RESEARCH

Innovation for Sustainability: Convergent Mixed Method Strategies for Instrument Development in Impulsive Buying

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ABSTRACT

PURPOSE: This study investigates the influence of perceived quality, brand awareness, and influencer effects on impulsive buying behaviour and its consequences for financial health.

DESIGN/METHODOLOGY/APPROACH: This study employs a convergent mixed-methods design. Quantitative data were collected from 40 Millennials via a structured questionnaire, while qualitative data were gathered from two semi-structured interviews conducted at the pilot stage. Instrument validity and reliability were assessed using face validity, sampling validity, convergent and discriminant validity, and expert review of qualitative methods.

FINDINGS: Sampling validity, convergent, and discriminant validity were met, although AVE values for Perceived Quality and Brand Awareness fell below the 0.5 benchmark. Items loading above 0.7 were re-selected to address the issue. Qualitative results revealed contrasting brand preferences, providing depth to the quantitative analysis.

ORIGINALITY/ VALUE: This study introduces a validated mixed-methods framework for diverse products and services, including online purchases, food, and fashion.

RESEARCH LIMITATIONS: A small sample size and construct validity issues limit generalisability.

PRACTICAL IMPLICATIONS: The study recommends standardised scales and urban sampling for future research to enhance robustness and applicability.

KEYWORDS: *Consumer Behaviour; Human Health; Impulsive Buying; Impulse Purchase; Instrument Development; Online Purchases; Mixed Method; Financial Well-Being; Research Strategies.*

INTRODUCTION

Generally, there are two streams of key terms being used. One is unplanned and planned purchases (Ho and Lim, 2018), and another is impulsive buying (Stern 1962; Alemu and Zewdie, 2021). Regardless of which key terms are being used, impulsive purchases have one common trait—a sudden urge or feeling to buy without considering the consequences (Rook,1987).

In a more serious purchase that far exceeded the consequences, Maccarrone-Eaglen and Schofield (2020) called it compulsive or a compulsion to buy. Far from meeting needs, buying has become a 'must.' Compulsive buying is considered excessive or wasteful purchases that can be repetitive and ritualistic (Hamza and Elsantil, 2024).

Impulsive buying has micro and macro consequences. From a micro perspective, individuals may face cognitive and financial dissonance and find ways to cope with it (Beikverdi *et al.*, 2024). From a macro perspective, consequences include overconsumption and unnecessary resource wastage (Fenton-O'Creevy and Furnham, 2020; Nyrhinen *et al.*, 2024). This would impact the environment's sustainability as it was not a channel for a good cause (Chang *et al.*, 2024).

The research on impulsive buying has moved in tandem with the growing economy. Beginning in the 1950s, investigations into impulsive buying have evolved from experiments to a more diversified range of methods. As the nation's wealth has increased, purchases have shifted from meeting needs to wants and, more recently, a 'must-have' attitude. It was no surprise that developed economies such as Germany, Spain, and the United Kingdom recorded repeated purchases at 7, 13, and 16 percent, respectively. In comparison, emerging economies like China recorded 29 per cent of impulsive purchases. This poses a problem of unnecessary consumption and wastage.

Quality is distinct from perceived quality. While quality reflects the actual attributes of the product, perceived quality is understood as the collective representation of a consumer's belief in the purchased good. In the interplay between perceived quality and sustainability, consumers frequently overlook the significance of sustainability. Consequently, there is a pressing need for further study. Thus, there is a pressing need to study the effect of perceived quality on unplanned buying.

On the other hand, marketers exploit their products and services to lure consumers into purchases. Through the use of social media and advertising, marketers create brand awareness that places brands at the top of 'brand recall' in the minds of consumers. It is an irreplaceable aspect of a brand to restrict consideration of alternative brands (Bergkvist and Taylor, 2022; Mecredy *et al.*, 2022). Brand awareness has been synonymously recognised as a form of so-called 'trusted' brand.

