

The Impact of Cognitive and Affective Factors on Eco-Friendly Practices Behaviour amongst the Manufacturing SMEs in Selangor: A Qualitative Approach

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Abstract: This study explores the cognitive and affective factors influencing the adoption of eco-friendly practices among manufacturing SMEs in Selangor, Malaysia. Manufacturing SMEs in Malaysia, especially in Selangor, face challenges such as limited resources, high operational costs, and regulatory pressures, which hinder the adoption of sustainable practices. The research aims to understand how cognitive factors (such as attitude, knowledge, and perceptions) and affective factors (including emotions and motivations) shape SMEs' decisions to engage in eco-friendly practices. Using a qualitative approach, in-depth interviews were conducted with a convenient sampling of 10 SME owners/managers in the manufacturing sector. Data were analysed using thematic analysis to identify patterns in the participants' cognitive understanding and emotional responses to eco-friendly practices. The results revealed that while awareness of sustainability and its benefits were high, many SMEs struggle with the perceived cost and complexity of implementing eco-friendly practices. Affective factors, such as fear of financial risk and uncertainty about outcomes, further hinder adoption, despite some participants expressing a sense of responsibility and pride in engaging in sustainability efforts. This study offers important implications for policymakers, SME owners/managers, and sustainability advocates on the need for more tailored interventions that address both the emotional and cognitive barriers faced by SMEs when adopting eco-friendly practices. Hence, the government and industry leaders need to focus on providing financial incentives, training programmes, and awareness campaigns that highlight the long-term benefits of sustainability.

Keywords: Perceived behavioural control, sustainability, attitude, affective, small and medium sized enterprises.

1. Introduction

With the growing focus on Environmental, Social, and Governance (ESG) elements, the term eco-friendly or sustainable practice has also grown in prominence worldwide. A latest survey conducted by Ernst & Young found that 98% of investors assessed their companies' ESG

and 72% carried out a structured review of ESG performance [1]. This statistic shows the growing significance of ESG elements in organisations from 72% compared to a mere 32% focused in 2018 [2]. According to the report, investors believe that businesses with strong ESG performance are less risky, more appropriately positioned in the long run, and

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better equipped to handle uncertainty.

Currently, the implementation of eco-friendly practices is not made compulsory for SMEs. However, they are encouraged to begin their green journey to meet investors' demands since SMEs serve as suppliers to bigger companies. Eco-friendly practices refer to initiatives taken by companies in minimising environmental harm through waste reduction, natural resources conservation, and pollution minimisation [3]. Practices such as lean manufacturing and circular economy principles can help reduce waste and promote recycling. SMEs may also implement systems for emission's reduction such as adopting cleaner production technologies to lessen the water and air pollution. Through this initiative, SMEs can minimise their energy consumption [4,5].

In Malaysia, the emphasis on eco-friendly practices has been increasing due to the government's initiatives, regulatory frameworks, and rising market demand [6,7]. These practices are particularly critical in the manufacturing sector, of which, is the second-largest industry in Malaysia. According to the Centre for Research of Energy and Clean Air, the manufacturing sector contributes significantly to environmental pollution, especially during the production phase [8]. Hence, by adopting eco-friendly practices, manufacturing SMEs will assist in protecting the environment as well as enhance the long-term sustainability of their business [4,9]. Such practices can help the SMEs optimise cost, improve customer loyalty, and maintain their competitiveness in the global market [10].

Nonetheless, SMEs continue to face several challenges in adopting eco-friendly practices despite the obvious benefits. Many SMEs lack the awareness and knowledge of environmental issues as well as the potential advantages to be gained by implementing sustainable practices [11]. They often prioritise short-term profitability instead, thereby failing to recognise the long-term financial and non-financial benefits of eco-friendly practices, such as potential cost savings from efficient energy or enhanced brand reputation [12]. Additionally, SMEs may perceive environmental practices as less critical compared to immediate business concerns such as how to generate income to ensure their prosperities and sustainability. This is exacerbated by the high upfront costs required to invest in green technologies and sustainability initiatives when often time, SMEs will have limited financial resources [13]. Consequently, many SMEs in Malaysia do not implement eco-friendly practices due to lack of awareness and understanding of their benefits, or most pertinently the means to adopt them due to their limited resources.

Therefore, in the context of environmental sustainability among SMEs, understanding the cognitive and affective drivers is critical in bridging the intention-behaviour gap [14]. Cognitive factors refer to the SMEs' awareness, knowledge, and perception of eco-friendly practices [14]. The Theory of Planned Behaviour (TPB) offers a useful framework for analysing these factors, focusing on the roles of attitude and perceived behavioural control. Attitude

reflects how SME owners and managers evaluate the benefits and/or drawbacks of green practices, thus influencing their willingness to adopt such practices [15]. Positive mindsets that are driven by perceived business advantages like cost savings, enhanced reputation, or regulatory compliance are often linked with stronger sustainability intentions [10]. However, negative mentality of sustainability such as financial or operational burdens can obstruct the SMEs' intentions, hence reducing their likelihood of participating in eco-friendly practices [16].

In addition to these cognitive factors, the affective aspects such as emotional commitment and personal values towards environmental responsibility also play a role in influencing intention-behaviour [17]. For example, SME owners with strong emotional or moral commitments to sustainability may be more likely to overcome resource limitations and act on their intentions [17,18]. This indicates that while cognitive elements such as attitudes and norms are essential, affective factors such as environmental concern and personal attachment to sustainability have the ability to strengthen or weaken the intention to participate in eco-friendly practices [18].

By integrating both cognitive and affective factors, the TPB framework aims to facilitate the SMEs who may be struggling to translate their sustainability efforts into actual actions. Bridging this gap requires addressing internal factors such as attitude and control perceptions, while fostering affective elements such as emotional engagement with nature, pro-environmental concerns, and personal attachment to sustainability. This comprehensive approach may prompt SMEs to overcome barriers and adopt green practices, thereby reducing their environmental footprint and enhancing long-term resilience.

This study utilises the TPB as a guideline to examine the behavioural intentions of SMEs in the manufacturing sector regarding eco-friendly practices implementation. Thus, the objective of this study is to identify the main cognitive and affective factors that influence the intention to participate in eco-friendly practices. Specifically, the study focuses on understanding how various factors such as attitudes and perceived behavioural control contribute to the gap between eco-friendly intentions and actual implementations by the SMEs. This shall allow manufacturing SMEs to better align their eco-friendly intentions with tangible actions (i.e., adopting eco-friendly practices), thereby bridging the intention-behaviour gap in eco-friendly practices.

