medical professionals' ATT are positively shaped by their perception of the PU of electronic medical record systems. (Rahman et al., 2024). The review of literature motivates the project's researchers to predict the positive relationship between PU and ATT, see H1.

H1: The Perceived Usefulness (PU) of gamification in activewear marketing positively influences the Attitude (ATT) of Malaysian Gen Z towards purchasing activewear.

2.4.2 The Relationship Between Perceived Ease of Use (PEoU) and Attitude (ATT)

Previous research revealed that, perceived ease of use (PEoU) can significantly influence both user attitudes and behaviours in the context of information technology adoption (Hsu & Lu, 2004; Rodrigues, Costa, & Oliveira, 2013). PEoU has been considered as a significant determinant that influences the attitude (ATT) or behavioural intentions of users (Yang et al., 2017; Albort-Morant et al., 2022). An increasing number of organizations are adopting gamification as a technological platform to shape consumer attitudes and behaviors, emphasizing that the accessibility, simplicity, and ease of understanding and interaction of these games can vary (Yang et al., 2017). Studies have shown that incorporating the PEoU factor into gamification can enhance user motivation and engagement (Kashive & Mohite, 2023), which in turn contributes to the formation of a favorable ATT towards the gamified experience. Moreover, according to Wong et al. (2022), consumers' ATT toward mobile wallets are positively shaped by the PEoU of mobile payments. From the literature review, the project's researchers predict that PEoU reinforce ATT to purchase activewear, see H2.

H2: The Perceived Ease of Use (PEoU) of gamification in activewear marketing positively influences the Attitude (ATT) of Malaysian Gen Z towards purchasing activewear.

2.4.3 The Relationship Between Perceived Enjoyment (PE) and Attitude (ATT)

To the best of the project researchers' knowledge, the influence of PE on brand attitude has not yet been thoroughly explored within the context of gamification. Study has shown that perceived enjoyment has served as a significant determinant shaping consumers' attitudes toward advertising in the context of electronic commerce (Brackett and Carr, 2001; Gao and Koufaris, 2006). Besides, in a study examining students' acceptance of an internet-based learning platform, it was concluded that the element of PE not only directly impact the users' behavioural intention but also influences it through ATT indirectly (Lee et al., 2005). It is also proposed that enjoyment or entertainment element of an advertisement may influence consumers' ATT towards that advertisement (Norris & Colman, 1993; Gullen, 1993; Lloyd & Clancy, 1991). Furthermore, Sudono et al. (2020) shows that PE has a positive influence on ATT towards the usage of mobile payment. Corresponding to the studies' findings, this project hypothesizes that when consumers perceived the gamification is enjoyable, they will form a positive ATT towards purchasing activewear, see H3.

H3: The Perceived Enjoyment (PE) of gamification in activewear marketing positively influences the Attitude (ATT) of Malaysian Gen Z towards purchasing activewear.

2.4.4 The Relationship Between Perceived Social Influence (PUI) and Attitude (ATT)

According to Lim et al. (2021), social influence is widely recognized as a key driver of attitude change and serves as a major motivational factor for gamers. Attitudes may be shaped by the norms and behaviours of relevant social groups. In marketing, sociocultural factors such as parents, friends, school, and mass

media significantly shape consumer socialization (Alves de Castro, O'Reilly, & Carthy, 2022). It has been established that human attitudes and behaviours can be accurately predicted by perceived social influence (Ajzen, 1991). Khwaja, Zaman, and Hameed (2022) also pointed out the importance of social influence on the brand attitudes of young people. In gamified marketing, individuals often engage in competitive or cooperative interactions with others, leading to perceived social influence. The result corresponds with the prior study which indicates that PSI has a positive impact with ATT towards using the mobile banking in the US and Brazil (Denny Indra Prastiawan, et al., 2021). Perceived social influence can shape users' attitudes toward the gamified system (Lim et al., 2021). Lady, Defen, and Nurjanah (2024) highlighted that social elements play a key role in gamification, especially in activities like gameplay. They found that social factors, such as peer influence, can shape users' attitudes and intentions to engage with gamified services. This project hypothesizes that the people who perceive stronger social influence from gamified marketing will develop more favorable attitudes toward it, see H4.

H4: The Perceived Social Influence (PSI) of gamification in activewear marketing positively influences the Attitude (ATT) of Malaysian Gen Z towards purchasing activewear.

2.4.5 The Relationship Between Attitude (ATT) and Purchase Intention (PUI)

Ajzen (1991) has stated that attitude (ATT) significantly affects purchase intention (PUI). Attitude is a lasting overall evaluation of an object, person, issue, or product, and it significantly influences consumer behavior, intentions, and opinions (Madichie, 2012). In marketing, understanding consumer attitudes is crucial, as it helps marketers develop strategies to shape favorable attitudes toward marketing strategies (Madichie, 2012). Specifically, attitude toward a brand, which includes feelings, intentions, and beliefs, directly affects whether consumers will buy it (Abbas, Ko, & Szabó, 2022; Amsl et al., 2023). Gamified marketing, as an engaging and interactive strategy, can influence

consumer attitudes and experiences. When consumers develop positive attitudes toward a brand through engaging and novel experiences, such as gamification, they are more likely to express interest in purchasing and supporting the brand (Li et al., 2025). Engaged customers, who often hold favourable attitudes, tend to demonstrate strong purchase intention (Hashjin et al., 2025). The findings also align with the study which indicates that Chinese consumers' sustainable apparel products attitudes had a strong positive impact on the purchase intention toward sustainable apparel products (Jung et al., 2020). This project hypothesizes that when consumers develop a positive Attitude (ATT) toward gamified marketing, they are more likely to express Purchase Intention (PUI) for activewear, see H5.

H5: The ATT of Malaysian Gen Z toward gamification in activewear marketing positively influences their PUI for activewear.

In the literature, findings suggest that the independent variables of gamification, including PU, PEoU, PE, and PSI, may not always demonstrate significant effects on ATT, and ATT itself may not consistently affect PUI. For example, Davis and Lang (2012) concluded that PU was not significantly related to ATT. Similarly, Gunawan et al. (2019) found that PEoU negatively affected consumer attitudes, whereas Wu and Chen (2017) indicated that PEoU had no influence on ATT. In addition, Al-Gahtani and King (1999) revealed that PE did not significantly affect ATT, a finding supported by Alfany et al. (2019), who showed that PE had no significant influence on ATT toward OVO. Likewise, Aydin and Burnaz (2016), Muk and Chung (2014), and Hadikusuma and Joalis (2019) reported that PSI had no significant impact on ATT, while Alfany et al. (2019) also concluded that PSI did not influence ATT in the case of OVO. Moreover, Gajanayake et al. (2013) found that ATT did not significantly influence behavioral intention in the context of electronic health record acceptance. These mixed findings highlight the importance of empirically re-examining the relationships within the extended TAM, particularly in gamification contexts such as activewear marketing.

