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**Article**

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Journal of Open Innovation: Technology, Market, and Complexity

**Provided in Cooperation with:**

Society of Open Innovation: Technology, Market, and Complexity (SOItmC)

*Suggested Citation:* Pradeep Paraman et al. (2022) : Dynamic effect of flow on impulsive consumption: Evidence from Southeast Asian live streaming platforms, Journal of Open Innovation: Technology, Market, and Complexity, ISSN 2199-8531, MDPI, Basel, Vol. 8, Iss. 4, pp. 1-27, <https://doi.org/10.3390/joitmc8040212>

This Version is available at:

<https://hdl.handle.net/10419/274513>

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Article

# Dynamic Effect of Flow on Impulsive Consumption: Evidence from Southeast Asian Live Streaming Platforms

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**Abstract:** The impulsive live streaming consumption intentions of the Southeast Asian market are examined in this study. Online live streaming transactions, a new form of social media, are becoming popular due to their real-time communication and innovative business concept. Though little attention has been dedicated to it, a theoretical knowledge of Live Streaming Transaction (LST) is crucial given its broad application and unique features. The analysis of 8613 respondents from Southeast Asia in this study, based on flow, temperament, and personality theories, offers fresh perspectives on the mediating role of flow and the moderating effect of temperament in a cross-national setting. Cluster sampling was used to construct a mixed-method conditional indirect effects model. Since introverted temperament types look for voices that echo within them, our findings revealed that LSTs are more intriguing to this market segment. Theoretical and practical elements, as well as implications for future directions, are presented.

**Keywords:** impulsive purchasing; live streaming transaction (LST); consumer temperament; audio-visual experience; flow experience; Southeast Asia



**Citation:** Paraman, P.; Annamalah, S.; Vlachos, P.; Ahmed, S.; Balasubramaniam, A.; Kadir, B.; Raman, M.; Hoo, W.C. Dynamic Effect of Flow on Impulsive Consumption: Evidence from Southeast Asian Live Streaming Platforms. *J. Open Innov. Technol. Mark. Complex.* **2022**, *8*, 212. <https://doi.org/10.3390/joitmc8040212>

Received: 17 July 2022

Accepted: 3 October 2022

Published: 5 December 2022

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## 1. Introduction

Although research on live streaming transactions (LSTs) is still nascent, LSTs themselves are expanding at an unprecedented rate [1]. Southeast Asia (SEA) has emerged as one of the most fiercely contested markets in the global streaming wars, as made clear during the recent Asia TV Forum & Market (ATF) event. Many regional and international streamers with investments in the area are currently experimenting with content created in Southeast Asian languages like Thai, Malay, Vietnamese, Tagalog, and Bahasa Indonesia. The increased investment by streamers in SEA is understandable; despite some areas of the region lacking pay TV, a sizable, relatively young population of 676 million people are connected to mobile broadband and is consuming an increasing amount of video content on their mobile phones.

According to recent estimates by the Hong Kong and Singapore-based consultancy Media Partners Asia (MPA) [2], in Q3 2021 SEA consumed more than 1.25 trillion minutes of online videos. SVOD (subscription video on demand) is beginning to catch up to AVOD (advertising video on demand), which accounts for more than half of consumption and revenue in the region and is primarily found on YouTube and TikTok, and in the same quarter, there were a total of 33 million subscriptions to SVOD. The combined gross merchandise volume (GMV) for e-commerce in Singapore, Malaysia, Thailand, Vietnam, Philippines, and Indonesia is anticipated to nearly double to USD 120 billion by the end of the year

and reach USD 234 billion by 2025, [3]. The technological landscape has gone through a transformational, evolutionary, and inherently progressive tendency where LST improves selling efficiency, resulting in the rise of LST [4–8] and impulse buying [9–11]. LST has metamorphosed from a specialty variant to a significant channel. Researchers study the role of flow via online shopping, while marketers analyse the phenomenon using new technology. It is estimated that between 27% and 62% of purchases fall into the impulse category while communal transactional intentions are relatively unknown, specifically when results are drawn from a solitary nation, which may stifle generic tendencies towards different nationalities having a direct anthropological reciprocal effect [12–21]. Although little attention has been given to LST, a theoretically understanding is vital because of its popularity and distinctive characteristics [22]. Consumption can be affected by a nation's level of socioeconomic development. Albeit this impulse buying is uncommon in developing nations, it is not surprising that most SEA consumers shop impulsively and tend to buy products online that meet their daily needs, yet very few studies have explored this problem from other cross-cultural contexts [23].

The present study seeks to establish a theoretical framework to understand what prompts people to make impulsive purchases of LST based on the aforementioned factors. Prior research has added to our understanding of how individuals behave in social media, but they mostly concentrate on how technological variables in the environment affect people's mental states and cause behavioural responses [24]. Participants' temperaments and other non-personal characteristics have not attracted much attention [25]. According to Hansen's psychological choice model [26], a person's choice may be influenced by both their own predisposition and the circumstances in which they find themselves. Personal characteristics are important in determining engagement in social media and should not be disregarded, according to the study by Correa et al. [27]. Predominant studies in LST have a vague and ambiguous representation on impulsive consumption [28–38]. Moreover, our search of the literature located no previous national cross-country representative population survey [39] specifically of LST in SEA, and our research responds to this clarion call.

This research, which draws on data from 8613 SEA respondents, defines impulsive purchase experience through flow, consumer temperament, and their consumption behaviours on LST, is distinctive from previous research. Finneran and Zhang [40] have suggested that explorative behaviour, as temperament reflects one's inclination to flow state should be taken into consideration. However, few studies have tested the relationship together between temperament and flow state. Our study completely constructs the linkages from both contextual and personal dimensions, thereby yielding insights into factors influencing people's behavioural intention in the new situation. Contextual elements and temperament or personal traits are rarely addressed jointly in past studies [40]. We intend to investigate the influence of four temperaments, namely, Sanguine, Melancholic, Choleric and Phlegmatic, as moderators and test the relationships between flow and impulse buying. Primordially, ref. [41] epitomised the core momentousness of flow experience in individual psychology leading to psychological normality, which inspired the present study's focus on manifesting market segments plausibly towards flow experience.

Previous studies have concentrated on consumers' behavioural intents in communal transactions, including trust [42], technostress, impulsive purchasing phenomenon [43], sybaritic motives, and communal engagement [43–45]. Further studies [46,47] offer helpful details on consumer behaviour and the effectiveness of communal transactions towards the growth of sustainable businesses. On the other hand, the key determinants of LST employing cognitive and affective flow experience and psychosocial personality factors were not examined [48]. In addition to being a remunerative industry, LST is also a novel and contemporary research context in a salient area for new-fangled innovative explorations. The potential for LST use by vendors, streamers, and viewers is a transformational moment in global e-commerce and the flow experience, displaying different behaviours in different social commerce channels [49–57].