Triggered further by influencers' recommendations in promoting brands and products, impulsivity would encourage consumers to buy. Many consumers would purchase something based on influencer recommendations.

It is no wonder that companies and brands are targeting Millennials' purchases. Millennials are prone to purchasing impulsively due to their purchasing styles. Similar studies also shared similar views of Millennials' spending power and poor financial literacy.

Thus far, little effort has been made to investigate the perceived quality and brand awareness effects on impulsive buying. Most researchers focus on brand image (Marimon *et al.*, 2021; Rustemi and Baca, 2021), purchase intention, buying intention, or customer satisfaction rather than impulsive buying (Eberle *et al.*, 2021). Thus, this paper aims to bridge the knowledge gap by understanding the relationship between perceived quality, brand awareness and influencers' effect on impulse buying. It also examines whether the influence of perceived quality and brand awareness affects impulsive buying behaviour by adding a mediator namely influencers.

The paper also explores the influencer's perceived roles as intermediaries between perceived quality and brand awareness on impulsive buying using quantitative and qualitative methods, simultaneously echoing (Hudders *et al.*, 2021). Thus, this study explores the role of influencers as mediators for the first time.

LITERATURE REVIEW

One of the most formidable types of research on impulsive buying was a meta-analysis by Zhao *et al.* (2022) and a systematic literature review by Redine *et al.* (2022) and Beikverdi *et al.* (2024). Zhao *et al.* (2022) outline that consumer characteristics, environmental cues, and marketing stimuli affect impulsive buying. Redine *et al.* (2022) outline that the antecedents are consumer-related factors, marketing mix, online peer influence, social demographics, and store-related factors, while Beikverdi *et al.* (2024) outline post-purchase effects. As sample research has been carried out on consumer, demographic, and peer influence, this research will focus on less explored areas such as product quality, brand awareness, and influencers.

Perceived quality is defined as a collective representation of consumers' beliefs about a purchased good. It involves product availability, website features, and store display. Brand awareness is defined as the marketing stimulus resulting from social media marketing activities (Redine *et al.*, 2022; Bergkvist and Taylor, 2022). Influencers can be defined as third party actors who have established a significant number of followers (quantity) and influence (quality) (Enke and Brochers, 2019).

Perceived quality, brand awareness, and influencers play a crucial role in reducing consumer resistance and encouraging impulse buying. High perceived quality reduces perceived risk, making consumers more likely to make spontaneous purchases (Zhang *et al.*, 2023; Gong and Jiang, 2023; Asif and Billah, 2023; Xu *et al.*, 2024), while brand awareness through social media marketing and endorsements further diminishes hesitation to buy impulsively (Kurt *et al.*, 2022; Singh *et al.*, 2023; Parmar *et al.*, 2020; Zhang and Shi, 2022). Table 1 presents a contemporary literature review on various antecedent variables influencing impulsive buying.

Table 1: Contemporary Literature Review on Various Antecedent Variables

Author/year	Antecedent	Moderator/Mediator	Outcome	Methodology
Perceived Quality Effect on Impulsive Buying				
Zhang *et al.* (2023)	Perceived website quality.	Hedonic utilitarian (mediators), non-holiday seasons (moderator).	Urge to buy impulsively.	Survey
Gong and Jiang (2023)	Value for money, perceived product quality, scarcity, immediate feedback and perceived product knowledge.	Cognitive and affective, urge to buy (mediators).	Buy impulsively.	Survey