2. Theoretical Foundation

The Theory of Planned Behaviour (TPB) which is developed by Ajzen [15], is one of the most widely used psychological frameworks for understanding and predicting human behaviour. According to Ajzen [14], an individual's action is driven by behavioural intentions, which in turn, are influenced by attitudes towards the conduct, subjective

norms, and perceived behavioural control (PBC). The TPB posits that these variables influence an individual's intention to perform a specific behaviour, which can serve as a reliable proxy for actual behaviours [19]. In the TPB, attitudes refer to personal beliefs and evaluations about a particular behaviour, while subjective norms denote the perceived social pressure to engage in or refrain from that behaviour. Perceived behavioural control (PBC) indicates an individual's perception of the ease or difficulty to carry out the behaviours in question. These factors may also overlap with each other, making it essential to assess behavioural intentions holistically [14,15]. The TPB posits that intentions are the most immediate antecedents of behaviour, but research has demonstrated that emotional or affective elements can significantly influence this relationship.

2.1. Cognitive Factors of Behavioural Intention

One of the most common applications of the Theory of Planned Behaviour (TPB) is in the health industry, to predict various conducts such as smoking cessation, physical activity, and diet adherence. Despite strong campaigns to engage in health-promoting behaviours, many individuals fail to convert their inclinations into action, leading to the intention-behaviour gap. For example, Armitage [20] conducted a meta-analysis of studies by applying the TPB to health behaviours and found that while intentions accounted for a significant proportion of variance in behaviours, actual behavioural adherence was often lower than expected. This discrepancy was influenced by additional factors such as habit, emotional responses, and self-efficacy, which were not fully captured by the TPB.

In the field of environmental psychology, the TPB has been extensively applied to predict eco-friendly behaviours such as recycling, energy conservation, and sustainable consumption. A major finding of prior studies was that the intentions to engage in pro-environmental actions often fail to materialise into actual behaviours, creating a substantial intention-behaviour gap [21]. For instance, Kollmuss [22] found that while many individuals expressed strong intentions to participate in eco-friendly practices, factors such as perceived inconvenience, cost, and lack of immediate rewards often prevented them from doing so.

In a study on recycling behaviour, Nigbur [23] applied the TPB to predict recycling intentions and behaviour among residents of a UK city. While the model accurately predicted recycling intentions, actual behaviour was influenced by factors not captured by the TPB, such as infrastructure unavailability and emotional responses. The authors have recommended incorporating emotional and contextual factors into the TPB model to enhance its predictive power in environmental behaviour settings. The TPB has been widely validated across various contexts, including SMEs. For instance, a meta-analysis by Armitage [20] demonstrated the theory's effectiveness in predicting

the behaviour of SMEs. In the context of environmental sustainability involving SMEs, understanding the cognitive and affective factors that drive sustainable behaviour is crucial. The TPB provides a useful framework for examining how these factors influence the intentions and actions of SME owners and managers towards sustainable practices. According to the TPB, the three main components that shape an individual's intention to engage in a particular behaviour are attitude, subjective norms, and perceived behavioural control which in turn influences whether that said intention is translated into action.

The TPB has also been applied in the consumer behaviour areas, particularly in comprehending the ethical consumption and procurement decisions. Vermeir [24] had investigated the gap between intention and the actual purchase of sustainable food products among Belgian consumers. They discovered that while attitudes and intentions towards sustainable consumption were generally positive, these did not always translate into genuine purchases. Lack of products' availabilities, higher costs, and inconvenience were amongst the barriers often cited and interfered with consumers' intentions to acquire eco-friendly products.

Similarly, Carrington [25] had examined the intention-behaviour gap in ethical consumption, and found that many consumers who had expressed intentions to purchase ethically sourced goods failed to do so consistently. The authors suggested that contextual factors, such as time pressure and product inavailability, played significant roles in bridging this gap. This further demonstrates the limitations of TPB in their clarifications for actual behaviour.

Within organisational contexts, the TPB has been used to understand behaviours such as knowledge sharing, innovation adoption, and corporate social responsibility [26]. Bock [27] had applied the TPB to predict knowledge-sharing behaviour in the workplace. They found that although employees exhibited strong intentions to share information, their actual knowledge-sharing behaviours were influenced by factors beyond the TPB's scope, including organisational culture, reward systems, and leadership support. Similarly, Siegel [28] had also applied the TPB to predict corporate social responsibility (CSR) behaviours in small and medium-sized enterprises (SMEs). Despite their positive intentions to engage in CSR, many SMEs failed to implement CSR initiatives, citing financial constraints, resource limitations, and lack of institutional support as key barriers. This further highlights the need to address factors such as attitudes and perceived behavioural control (financial constraints, lack of knowledge, acquiring new knowledge, etc.) in closing the intention-behaviour gap within workplace settings.

2.2. Affective Factors of Intention Behaviour

Affective factors, such as emotions, moods, and feelings, play pivotal roles in shaping behavioural intentions and the subsequent translation of those intentions into actual behaviour. The Theory of Planned Behaviour (TPB) posits that intentions are the most immediate antecedents of behaviour. However, prior studies on intention behaviour have demonstrated that emotional or affective elements can significantly influence this relationship. Affective factors have been explored in various contexts, including health behaviour, organisational behaviour, consumer behaviour, and environmental behaviour.

A growing body of research suggests that integrating affective factors into behavioural models can improve the prediction of actual behaviour. Conner [29] had revealed that affective attitudes, such as feelings of enjoyment or trepidation, can significantly enhance the explanatory power of the TPB, particularly in contexts where emotions are central to decision-making, such as health and environmental behaviours. While the TPB effectively predicts intention formation, it falls short when explaining the transition from intention to action, particularly since the affective, contextual, and external factors are not considered. This review indicates that emotional responses (e.g., fear, guilt, or satisfaction), habit formation, situational constraints and social influences are crucial in understanding the reason individuals or organisations fail to convert their intentions into actions. Expanding the TPB to include these affective factors or integrating them with other behavioural models may provide a more comprehensive insights of the intention-behaviour gap.

In organisational settings, emotions such as job satisfaction, organisational commitment, and emotional exhaustion have been found to influence the intention-behaviour relationship. For instance, studies on employee turnover intentions have shown that the affective commitment to an organisation can reduce the gap between turnover intentions and actual turnover behavior [30]. Employees who are emotionally attached to their organisations are less likely to leave, even when they have expressed intentions of doing so. In a related study, Allen and Meyer [31] had found that affective commitment moderated the relationship between intention to engage in workplace behaviours (such as helping colleagues or going the extra mile) and the actual execution of those behaviours. When the employees feel emotionally attached to their work, they are more likely to act on their positive intentions. In contrast, emotional exhaustion, often stemming from workplace stress, has been shown to widen the intention-behaviour gap, as exhausted employees may lack the energy to translate their intentions into action [32].