An understanding of the reciprocal relationships of business attributes is critical for overcoming the challenge of synchronising social transactional thinking synergy [58]. Preceding extant literature indicates that social media's pivotal functions are to empower consumer reciprocity, to promote the residual effect of e-commerce metamorphosis towards social commerce, and to establish mediational structures that are consistent with the behavioural intents of consumers, stressing social media's versatility [58]. In the present study, we offer a cross-country analysis based on a mediated moderation model that examines psychosocial flow factors influencing impulsive consumption motivations in LST.

The motivational consumer convergence of LST is a big step in Asia. The effect is exacerbated primarily by the pre- and post-pandemic stages where a rapid and augmented paradigm shift towards LST is sweeping across SEA. We present a novel and contemporary mechanism of the flow experience model moderating temperament characteristics in exploring impulsive consumption. This is the first time that a significant finding of this magnitude employing a large representative sample of 8613 from urban and sub-urban areas of Singapore, Malaysia, Thailand, Vietnam, Indonesia, and the Philippines has emerged from SEA. Our findings provide a fresh theoretical perspective that incorporates cross-country LST in understanding consumers' impulsive consumption, an area that is still understudied in the literature today [59]. Multiple hyper-scale communal broadcasting literature of consumer attitudes are anticipated on the grounds that an adequately extensive representation of consumers will cancel out discordance [60]. This research helps to create a thorough mechanism that describes the interrelationships between the aforementioned factors. LST delivers a highly significant narrative experience and is a crucial component as the customer journey becomes faultless by combining verbal interface functionality [61].

This study adds three significant new ideas to the body of knowledge. Firstly, our study demonstrates the importance of flow in mediating the effects of temperamental traits and environmental factors (such as audio-visual experience) on impulsive consumption. It also demonstrates the various degrees of strength of the mediation effects; this study emphasises the significance of a person's curiosity attribute and level of LST dependency on nurturing flow in a model of emotional behaviour to temperament and personality, and this is done by assessing temperament components as flow moderators. The investigation of audio-visual experience in the influence of flow on buyers' impulsive intentions next makes further contributions to flow theory.

This paper sheds light on the new phenomenon by showing that both contextual factors and personal factors are crucial in the context of LST. Accordingly, practical suggestions are provided to platforms and streamers to help them design strategies and enhance their competitiveness. Given this long history of consensus among theorists, with the possible exception of those who adhere to the theory, and with appropriate empirical support offered by theorists of the 20th century, it seems appropriate for psychologists to launch a series of vigorous programmes of research to validate, invalidate, or modify this now long-held view that temperament personality consists of four mutually independent dimensions that are quantifiable by the use of any of several measures currently available within different contexts.

## 2. Literature Review

### 2.1. Flow

Holistic sensation, complete focus, and intrinsic satisfaction have been used to characterise flow, sports, commerce, and gaming have all seen widespread use of the concept of flow [62]. Absorption and peak performance are different from flow, yet they are similar. The tendency to focus all of one's attentional resources on a particular item is known as absorption [63]. To gain a comprehensive understanding of impulse intentions, flow experience investigates the relationship between psychosocial states. The difference between absorption and flow is further enhanced by the fact that absorption may not always be joyful. Additionally, the period of improved functioning is referred to as peak performance. Peak performance and flow may partially overlap; however, flow differs from peak perfor-

mance in that it emphasises enjoyment [64]. Additionally, ref. [65] utilised delight as one of the five elements of cognitive absorption and described it as a state of intense involvement. Therefore, [15] considered the phrases “cognitive absorption” and “flow” to be equivalent.

By contrast, the flow concept was expanded to include the term cognitive absorption, demonstrating that these two phenomena are related but distinct [66]. A strong sense of happiness and pleasure pervades the experience [67]. LST makes it possible for consumers to focus on and enjoy the experience by disseminating rich content, compelling stories, and stunning graphics. Users are more likely to relax and enjoy themselves while watching a live stream if it is playful, rousing immersion, we consider flow to be a cognitive state.

## 2.2. Temperament

Cholerics are quick-tempered; Melancholics act dejected; Sanguines react as buoyant types; and Phlegmatics act as sluggish types [68]; this study, therefore, concentrated on temperament since it is a crucial indicator of our field of study. Our approach is to develop a clinical, empirical, and theoretical framework. We consider some of the major empirical approaches to the study of temperament, their benefits, and liabilities.

Temperament serves as a surrogate for the four inherited characteristics and is the system that controls perception and information processing, i.e., Sanguine, Choleric, Phlegmatic, and Melancholic [69]. One of the four temperament traits is *damage avoidance*, which refers to a person’s propensity to stop or restrict activities, worry negatively, and steer clear of uncertainty. The propensity to *trigger* leads to experimental behaviour, respond to innovation, and make rash judgements is known as novelty seeking. *Reward reliance* is the propensity for someone to maintain current behaviour, favour attachment, and rely on other people’s acceptance [70]. Validity and reliability are confirmed by non-clinical respondents, making it to evaluate temperament and character. Based on Galen’s idea of kinds, these four personality types, i.e., Choleric, Sanguine, Phlegmatic, and Melancholic, were chosen and used to describe aspects of the phenomenal character of experience in greater detail, replicating from their own experiences.

This study, which explores the relationship between temperament and flow, was motivated by the progress that established the applicability of temperament and character to contexts outside of clinical settings. While numerous previous studies have confirmed the impacts of situational curiosity on behaviours and found conflicting results regarding trait curiosity’s effects [71,72], our study illustrates that personality trait is also influential on consumer behaviour.

## 2.3. Audio-Visual Experience

Southeast Asia has witnessed a considerable rise in the popularity streaming media platforms since 2017 [73]. However, some important problems with consuming experiences demand our attention. Consumers are growing more irritated as they try to sort and sift through the abundance of streaming alternatives while still trying to control expenses; this reveals a dynamic of multiple interconnected factors, each of which may have an impact on both intended outcomes and unforeseen consequences in the setting of a dynamic, competitive media market. The phrase “mainstream media” as used locally and internationally is complex concept whose definition is contended, although in this context it generally refers to the largest and most lucrative corporate media firms [74]. Meanwhile, however, little new content has been released while these modifications have been taking place.

## 2.4. Impulsive Buying

A sudden surge of strong and unreflective urge or desire to act is an expeditious and perplexing transactional judgement [75]. Future transactional issues exist, nevertheless, as a result of the unforeseen costs and increased revenue they generate [76]. Consumers’ allegiance increases when they are in the flow state, which is the ideal emotional state for an experience [69]. Service interface design differs aesthetically, tackles impulse buying issues, and is critical of the impulsive purchase phenomenon [77].



### 2.5. Moderating Effect of Temperament on Impulse Buying

There are few prior studies that highlight the important role of flow in driving impulsive consumption intention in LST, but also test the moderation effects of temperament and contextual factors and personal factors are rarely studied together in prior research [78]. This study aims at investigating the effects of contextual and personal factors on the viewer's consumption intention in LST, exploring the mediating role of flow in such effects, reveals the temperament differences in flow's influence on impulsive consumption intention in LST via a unique SEA cross-country research comprehensively constructing the relationships from both contextual and personal dimensions.