2.4.6 The Mediating Effect of Attitude (ATT) Between PEoU, PU, PE, PSI, and PUI.

Holdack et al. (2022) stated that the Theory of Reasoned Action (TRA) suggests attitude is a main factor influencing behavioral intention, along with subjective norms (perceived social influence). Purchase intention (PUI) refers to the willingness to engage in a buying action (Wang et al., 2023). In the context of gamification, perceived ease of use (PEoU), perceived usefulness (PU), perceived enjoyment (PE), and perceived social influence (PSI) may affect purchase intention through the formation of positive attitudes toward gamification (Lim, 2023; Pop et al., 2023; Pozi, 2023). Consistent with prior studies, attitude has been shown to mediate the relationship between these gamification constructs and purchase intention (Holdack et al., 2022; Lim, 2023). Previous studies have shown that Attitude (ATT) mediates the relationship between gamification-related constructs and Purchase Intention (PUI) across various contexts. For example, ATT mediates the effect of Perceived Usefulness (PU) on purchase intention in Halal-labeled detergents (Rizkitysha & Hananto, 2022) and mobile applications (Vahdat et al., 2021). Similarly, Perceived Ease of Use (PEoU) and Perceived Enjoyment (PE) influence PUI via ATT in fashion products (Yusuf & Zulfitri, 2021), luxury purchases (Jain, 2021), and smart retail technologies (Ng et al., 2019). Perceived Social Influence (PSI) has also been found to impact PUI through ATT in mobile apps and electric vehicles (Vahdat et al., 2021; Jayasingh et al., 2021). These findings provide strong empirical support for the mediating role of ATT in gamified marketing contexts. This project therefore hypothesizes that ATT mediates the relationships between PU, PEoU, PE, PSI, and the PUI of Malaysian Gen Z consumers toward gamified activewear marketing, see H6, H6a, H6b, H6c, and H6d.

H6: ATT mediates the relationship between PU, PEoU, PE, PSI and PUI.

H6a: ATT mediates the relationship between PU and PUI.

H6b: ATT mediates the relationship between PEoU and PUI.

H6c: ATT mediates the relationship between PE and PUI.

H6d: ATT mediates the relationship between PSI and PUI.

In literature, studies' results indicate that the independent variables of gamification, such as PU, PEoU, PE, and PSI, may not always have significant effects on PUI or be mediated by ATT. For example, Wiprayoga et al. (2023) found that ATT did not mediate the relationship between PU and behavioral intention to adopt the local electronic catalogue system at the Bali Provincial Government. Similarly, Jirakasemwat (2025) reported that PU did not significantly influence purchase intention. Prior research also shows that PEoU may not significantly affect purchase intention; Prastiawan et al. (2021) found no significant positive relationship between PEoU and mobile banking use in Finland, while Hoang et al. (2023) indicated that ATT does not mediate the relationship between PEoU and PUI. Moreover, Garas (2024) revealed that PSI may not significantly influence PUI, suggesting that ATT does not mediate this relationship.

On the other hand, numerous studies have consistently shown that PE have significant effects on PUI or be mediated by ATT in various contexts, highlighting its importance in engaging users and shaping favorable attitudes toward products or services. However, there is limited evidence that PE is not mediated by ATT, making it necessary to empirically test all the study's predictors: PU, PEoU, PE, and PSI on Malaysian Gen Z's attitude toward purchase intention in gamified activewear marketing. Possible explanations for any non-significant results will be discussed to provide practical and theoretical implications for marketing strategies and future research.

CHAPTER 3: METHODOLOGY

3.0 Introduction

This chapter discusses the research design, sampling design, questionnaire development, data collection method and data analysis techniques.

3.1 Research Design

This project collects quantitative data from selected respondents in drawing a conclusion that represents the population's behaviour. Quantitative data were collected through a closed-ended questionnaire as the instruments adopted for measuring each variable were adopted from selected studies. This project adopts a quantitative approach, enabling the data collection from a larger and more diverse sample of Malaysian Gen-Z consumers. The collected data were analyzed and interpreted quantitatively to confirm the proposed hypothetical relationships between each predictor or IV and the DV, purchase intention. This project is a descriptive research design as the results describe the relationships between the IV and DV in a cross-sectional nature (Hossein Nassaji, 2015), or at a single point in time (Setia, 2016).

3.2 Sampling Design

3.2.1 Target Population

The target population of the current study is Malaysian Gen-Z consumers, aged 13 to 28, who are active users of digital platforms and potential or existing activewear consumers. Gen-Z, born between 1997 and 2012, represents around 26% of Malaysia's population, with over 9 million individuals as of 2025 (DOSM, 2025). Characterized by digital fluency, strong social media presence, and affinity for gamified experiences, this cohort also shows rising purchasing power and growing interest in health, fitness, and activewear. Thus, Gen-Z in Malaysia is an appropriate target population to examine how gamification in activewear marketing influences purchasing intention.

In Malaysia, there are different cultures and different buying behavior among people from various states. Targeting citizens captures shared identification and social belonging, making them a target relevant for this research (Rizal et al., 2020). By targeting at the citizens specifically at the Malaysian citizens, it is also guaranteed that there is cultural and behavioral consistency since the non-citizens like expatriates or international students may have varying consumer preferences based on their countries of origin. In such a way, sampling of citizens aids in the preservation of the representativeness of the sample and offers the insights that can be readily applied to local businesses and policymakers.

This project collected data from Malaysian Gen-Z citizens who were aware of activewear brands and their marketing campaigns but had not yet purchased any activewear products through gamification. This approach ensures that respondents can evaluate how gamification in marketing influences their attitudes and purchase decisions. The results provide useful indications of whether gamified marketing strategies can motivate Gen-Z consumers to purchase activewear in the future.

3.2.2 Sampling Frame

The sampling frame represents the set of materials from which the study's sample is obtained. (Turner, 2003). In this project, a specific sampling frame is not feasible, given the extensive size of Malaysia's Gen-Z population and the lack of an accessible, comprehensive contact database (Tang et al., 2023).

3.2.3 Sampling Technique

In this research, a non-probability sampling technique will be applied, specifically judgmental sampling. Judgmental sampling involves selecting individuals based on the researcher's knowledge and judgment about which respondents are most suitable for the study (Boeren, 2018). This method is appropriate because the target respondents are Malaysian Gen-Z consumers who are likely to have exposure to activewear products and gamified marketing strategies. It enables the researchers to concentrate on the right respondents and eliminate those respondents who fail to meet some of the requirements. To reach the intended sample, the Google Form questionnaire will be shared via multiple online platforms, including Xiaohongshu, Instagram, and university forums. To ensure that respondents align with the requirements, screening questions will be included to filter participants by age range and previous exposure to gamified marketing (e.g., online rewards, loyalty schemes, or in-app challenges). This approach ensures that the collected data is relevant and focused on the target population most likely to be influenced by gamification in activewear marketing.

3.2.4 Sample Size

Malaysia's population stood at 35.91 million as of 1 May 2025 (Worldometer, 2025). Of this total, 29.5% are aged between 13 and 34 years, based on

DataReportal's statistics (Kemp, 2025). (Kemp, 2025). According to the Department of Statistics Malaysia (DOSM), Gen-Z accounted for approximately 26% of the total Malaysian population as of 2025, with over 9 million individuals falling within this age group (DOSM, 2025).