Consumer behaviour research has consistently highlighted the impact of emotions on the intention-behaviour relationship. Emotions such as joy, satisfaction, and regret significantly influence consumers'

purchase decisions and post-purchase behaviours. For instance, Lemon and Verhoef [33] had found that emotions experienced during the decision-making process, such as excitement or anticipated regret, served as crucial predictors to whether consumers followed through on their purchase intentions. Moreover, feelings of trust and emotional connection with a brand had been shown to reduce the intention-behaviour gap in the context of online shopping, as proven by Pavlou [34].

From the perspective of environmental sustainability, affective factors have been shown to influence both the intention to engage in eco-friendly behaviour and the actual adoption of such practices. Bamberg [21] had conducted a meta-analysis of the determinants of pro-environmental behaviour and discovered that affective elements, such as environmental concern and emotional engagement with nature, played substantial roles in bridging the intention-behaviour gap. Individuals or organisations who exhibit concerns for environmental issues are more likely to translate their intentions into actual pro-environmental behaviour, such as recycling or energy conservation.

Correspondingly, Carrus [35] had demonstrated that emotional attachment to natural environments can positively influenced the implementation of eco-friendly practices. The study depicted that people with a stronger emotional connection to nature had exhibited higher intentions to engage in sustainable behaviour and were more likely to act on these intentions. Moreover, emotions such as guilt and/or pride were found to be significant predictors of environmental behaviour, as shown by Rees [36], whereby the remorse and/or satisfaction of instigating green actions were closely associated with the likelihood of actual adoption of eco-friendly behaviour. Therefore, based on these prior studies, it is pertinent to examine the role of affective factors to bridge the intention-behaviour gap.

2.3 SMEs' Eco-Friendly Intention Behaviour

Small and Medium Enterprises (SMEs) play a critical role in global economic growth and sustainability, and their behaviours in relation to eco-friendly and sustainable practices have been an area of extensive research due to the challenges and factors influencing their adoption of such practices. Understanding the behavioural intentions of SMEs towards eco-friendly initiatives is crucial, as these intentions often indicate whether SMEs will implement green practices in future. Several studies have utilised different behavioural models to explain the factors that influence SMEs' intentions and actual behaviour. For instance, Kautonen [37] had used the TPB to examine entrepreneurial intentions and noticed that attitudes towards entrepreneurship, perceived norms, and perceived control could significantly predict intention formation among the SMEs. This framework has been extended to sustainable practices, proving that while intentions are formed based on these variables, external barriers often prevent SMEs from turning intentions into

actions.

One of the key factors influencing SMEs' intentions to engage in eco-friendly practices is their attitudes towards sustainability. A positive attitude regarding environment conservation is often linked to greater intention to adopt eco-friendly measures. Nguyen [38] had highlighted that SMEs with positive environmental attitudes were more likely to adopt green technologies and participate in sustainability programmes. Additionally, the perceived financial benefits, such as cost savings from energy efficiency and waste reduction, were strong motivators for SMEs [38]. Nevertheless, they concluded that many SMEs still perceive eco-friendly practices as costly and unnecessary, particularly in short term [38]. These negative standpoints may prevent them from forming strong intentions to engage in sustainable practices. According to López-Gamero [39], SMEs often prioritise short-term profitability over long-term environmental benefits, leading to minimal participations in sustainability efforts.

Subjective norm, or the perceived social pressure to perform or refrain from certain behaviours, plays an important part in shaping SMEs' intentions. Social pressures from stakeholders, customers, and regulatory bodies can provoke SMEs to carry out eco-friendly practices. In many cases, SMEs will feel obligated to conform to industry norms or customer expectations regarding sustainability. For example, Leonidou [7] had shown that SMEs that were operating in markets with higher customer demand for green products tend to form stronger intentions towards eco-friendly practices.

Perceived behavioural control refers to the perceived ease and/or difficulty of performing a behaviour. SMEs with higher perceived control over resources, such as financial capital and expertise, are more likely to implement eco-friendly practices. A lack of perceived control, particularly regarding finances or access to green technology, acts as a significant barrier to adopting sustainable practices. Lynch-Wood [12] had indicated that financial constraints are one of the most prominent obstacles for SMEs in adopting eco-friendly practices. Based on their findings, while large companies may have the resources to invest in sustainable technologies, SMEs often struggle with the upfront costs and are more hesitant to take risks. This creates a gap between their intentions and actual behaviour. Wang [40] had found that SMEs who had greater perceived control over their ability to access green technology were more likely to act on their environmental intentions. Moreover, governmental support and external assistance in providing SMEs with the tools and resources to adopt green technologies have been shown to increase their perceived control, ultimately bridging the intention-behaviour gap [40].

In addition, several studies had emphasised the importance of affective commitment, which is defined as the emotional attachment and identification with eco-friendly practices in driving SMEs towards sustainability [41,42]. Affective commitment stems from individual/organisations'

values, such as ethical responsibility and concern for the environment, which motivate decision-makers to prioritise eco-friendly behaviours even when facing challenges [43]. For instance, Yadav [42] had found that positive affective commitment to environmental values should significantly influenced green consumption behaviours, suggesting that similar emotional commitments might drive SMEs' eco-friendly practices. In the case of SMEs, decision-makers who are emotionally invested in sustainability are more likely to implement eco-friendly practices despite the potential challenges involved. Gadenne [44] had explored the environmental attitudes and behaviours of SMEs and found that firms who had environmentally committed leaders were more likely to implement sustainable practices. This commitment is often induced by affective factors such as personal environmental values, emotional satisfaction gained, and the perception of sustainability as an ethical obligation [44]. These findings suggest that SMEs' leaders who have strong emotional commitments to sustainability are more likely to overcome the intention-behaviour gap.

Despite positive intentions, emotional barriers can prevent SMEs from engaging in eco-friendly practices. One of the primary affective barriers is fear of financial loss, uncertainty about the return on investment, and anxiety about disrupting current business operations [44]. Fear can lead to risk aversion, where SMEs will prioritise short-term profitability over long-term sustainability, even when they have expressed intentions to adopt eco-friendly practices. According to Testa [43], SMEs often face resource constraints and are wary of the costs associated with sustainable technologies and practices, which exacerbate their fear of financial instability. Additionally, emotional detachment or a lack of affective involvement can also explain the intention-behaviour gap [43]. Carrington [25] had found that consumers who lacked emotional engagement with sustainability issues were less likely to translate their intentions into behaviour. This finding is relevant for SMEs, as decision-makers who are not emotionally connected to sustainability may deprioritise eco-friendly practices, even if they acknowledge the importance of such practices.

Social pressure and emotional rewards are some of the affective factors which shape the intention-behaviour gap. SMEs are often compelled to adopt eco-friendly practices by the stakeholders, including customers, suppliers, and regulatory bodies [13]. This social pressure can evoke affective responses, such as guilt or pride, which may motivate SMEs to align their practices with societal expectations [43]. For example, they may implement green practices to enhance their reputations, driven by the emotional satisfaction of being perceived as responsible or ethical by the community [43]. On the other hand, SMEs who do not perceive strong social pressure may be less motivated to act on their intentions, particularly if they do not experience emotional rewards such as customer appreciation or positive feedback from stakeholders [13]. The dynamics in the intention-behavioural gap highlight the

importance of affective drivers, such as pride, guilt, or the desire for social approval in encouraging SMEs to follow through on their eco-friendly intentions.