This research yields insights into factors contributing to consumers' impulsive behavioural intentions in a novel context, shows the impact of personality traits and on intention to purchase impulsively from social commerce platforms [79]. Indeed, the role of specific personality traits on impulsive LST experiences and impulsive buying still awaits an in-depth examination and clarification. This study yields insights into factors contributing to consumers' impulsive behavioural intention in multiple demographical contexts within SEA in providing a new theoretical mediation moderation framework. In addition, audio—visual experience is found to significantly moderate the relationship between flow and impulsive consumption. The finding is in line with the [80] study, which suggests the influence of flow on user behaviour. The present study examines the nature of the antecedents of impulsive buying. More specifically, the present research examines and explains the influence of temperament on audio-visual and flow experience, and of central traits such as Melancholic, Sanguine, Phlegmatic, and Choleric on a surface trait such as impulsive buying is explored.

### 2.6. Mediating Effect of Flow on Impulse Buying

With regards to antecedents of flow, ref. [80] has proposed that in an online context both IT artefacts and people's traits are important factors that lead to one's flow experience. Previous studies have found the flow to have mediation effects in working and human-computer interaction contexts [81,82]. However, few studies have identified specific personal traits and investigated both IT artifacts and people's traits together. Furthermore, few studies have identified specific personal traits and investigated both IT artifacts and people's traits together [82].

In this study, we find that in LST, along with contextual and personal factors, lead to impulsive consumption intention of through the facilitation of flow, and these mediating effects have different strengths. The study contributes to flow theory by highlighting the importance of flow in mediating the effects of audio-visual experience, and LST dependence on impulsive consumption intention. LST services, where the audio video is broadcasted in real-time, have been adopted by sellers as a direct selling tool [83]. Our findings thereby address the hitherto only limited research available on the mediation effect of flow on real-time audio-visual broadcast and in addition, experience-focused shopping orientation mediating the relationships among and LST shopping intentions [84].

## 3. Hypotheses

### 3.1. Audio-Visual Experience

There is a substantial association between LST and audio-visual communication that significantly differentiates itself from e-video but is studied considerably less than circumstances require [85,86]. An exclusive tool is a video platform, while a platform for visual communication satisfies several requirements. According to the extant literature, LST results in engagement that is both higher overall and qualitatively different from other types of involvement [87,88].

Three primary directions are highlighted by the fact that synchronous and asynchronous online AV communications generate connective activity in very different ways. However, the question of how audio-visual experience affects impulse purchases has yet to be studied, primarily because LST itself provides real-time audio-visual communication

that immerses consumers in the shopping environment and makes them more likely to engage in. extemporaneous behaviour. Thus, the initial hypothesis is formulated as:

**H1:** *Impulse purchase is positively affected by the audio-visual experience of LST.*

The term “media witnessing” refers to a range of activities including, but not limited to, live streaming, is discussed by [88] as offering “a means of expounding how modern audio-visual media creates the experiences and realities available to mass audiences”. In terms of audio-visual quality and availability, online live streaming has surpassed earlier televisual broadcast practises.

The rhetoric of consumer choice and perceptions that surrounds the notion of collaborative culture in the convergence era is almost always often invoked when describing how current streaming practises diverge. The effect of audio-visual experience on flow experience, however, has not received much attention. So, the following hypothesis is put forth:

**H2:** *The audio-visual experience of LST has a positive impact on the flow experience.*

According to flow theory, consumers enjoy looking at engaging content and getting involved in social network activities. Attention and understanding are impacted by immersion [89]. Along with the hedonic satisfaction that comes from social connection, flow experience may be crucial in the development of impulse purchase behaviour, which in turn stimulates users’ flow experience [90]. As a result, hypothesis three is as follows:

**H3:** *Flow experience has a positive effect on impulse buying.*

Prior research has examined the emotional aspects that influence impulse purchase, including arousal and costs [91], network elements [92], site quality [93] and demonstrates the significance of product search and marketing efficacy in irrational impulsive behaviour [94]. However, the emotional state or the effect of audio-visual experience on impulsive purchase are scarce. Thus, the next hypothesis:

**H4:** *Consumer temperament type moderates the effect of the audio-visual experience of LST on impulse purchase.*

The distinction between consumer temperament types is essentially a distinction between mental states, and the various consumer temperament types correspond to various psychological conditions. On the other hand, this procedure is influenced by a person’s cognitive state and produces a variety of outcomes, i.e., people with different temperament types of experience flow in varying degrees when exposed to audio-visual experiences. As a result, the audio-visual experience and the flow experience are moderated by the temperament type of the consumer.

In an exploration of voice quality and interactions of flow experience, ref. [94] extended flow theory and looked at how this could affect consumers’ attitudes and behavioural intentions. Positive consumer-oriented behaviour, on the other hand, exemplifies the idea that “affability corresponds to visual cues such as being joyful” [94] and has been linked to increased sales revenues [95].

The relationship between consumer-oriented temperament and its effect on flow experience via audio-video experience has not been taken into consideration previously. Despite scholars’ interest in this behaviour within types of hospitality settings, this gap was filled by the comprehensive framework offered of [95], which examines the effects of multiple traits variations, combined with flow experience, organisational trust, and customer-centric behaviour on casino personnel when uneasiness and avoidance abstention were moderated. For example, YouTube channels offer their subscribers relevant and engaging visual content, which they may choose to use on their own [95].

Multiple networking sites based on recorded or live content provide users with exciting information and visual content; as a result, this visual content channel also causes users to sense flow during channel engagement [96]; this study develops the following research hypotheses considering that idea:

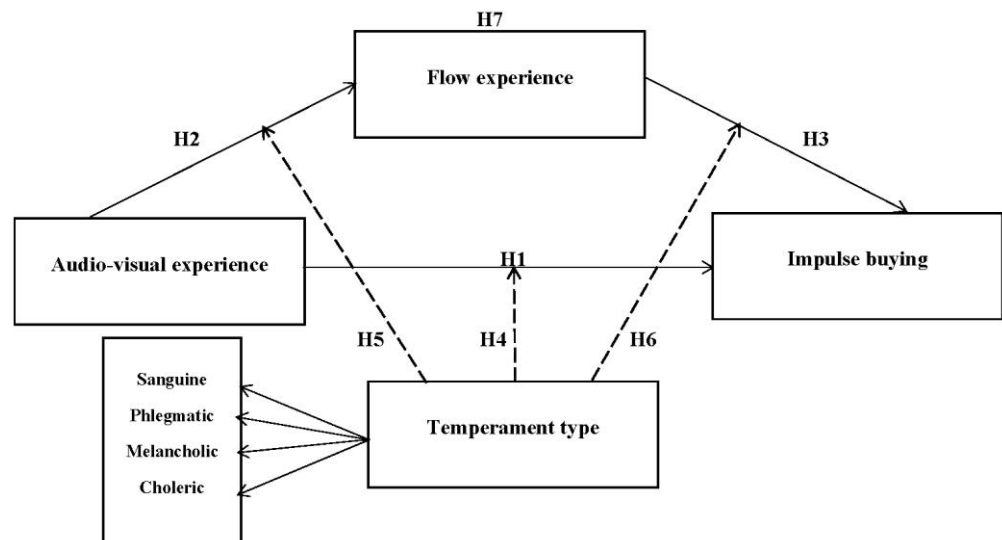
**H5:** Consumer temperament type has a moderating effect on audio-visual experience over the flow experience.