Based on Krejcie and Morgan's sample size determination table (Figure 3.1), a sample of 384 respondents is considered sufficient for populations exceeding 1,000,000 (Krejcie & Morgan, 1970). Since Malaysia's Gen Z population exceeds 9 million, this study adopts a sample size of 384 respondents.

N	*S*	*N*	*S*	*N*	*S*
10	10	220	140	1200	291
15	14	230	144	1300	297
20	19	240	148	1400	302
25	24	250	152	1500	306
30	28	260	155	1600	310
35	32	270	159	1700	313
40	36	280	162	1800	317
45	40	290	165	1900	320
50	44	300	169	2000	322
55	48	320	175	2200	327
60	52	340	181	2400	331
65	56	360	186	2600	335
70	59	380	191	2800	338
75	63	400	196	3000	341
80	66	420	201	3500	346
85	70	440	205	4000	351
90	73	460	210	4500	354
95	76	480	214	5000	357
100	80	500	217	6000	361
110	86	550	226	7000	364
120	92	600	234	8000	367
130	97	650	242	9000	368
140	103	700	248	10000	370
150	108	750	254	15000	375
160	113	800	260	20000	377
170	118	850	265	30000	379
180	123	900	269	40000	380
190	127	950	274	50000	381
200	132	1000	278	75000	382
210	136	1100	285	1000000	384

Note.—*N* is population size. *S* is sample size.

Source: Krejcie & Morgan, 1970

Figure 3.1. Krejcie and Morgan's Table (1970)

3.3 Data Collection Method

The project's researchers drafted the questionnaire respondents' profile section and item statements by adapting selected items that were used to measure each IV and DV in studies that have a similar study context to the current project. Then,

academic experts were invited to check the drafted profile background and item statements. After that, the revised questionnaire was distributed to selected representatives of the population for checking. The following sections discuss the details.

3.3.1 Pre-testing

Pre- testing is also significant to research since it aids in data quality assurance and in fixing prospective complications in the research before conducting the actual survey. It includes testing the survey items among the representative of the targeted population to verify their validity, reliability and clarity (Colbert et al., 2019). This study received inputs of three scholarly consultants in the Department of Marketing, UTAR, who examined the draft questionnaire. They found that it would be enough to answer research purpose and gave useful advises to improve it. We used their suggestions on the final version of the questionnaire as shown in Appendix 3.1.

3.3.2 Pilot Study

The pilot test functions as a brief assessment of survey methodologies for gathering information that works as a preliminary evaluation ahead of extensive research. According to Hertzog (2008), pilot studies that aim to compare groups may require 30 to 40 participants per group. While this study does not involve group comparison, a sample size of around 30 is sufficient for assessing the reliability and clarity of the variables measured, which aligns with pilot study recommendations. A group of 20 to 40 testers determines their accuracy in creating precise project estimates for multiple target outcomes (Sharma et al., 2020). Thus, this pilot study will involve delivering the relevant questionnaire to 30 participants who meet the criteria that are outlined in Chapter 3.2.3 on Sampling Techniques.

3.3.3 Questionnaire Design

In empirical research, a questionnaire serves as a widely used tool for data collection, involving a series of structured questions aimed at collecting data from respondents (Rathi & Ronald, 2022). Data will be gathered through a Google Forms survey shared to 384 targeted respondents. The survey is structured into three sections, namely Section A, Section B, and Section C. Sections A consist demographic profile to ensure that respondents are from Gen-Z, Section B consist screening questions, while Section C includes questions related to the dependent variable (PUI), mediator (ATT), and independent variables (PEoU, PU, PE, PSI), focusing on the responses and views of the target respondents. A 5-point Likert scale was applied in this study, where 1 represented "strongly disagree" and 5 represented "strongly agree," as it provides simplicity, reduces respondent burden, and offers reliable results comparable to longer scales, making it more appropriate than 6- or 7-point scales (Dykema et al., 2021).

Table 3.1:

Constructive Measurement

Construct	Indicator	Measurement Item	Reference
Perceived Usefulness	PU1	1. Participating in gamification activities makes it easier for me to make purchase decisions.	(Buil et al., 2020; Davis, 1989)
	PU2	2. Participating in gamified activewear marketing is useful in helping me decide whether to buy the product.	
	PU3	3. Participating in gamification activities helps me make more effective purchasing choices.	

Perceived Ese of Use	PEoU1	4. The brand's gamification activities are mentally easy to engage in.	(Buil et al., 2020; Davis, 1989)
	PEoU2	5. The interaction with gamified activewear marketing is clear and understandable.	
	PEoU3	6. I find gamified activewear marketing easy to use.	
Perceived Enjoyment	PE1	7. I find the experience of learning a gamified activewear marketing enjoyable.	(Nurkaliza, 2014)
	PE2	8. I find the experience of learning a brand's gamified activewear marketing exciting.	
	PE3	9. I find the experience of learning a brand's gamified activewear marketing interesting.	
Perceived Social Influence	PSI1	10. People who influence my attitudes would recommend the usage of a brand's gamified activewear marketing tool.	(Chi et al., 2022)
	PSI2	11. People who are important to me would think positively of me using a brand's gamified activewear marketing tool.	
	PSI3	12. My friends would think using a brand's gamified activewear marketing tool is a good idea.	

Attitude	ATT1	13. All things considered, I find using a brand's gamified activewear marketing tool to be a good idea.	(Jiang et al., 2021; Alam et al., 2022)
	ATT2	14. All things considered, I find using a brand's gamified activewear marketing tool to be a positive thing.	
	ATT3	15. All things considered, I find using a brand's gamified activewear marketing tool to be favorable.	
Purchase Intention	PUI1	16. I am able to buy goods with the rewards (e.g., points, discounts, etc.) earned from the use of a brand's gamified activewear marketing tool.	(Andrina et al., 2022; Huang et al., 2017)
	PUI2	17. I intend to use a brand's gamified activewear marketing tool for activewear purchasing in the future.	
	PUI3	18. I will recommend others to buy activewear using a brand's gamified activewear marketing tool.	

3.3.4 The Fieldwork of the Main Study

This final year project was carried out across two trimesters. In the first trimester, students prepared the research proposal and completed a pilot study under supervisor guidance. After obtaining ethical approval from the University's ethical committee, the finalized questionnaire was distributed. To achieve the target of 384 responses within a short period, both physical and online surveys were used. The researchers used mobile phones to show the QR code directly to respondents during face-to-face distribution, while the e-questionnaire link and QR code were also shared on social media platforms such as Xiaohongshu and Instagram. Respondents could additionally request a

hard copy if preferred. The researchers' contact details were provided on the questionnaire for inquiries, although no queries were received. A judgmental sampling method was applied to target Gen Z consumers in Malaysia. The questionnaire distribution process continues until the desired sample size is reached.

3.3.5 Reliability Test

Reliability denotes the consistency of responses in a test (Widasmara et al., 2022). Cronbach's alpha (α) assesses whether questionnaire items are consistent and related (Malkewitz et al., 2022; Schrepp, 2020). A higher alpha indicates stronger internal consistency, meaning the items measure the same construct. Reliability levels can be classified as excellent ($\alpha \geq 0.90$), high (0.70–0.90), moderate (0.50–0.70), and low (< 0.50) (Nawi et al., 2020).