3. Research Methodology

3.1 Study Design and Setting

The research employed a qualitative design using in-depth interviews with participants from SMEs in the manufacturing sector in Selangor. The thematic guide for the interviews was developed based on established manuals [15,45]. Its main objective was to address the following research questions:

1. What are the behavioural intentions of manufacturing SMEs towards adopting eco-friendly practices?
2. What factors influence their attitudes towards green practices?
3. How does perceived behavioural control, including self-efficacy and re-source availability, impact their abilities to implement eco-friendly practices?
4. What are the affective factors that drive their adoption of eco-friendly practices behaviour?

This study seeks to explore how cognitive factors, such as attitudes towards eco-friendly practices and perceived control over their implementation, intersect with affective factors, such as emotional commitment to sustainability and pro-environmental behaviour towards nature [17,10]. Understanding these dynamics will allow this study to provide insights into the underlying causes of the intention-behaviour gap in SMEs' eco-friendly participation and offer valuable recommendations to address these obstacles in order to foster more sustainable manufacturing practices. The thematic guide is presented in Table 1 below.

Interviews were conducted over the course of three months in 2024, with participants recruited through a combination of convenience sampling and targeted outreach via industry associations and professional networks. The inclusion criteria required the participants to be the decision-makers in SMEs with direct involvement in sustainability related decisions. This approach was chosen to ensure that the participants had substantial experience and insights into the factors that shaped their firms' sustainability intention-behaviour. Prospective participants were invited via emails and personal phone calls.

Table 1: Outline of the thematic guide used during interviews

No.	Theme	Key Discussion Points
1	Opening Questions	Awareness of eco-friendly practices, participation, and past experiences
2	Attitudes	Advantages & positive mindsets; Disadvantages & negative mindsets
3	Perceived Behavioural Control	Enablers and facilitators; Barriers and hindrances
4	Opinions on Eco-Friendly Practices in Malaysia	Current situation, opportunities, and areas for improvement
5	Inclination for Eco-Friendly Practices	Participants' willingness and commitment to adopt practices
6	Closing Question	Additional queries or concerns from participants

3.2 Study Participants and Data Collection

This study involved extensive interviews with the decision-makers of manufacturing SMEs in Selangor. The participants were selected based on their direct involvement in sustainability-related decisions within their organisations. The sample included individuals from diverse industries within the manufacturing sector to ensure a variety of perspectives on eco-friendly participation. The protocol of this study was also presented to each participant prior to the interview, along with other relevant information regarding

the study namely its' objectives, voluntary nature, anonymity of the collected data, and permission to withdraw from the study at any time.

Both verbal and written consents were obtained from all the participants before starting the interviews. The interviews averaged between 40 and 50 minutes in duration per session, focusing on attitudes, perceived behavioural control, and the affective factors as outlined by the TPB.

The point of data saturation was reached after 8 interviews, confirming the adequacy of the sample size. Ten interviews with owners/managers of SMEs were conducted, involving

four female and six male participants.

Table 2 presents the background information of the 10 participants. Each SME has a total workforce of between five to two hundred employees. These participants fulfilled the definition of manufacturing SMEs by SMECorp Malaysia [46], whereby seven of the participants were from small-sized enterprises and three participants were from medium-sized enterprises.

These SMEs had been established for more than 5 years and were located in diverse locations such as Klang, Shah Alam, Petaling Jaya, and Gombak.

Table 2: Demographic Profile of Participants (N=10)

Participant	Position	Gender	No. of Employees	No. of year Established	Location
1	Partner	Female	5	7 years	Gombak
2	Director	Male	20	22 years	Shah Alam
3	Owner	Male	5	5 years	Klang
4	Manager	Female	16	20 years	Subang
5	Director	Male	16	4 years	Bukit Jelutong
6	Manager	Male	140	15 years	Port Klang
7	Director	Female	90	29 years	Shah Alam
8	Director	Female	12	24 years	Kota Damansara
9	Manager	Male	200	26 years	Cheras Jaya
10	Director	Male	10	32 years	Klang

3.3 Data Analysis

The recorded interview material was encoded and analysed thematically following the steps described by Braun and Clarke [47]: Firstly, initial data familiarization, followed by initial codes generation, themes’ exploration, review, definition and identification, and consequently, report production. When generating the final report, the

themes developed during the study were grouped in accordance to the TPB, pertaining to attitudes and perceived behavioural control for clarity purpose to validate the perspective of the study, two researchers performed the described data analysis process [48]. The point of data saturation was observed after eight (8) interviews. The paper was prepared in adherence to the standards for reporting qualitative research.

4. Results and Discussion

4.1 Findings

The themes generated in the course of this study are presented below in accordance with the TPB and are additionally summarised in Table 3. The quotes from the participants are presented in abbreviated text so as to not impede the flow of this paper.

Table 3: Themes developed during the study, grouped in accordance with the TPB aspects.

Cognitive Factors		Affective Factors
Attitudes	Perceived Behavioural Control	
Acquire new knowledge, skills, and competencies	SMEs’ knowledge, skills, and experience	Emotional engagement with nature
Knowledge gaps	Limited knowledge about collaboration	Pro-environmental behavioural (i.e., recycling, energy conservation)
Awareness	Incentives and gratification system	Commitment in expressing intention to practice

4.1.1 Cognitive Factor – Attitudes

The following themes are generated from “attitude” standpoint:

i. Acquiring new knowledge, skills and competencies

The participants’ reflections show enthusiasm over the

Participant 7 – *“To me, it’s very important. Just that we are still trying to learn what really sustainable is. So, that is why like these two years we’ve been going to some of the courses to understand what is actually sustainable. So, me and my sisters are going to courses to understand what really is happening and work towards it.”*

Participant 8 - *“We also focus on ESG efforts, like energy saving and other sustainability measures. However, I’m still figuring out the best approach for my company. Our electricity usage isn’t very high, and our eco-friendly practices, especially around steel, largely depend on our suppliers since we don’t produce the steel ourselves. We just follow what the supplier provides.”*

Based on the feedbacks, it seems that positive attitudes may arise from highlighting the benefits associated with knowledge acquisition, such as competitive advantage, innovation, and enhanced performance. For instance, SME managers who recognise the direct correlation between upskilling employees and organisational growth are more likely to prioritise training programmes. Conversely, if they perceive training as costly or irrelevant, it could lead to negative attitudes that inhibit the intention to pursue eco-friendly practices.

ii. Knowledge gaps

Most of the participants engage foreign workers, and the participants’ reflections of them demonstrate that there is knowledge gap with regards to foreign workers in their business. Many foreign workers are unfamiliar with

possibility of getting to know the specificity of a new workplace, meeting new people and exchanging experiences with them. This will broaden their horizons as well as allow them to view certain topics from the perspective of another profession. As noted by the participants, they can benefit from the members of other professions, and vice versa.

eco-friendly practices due to their backgrounds. This unfamiliarity is particularly evident in the example of restroom-recycle disposal bins usage, where they may not be aware of proper trash disposal method. This lack of knowledge suggests a low attitude towards eco-friendly behaviours because they are neither previously exposed to nor educated on their importance.