Consumers are moving away from physical touchpoints where information quality, visual appeal, and physical attractiveness all have a large impact on flow experiences. Conversely, social interaction, information quality, and visual appeal all have a big impact on contentment. As a result, ref. [96] claims, consumers now more frequently base their decisions on the digital features of social networking platforms. Flow experience and channel satisfaction have a big impact on behaviour intention. In order to increase impulsive purchases through social media platforms, online retailers should manage both external and internal triggers [96]. This present study develops the following research hypotheses in light of that idea:

**H6:** Consumer temperament type moderates the effect of flow experience on impulse buying.

Building on the integrated theoretical framework of antecedents of flow and four-factor theory of temperament and personality, the present research investigates how flow experience drives the impulsive intention to engage with LST platforms. According to flow theory, consumers enjoy browsing attractive content and immerse themselves in social network participation. Positive feelings and time distortion keep consumers’ attention and increase the length of their exposure to stimuli. After internally processing these stimuli, consumers may experience a strong desire, and perform impulse buying behaviour [96]. Moreover, [97] introduces the concept of flow, defining it as “the holistic sensation that people feel when they act with total involvement” (p. 36). When people are in a state of flow, they feel deep enjoyment, happiness, and exhilaration.

The present study emphasises the mediating role of the urge to buy, which represents the consumers’ desires at that given moment (Figure 1). One study [97] demonstrated the importance of emotion in impulse buying and the mediating role of the urge to buy in the social commerce context. Accordingly, we propose that impulse buying is the final dependent variable following an urge to buy, in accordance with [97]. Other prior studies suggested that *telepresence* is an important factor in influencing flow experience [98]. Telepresence helps users to forget the real world and concentrate on the virtual world [94]; thereby, users are easier to experience flow and can interact with the streamer through chat or other means during an LST, to get clear feedback and establish relationships between users and live streamers and then fulfil users’ relatedness needs through real-time videos, which enable users to forget the real environment where they exist physically and be involved in the LST [98].



**Figure 1.** Conceptual model and hypotheses.



Extant research of flow in online environment not only emphasises why people keep using certain media, but also investigates its association with other behavioural intentions such as purchase intention. For instance ref. [98] tested the effects of flow on customers' intention to purchase laptops on a website. The relationship between university students' flow experience and their online shopping intention in e-commerce [98]. However, the relationship between flow and purchase intention is mainly tested in conventional computer-mediated retailing context and it is worthwhile to further examine whether flow still stimulates consumption intention in the context of a non-retailing scenario such as LST [98]. Flow has been studied as an important intrinsic motivation of hedonic information system usage [98]. It provides insights for business to understand how to create an attractive online environment for customers to stay longer and how LST is mostly used for entertaining purposes, whereby flow can explain the viewers' behavioural intentions [22]. The following hypothesis captures the influence of the urge to buy and how flow experience may play an important role in the formation of impulse buying behaviour [68]:

**H7:** *Flow experience mediates the relationship between audio-visual experience and impulse buying.*

### 3.2. Methodology

We applied a constructivist approach whereby an online survey with chosen SEA respondents was the first step in our mixed-methods study was used to examine LST rationales, communicational demands, and psychological drivers. We employed cluster sampling that included demographic attributes and LST viewing frequency as qualifying criteria. In-depth interviews and focus groups were led by several native local language speaking moderators. Question items were translated into their native language and backward translation checking was used to ensure viscosity between the multiple versions. The focus group discussions and interviews were recorded in full.

A screening question was employed to verify that the participants had made purchases while watching live streaming. The respondents were asked to recall their last watching experience and then to complete the questionnaire based on their states at that moment. Sampling weights were used for Singapore, Malaysia, Thailand, Vietnam, Philippines, and Indonesia. Survey sample sizes and data collection techniques varied as some of the surveys were completed online, while others were conducted as workshop interviews using Zoom. Over 2500 respondents made up the Vietnamese dataset's largest sample, whilst 600 and 1200 respondents, respectively, made up the Singaporean and Malaysian samples' datasets.

### 3.3. Quantitative

Given the scope of this study, our application of the quantitative research methodology employed a wide variety of questions posed to a sizable population spread over six nations. Quantitative methods are a useful option because they may challenge, oppugn, or contradict a theory towards event causality [20]. When conducting research that involves quantifying discoveries to produce precise results, such as measuring population, quantitative methods is preferred [99].

### 3.4. Qualitative

A qualitative research methodology can produce rich, in-depth insights that could not otherwise be present in statistical data [44]. Since this study is underpinned by a purposive objective, namely, to elucidate the psychological impulsive purchasing patterns of SEA consumers [45], we contend that the fundamental motivation for using these methods should come from the research question itself. Therefore, it is critical to employ a research method capable of eliciting key themes, emotions, and behaviours that a quantitative questionnaire cannot. We use the qualitative method because it aligns with the psychosocial factors being investigated in this study, it has a strong social alignment with the respondents, and, unlike a semi-structured interview, it allows for better engagement with, rather than leading or, the research participants.

Behavioural research methodological theory recommends 25 to 30 participants as the minimum sample size required to reach saturation and redundancy in grounded theory studies that use in-depth interviews. This number is considered adequate for publication in journals because (1) it allows for thorough examination of the characteristics that address the research questions and to distinguish conceptual categories of interest, (2) it maximises the possibility that enough data have been collected to clarify relationships between conceptual categories and to identify variation in processes, and (3) it maximises the chances that negative cases and hypothetical negative cases have been explored in the data. However, in a single market or country, or similarly relatively homogeneous population, any qualitative sample size at or over 12 focus groups or more than 30 in-depth interviews could be considered large and would require justification.

Previous studies on theoretical saturation found data saturation starting to become evident at six in-depth interviews and definitely evident at 12 in-depth interviews among a sample two countries [100]; this suggests that multiples of 12 in-depth interviews may be more appropriate than the multiples of 10 commonly found in a meta-analysis [101] of qualitative research in practice. Therefore, to avoid saturation, this study employed 30 participants from six SEA countries.

### 3.5. Workshop

Prior to the sessions, participants had never met and were all concerned about COVID-19's effect. The input was recorded and organised under pertinent themes where participants could instantly see a virtual post-it note with their comments summarised on it. They could then ask that the notes be changed to more correctly reflect and summarise their opinions. The sessions were recorded but not transcribed with written consent. There were distinct virtual walls for every subject and a USD 50 shopping voucher was awarded to the participants.