Table 3.2:

Cronbach's Alpha Rule of Thumb

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Moderate
$0.6 > \alpha \geq 0.5$	Poor
$\alpha < 0.5$	Unacceptable

Note. Source: Rule of Thumb of Cronbach's Alpha (Mulud, 2017).

Table 3.3:

Reliability Analysis of Pilot Study

Variables	No. of item	Cronbach's Alpha Value	Result
PU	3	0.898	Good
PEoU	3	0.925	Excellent
PE	3	0.919	Excellent
PSI	3	0.902	Excellent
ATT	3	0.885	Good
PUI	3	0.838	Good

Note. PU = Perceived Usefulness; PEoU = Perceived Ease of Use; PE = Perceived Enjoyment; PSI = Perceived Social Influence; ATT = Attitude; PUI = Purchase Intention.

3.4 Data Analysis Tool

The collected answered questionnaires were reviewed and coded to ensure all respondents met the target population's definition and had ticked only one level of disagreement or agreement Likert-scale on each item statement.

3.4.1 Descriptive Analysis

Descriptive statistics were carried out to find out the distribution counts and percentages of the respondents' demographic profiles, such as gender, age, and others.

3.4.2 Inferential Statistical Analysis

Inferential analysis is referred to as the type of analysis of data that involve making inferences, predictions and drawing conclusions regarding a larger population based on sample data (Corbo, 2022). Two key methods in inferential analysis includes hypothesis testing to test hypotheses regarding population parameters based on sample data; regression analysis to examine the relationships among variables to make predictions; as well as confidence intervals, which estimate population parameters along with their associated uncertainty (Kumar, 2025). Considering the large size of Malaysia's Gen Z population, this study employs inferential analysis to draw conclusions about their purchasing intentions based on data collected from a representative sample exposed to gamified activewear marketing.

3.4.3 Partial Least Squares Structural Equation Modelling (PLS-SEM)

Structural Equation Modelling (SEM) is a statistical approach that integrates factor analysis with regression to explore the relationship between measured variables and underlying constructs (Statistics Solutions, 2024). **Partial Least Squares SEM (PLS-SEM)** approach was employed in the current study, as it is widely applied in marketing and information systems research and is particularly suitable when the focus is on prediction, model complexity, or when data assumptions are not fully met (Hair & Alamer, 2022). The analysis followed a two-step approach: (i) measurement model assessment and (ii) structural model assessment.

3.4.3.1 Measurement Model Assessment

This project adopts a reflective measurement model, where all constructs are reflective in nature. In PLS-SEM, the assessment of reflective models focuses

on **reliability** and **validity** (Hair et al., 2021). Reliability includes indicator reliability and internal consistency. Indicator reliability is assessed through squaring the factor loadings, which represent the correlation between a construct and its indicators (ResearchWithFawad, 2022). Loadings above 0.708 are recommended, while those below 0.40 should be removed (Hair et al., 2022). Internal consistency reliability is evaluated using Cronbach's alpha (α) and Composite Reliability (CR), with thresholds of 0.70 or above considered acceptable. However, values above 0.90, especially those exceeding 0.95, may indicate redundancy (Diamantopoulos et al., 2012).

Table 3.4:

Cronbach's Alpha Rule of Thumb

Cronbach's Alpha	Internal Consistency
$\alpha \geq 0.9$	Excellent
$0.9 > \alpha \geq 0.8$	Good
$0.8 > \alpha \geq 0.7$	Acceptable
$0.7 > \alpha \geq 0.6$	Moderate
$0.6 > \alpha \geq 0.5$	Poor
$\alpha < 0.5$	Unacceptable

Note. Source: Rule of Thumb of Cronbach's Alpha (Mulud, 2017).

Validity assessment involves **convergent validity** and **discriminant validity**. Convergent validity is evaluated using the Average Variance Extracted (AVE), with values of 0.50 or above confirming that a construct represents at least 50% of the variance in its observed indicators (Hair et al., 2021). While discriminant validity is assessed through the Heterotrait-Monotrait Ratio (HTMT), where a threshold below 0.85 indicates constructs are empirically distinct (Henseler et al., 2015).

3.4.3.2 Structural Model Assessment

The structural model defines the interrelationships among constructs (Analysis INN, 2020). Assessment begins with checking collinearity using the Variance Inflation Factor (VIF); values above 4 or tolerance below 0.25 may indicate multicollinearity (Hair et al., 2021; Team, 2024). Path coefficients typically range from −1 to +1, with coefficients nearer to −1 representing strong negative relationships while those approaching to +1 denoting strong positive relationships (Hair et al., 2021). Next, path coefficients are examined, ranging from −1 to +1, with values approaching either extreme indicating stronger relationships (Hair et al., 2021). The coefficient of determination (R^2) is applied to evaluate the explanatory strength of the model, where higher values reflect stronger predictive accuracy. The effect size (f^2) is also evaluated, with threshold of 0.02-0.15 are considered small; 0.15-0.35 are medium; and 0.35 and above are large effect (Hair et al., 2020). Finally, hypothesis testing is conducted using a two-tailed test at the 0.05 significance level, with p-values ≤ 0.05 ($t \geq \pm 1.96$) considered significant.

3.4.3.3 Testing the Mediating Effect of Attitude

The mediating effect of attitude will be tested using the bootstrapping method, which is recognized as a robust approach for mediation analysis (Hayes, 2009). Before testing indirect effects, the significance of direct paths will be examined to ensure validity (Jan & Noud, 2024). Mediation is assessed through path coefficients, p-values and t-values, where significance is indicated by $t > 1.96$ and $p < 0.05$ in a two-tailed test (Wang et al., 2024; Ramayah et al., 2018). The Variance Accounted For (VAF) method further determine mediation type: VAF < 20% indicates no mediation or a suppression

effect, 20–80% partial mediation, and >80% denotes full mediation (Ramayah et al., 2018). VAF is calculated as:

$$VAF = \frac{a \times b}{a \times b + c\prime}$$

Indirect Effect = a×b (path from IV → Mediator → DV)

Direct Effect = c′ (path from IV → DV when the mediator is included)

CHAPTER 4: DATA ANALYSIS

4.0 Introduction

In the current chapter, the result associated with each of the data analysis will be given a detail explanation. All data collected by using questionnaire surveys were evaluated by using the tool of SMART-PLS 4.0 software.

4.1 Data Collection

According to Table 4.1, among 400 questionnaires distributed, 16 sets of them have been invalidated due to the filtering question. This study focuses on Generation Z respondents aged between 18 and 28 across 16 states in Malaysia, resulting in 384 valid responses. All respondents are Malaysian citizens (N=384). The respondents that age below 18 has already filtered out by the questions. Most respondents are from Johor (29.7%) and Perak (28.6%), accounting for 58.3% of the sample, while other states contributed smaller proportions ranging from 1.3% to 5.5%. The number of respondents from Johor and Perak was higher than other states, likely due to greater accessibility and larger populations. Regarding occupation, 66.1% are students, 33.6% are employed, and none are employers. In terms of monthly income, 31.3% earn below RM1,000, 56.8% earn between RM1,000 and RM3,000, and 12% earn above RM3,000. All respondents reported prior experience with gamification and previous purchases of activewear, as those who did not meet the requirements were filtered out through the screening questions.