Participant 3 - *“Many of these foreigners aren’t accustomed to certain practices; for instance, they may not even know how, it’s understandable, many of them have never been educated about eco-friendly practices, why certain practices are necessary, why things need to be separated. As far as they’re concerned, just throwing things together seems fine.”*

Participant 6 - *“Of course we had challenges, because most of the operators are foreigners, we need to educate them very well. We also try to practice but it is not very successful. We provide the recycle bins to them, but it is not very successful in educating them to use the recycle bins.”*

Such attitude depicts a cognitive bias among foreign workers who may deem these eco-friendly practices as non-essential. This likely stems from ignorance concerning their roles in maintaining public health. The interview highlights the crucial role of creating awareness and conducting training. Foreign workers who do not value green practices due to unfamiliarity can develop a positive attitude through carefully structured training. This finding emphasises the need for SME managers to take proactive steps in fostering a positive attitude towards eco-friendly

practices by educating their foreign workers on the reasons behind specific practices. Based on the first quote, the SMEs demonstrate a clear awareness that spoilage results in additional costs, which lead them to invest in suitable refrigeration to extend expiration and minimise waste. Thus, awareness of additional costs directly shapes the SMEs' attitudes towards investing in proper storage solutions.

iii. Awareness

In the quotes provided, awareness is evident in the recognition of potential costs and wastes, as well as the long-term benefits of eco-friendly practices. For instance, the second quote illustrates awareness of waste management and energy efficiency. The SMEs dispose plastic waste responsibly and consider future sustainability measures, such as using solar energy to reduce electricity consumption in their cold room.

Participant 5 - *"This is because any spoilage would lead to additional costs. Given the nature of our business, we've invested in refrigeration to extend the freshness and avoid waste, as it would otherwise increase expenses."*

Participant 2 - *"Any plastic waste is disposed of properly. I think, since our cold room runs on electricity, maybe in the future, we could consider using solar energy. We also maintain the cold room with regular servicing and upkeep. If we don't service it, it could break down, and the compressor could seize up, consuming a lot more electricity if it's not well maintained."*

In terms of attitude, these quotes reflect that the awareness as a cognitive factor has the ability to influence behaviour. For SMEs, understanding the positive implications of actions (e.g., spoilage costs and energy efficiency) encourage the adoption of practices that align with both the business goals as well as sustainability. This mindfulness will foster a favourable attitude towards investment in resource-saving measures, as well as reinforce perceived behavioural control, as they will feel more equipped to manage costs effectively and take proactive steps for long-term efficiency.

Based on the interview data, it seems that the manufacturing SMEs are cognizant of the environmental issues, such as the pollution effects, climate change, biodiversity loss, and the importance of sustainability. They also have a good understanding on the positive impacts of eco-friendly behaviours. Consequently, awareness of the environmental issues is one of the first step towards forming an intention to engage in eco-friendly practices by the manufacturing SMEs. When SMEs are aware of the positive and negative consequences of their actions on nature (e.g., how plastic waste harms environment), they will be more compelled to adapt their behaviours (e.g., reducing plastic use, recycling, or supporting sustainable products).

Awareness not only shapes intentions but also influences actual participation in eco-friendly behaviours. People who are aware of environmental concerns are more likely to

engage in actions that will mitigate those problems. Hence, awareness can also motivate SMEs to adopt more sustainable practices in the long term.

4.1.2 Cognitive factor – Perceived behavioural control

The subsequent themes are generated from "perceived behavioral control" standpoint.

i. Knowledge, skills, and experience of the SMEs

These quotes illustrate the close link between perceived behavioural control (PBC) in SMEs and their knowledge, skills, and experience. This can empower them to make effective and responsible decisions, particularly concerning sustainability and quality control.

Participant 4 - *"So maybe one day, when we have a bigger factory, we'll implement solar energy and a few other eco-friendly practices. There is definitely a chance for an eco-friendly setup to save costs. From a health perspective, that's the top priority when it comes to eco-friendliness. Everything would be more efficient."*

Participant 1 - *"From the beginning, we select who the supplier is, and we look closely at their practices. We review the supplier's practices. We take their materials, and we don't simply buy from any supplier. Even for the products they sell, we test them in the lab. We check everything from the supplier, including the manager and their practices. Even when a supplier proposes certain ingredients, we first conduct lab tests."*

These findings prove that SMEs with substantial green knowledge and skills, experience a stronger sense of PBC, enabling them to confidently pursue sustainable and efficient practices. While the first SME has aspiration to instigate eco-friendly practices depending on future growth, the second SME has already implemented rigorous quality control due to established expertise. Both circumstances showcase that knowledge, skills, and experience are the essential capabilities that ultimately influence the SMEs operational approach in relation to sustainability, cost efficiency, and quality.

Both SMEs express strong willingness to adopt eco-friendly practices but face challenges in practical implementation due to a lack of technical expertise and limited experience in green manufacturing. This gap between intention and action results in missed opportunities for cost savings.

SMEs may have hesitated to adopt sustainable changes due to uncertainty. Implementing eco-friendly practices requires specialised expertise in areas such as energy-efficient production and waste reduction. Many SMEs find it difficult to hire employees with the necessary knowledge and skills, making it challenging to implement eco-friendly strategies. Additionally, upgrading to greener operations can be costly and often require external consultants to provide guidance on sustainable practices.

Experience in eco-friendly practices plays a crucial role in determining whether SMEs can successfully transition into sustainable operations. For instance, the second SME, who has prior exposure to green products and practices, demonstrates greater confidence and has a better understanding on effective implementation of eco-friendly measures. Practical experience enables SMEs to engage more readily with sustainability initiatives and integrate them into their business processes. This may be the reason the first SME finds the transition overwhelming and putting off implementing green practices until the organisation grows and has more experience.

ii. Limited knowledge of collaboration and representatives of other professions

Based on the interviews, the concept of perceived behavioural control (PBC) can be explored in terms of the effects of limited knowledge and collaboration on SMEs. The participants do acknowledge that their limited interactions with governing bodies regarding eco-friendly practices have resulted in inadequate knowledge about the green responsibilities and competencies of SMEs. They have suggested a broader introduction of inter-professional education and/or meetings/mentoring with experienced SMEs to remedy this situation.