### 3.6. Interviewing Techniques for Analysis

First, a descriptive thematic analysis using an inductive methodology was conducted by the primary interviewees. We divided the data into codes and sub-codes after reading the transcripts, and then we categorised these into thematic categories. Our NVivo (v12) coding was completed independently for each participant group, and we used a digital whiteboard with multiple canvasses to identify general and unique themes that were colour coded.

### 3.7. Questionnaire

The questions were nominal, ordinal, and dichotomous, and the data collected were categorical. Then the questionnaire was administered online to ensure that the data gathered remained in the minimal risk category while encompassing a wide area of coverage [48]. The items were branched using Google Forms. We proceeded with distribution via Facebook and targeted a wider geographical area within the six countries that comprise the SEA population. To ensure overall consistency, the questionnaire was translated into Malay (Malaysia), Tagalog (Philippines), Thai (Thailand), Vietnamese (Vietnam), Bahasa Indonesia, Cantonese and Hokkien (Singapore). Double-blind reverse translation back into English was deemed equivalent with the original.

A pre-testing was initiated using the appropriate versions. Confirmatory factorial analyses revealed no significant deviations from normal trends. Internal consistency was revealed by the composite reliability scores. Steiger's Z tests revealed that there was good convergent validity.

### 3.8. Reliability

When the internal consistency of the questionnaire is high, this can indicate that the reliability of this questionnaire is high, which is determined by the following criteria:

A Cronbach reliability coefficient higher than 0.8, it indicates that the scale has very good reliability. When the Cronbach reliability coefficient is between 0.7 and 0.8, the reliability of the scale is good; when the Cronbach reliability coefficient is between 0.6 and 0.7, the reliability of the scale is good; when Cronbach's reliability coefficient is below 0.6, it indicates that the reliability of the scale is not high, and it is necessary to adjust the scale [102].

### 3.9. Validity

Validity refers to the extent to which the research instrument measures correctly the elements intended by the research project. The present study used exploratory factor analysis based on Kaiser-Meyer-Olkin (KMO) analysis and Bartlett's spherical test used to measure structural validity. Structural validity refers to the extent to which the measurement dimension and the question items. The degree of correspondence between the actual and expected findings was measured using factor analysis to examine the structural validity of the scale. The KMO test and Bartlett's spherical test were conducted before the factor analysis.

### 3.10. Workshop

The workshop approach was used to gain cognizance of the methodological behavioural patterns of prospective patrons towards LST. The following were investigated: obtaining experiential response, deciphering individual participants' attitudinal, and engagement characteristics, to propagate evaluation and to advance tactical sapience.

### 3.11. Employing a Double Diamond Design Method

Blending blueprint mechanisms; the Double Diamond (DD) model provides a unique prospect to create impartial intercessions. Additionally, leveraging behavioural shift capabilities enables personalisation and automation to address barriers at scale across multi-ethnic populations with mechanisation, qualified towards the provision of congruous mechanics on everyone [49]; this allows for thorough application of the DD framework and the creation of comprehensive results for the varied study respondents by means of two workshops.

With an emphasis on data assemblage and critical thinking, the benchmarking can be modified to fit the needs of this research by incorporating behavioural pedagogy and the double diamond approach (i.e., discover-define-design-build) (Figure 2).

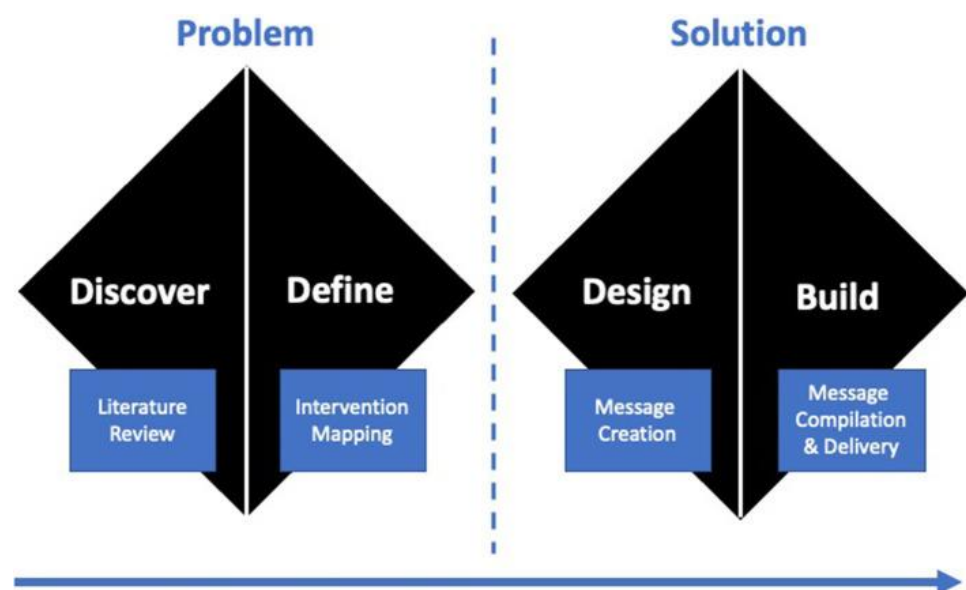


Figure 2. The Double Diamond Model [49].

### 3.12. Recruitment

To ensure the compatibility of possible respondents, we incorporated pre-screening questions to ask consumers if they had engaged in online transactions or watched live streaming in the previous three days, and on which platform(s) they had viewed. Only those who answered “yes” were consequently allowed access to the survey. The next step was to ask them to recall their most recent LST experience from the previous three days and then to respond to the questions. Additionally, we added three diametric questions to the questionnaire that were parallel to their real counterparts.

The questionnaires were distributed online within a span of twenty-two weeks. The sample consisted of 38% males and 62% females varying across 18 to 67 years of age. Upon cessation, respondents were asked to participate in workshops held via the Zoom platform over a twelve-week period and participants were guaranteed overall confidentiality.

To identify meaningful distinctions in the data’s trends, we used factor analysis to group sets of engagement-related questions. The varimax (orthogonal) rotation method was used to rotate the factor loadings after they had been obtained by principal component decomposition.

### 3.13. Profile of Overall Respondents

The survey was completed within an average of 20 min. Respondents reported that they were students, managers, factory workers, office workers, teachers, working professionals and homemakers. The total number of online respondents was 10,239 people. After deleting 1626 incomplete responses, the survey received 8613 valid responses. The link was distributed via social media, and respondents were directed on how to complete the survey.

Demographically, the market segment of under 20-year-olds made up most viewers of LST, comprising 2385 (27.7%) of the sample; these data also represent their interests and their passion of innovative subjects. There are 2161 people in this age group, or 25.1% of the total population, who are between the ages of 21 and 24. The percentage of viewers of LST that are between the ages of 25 and 29 accounts for 23.9% (2058 respondents) and 23.3% (2006 respondents), respectively. Furthermore, most sample participants only watched 20 to 40 min of LST content at a time, with 60.8% of participants watching less than an hour. 24.1% of the sample and 32.8% of the respondents made LST of goods and services with average costs ranging from \$22 to \$45.