Table 4.1:

Demographic Details of Respondents (N = 384)

	Frequency	Percentage (%)
Nationality		
Malaysian Citizen	384	100
Non-Malaysian Citizen	0	0
Age		
18-28	384	100
<18	0	0
States		
Johor	114	29.7
Melaka	11	2.9
Negeri Sembilan	11	2.9
Pahang	6	1.6
Selangor	16	4.2
Perak	110	28.6
Pulau Pinang	21	5.5
Kedah	13	3.4
Perlis	14	3.6
Kelantan	8	2.1
Terengganu	10	2.6
Sabah	9	2.3
Sarawak	5	1.3
Wilayah Persekutuan Kuala Lumpur	21	5.5

Wilayah Persekutuan Putrajaya	8	2.1
Wilayah Persekutuan Labuan	7	1.8
Occupation		
Student	254	66.1
Employed	129	33.6
Employer	0	0
Income		
Below RM1,000	120	31.3
RM1,000-RM3,000	218	56.8
Above RM3,000	46	12
Screening Question		
Have gamification's experiences	384	100
Have purchased activewear before	384	100

4.2 Inferential Analyses

4.2.1 Measurement Model Analysis

In this study, the reliability of the latent variables was assessed using Cronbach's Alpha, Composite Reliability (CR), and outer loadings. Table 4.2.1 shows that all outer loadings exceed the recommended threshold of 0.708, confirming that all the latent variables are at a sufficiently high level, demonstrating strong reliability. Additionally, the outcome of the Cronbach Alpha and Composite Reliability (CR) is above the threshold value of 0.70

representing that each latent variable has a high degree of internal consistency of reliability (Hair & Alamer, 2022).

Latent variables validity was tested using the convergent validity and discriminant validity. All the variables had the value of AVE greater than 0.5, which implied that there was convergent validity. Discriminant validity was evaluated based on the Fornell-Larcker criterion (Fornell & Larcker, 1981).

Table 4.2.1:

Outer Loadings, Reliability, and Validity of the Measurement Model

	Items	Outer Loadings	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
ATT	ATT 1	0.948			
	ATT 2	0.928	0.933	0.957	0.881
	ATT 3	0.940			
PE	PE 1	0.924			
	PE 2	0.912	0.912	0.944	0.850
	PE 3	0.930			
PEoU	PEoU 1	0.926			
	PEoU 2	0.883	0.893	0.933	0.824
	PEoU 3	0.913			
PSI	PSI 1	0.904			
	PSI 2	0.924	0.907	0.942	0.844
	PSI 3	0.927			
PU	PU 1	0.957			
	PU 2	0.887	0.907	0.942	0.844
	PU 3	0.911			
PUI	PUI 1	0.878			
	PUI 2	0.935	0.898	0.936	0.831
	PUI 3	0.920			

Note. Developed for research. ATT = Attitude; PE = Perceived Enjoyment; PeoU = Perceived Ease of Use; PSI = Perceived Social Influence; PU = Perceived Usefulness; PUI = Purchase Intention.

Discriminant validity was assessed through the Fornell-Larcker criterion and the Heterotrait-Monotrait (HTMT) ratio. As shown in Table 4.2.2, the square root of AVE for each construct exceeded its correlations with other constructs, confirming that discriminant validity was achieved.

Table 4.2.2:

Fornell-Larcker criterion

	ATT	PE	PEoU	PSI	PU	PUI
ATT	**0.939**					
PE	0.751	**0.922**				
PEoU	0.723	0.707	**0.908**			
PSI	0.778	0.784	0.689	**0.918**		
PU	0.763	0.759	0.745	0.698	**0.919**	
PUI	0.805	0.688	0.750	0.759	0.753	**0.912**

Note. The bolded value represents the square-root of AVE. Results are based on the Fornell-Larcker criterion.

Table 4.2.3 shows that the HTMT ratios of most constructs are below the threshold value of 0.85, indicating that discriminant validity was achieved between the reflective measurement constructs (Hair et al., 2022). Two construct pairs, PE–PSI and ATT–PUI, exceed the 0.85 threshold; however, some studies have argued that an HTMT threshold value of 0.90 is still acceptable (Guenther et al., 2023). Thus, the study confirms that convergent and discriminant validity were supported.

Table 4.2.3:

Heterotrait-monotrait (HTMT) ratio

	ATT	PE	PEoU	PSI	PU	PUI
ATT						
PE	0.814					
PEoU	0.793	0.783				
PSI	0.845	**0.861**	0.765			
PU	0.829	0.832	0.827	0.766		
PUI	**0.879**	0.759	0.837	0.839	0.833	

Note. The bolded value exceeds the threshold of 0.85.

4.2.2 Structural Model Assessment

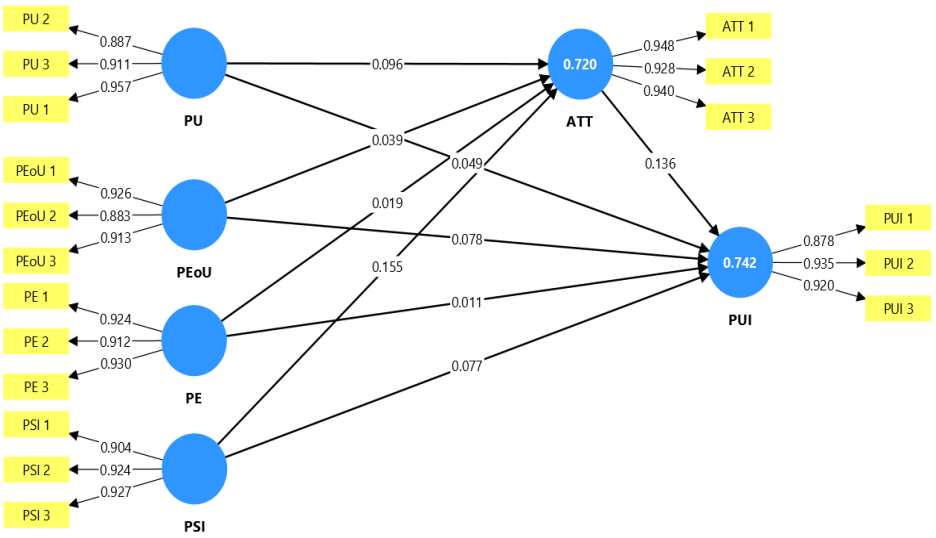

Figure 4.1. Partial Least Square (SMART-PLS 4.0)

Analysis was conducted to determine collinearity between constructs using VIF. For ATT, PE, PEOU, PSI, PU, and PUI, VIF values ranged from 1.000 to 3.464, all below the threshold of 5. Although some slightly above 3 (Hair et al., 2022), they remain well under 5, indicating no serious collinearity issue.