Author/year	Antecedent	Moderator/Mediator	Outcome	Methodology
Asif and Billah (2023)	Perceived quality, store atmosphere and shelf display.	Urge to buy (mediator).	Impulse buying.	Survey
Xu *et al.* (2024)	Uncertainty of products, observation of product sales, Source credibility, and argument quality.	Self-control (moderator), information, imitating others, perceived diagnostic and perceived serenity (mediators).	Impulse buying.	Mixed method – field survey and semi-structured interview
Trivedi *et al.* (2022)	Mobile apps.	Perceived value (mediator).	Online impulse purchases.	Quasi-experimental survey
Perceived Quality Effect on Influencer				
-	-	-	-	-
Brand Awareness Effect on Impulsive Buying				
Chen *et al.* (2022)	Symbolic presentation of character image; self-image and emotional.	Consumers' attitude (mediator).	Brand awareness, purchase intention and impulse buying.	Survey
Kurt *et al.* (2022).	Brand Awareness Social media conscientiousness and hedonic consumption.	Demographics (moderator) and hedonic consumption (mediator).	Impulse buying	Survey
Singh *et al.* (2023).	Brand Awareness Social media influence.	Impulse buying intention.	Impulse buying	Survey
Brand Awareness Effect on Influencer				
Gao *et al.* (2022).	Atmospheric cues and sales promotion.	Moderation (moderator).	Impulse buying	Survey
Influencers' Effect on Impulsive Buying				
Parmar *et al.* (2020)	Celebrity endorsement in point-of-purchase advertising.	-	Consumer impulse buying	Experiment
Chen *et al.* (2021)	The popularity of internet celebrity, identification, adoration, social distance and the perceived fit.	Trust (mediator).	Impulse behaviour (luxury clothes)	Online survey
Zhang and Shi (2022)	Vividness, interactivity and media richness	Social presence (mediator).	Impulsive buying	Online survey
Xu *et al.* (2024)	Uncertainty of products, observation of product sales, Source credibility and argument quality.	Self-control (moderator); Information, imitating others, perceived diagnostic and perceived serendipity (mediators).	Impulse buying	Mixed method – field survey and semi-structured interview.
Leong *et al.* (2022)	Attractiveness, expertise, promotion and scarcity.	Perceived enjoyment, arousal, urge to buy (mediators).	Impulse buying in live streaming	Survey
Koay *et al.* (2021)	Perceived social media marketing activities.	Source credibility and expertise (mediators).	Online impulse buying	Survey

Source: Compiled by the authors

To synthesise, concerning knowledge contribution, the limited literature focuses on perceived quality, brand awareness, and influencers' impact on impulsive buying. Thus far, very few studies have used perceived quality, brand awareness and influencers as antecedents. Additionally, the variable influencers was rarely tied to impulsive buying.

Almost all studies have used quantitative over qualitative methods, and hardly any research in the literature uses mixed methods. Rosengren and Campbell (2021) necessitate the use of different research designs, such as mixed methods. Redine *et al.* (2022) highlighted that impulse buying needs to explore a mixed method to meet the methodological gap.

Theoretical Underpinning and Conceptual Framework

The study uses the Stimulus-Organism-Response (SOR) theory as the domain theory and the Elaboration Likelihood Model (ELM), the Heuristic Systematic Model (HSM) and the trans parasocial (TPSR) model as micro theories. Redine *et al.* (2022) proved that the SOR theory is the most widely used in impulse buying studies.

The ELM and HSM meticulously address the distinct modes of cognitive persuasion processing while the concept of trans parasocial delves into the realm of media content and interactions with media figures. The ELM, HSM and TPSR serve as an organism and micro theories supporting the domain theory of the SOR. The relationship between the domain and micro theories is shown in Figure 1 below.
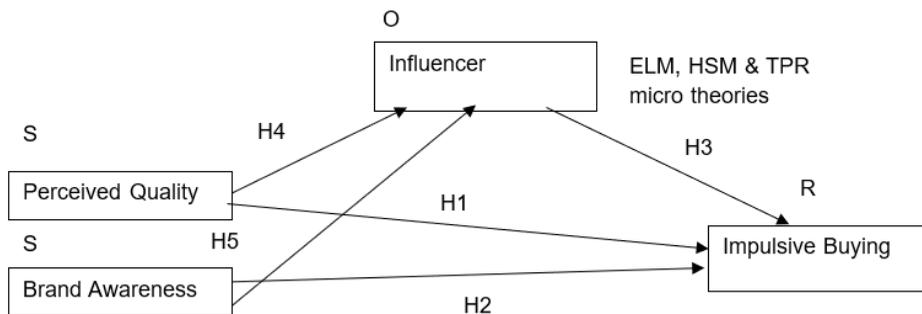