The majority of the sample’s education background group, which included people with only a high school diploma or less, demonstrated that LST is not correlated with education levels. For example, offers of bigger discounts available when watching LST, especially during promotions, were attractive across educational levels. As a result, the data derived from the sample we found to be representative, accurate, and reliable.

### 3.14. Data Analysis

The data were imported into SPSS and then analysed using CB-SEM. There were 8613 total replies. Statistical mistakes were minimal upon SPSS data analysis. A variety of information, including written documents and transcripts of recorded audio, were collected from the workshop and online platforms. The retrieved themes were based on the transcription of 3201 min of audio data using NVivo. The written materials were gathered, and the key themes from the data analysis were addressed along with them in ways that maintained confidentiality and were consistent with the initial disclosure.

## 4. Quantitative Findings

The results, which were established using validated items, are addressed in terms of demographics and other data.

### 4.1. Data Collection

The most dependable way of data gathering to date has been a multi-method approach, which was employed. The general population of LST users in these nations was the focus

of this study since Malaysia, Philippines, Singapore, Thailand, Indonesia, and Vietnam (Figure 3) are extremely favourable markets for the quick expansion of LST and offer tremendous business opportunities due to these countries' high rates of internet, mobile, and e-commerce penetration [102]. An increasing percentage of consumers from Malaysia, Philippines, Singapore, Thailand, Indonesia, and Vietnam are using LST; these countries have started to embrace the booming LST sphere [103].



**Figure 3.** Research Location. Source: <https://asianreviewofbooks.com/content/southeast-asia-after-the-cold-war-a-contemporary-history/> (accessed on 2 December 2021).

#### 4.2. Research Instrument

Those with prior LST purchase experience were targeted with an invitation link to the survey, which was shared over several social media and LST sites. There were 8613 replies in all that were valid and eligible. The sample's demographics were compared to those of the representative sample chosen from the SEA population to ensure representativeness. According to the sample that were used, the Internet User Survey Report 2021 shows that young individuals in their twenties make up the bulk of the online demography at this time, followed by middle-aged adults in their thirties, the sample's monthly income was consistent with the report's findings, which showed that more than 70% of existing SEA internet users make less than USD 680 per month [104], sample representativeness is therefore not likely to be a problem.

There were two portions of the questionnaire, which had 23 items grouped into several sections: While Section B evaluated the shopper's temperament type, which depicts their personality qualities, and impulse buying, which was used to determine the shopper's prospective impulsive drive, demographic inquiries were included in Section A to gather information on usage patterns and demographics.

Academic and commercial experts were consulted during the pilot test. A ratio of 3:1 shows that the sample is consistent with the study's main theme and that the distribution of purchase frequency is realistic. The constructs of audio-visual and flow experience, temperament type, and impulse buying were used to validate and use the 23 measurement items based on tested scales from the literature.



### 4.3. Statistical Analysis

Covariance Based Structural Equation Modelling (CB-SEM) performs better than Partial Least Square (PLS-SEM) in terms of complex model prediction and theory development [104–106]. PLS can only approximate fundamental measurement models with causative indicators, because techniques that can estimate formative measurement models without reflecting measurements are not possible [13] because smaller sample sizes can produce unreliable results, hence CB-SEM was employed [9,17,61].

The maximum and lowest scores for each question item (Table 1) in the survey closely match the range of possibilities from 1 to 5, with the maximum score being 5 and the least being 1. The sample data show that respondents’ perceptions toward the questions’ contents are constant. The mean scores on the scale items, on the other hand, varied most frequently between 2.9 and 3.04, with a standard deviation of less than 1.5. The reactions of participants in this sample to the audio-visual experience, the flow experience, and the consumer temperament while watching LST provided strong evidence of the obvious impulse buying behaviour of consumers. The conceptual model fit index data indicate that the cardinality to degrees of freedom ratio is less than three. The comparative fit index did not show any appreciable departures from the threshold.

**Table 1.** Statistical Analysis of Sample Data.

Variables	Question No.	Min	Max	AVG	SD	Kurtosis
Audio-visual experience	Q1	1	5	2.96	1.45	−1.35
	Q2	1	5	2.99	1.4	−1.29
	Q3	1	5	3.04	1.39	−1.28
	Q4	1	5	3	1.44	−1.34
	Q5	1	5	3	1.43	−1.33
Flow Experience	Q6	1	5	3	1.38	−1.24
	Q7	1	5	3.03	1.38	−1.22
	Q8	1	5	3.06	1.36	−1.16
	Q9	1	5	3.02	1.434	−1.346
	Q10	1	5	2.96	1.42	−1.311
	Q11	1	5	3.03	1.418	−1.294
	Q12	1	5	2.97	1.427	−1.322
	Q13	1	5	3.03	1.447	−1.343
Temperament type	Q14	1	5	2.95	1.433	−1.332
	Q15	1	5	2.92	1.42	−1.307
	Q16	1	5	3.01	1.417	−1.319
	Q17	1	5	2.93	1.415	−1.31
	Q18	1	5	2.98	1.418	−1.324
	Q19	1	5	2.94	1.405	−1.274
	Q20	1	5	2.97	1.376	−1.222
Impulse Buying	Q21	1	5	3.04	1.416	−1.303
	Q22	1	5	3.03	1.418	−1.289
	Q23	1	5	3.01	1.385	−1.257

### 4.4. Common Method Bias

Both procedural and statistical tools were used [107]. The confidentiality and anonymity of the respondents’ responses were advised to them as part of the procedural safeguards. Using the CB-SEM, the latent method factor of the structural model was statistically evaluated because there are only five meaningful pathways and all the indicator values are significantly higher, CMB is unlikely to be a significant problem in this dataset.

### 4.5. Testing Mediation

This part examines the validity of the intermediary model with regulation. Bootstrap sampling can be more accurate in representing the entire distribution when the sample size is large enough. The bootstrap technique’s robust computing power can be used to calculate the confidence interval for each path in the model affected by the moderating

effect, where LLCI stands for the confidence interval's lowest value and ULCI for its highest value. The significance of the path depends on whether the confidence interval contains zero and the minimum and maximum values of the confidence interval are negative in value.

#### 4.6. Intermediary Model Test

The model of this study is first tested to verify whether the mediating role with moderation exists and whether the overall idea of the model is correct. According to the model constructed in this study, the flow experience as a mediating variable influences the path from the independent variable audio-visual experience to the dependent variable impulse purchase, where consumer temperament as a moderating variable acts on the path from audio-visual experience  $X$  to flow experience  $M$ , the path from flow experience  $M$  to impulse purchase  $Y$ , and the path from audio-visual experience  $X$  to impulse purchase  $Y$ , respectively. The three paths correspond to the pre-path, the post-path, and the direct path, which are defined as a mediator model with regulation. Therefore, this section tests the intermediary model with regulation to verify whether this model is valid.