Participant 10 - *“Usually, as far as I know, there isn't any government that emphasises or provides strong encouragement, except for awareness courses and seminars on the importance of protecting the environment. But what I've been doing so far is, as an educated person, I take it as my own responsibility to be aware and take care of the environment.”*

Participant 5 - *“If support in terms of sustainability exists, I don't think it's advertised that much. There aren't programmes like this yet. Or maybe I'm not aware. I'm not sure. Or maybe it hasn't reached social media.”*

Their knowledge of collaboration opportunities and inter-professional practicals are also limited, which seem to negatively affect their sense of control over the behaviour on the general principle of fear of the unknown. The participants have proposed several solutions for this situation, namely by having extensive discussions on these issues during the studies. Additionally, activities such as webinars and online workshops, events promoting inter-professional collaboration, or meetings with other experienced SMEs are some of the other measures that can be carried out. By bridging these knowledge and collaboration gaps, the SMEs could be better aligned with sustainable initiatives and feel more empowered to implement them in their operations.

iii. Incentives and gratification systems

The participants have also referred to the necessity of introducing a reimbursement system corresponding to the increased tasks and responsibilities associated with eco-friendly practices. They believe that inadequate

incentives or financial remuneration could discourage participation.

Participant 9 - *“Even though there are grants, we need to have a certain percentage in the bank, and we also have to invest upfront to get reimbursed, which requires a significant amount of investment. Moving in that direction really requires extra resources, and that's definitely a challenge.”*

Participant 8 - *“Technically, the best support is the grant that I get. Still very tough now. We did request the government, like what we say, China investor came in, right? If can, try to buy local-made Malaysian products. Otherwise, very hard to compete. In terms of government support, will be the antidumping issue.”*

These extracts illustrate the fact that perceived behavioural control (PBC) in SMEs can be influenced by incentives and gratification systems, such as grants and government support. When incentives come with challenging conditions or are insufficient to address market realities, they may fall short in empowering SMEs to adopt eco-friendly practices. Adjustments to this system such as making grants more accessible and providing regulatory support to protect local businesses can enhance SMEs' PBC and give them greater confidence in their abilities to grow and compete.

4.1.3 Affective Factors

The following themes are generated from “affective factors” perspective:

i. Emotional engagement with nature

These findings highlight the SMEs' emotional engagement with nature, revealing their sentiment regarding environmental practices as not only practical, but also personally fulfilling.

Participant 6 - *“I have discussed with my friends. He's working in media he's a YouTuber, so lately we are discussing, he came to our factory, how to do educate all the labels. I think teenagers they always see the videos from YouTube, TikTok. So maybe we can start from this social media to begin. So, I think this is one of the ways we can do so we need to let them know what is the value? What is useful.”*

Participant 5 - *“It feels self-rewarded, like we are doing something good, serving the land and environment. Right now, corporations are just chasing money and profits, which is understandable, but it would be better if making money also meant improving the environment. Businesses can also use factory waste for their products. More people need to be educated about this. My point is, maybe people don't realise that factory waste is a good opportunity, and it's also low-cost.”*

The above excerpts show that emotional attachment to nature can influence the SMEs, whether by educating others or finding personal satisfaction in pro-environmental

behaviours. Both participants have demonstrated that environmental commitment within SMEs can stem from a sense of responsibility, moral values, and personal fulfilment, rather than from mere business advantages. This emotional connection will strengthen their commitments to sustainable eco-friendly practices and motivate positive environmental efforts.

Manufacturing SMEs who are emotionally engaged with nature can publicly showcase their commitments to environmental sustainability, which strengthens their corporate social responsibility (CSR) images. This emotional connection to nature can be transmitted through their actions, such as adopting eco-friendly production processes, reducing waste, supporting conservation efforts, or developing environmentally sustainable products.

Based on the interview, it seems that this emotional engagement with nature does inspire manufacturing SMEs to innovate and create products or services which are both sustainable and aligned with their values. For instance, companies may explore utilising sustainable raw materials, implement eco-friendly packagings, and/or develop renewable energy solutions, leading them to long-term business success.

ii. Pro-environmental behaviour (i.e., recycling, energy conservation)

From these quotes, it seems that the SMEs indicate their affective factors by expressing a commitment to pro-environmental behaviours, specifically in terms of recycling and resource management, which are some of the important components of eco-friendly practices.

Participant 7 – *“Currently, we just ask them to clean them up and then put into bags. And then, just sell it off first. I found out that when they put into the bags. So, we can reuse it. So, this is one of the things that I actually made to try to improve our instances.”*

Participant 4 – *“We only send it out when it's full, but it's rare because there isn't much waste. We really manage it carefully. But yes, when it's full, we do get some money from it, though not much. The bin is specifically for metal. Outside, there's also a roll-on/roll-off container, but that's for wood and other materials.”*

Both SMEs can be seen as valuing the affective commitment to eco-friendly practices beyond the financial gains, indicating that they prioritise environmental stewardship. This emotional and value-driven commitment strengthens the likelihood that they will continue these practices regardless of the immediate rewards. This affective commitment towards pro-environmental behaviours reinforces the SMEs' intention to support as well as engage in these eco-friendly practices.

iii. Commitment in expressing intention to practice

The two quotes illustrate affective factors related to the commitment to express and practice sustainable intentions.

In the context of the Theory of Planned Behaviour (TPB), affective commitment reflects the emotional attachment and genuine interest that individuals or businesses have in practicing certain behaviours, such as sustainability. When people are emotionally invested in an intention, they are more likely to follow through with actions which are aligned to that intention.

Participant 8 – *“Like recently, I visited Petsworld, Gamuda, IR 4.0. You see, there were so few people. If you stand at the top, you barely see anyone there. I also visited Spritzer, from our wastage member. It's so advanced; they draw the water, handle the bottling, everything—with, I think, less than 10 people there. I didn't see any humans. ESG, electricity saving—yes, why not? Of course, my husband also told me that in the future, ESG-qualified companies will look into suppliers who are also ESG-compliant, right?”*

Participant 10 – *“It's just that the practice might take a bit of time. If we look at the people of the past, like our mothers, our aunts, if they ran a small business from home or even at big events like weddings, they would do everything cleanly. There was no mess or dirt left behind.”*

Based on the extracts above, the SMEs are emotionally committed to practicing eco-friendly practices, but for two different reasons. The first one is motivated by a blend of practical and long-term strategic goals, while the second one is driven by cultural values and pride. In the context of the TPB, affective commitment can be a powerful force for reinforcing intention, as it deepens the personal significance of sustainable practices beyond mere compliance, encouraging individuals and businesses to pursue eco-friendly practices genuinely as well as dedicatedly.