Figure 1: Conceptual Framework

Source: Constructed by authors

S – Stimuli
O – Organism
R – Response
ELM – Elaboration Likelihood Model
HSM – Heuristic Systematic Model
TPR - Trans parasocial relations

Hypothesis (H)

The relationship between Perceived Quality and Impulsive Buying

Qin *et al.* (2022) found that information and system quality have direct and indirect effects on TikTok addiction mediated by enjoyment, concentration and time distortion.

H1: There is a significant positive influence of perceived quality on impulsive buying.

The relationship between Brand Awareness and Impulsive Buying

Kurt *et al.* (2022) found that all three antecedents, social media platform, conscientiousness and hedonic consumption, have a positive and significant effect on impulsive buying.

H2: There is a significant positive influence of brand awareness on impulsive buying.

The relationship between Influencer and Impulsive Buying

Zhang and Shi (2022) found that antecedents such as vividness, interactivity and media richness positively affect social presence, which resembles an influencer construct.

H3: There is a significant positive influence of influencer endorsement on impulsive buying.

The mediating role of Influencer between Perceived Quality and Impulsive Buying

Zhang *et al.* (2023) used a heuristic systematic model (HSM) and found that influencer, perceived product quality and fit positively affect consumer purchase intention. Information overload here is used as an antecedent.

H4: There is a significant positive influence of perceived quality on impulsive buying mediated by influencer.

The mediating role of influencer between Brand Awareness and Impulsive Buying

Gao *et al.* (2022) found that the antecedents (atmospheric cues and sales promotion) greatly affect impulse buying mediated by consumers' emotions and moderation. Here, the mediating variable is replaced by influencer.

H5: There is a significant positive influence of brand awareness on impulsive buying mediated by influencers.

The hypothesis for the mediating variable is primarily grounded in the ELM model, while the HSM model will be used as a qualitative tool to explore the role of influencers between perceived quality and brand awareness on impulsive buying.

METHODOLOGY

Research Design

The study chooses a convergent mixed method approach as it provides a more comprehensive understanding of the research questions by combining quantitative and qualitative data (Lall, 2021). It allows for triangulation, which means that the data collected from one method can be used to confirm or refute findings from another method, thus increasing the validity of the results (Fusch *et al.*, 2018; Mathison 1988).

The ELM is tested quantitatively, and the HSM is explored qualitatively. Adding qualitative data to the study either validates or challenges the ELM's quantitative findings.

Research Method

Research methods refer to the reasons for selecting a methodology. This study uses a concurrent mixed methods to accurately describe and analyse the quantitative and qualitative approaches based on the research objectives. The study begins with a quantitative survey measuring perceived quality, brand awareness, influencers, and impulsive buying. At the same time, a series of semi-structured interviews aim at addressing the influencers' perceived role as commercial intermediaries between perceived quality and brand awareness on impulsive buying behaviour using a triangulation method.

The survey incorporates the SOR theory, ELM model, and TPSR model, while the interview includes the HSM model.

Sample Size and Sampling for Mixed Methods

The initial pilot study's sample size comprised 19 females and 21 males aged between 28 and 44. Convenience sampling is used because the sample is easily accessible, such as shoppers in the mall.

For semi-structured interviews, two interviewees were chosen using purposive sampling, a non-probability sampling method that enables researchers to find volunteers without bias.

Variables Used and Instrument Development

The study emphasises quantitative data, as many instruments developed by earlier researchers were quantitative.

The survey began with closed-ended questions measuring perceived quality, brand awareness, influencers, and impulsive buying (Table 2). At the same time, a series of semi-structured interviews using the triangulation method aimed to explore influencers' perceived role as commercial intermediaries between perceived quality and brand awareness on impulsive buying behaviour.