Table 4.2.4 displays the path coefficients (β), which range from -1 to 1 among the endogenous and exogenous variables. Hair et al. (2022) observe that a two-tailed t-value bigger than 1.96 and p-value less than 0.05 are significant. The results show that H1, H3a, H4a, and H5a were supported ($p < 0.05$, $t > 1.96$), while H2a (PE → PUI) was not supported ($\beta = -0.102$, $t = 1.654$, $p = 0.098$).

Overall, ATT significantly influenced PUI, while PEoU, PSI, and PU significantly influenced PUI, but PE did not.

Table 4.2.4:

Hypothesis testing (Direct Effect and Collinearity Assessment)

	Hypothesis	VIF	Path Coeficcients (β)	T statistics	P values	Evaluation
H1	ATT->PUI	3.566	0.355	5.828	0.000	Supported
H2	PE->ATT	3.460	0.135	2.094	0.036	Supported
H3	PEoU->ATT	2.641	0.170	3.493	0.000	Supported
H4	PSI->ATT	2.921	0.356	5.806	0.000	Supported
H5	PU->ATT	3.026	0.285	5.760	0.000	Supported
H2a	PE -> PUI	3.525	-0.102	1.654	0.098	Not Supported
H3a	PEoU -> PUI	2.744	0.235	4.609	0.000	Supported
H4a	PSI -> PUI	3.374	0.259	4.592	0.000	Supported
H5a	PU -> PUI	3.316	0.204	3.395	0.001	Supported

Note. VIF = Variance Inflation Factor; β = Path coefficient.

The results of the bootstrapping analysis are presented in Table 4.2.5. The findings show that three out of four mediation hypotheses (H6b, H6c, and H6d) are statistically significant. Specifically, the indirect effects of PEoU → ATT → PUI (β = 0.060, t = 2.970, p = 0.003), PSI → ATT → PUI (β = 0.126, t = 4.124, p = 0.000), and PU → ATT → PUI (β = 0.101, t = 4.316, p = 0.000) are significant, as their 95% confidence intervals do not include zero (PEoU: 0.024–0.104; PSI: 0.069–0.190; PU: 0.058–0.150). In contrast, the mediation

effect of PE → ATT → PUI (β = 0.048, t = 1.942, p = 0.052) is not supported, since the confidence interval (0.002–0.098) crosses close to the threshold and the p-value exceeds 0.05. Therefore, the mediation effects of H6b, H6c, and H6d are confirmed, while H6a is not supported.

Table 4.2.5:

Hypothesis testing (Indirect Effect)

	Hypothesis	Std. Beta	STDEV	T statistics	P values	Confidence Interval (BC)		Evaluation
						LL	UL	
H6a	PE->ATT->PUI	0.048	0.025	1.942	0.052	0.002	0.098	Not Supported
H6b	PEoU->ATT->PUI	0.060	0.020	2.970	0.003	0.024	0.104	Supported
H6c	PSI->ATT->PUI	0.126	0.031	4.124	0.000	0.069	0.190	Supported
H6d	PU->ATT->PUI	0.101	0.023	4.316	0.000	0.058	0.150	Supported

Note. Std. Beta = Standardized Beta; STDEV = Standard Deviation; BC = Bias-Corrected Confidence Interval; LL = Lower Limit; UL = Upper Limit.

In Table 4.2.6, the coefficient of determination (R^2) is reported as an indicator of how much variance in the dependent variable can be explained by the independent variables (Hair et al., 2020). The adjusted R^2 scores for ATT (0.717) and PUI (0.738) show the model has moderate predictive ability (Hair et al., 2013).

Table 4.2.6:

R^2 Result

	R-square	R-square adjusted
ATT	0.720	0.717
PUI	0.742	0.738

Cohen's f^2 was used to calculate the effect size of each of the variables (Cohen, 1988). ATT has a medium effect size to PUI ($f^2 = 0.136$) and PSI also has a medium effect size to ATT ($f^2 = 0.155$). However, PEoU ($f^2 = 0.039$) and PU ($f^2 = 0.096$) have small effect size to ATT, while their direct effects to PUI are also small ($f^2 = 0.078$ and $f^2 = 0.049$). In addition, PSI has a small effect size to PUI ($f^2 = 0.077$). The effect size of PE is negligible, with $f^2 = 0.019$ to ATT and $f^2 = 0.011$ to PUI, which are both below the 0.02 threshold (Cohen, 1988; Hair et al., 2022), suggesting that although PE may have statistical significance, its practical contribution to the variance explained is minimal.

Table 4.2.7:

f^2 results

		Effect Size			Effect Size
			ATT-> PUI	0.136	Medium
PE-> ATT	**0.019**	**Negligible**	**PE-> PUI**	**0.011**	**Negligible**
PEoU-> ATT	0.039	Small	**PEoU-> PUI**	0.078	Small
PSI-> ATT	0.155	Medium	**PSI-> PUI**	0.077	Small
PU-> ATT	0.096	Small	**PU-> PUI**	0.049	Small

Note. The bolded value is below the threshold of 0.02.

VAF used to determine the mediation type in Table 4.2.8. Based on the rule of thumb (Ramayah et al., 2018), ATT was found to partially mediate the relationships of PEoU (VAF = 20.3%), PSI (VAF = 32.7%), and PU (VAF = 33.1%) with PUI, as their values fall between 20% and 80%. However, the path

from PE to PUI shows a negative VAF (−88.89%), indicating an inconsistent mediation or suppression effect (MacKinnon et al., 2000). This is because the two effects are opposite to each other, i.e. the direct effect of PE on PUI is not merely passed on by ATT but rather it dampens some of it out. Although PE did not show a significant direct effect on PUI (β = −0.102, t = 1.654, p = 0.098), but it was shown that there was an inconsistent mediation or suppression influence through ATT. This implies that PE is not directly related to PUI, but instead causes a reverse effect when ATT is added as a mediating factor, which suppresses the overall effect. Such suppression effects highlight that ATT does not simply transmit the influence of PE but modifies it, leading to inconsistent mediation (Rijnhart et al., 2021).

Table 4.2.8:

Mediation Analysis

Hypothesis	**Effect**	**Confidence Interval (BC)**		**T statistics**	**P values**	**VAF (%)**	**Mediating Effect**
		LL	**UL**				
PE->ATT->PUI **(p1·p2)**	0.048	0.002	0.098	1.942	0.052	-88.89%	Inconsistent mediation **(suppression effect)**
PE->PUI **(p3)**	-0.102	-0.225	0.016	1.654	0.098		
PEoU->ATT->PUI **(p1·p2)**	0.060	0.024	0.104	2.970	0.003	20.3%	Partial
PEoU->PUI **(p3)**	0.235	0.135	0.335	4.609	0.000		
PSI->ATT->PUI **(p1·p2)**	0.126	0.069	0.190	4.124	0.000	32.7%	Partial
PSI->PUI **(p3)**	0.259	0.150	0.368	4.592	0.000		

PU->ATT->PUI	0.101	0.058	0.150	4.316	0.000		
(p1·p2)						33.1%	Partial
PU->PUI **(p3)**	0.204	0.082	0.320	3.395	0.001		

Note. VAF= Variance Accounted For.