The PROCESS module in SPSS was used to analyse the data, and the PROCESS module has the following advantages: first, the analysis of the mediating effect is done in one step. Second, the data processing before the mediation effect analysis is automated. In the past, the analysis of moderating effects had to go through two necessary steps, namely, variable centring and construction of interaction terms, the two steps are often miscalculated or wholly ignored during the computation, and even if the operation is not complex, it is easy to make mistakes; this problem can be further avoided by the built-in function of PROCESS, which can automatically complete the two steps of variable centring and constructing interaction terms in succession, making it more accurate and efficient. Third, PROCESS provides many models, and the corresponding independent, dependent, and mediator variables can be set during the analysis. Therefore, this study adopts the method for hypothesis testing.

Based on the bootstrap method in the PROCESS function, the interval estimation is calculated, and the confidence interval is derived. In the case of a large enough sample size, the bootstrap sampling can be closer to the overall distribution. Therefore, the bootstrap method is selected to calculate the original sample, and with its powerful computational power, the confidence interval of each path in the model under the influence of the moderating effect can be derived, where LLCI represents the lowest value of the confidence interval, and ULCI represents the highest value of the confidence interval, and the way to judge whether the path is significant or not is based on whether the confidence interval contains 0, i.e., if it does not contain 0 in this confidence interval 0, then the path is significant. If the minimum and maximum values of the confidence interval are negative and positive, respectively, it means that the path contains 0 and the path is not significant.

The data in Table 2 show that Path 1 represents the effect of audio-visual experience  $X$  to flow experience  $M$ , where the cross term is audio-visual experience \* consumer temperament, with a confidence interval with a minimum value of 0.1546 and a maximum value of 0.4325, which does not contain 0. Therefore, Path 1 has a significant mediating effect of moderation. As shown in Table 3, path 2 represents the effect of flow experience  $M$  to impulse purchase  $Y$ , where the cross term is flow experience \* consumer temperament, and the lowest confidence interval is  $-0.2245$ , and the highest value is  $-0.0996$ , which does not contain 0. Therefore, the mediating effect of Path 2 is significant. The cross term is the audio-visual experience  $\times$  consumer temperament, and the lowest confidence interval is  $-0.0596$ , and the highest value is 0.9771, which contains 0. The mediating effect of path 3 is not significant. There is no mediating effect of the audio-visual experience on the impulse purchase path of consumers in the mediating model with regulation. That is, the overall idea of this model is accurate, and the existence of the mediated model with regulation provides a good model basis for hypothesis testing.

**Table 2.** Path 1 Inspection.

Item	Regression Coefficient	Standard Error	T	P	LLCI	ULCI
X	−0.4003	0.1411	−2.8262	0.0211	−0.6127	−0.058
W	−3.6183	0.6422	−5.1119	0	−5.0375	−3.64
X*W	0.3009	0.0333	5.8128	0	0.1546	0.4325

Note: Path 1 indicates the effect of the audio-visual experience X to the flow experience M. \* Effect of audio-visual experience on consumer temperament.

**Table 3.** Path 2 and Path 3 Inspection.

Item	Regression Coefficient	Standard Error	T	P	LLCI	ULCI
W	2.4194	0.6129	3.7432	0.0009	0.9771	3.6551
M	0.6334	0.2252	4.9803	0	0.451	0.8457
M*W	−0.1566	0.0375	−4.9408	0	−0.2245	−0.0996
X	0.3899	0.0985	4.285	0	0.3112	0.5782
X*W	−0.0089	0.0244	−0.2946	0.7685	−0.0544	0.0413

Note: Path 2 represents the effect of flow experience M to impulse purchase Y. Path 3 represents the effect of audio-visual experience X to impulse purchase Y. \* Cross term audio visual experience on consumer temperament and flow experience on consumer temperament.

#### 4.7. Model Building

The path taken by a consumer from an audio-visual experience X to a flow experience M, a flow experience M to an impulse purchase Y, and an impulse purchase Y from an audio-visual experience X are all influenced by their temperament. On the pathway from the independent variable audio-visual experience to the dependent variable impulse buy, flow experience serves as a moderator. The three paths that make up the mediator model with regulation are the pre-path, post-path, and direct routes.

Considering cross-observation correlations, this type of modelling can account for clustering in multivariate response models with latent variables [65]. It also applies the variance component technique. Four latent variables and fifteen observable variables with the following definitions are used:

X: The audio-visual experience, which corresponds to the four observable variables (Q1, Q2, Q3, and Q4).

M: Flow experience, which corresponds to the four observed variables (Q5, Q6, Q7, and Q8).

W: Consumer temperament type, which after categorisation includes 4 observable factors and corresponds to Q12–Q15.

Y: Impulse buy, corresponding to Q21, Q22, and Q23; there were three variables detected in all.

#### 4.8. Model Fit Index

The fit index, a crucial yardstick for model evaluation, can be used to modify the model to increase the fit by considering the relevance of each path. Consumer temperament is correlated with flow experience, audio-visual experience, and impulsive buying in all three cases.

The cardinality to degrees of freedom ratio ( $\chi^2/DF$ ) in Table 4 of the conceptual model fit index data is 2.714, which satisfies the requirement of being less than 3. The results of this study’s model fitting are more compatible with the threshold value of 0.106, according to the examination of the model fitting indicators, which leads to this conclusion.

**Table 4.** Results.

Index	Threshold	Values
$\chi^2/DF$	<3	2.714
CFI	>0.88	0.890
NNFI	>0.91	0.959
RMR	<0.106	0.061
RMSEA	<0.106	0.109

#### 4.9. Model Fitting Results Comparison

Comparing the pertinent outcomes of the original and updated models is important to further ascertain the optimal conceptual model, the outcomes are displayed in Table 5.

**Table 5.** Results.

Model Name	$\chi^2/DF$	CFI	TLI	RMR	RMSEA
Original Model	2.716	0.905	0.938	0.046	0.048
Correction Model	2.706	0.918	0.926	0.055	0.042

Within the pertinent criteria, the modified model’s fitting indices are marginally superior to those of the original model, and despite minor value changes, the modified model’s fitting effect is marginally superior to that of the original model. The conceptual model (please see Figure 1) established in this research has strong stability and reasonableness, and the enhanced model is more flexible, according to a comparison of the pertinent data.

#### 4.10. Hypothesis Validation

The combined analysis of the moderated mediation model validation and the structural equation model fit metrics above leads to the hypothetical conclusions of this study, as shown in Table 6.

**Table 6.** Summary of hypothesis validating results.

No.	Description	Result
H1	An impulse purchase is positively impacted by audio-visual experience of LST.	Supported
H2	The high-quality audio-visual experience of LST has a positive impact on the flow experience	Supported
H3	Flow experience has a positive effect on impulse buying.	Supported
H4	Consumer temperament type moderates the effect of the audio-visual experience of LST on impulse purchase	Not supported
H5	Consumer temperament type has a moderating effect on audio-visual experience over the flow experience.	Supported
H6	Consumer temperament type moderates the effect of flow experience on impulse buying.	Supported
H7	Flow experience mediates the relationship between audio-visual experience and impulse buying.	Supported

Table 6 summarises the findings of the hypothesis validating, which shows that there are 7 hypotheses in this study, except for the moderating effect of consumer temperament type on audio-visual experience on impulse buying, i.e., hypothesis 4 is not supported, and the remaining 6 research hypotheses are supported by the structural equation modelling.