Table 2: Summary of the Variables and Instruments Used

| Variables	No. of items	Likert scales	Representative study	Theory Integration
Impulsive Buying (Richmond Compulsive Buying)	6 positive close-ended statements	7-point	Tarka *et al.* (2023)	Response (SOR)
Impulsive Buying (Financial aspect)	3 positive close-ended statements	7-point	Máynez-Guaderrama and Cavazos-Arroyo (2022)	
Perceived Quality	19 positive close-ended statements	7-point	Vonkeman *et al.* (2017), Chen *et al.* (2020)	Stimuli (SOR)
Brand Awareness	4 positive close-ended statements	5-point	Marimon *et al.* (2021)	
	13 positive close-ended statements, 1 negative statement	7-point	Chen *et al.* (2020)	Stimuli (SOR)
Influencer	8 positive close-ended statements	5-point	Yang *et al.* (2020), Yang *et al.* (2022)	
	17 positive close-ended statements	7-point	Zhou and Wang (2016), Koay *et al.* (2021), Kim *et al.* (2022), Lou (2022)	Organism, ELM, HSM and TPSR

Source: Compiled by the authors

Note: SOR – Stimulus–Organism–Response; ELM – Elaboration Likelihood Model; HSM – Heuristic Systematic Model; TPSR – Trans-parasocial.

Simultaneously, the interview began with the purpose of obtaining permission to record the interview. The interview questions consist of four sections: respondents' background, shopping experience, their daily spending and brands that they buy, and their understanding of the concept of influencers and their role in affecting their purchases.

Pilot Study Data Collection

A convergent mixed methods was piloted (Figure 2). Quantitative data (n=40) assessed the clarity and consistency of measures based on the SOR theory and the ELM model. Simultaneously, qualitative data from two interviewees explored heuristic and systematic reasoning using the Heuristic Systematic Model (HSM). The data strands were analysed separately and compared to evaluate methodological alignment and refine the instrument.
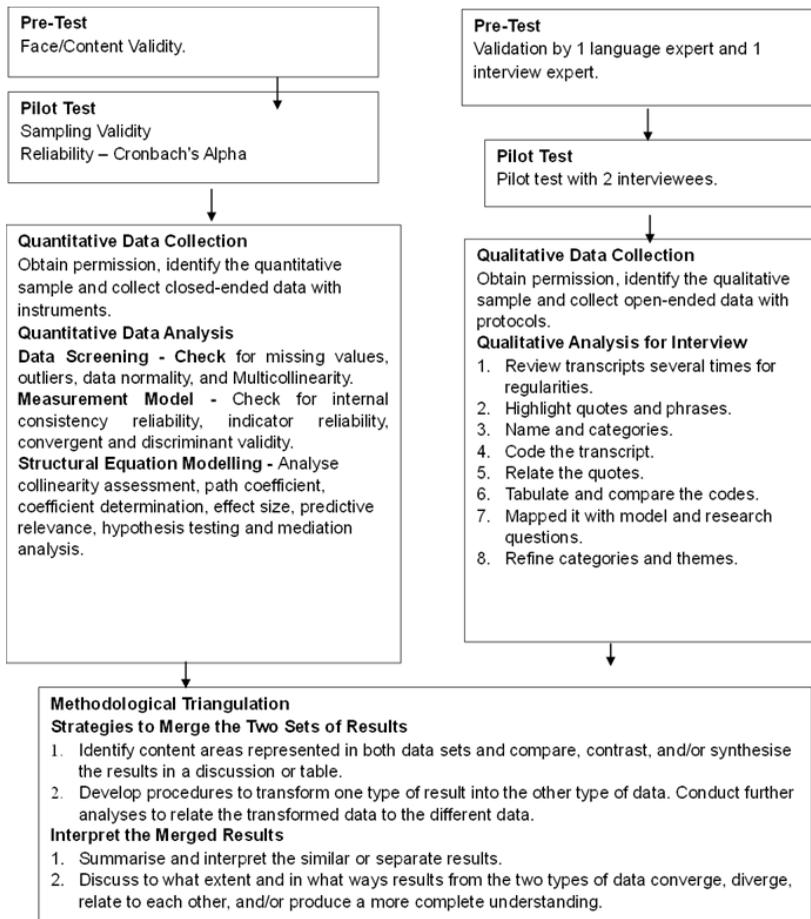
Figure 2: A Convergent Mixed-Methods Design

Source: Adapted from Creswell and Clark (2017)

Following sampling validity guidelines, 10 percent of the intended sample size is sufficient for pilot testing. Thus, 40 survey respondents and two interviewees adequately represent the planned full samples.