4.3 Conclusion

In short, this study has validated most of the hypotheses put forward. The findings have indicated that the relationship between PEoU, PSI, and PU with PUI is significantly moderated by ATT, which means that the factors directly and indirectly affect PUI via ATT. Nevertheless, the mediation effect of PE on PUI via ATT was not verified.

CHAPTER 5: DISCUSSION, CONCLUSION AND IMPLICATIONS

5.0 Introduction

This chapter discusses the theoretical and practical implications of the project's result.

5.1 Summary of Statistical Analysis

Table 5.1:

Result of Hypothesis Test

	Hypothesis	Result
H1	There is a positive relationship between PU and ATT.	Supported
H2	There is a positive relationship between PEoU and ATT.	Supported
H3	There is a positive relationship between PE and ATT.	Supported
H4	There is a positive relationship between PSI and ATT.	Supported
H5	There is a positive relationship between ATT and PUI.	Supported
H6	ATT mediates the relationship between PU, PEoU, PE, PSI and PUI.	Supported
H6a	ATT mediates the relationship between PU and PUI.	Supported
H6b	ATT mediates the relationship between PEoU and PUI.	Supported

H6c	ATT mediates the relationship between PE and PUI.	Not Supported
H6d	ATT mediates the relationship between PSI and PUI.	Supported

5.2 Discussions of Major Findings

H1: There is a positive relationship between PU and ATT.

Hypothesis H1 is supported and consistent with the earlier findings by Jessica Hani Sianadewi, et.al (2017). Furthermore, studies has found that PU positively influences the attitudes of consumers (Rahman et al., 2024). This suggest that when Malaysian Gen Z consumers perceived gamified marketing activities are useful and beneficial, they are inclined to shape a favourable ATT towards these gamified activities.

H2: There is a positive relationship between PEoU and ATT.

The supported hypothesis H2 is aligned with studies conducted by Kashive & Mohite (2023) and Wong et al. (2022), which in turn contributes to the shaping of a favourable ATT towards the gamified experience. This suggest that when Malaysian Gen Z consumers perceived gamified marketing activities as easy to use and effortless, they are inclined to foster a favourable ATT towards these gamified activities.

H3: There is a positive relationship between PE and ATT.

Hypothesis H3 is supported too and consistent with the findings by Praveena & Thomas (2020) and Sudono et al. (2020) which indicates that PE has a significant positive impact on ATT. This suggest that when Malaysian Gen Z consumers perceived gamified marketing activities as enjoyable and engaging, they are inclined to foster a favourable ATT towards these gamified activities by activewear brands.

H4: There is positive relationship between PSI and ATT.

The supported hypothesis H4 is in line with the findings by Denny Indra Prastiawan, et al. (2021) and Ahmad et al. (2021) which revealed that PSI has a significant positive impact on ATT. This suggests that when Malaysian Gen Z consumers perceive strong social influence in gamified marketing initiatives such as encouragement from peers, recommendations from influencers, or observing others actively participating, they are more likely to adopt favorable attitudes toward these activities.

H5: There is a positive relationship between ATT and PUI

Hypothesis H5 is supported too and is aligned the study by Ruangkanjanases et al. (2020) and Jung et al. (2020) which indicates that ATT had a strong positive impact on the PUI. This implies that when Malaysian Gen Z consumers develop a favorable ATT toward gamified marketing strategies, they are more likely to translate these positive perceptions into stronger purchase intentions for activewear brands adopting such gamification approaches.

H6: ATT mediates the relationship between PU, PEoU, PE, PSI and PUI.

The result revealed that ATT mediates the relationship between PU, PEoU, PSI and PUI but not for PE.

H6a: ATT will mediate the relationship between PU and PUI.

Hypothesis H6a is supported and is aligned with the findings by (Rizkitysha & Hananto, 2022). Besides, other study also shows that attitude towards mobile application use mediates the relationship between PU of the mobile application and online purchase intention (Vahdat et al., 2021). This implies that when Malaysian Gen Z consumers perceive gamified marketing activities as useful, this perception can shape a positive attitude, which in turn enhances their purchase intention toward activewear products.

H6b: ATT will mediate the relationship between PEoU and PUI.

Hypothesis H6b is also supported and is aligned with the research by Yusuf & Zulfitri (2021). Furthermore, other study also revealed that PEoU will lead to online PUI when consumers develop a positive ATT towards online purchase (Yazeed et al., 2020). This indicates that when Malaysian Gen Z consumers perceive gamified marketing activities as easy to use, this perception can shape a positive attitude, which in turn enhances their purchase intention toward activewear products.

H6c: ATT will mediate the relationship between PE and PUI.

The result indicates that the hypothesis H6c is not supported. This shows that a consistent response to the mediating effect between the IV and DV is not reached. The selected respondents are Gen-Z consumers who are familiar with interactive and gamified experiences in digital platforms. However, not all respondents perceive the enjoyment derived from gamification in activewear marketing as something that shapes their overall attitude toward the brand. Another possible explanation is that although they may find gamified elements such as rewards, challenges, or leaderboards entertaining, this enjoyment does not necessarily influence their deeper evaluations or attitudes toward making a purchase. Plausibly, other concerns, such as product quality, price sensitivity, or brand credibility, have overridden the positive effect of enjoyment on attitude.

H6d: ATT will mediate the relationship between PSI and PUI.

The supported hypothesis H6d is aligned with the findings by Vahdat et al. (2021) and Jayasingh et al. (2021) which revealed that PSI positively impact consumers' attitudes which in turn significantly impacts their PUI (Jayasingh et al., 2021). This implies that when Malaysian Gen Z consumers perceive strong social influence in gamified marketing initiatives such as encouragement from peers, recommendations from influencers, or observing others actively participating, this

perception can foster a positive attitude, which subsequently enhances their purchase intention toward activewear products.

In sum, ATT can explain the influences of PU, PEoU, and PSI on the PUI but not for PE.

5.3 Implications of the Study

5.3.1 Theorical implications

This research and the theorical framework are based on Technology Acceptance Model (TAM) to explore how the constructs including PU, PEoU, PE and PSI can influence ATT and further impact purchase intention (PUI) toward **gamification in** activewear marketing among Malaysian Gen-Z. In TAM theory, the original constructs is PU and PEoU and there are no mediating constructs in the theory. Thus, this research has contributed to theory development and extends the Technology Acceptance Model (TAM) by adding PE and PSI as additional constructs and ATT as a mediating variable to cover the limitation of TAM.

Furthermore, this research helps to bridge the literature gap, as few studies have examined the impact of gamification on purchase intention in activewear marketing from the perspective of Malaysian Gen Z consumers.

Overall, the mediated influence, the extended PE and PSI constructs have contributed to understanding the predictive power of gamification on purchasing intention in activewear marketing, by incorporating internal, external, direct and indirect influence components. This extended model can serve as a foundation for future research in similar context including but not limited to the new technologies or gamified activewear e-commerce. This research also gives a basis for future researchers to compare their results with this study and explain why their hypotheses are supported or not.