4.2 Discussion

In the context of the Theory of Planned Behaviour (TPB), attitudes represent the evaluation of a behaviour, considering both positive and negative perceptions and anticipated outcomes [15]. This study demonstrates that when the TPB is applied to the manufacturing SMEs, particularly regarding eco-friendly practices, the SMEs often recognise numerous advantages and positive outcomes associated with sustainable practices. For instance, adopting eco-friendly initiatives are perceived as opportunities for innovation, self-development, and competitive advantage. The attitudes, perceived behavioural control, and affective factors highlighted in the findings above reflect the methods used by SMEs to approach eco-friendly practices in their operations. Attitudes are expressed through environmental responsibility's beliefs and values, whereas perceived behavioural control represents the SMEs' sense of empowerment or limitations in implementing eco-friendly practices, whilst affective factors reveal emotional engagement and personal fulfilment that are tied to these actions. Collectively, these elements provide a rich understanding of the way SMEs

balance their commitment to environmental initiatives with business constraints and personal values. Figure 1 below demonstrates the conceptual framework of the cognitive and affective factors influencing the intention-behaviour gap among SMEs in the manufacturing sector.

When examining the adoption of sustainable practices by SMEs, factors such as attitudes, perceived behavioural control (PBC), and affective elements play significant roles

in shaping intentions and behaviours. The Theory of Planned Behaviour (TPB) posits that these components interact to influence an individual or organisation’s decision-making process [15]. By analysing SMEs’ efforts to integrate green practices, insights are gained into how these factors impact the implementation of sustainable strategies.

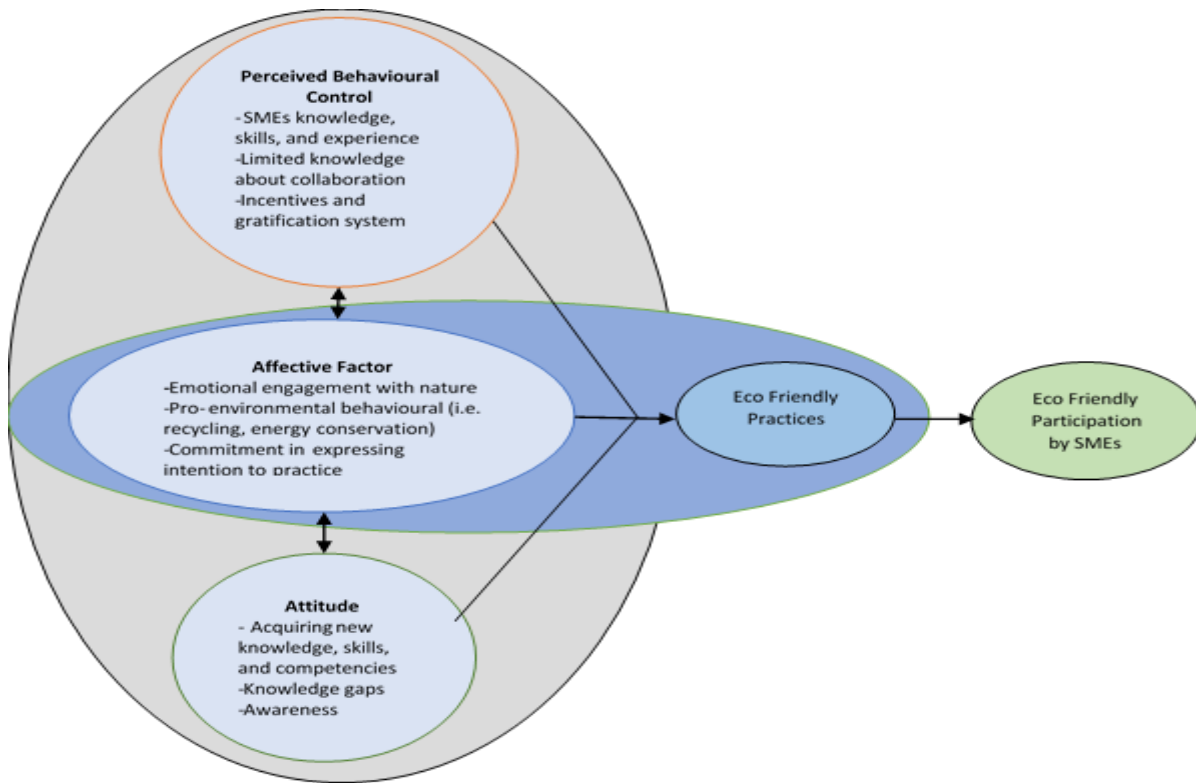


Figure 1: Cognitive and Affective Factors of SMEs Intention-Behaviour Gap

4.2.1 Cognitive Factors – Attitudes

Attitudes towards sustainability are crucial in determining the extent to which SMEs are willing to engage in eco-friendly practices. Many SMEs acknowledge the importance of environmental responsibility and feel intrinsically rewarded when contributing to environmental preservation. For example, one respondent has stated: *“It feels self-rewarded, like we are doing something good, serving the land and environment...”* which indicates an intrinsic satisfaction derived from sustainable practices. This aligns with findings from previous research, which suggests that attitudes towards eco-friendly practices often stem from

Moreover, the SMEs believe that these actions can elevate their status within the industry. They perceive their environmental responsibilities as a means for gaining recognition and respect. Studies have shown that embracing

a sense of moral obligation or personal satisfaction [49].

This study suggests that SMEs in Malaysia’s manufacturing sector, view eco-friendly practices as beneficial for long-term cost savings and global competitiveness. The SME owners and managers view eco-friendly practices as a means to enhance their knowledges regarding sustainability and technological advancements. By implementing greener technologies, these SMEs are able to reduce their environmental impacts, as well as improve their business reputations, aligning themselves with the growing market demand for sustainable products [50].

sustainable practices enhances the reputation of businesses, allowing them to build stronger relationships with environmentally-conscious consumers [51]. Additionally, SMEs in the manufacturing sector recognise that eco-friendly practices do not only benefit the environment

but also contribute to a more sustainable economy and business ecosystem. Nonetheless, the challenges faced by them are genuine and disconcerting. Some SMEs express concerns over the risks of adopting green technologies, including the possibility of incurring additional costs and uncertainties about the long-term financial benefits [52]. SME leaders in this industry may feel inadequate or unsure when adopting unfamiliar green technologies [50].

4.2.2 Cognitive Factors – Perceived Behavioural Control

In the context of manufacturing SMEs adopting eco-friendly practices, perceived behavioural control is critical as it reflects the capability degree to which the SME owners and managers feel when implementing sustainable initiatives. This study indicates that many SMEs are overwhelmed by the gaps in knowledge regarding green technologies. These gaps often involve understanding of energy-efficient technologies, waste management, and sustainable production processes, which are necessary for eco-friendly practices but are perceived as complex and difficult to implement [53]. Additionally, limited resources, both financial and technical, further hinder SMEs' abilities to adopt eco-friendly practices. Many SMEs, particularly in developing markets, lack access to the resources and infrastructure needed to fully integrate eco-friendly measures, leading to a perception that such initiatives are beyond their control [50].