The survey data were analysed using Smart PLS version 4.1.0.0, and transcripts were analysed using MS Excel.

Methodological Triangulation in Data Analysis

Data integration occurred after data collection. The study will identify, compare, contrast, and synthesise the findings, which will be presented in a table or discussion. The differences within the same set of results will be discerned and discussed in an organised way to examine these differences.

FINDINGS AND DISCUSSION

For simplicity of discussion, the study will discuss quantitative data first, followed by qualitative.

Quantitative

A non-subject checked face validity was conducted to determine whether the statements logically cover multiple operational variables. Minor changes were made, such as the omission of age, as the items clearly indicated that the survey involved Millennials. A subject expert validated the breadth of questions and omitted any redundant questions (Cheng *et al.*, 2019) for content validity.

Discriminant Validity refers to each item being distinct from other items by checking the Fornell-Larcker criterion (<0.85) (Fornell and Larcker, 1981; Hayes, 2009). All questionnaire items meet the benchmark (Table 3).

Table 3: Discriminant Validity

	Brand Awareness	Impulsive Buying	Perceived Quality	Influencer
Brand Awareness				
Impulsive Buying	**0.439**			
Perceived Quality	0.805	**0.325**		
Influencer	0.767	0.430	**0.563**	

Source: Compiled by the authors

For reliability, Cronbach's Alpha and Composite Reliability are preferably above 0.7. All items meet the benchmark (Table 4).

Table 4: Summary of Reliability and Validity

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Brand Awareness	0.954	0.965	0.961	0.500
Impulsive Buying	0.922	0.952	0.936	0.622
Perceived Quality	0.944	0.951	0.949	0.457
Influencer	0.955	0.961	0.961	0.694

Source: Analysed by the authors

Convergent Validity refers to each item measuring what it is intended to measure. However, convergent validity did not meet the average variance extracted (AVE) (AVE $\geq$ 0.5). Based on Table 4, Brand Awareness and Perceived Quality AVE only achieved 0.5 and 0.457, respectively.

To address the AVE benchmarks of less than 0.5, the study reselects items with loadings above 0.7. Ten items that met the 0.7 criteria were chosen for perceived quality variables, while eleven items were selected for brand awareness. For the Influencer variable, only the A3 item was omitted as it recorded below 0.7. The new results are shown in Table 5. After removing items below 0.7, the AVE for Brand Awareness and Perceived Quality exceeds 0.5.

Table 5: Summary of Reliability and Validity (items above 0.7)

	Cronbach's alpha	Composite reliability (rho_a)	Composite reliability (rho_c)	Average variance extracted (AVE)
Brand Awareness (0.7 above)	0.952	0.956	0.959	0.679
Impulsive Buying	0.922	0.963	0.934	0.617
Perceived Quality (0.7 above)	0.950	0.951	0.957	0.692
Influencer (0.7 above)	0.951	0.956	0.957	0.570

Source: Compiled by the authors

Qualitative

To ensure the validity of the interview data, the interviewer followed a standardised protocol for conducting the interview. This protocol includes using the same set of questions for all interviewees, asking questions in the same order, and maintaining consistency in the language and tone used throughout the interview. The interview was recorded, and notes were taken during the interview.

After content validation by two interview experts, a pilot test was conducted on two female interviewees.

The transcripts were typed and reviewed several times. Phrases were highlighted; codes were created and compared with the research questions. The themes were solidified, as shown in Table 6 below.