5.3.2 Managerial Implications

The findings of this study provide several practical insights for marketers and managers in the activewear industry. The result shows that attitude has strong influence on purchase intention in activewear, indicates that marketing strategies should focus on enhancing the positive perceptions towards gamification features by using the constructs of PU, PEoU, PE and PSI. Marketers should therefore design gamified campaigns that evoke a sense of usefulness, enjoyment, and social connectedness to strengthen favourable attitudes, which in turn significantly boost purchase intention.

The results show that PU has a significant impact on ATT. In other words, marketers should focus on adding gamification elements in their marketing strategies by linking these activities to tangible benefits, such as discounts and reward points. User may feel join the gamification-based marketing strategies is useful and more likely to join it. This can enhance user engagement and, in turn, increase consumers' purchase intention.

Apart from that, PEoU also has a significant impact on the ATT. Marketers should ensure that the gamification activities are easy and simple to understand or participating. The simplicity of gamification design will enhance consumers' favourable feelings to involve inside. This indicates that a user-friendly, easy-to-understand interface, simple navigation systems are the key considerations for the companies. Marketers can regularly seek feedback from users to make further improvements. By lowering the effort required to understand the system, users' experiences become smoother, which encourages them to hold a positive perception of gamification in activewear marketing.

Furthermore, PE also has been testing has a significant impact on the ATT. Malaysian Gen-Z are more playful and seeking for a joyful experience in the gamification activities. Thus, marketers should implement fun and interactive elements in gamification activities such as virtual challenge, missions and point redemption systems by accumulated the point and can redeem the rewards to increase user engagement. Specifically, it is possible to renew the content of

activities, add seasonal topics, or collaborate with fitness KOLs to preserve the element of novelty and stimulate participation over time.

Furthermore, the result also indicates that PSI has strong impact on the ATT. For Gen Z, who are active on social media and often influenced by peers and trends, marketers can encourage users to share their achievements or rewards on social media to get word-of-mouth promotion. Marketers can also implement features like friends-invite rewards, allowing users to be positively influenced by friends and social media communities, thereby increase engagement and purchase intention.

In addition, the mediation analysis provides extra insights. The results show that ATT partially mediates the relationship between PU, PEoU, and PSI with PUI. This indicates that these constructs not only shape positive attitudes but also have a direct effect on purchase intention. Among them, PU is especially important because when users perceive gamification as useful, it fosters favorable attitudes and strengthens their purchase intention. On the other hand, the mediation effect of ATT in the relationship between PE and PUI was not supported and instead revealed a suppression effect. This suggests that focusing only on making gamification features “fun” or “enjoyable” may not directly enhance purchase intention and could even weaken it. However, if managers focus on strengthening consumers’ overall attitudes, purchase intention can be maximized, as the mediation effect of attitude was marginally significant ($p = 0.052$).

5.4 Limitations of the Study

Future studies need to increase the sample of data collection to cover the respondents of a broader geographical area within Malaysia. Cultural values, lifestyle preferences, and consumer behavior are likely to be different in different parts of the world, and thus a more balanced distribution of the participants geographically would have made the generalizability of the findings more effective. Another aspect that researchers might highlight is the need to run comparative

research across the states or regions to determine whether gamification techniques used in activewear marketing work differently in the area based on the cultural and social context.

Lack of knowledge in gamification also complicated the process of getting quality feedback because the participants had misinterpreted the questions and provided similar answers leading to many surveys to be abandoned.

5.5 Recommendations for Future Research

As stated above, future research could address the geographical limitation, by collecting the responses from wide range of states within the whole of Malaysia, including urban reviews and rural environments. This would lead to a more balanced dataset that represents various cultural, social, economic backgrounds hence making the generalizability of the findings better. The involvement of participants belonging to less economically developed areas would also be an opportunity to obtain information on whether the level of economic development serves an effect on attitudes and intentions to buy technologies of gamification.

Also, since the lack of knowledge about gamification among the participants influenced the quality of the survey, future research should clearly explain and demonstrate examples of gamification aspects to the respondents before giving out the questionnaire. This would reduce the misinterpretation of the questions and enhance the data quality.

5.6 Conclusion

In a nutshell, this study has explained the impact of PU, PEoU, PE and PSI on Malaysian Gen-Z's attitude toward gamification in activewear marketing. Both theoretical and managerial implications used to enhance a better understanding and

provide guidance for future practitioners. In addition, this chapter point out the study's limitations and proposed recommendations for future research.

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Appendices

Appendix 3.1: *Survey Questionnaire*

Section A: Demographic Questions

This section serves to collect essential background information from survey participants, which is vital for data analysis purposes.

Are you a Malaysian citizen?

☐ Yes

☐ No

Are you between 18 and 28 years old?

☐ Yes

☐ No

Where are you from (Location)?

☐ Perlis

☐ Kedah

☐ Penang

☐ Perak

☐ Selangor

☐ Negeri Sembilan

☐ Malacca

☐ Johor

☐ Kelantan

☐ Terengganu

☐ Pahang

☐ Sabah

☐ Sarawak

Which is your current status?

☐ Student

☐ Employed

☐ Employer

How much is your income level?

☐ Below RM1,000

☐ RM1,000-RM3,000

☐ Above RM3,000

Section B: Screening Questions

Do you know what gamification is? (e.g., rewards, challenges, or mini-games)

Below is one of the example of gamification marketing tool used by TEMU - Spinning Wheel

☐ Yes

☐ No

Have you ever purchased any activewear (T-shirt, Hoodie, Joggers, Shorts and etc) before?

☐ Yes

☐ No

Please indicate your agreement level about the following statement based on a scale of 1 to 5 accordingly.

(1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree, or (5) Strongly Agree

		1	2	3	4	5
Perceived Usefulness	1. Participating in gamification activities makes it easier for me to make purchase decisions.					
	2. Participating in gamified activewear marketing is useful in helping me decide whether to buy the product.					
	3. Participating in gamification activities helps me make more effective purchasing choices.					
Perceived Ease of Use	4. The brand's gamification activities are mentally easy to engage in.					
	5. The interaction with gamified activewear marketing is clear and understandable.					
	6. I find gamified activewear marketing easy to use.					
Perceived Enjoyment	7. I find the experience of learning a gamified activewear marketing enjoyable.					
	8. I find the experience of learning a brand's gamified activewear marketing exciting.					

	9. I find the experience of learning a brand's gamified activewear marketing interesting.					
Perceived Social Influence	10. People who influence my attitudes would recommend the usage of a brand's gamified activewear marketing tool.					
	11. People who are important to me would think positively of me using a brand's gamified activewear marketing tool.					
	12. My friends would think using a brand's gamified activewear marketing tool is a good idea.					
Attitude	13. All things considered, I find using a brand's gamified activewear marketing tool to be a good idea.					
	14. All things considered, I find using a brand's gamified activewear marketing tool to be a positive thing.					
	15. All things considered, I find using a brand's gamified activewear marketing tool to be favorable.					
Purchase Intention	16. I am able to buy goods with the rewards (e.g., points, discounts, etc.) earned from the					

	use of a brand's gamified activewear marketing tool.					
	17. I intend to use a brand's gamified activewear marketing tool for activewear purchasing in the future.					
	18. I will recommend others to buy activewear using a brand's gamified activewear marketing tool.					