Perceived behavioural control (PBC) relates to an individual's or organisation's perception of their abilities to perform a given behaviour. Within SMEs, PBC often determines the feasibility of implementing sustainable practices, especially when financial or technological limitations exist. For example, one SME owner has noted the challenges of obtaining grants and the need for "a significant amount of investment... really requires extra resources, and that's definitely a challenge". This reflects a lack of perceived control over financial resources, which can hinder the adoption of sustainable practices [20].

This lack of perceived control can lower the intention to adopt sustainable practices, as evidenced in other sectors where perceived limitations in knowledge and support systems negatively affect behavioural intentions [54]. It also seems that SMEs in manufacturing often face difficulties related to industry's norms and networks, where the pressure to adopt eco-friendly practices is low due to lack of collaborative support and regulatory enforcement [51]. SMEs often think that the broader business environment where eco-friendly practices are not yet mainstream, does not encourage sustainable behaviour. Barriers such as competitive pressure, mistrust, and a lack of industry-wide collaboration on environmental goals hinder the SMEs' perception of control over adopting eco-friendly measures [52]. However, recent developments in policy and regulations which are aimed at promoting sustainability may improve such perceived control, as governments introduce

frameworks that support green innovation and provide SMEs with better access to resources [50].

4.2.3 Affective factors

This study also demonstrates that many SME owners/managers have expressed emotional resistance against green initiatives, perceiving them as disruptive to the current processes or fearing potential reduction in profit margins [55]. This emotional aversion can be linked to the perceived complexity and high cost associated with eco-friendly technologies, generating concerns regarding their feasibility and long-term viability [56]. SME owners/managers often feel apprehensive about their abilities to successfully implement sustainable practices, affecting their overall willingness to commit to such initiatives.

Affective factors, particularly emotional engagement with nature, also play a pivotal role in motivating SMEs to pursue eco-friendly initiatives. Emotional attachment to environmental values can strengthen the commitment to sustainable practices. For instance, one participant has expressed the emotional reward of "serving the land and environment", reflecting a deeper connection with nature that goes beyond financial incentives. This resonates with the findings of Kollmuss [22] that emotional connections can significantly drive pro-environmental behaviours.

Furthermore, emotional drivers such as pride, social responsibility, and company image can enhance affective attitudes towards eco-friendly behaviour. For example, SMEs in manufacturing that align their operations with environmental sustainability often experience a sense of pride and moral satisfaction, contributing to positive attitudes towards eco-friendly practices [57]. Conversely, the fear of losing market shares or damaging their reputations by failing to adopt green practices can also motivate SMEs to embrace sustainable behaviour [7]. However, these emotional factors are often counterbalanced by feelings of uncertainty, especially among SMEs in the manufacturing sector where eco-friendly practices are not yet common, suggesting a sentiment between the desire for environmental responsibility and the practical challenges of achieving it.

4.2.4 Interaction between cognitive and affective factors on intention-behaviour gap.

The interplay between attitudes, PBC, and affective factors can either facilitate or hinder the adoption of sustainable practices within SMEs. Positive attitudes and strong affective engagement can increase motivation, but limited PBC, particularly regarding resources and infrastructure, can act as a significant barrier [14]. In the case of one SME, the intention to adopt solar energy is positive, yet constrained by the current lack of resources to support such initiative.

Meanwhile, incentives and gratification systems can

impact PBC both ways i.e. either enhancing or diminishing SMEs' perceived capacity to implement sustainable practices. One respondent has mentioned that while government grants are available, they require upfront investment, which not all SMEs can afford. This reflects a mismatch between available resources and perceived control, where financial support exists, but is not readily accessible due to structural barriers [58].

Attitudes towards environmental responsibility in SMEs are often shaped by external pressures and societal expectations. Progressively, as SMEs recognise the importance of sustainability, some do feel pressured to align their practices with this value, even if initial costs are high. This is depicted in one respondent's reference to "serving the land and environment", suggesting an outlook which is shaped by both personal values and perceived social norms [3].

The role of social influence, particularly in shaping attitudes and perceived control, is also significant. One SME owner has discussed the idea of using social media platforms like YouTube and TikTok to educate younger audiences on sustainability. This demonstrates an awareness of the influence that social channels have on shaping attitudes, particularly among younger consumers [59].

Overall, the interactions between attitudes, PBC, and affective factors emphasise the complex decision-making process that are involved in adopting sustainable practices. For SMEs, a strong commitment to environmental responsibility is often tempered by the practical constraints of limited resources and infrastructure. These findings highlight the need for more accessible support systems and targeted incentives to empower SMEs in achieving their sustainability goals [15,20,58].

5. Conclusion

This study explores the application of the Theory of Planned Behaviour (TPB) in understanding the cognitive and affective factors influencing SMEs' intention to adopt eco-friendly practices. It highlights the critical role of affective attitudes, such as emotional resistance or support for environmental initiatives, and cognitive factors, including the perception of cost and operational feasibility. SMEs are normally driven by internal motivations (i.e. social responsibility and pride) and external pressures (i.e. regulatory demands and market competitiveness), which then shape their behavioural intentions. However, concerns relating to potential financial burdens, uncertainties regarding the effectiveness of eco-friendly initiatives, and knowledge gaps about sustainable practices have been identified as negative attitudes that hinder the SMEs' willingness to engage in such behaviours.

This study contributes to the TPB literature by highlighting the complex interplay between affective and cognitive factors in shaping behaviour, suggesting that emotional responses, such as fear of financial loss or pride in

sustainable business practices, can significantly influence decision-making. These insights provide a deeper understanding of the affective dimensions in the intention-behaviour relationship. From a practical standpoint, the findings offer important implications for policymakers, SME owners/managers, and sustainability advocates. It emphasises the need for more tailored interventions that address both the emotional and cognitive barriers faced by SMEs when adopting eco-friendly practices. Governments and industry leaders can focus on providing necessary financial incentives, effective training programmes, and relevant awareness campaigns that highlight the long-term benefits of sustainability. Moreover, by bringing the SMEs who have successfully implemented green practices into the limelight, stakeholders can foster positive attitudes and reduce resistance among SME owners and managers.

This study has several limitations including the fact that it primarily focuses on SMEs in the manufacturing sector, limiting the relevance of the findings to other sectors. Future studies could explore whether these findings can be applied to other industries as well. Additionally, future studies should also examine the long-term outcomes of the SMEs that adopt eco-friendly measures, analysing whether their positive intentions translate into sustained behavioural changes and improved environmental impacts.

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