Table 6: Summary of Keywords Repeated by Two Interviewees

Theme 1	No. of repeated words mentioned by the interviewees
Food	20
Facial	3
Groceries	3
eating out	2
Shoes	2
Clothes	1
handbag/ hand bag	0

Source: Compiled by the authors

Millennials are concerned about food, the staple of a family. Other concerns are facials, groceries, eating out, and shoes. This is because Millennials have families and children who must be cared for. Luxury items become secondary. Both interviewees are lecturers and are aware of their own impulse purchases.

Table 7 further indicates that Interviewee A is prone to branded goods, while Interviewee B does not prefer branded goods, except for food for her children. Branded goods are tied to expensive and quality products sustained over time. Cheap goods are quickly discarded. Interviewee A spent

the most on groceries, about US$119.88 a month, while Interviewee B spent the most on food and eating out, costing about US$191.82 a month.

Table 7: Comparison of Branded and Non-branded Items Purchased by the Interviewees

Theme 2a (branded)	Number of repeated words mentioned by the interviewee	Theme 2b (not branded)	Number of repeated words mentioned by the interviewee
brand	9	no brand/ not branded	0
Expensive	9	Cheap	5
Quality	7	Discard	2
Sustain	2	Throw	0
long term	1	buy new	0

Source: Compiled by the authors

Two interviewees replied yes to the interview question about naming two influencers and whether they promote brands and products. On a scale of 1 (unlikely to purchase) to 7 (strongly purchase), interviewee A rated 7 for a famous online food influencer, while for other influencers, she rated 4 neutral. Interviewee B rated 2-3 (unlikely to purchase) as she is not a fan of the influencer. Interviewee B could not recall the influencer's name when asked (Table 8).

Table 8: Impulsivity to Purchase

Purchases	Impulsivity to purchase
Interviewee A	
Famous food influencer	7 (strongly purchase)
Other micro-influencers	4 (neutral)
Interviewee B	
Influencer	2-3 (unlikely to purchase)

Source: Compiled by the authors

To conclude, Interviewee A is more influenced by influencers regarding purchases, while Interviewee B is willing to spend money impulsively for her two children.

It can be observed that qualitative data provides in-depth information on items purchased impulsively. The data also recorded the reasons for impulsiveness: entertainment, relaxation, moments of enjoyment, and relationships (buying for loved ones).

Implications of Preliminary Results

The definitive version of the instrument for Perceived Quality consists of 10 items, and Brand Awareness consists of 11 items. Influencer variable consists of 16 items. It is suggested that each variable has 10-12 items. Using a standardised 7-point Likert scale instead of two different scale types is also recommended.

For the qualitative interview, the two interviewees had a balanced view of impulsive buying, with one being influenced by influencers regarding purchases. The other uses influencers for food recommendations and social media platforms as a benchmark to determine market prices. The instruments can be replicated in online purchases, food, fashion apparel, handphones, and entertainment services. It is recommended that the mixed method be employed in urban areas such as shopping malls, where impulse purchases are more visible than in semi-urban areas.

The results have also proved that the underpinning theories of SOR, ELM, HSM, and TPSR are viable for mixed-method design. It has been proven that the convergent mixed method is possible, with careful thought and implementation, and must be given to the design and procedure.

CONCLUSIONS

The study successfully implemented a validated and reliable mixed-method framework for a range of products, such as online purchases, food, and fashion. It is proven that mixed-method design can be carried out using the underpinning theories of SOR, ELM, HSM, and TPSR. However, it was not without limitations. A small sample size and construct validity issues limit generalisability. Mixed-method research is time and resource-intensive.

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ETHICAL APPROVAL AND INFORMED CONSENT STATEMENTS

Ethical approval for this study was obtained from the INTI University Ethical Committee (Reference: INTI/UEC/2024/009). All participants provided informed consent prior to participation in the study. They were fully briefed on the research purpose, procedures, voluntary participation, confidentiality, and their right to withdraw at any time without penalty.

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