#### 4.11. Investigation of Mediation Effect

To test the mediating effect (Tables 7 and 8), two methods are applied in this study: joint significance method [108] and bootstrapping method [109]. Bootstrapping method involves “resampling” the data many times with replacement to generate an empirical estimation of entire sampling distribution of a statistic.

**Table 7.** Overall Mediation Effect.

Variable	Direct Effect	Indirect Effect	Total Effect	Mediation Type	Hypothesis
Flow experience	—	0.708 *	0.708 *	Full mediation	Supported

\* Significant at the level of 0.05.

**Table 8.** Specific Indirect Effects—Serial Multiple Mediator Analysis.

Serial Multiple Mediator Analysis			Estimate ( $\beta$ )	p Value	Hypotheses	
Flow experience	Audio-visual experience	Impulse buying			Supported	H7
			0.441	0.02	Supported	H7

To investigate the mediation effect in this model, Bootstrapping method was first used in IBM-AMOS to estimate the standard error and overall indirect effects, direct effects and total effects at the confidence level of 95% and the bootstrap was set equal to 10,000. User-defined estimand in IBM-AMOS was also used to perform multiple mediator analysis and estimate each specific indirect effect.

#### 4.12. Survey Findings

The demographic profile of the respondents reflected users’ goals and typical behaviours when utilising LST platforms on instant messaging apps, the traits that engaged streams shared, and the elements that contributed to engagement.

#### 4.13. Population

The first and second questions were qualifying questions based on experience and frequency of purchase, and the following five questions were designed to extract demographic data, allowing us to determine whether salient demographic factors such as median age and gender were more fundamentally crucial towards impulsive behavioural decision making; this research found that 62% were females, while males were only 38%. Generally, 30% of the respondents were administrators, 15% higher education and students made up 13% and the rest were self-employed.

#### 4.14. Audio-Visual Experience

These inquiries aimed to learn more about the respondents’ interest, emotions, and duration in shopping. It is important to note that for some responses, these questions were branched.

#### 4.15. Flow Experience

The amount of involvement, hedonic states, and duration of the respondents’ purchasing behaviours were all examined by these questions. It is important to note that for some responses, these questions were branched.

#### 4.16. Temperament of the Consumer

Four personality traits were used to analyse survey responses: 1. Sanguine 2. Phlegmatic 3. Melancholic and 4. Choleric.

The majority of those with the Sanguine personality type (22.3%) were men from Malaysia and Singapore who presented themselves as upbeat or enthusiastic, particularly in situations that seemed challenging or negative. The personality type Phlegmatic (32%), was primarily expressed by females from the Philippines, Thailand, and Indonesia.

#### 4.17. Temperament Types

In the examination of consumer temperament in LST, it is difficult to pinpoint customers who fall into a specific type since the classification of consumer temperament type is in an optimum state. Since most consumers exhibit traits from all four temperaments, we simply concentrate on one temperament as the main consumer traits in our study. For instance, consumers typically display Sanguine type features when making impulsive purchases through LST, leading us to think that they have this temperament. To reduce sampling error, it was feasible to divide the significant temperaments of different consumers into four separate batches, using questionnaire statistics.



The findings show that Phlegmatic types accounted for the largest proportion of the total demographics (32%), followed by Melancholics (23%), whereas Sanguine and Choleric types belong to a smaller demographics of the targeted population. This outcome corresponds to the concept of consumer temperament where LST viewers have a more even distribution of consumer temperament. The communal and participatory LST broadcasts are more appealing to introverted temperament types because they frequently seek out voices that resonates within them. This study also gathered data on the buying frequency of various consumer temperament types of LST in order to get holistic understanding of the demographical purchasing frequency variations.

Phlegmatic consumers are the most likely to shop online whilst watching LST with a 13% purchase frequency. This occurs nearly twice as frequently as the sum of the occasional and regular purchases.

Comparatively, Choleric and Sanguine consumers make up 15% of all respondents which is congruent with their temperament type as these dual personality variations are more prone to make impulsive purchases. The depressing temperament types usually postpone purchases and adopt a wait-and-see attitude. Thus, by highlighting the rationality of distinct consumer temperament types in impulse buying behaviour, the distribution of the sample proportions lends support to the hypothesis that temperament types have an effect on impulsive purchases.

The Melancholic displays feelings of contemplative sadness, where this was seen across all SEA respondents' groupings. The Choleric temperament is the most active of the four temperaments, whilst Choleric are ambitious, brave, and arrogant, but may also be vengeful, dishonest, and violent. Particularly among Singaporean males and females, this kind of conduct was discernible; this is a novel discovery given that LST's two significant utilities are its allowance on interactive LST, seeking information from multiple viewpoints and that it increases frequencies of live interactivity through a variety of communicational functions.

## 5. Live Streaming Insights

As live streaming grows in popularity as one of SEA's most widely used e-commerce platforms, information technology companies are increasingly integrating LST features into their applications; these applications consistently rank among the top 20 apps downloaded in Singapore, Indonesia, Vietnam, Thailand, and, to a lesser extent, Malaysia, and the Philippines [87].

In Southeast Asia, there are only a few notable live streaming websites. Among them, BIGO Live is one of the most well-known. Other examples include Kitty Live in Thailand, Be Live in Singapore, and Be Live. Despite only recently launching in SEA, Bigo Live has already achieved notable results. Bigo Marketplace seeks to increase sales and brand recognition for local small, medium, and micro businesses through livestreaming. It commands supremacy globally and has 400 million users, the majority of whom are in South-East Asia, [88].

Given the prominence of omni channel marketing in Southeast Asia, it's intriguing to observe that 89.7% of respondents said they had never engaged in LST. A startling 80.5% of respondents revealed they had never heard of LST, compared to only 19.5% of those who had. The statistics, which were compared using SPSS, show that more female respondents (68%) had heard of LST than male respondents (32%), and more female respondents had used it. This is an intriguing result because it appears that women who were younger (18 to 25) had more familiarity with LST. The subsequent questions sought to determine regardless of if respondents subsisted on their engagement, revealed that 55% did so because of social interaction, 18% due to accessibility, 10% functionality, and another 11% due to usability, with 6% being borderline cases. In addition, services such as BigoLive enables users to post comments in the chat during a live stream, allowing real time interactivity.

### *Impulsive Purchase*

These inquiries examined the temporal impulsive shopping patterns. Respondents were asked to provide an explanation for why they preferred making impulsive purchases offline or online in response to this branching question; these results support earlier research on the factors that influence consumer preference for online purchase and offer important information on how the future of online presence will be shaped. Most intriguingly, it was discovered that 58% of respondents favoured online purchasing, while 42% preferred in-person shopping. In addition, it was discovered that females and transgender had more experience in LST, with 78% reporting positive engagement experiences with LST.

## **6. Qualitative Findings**

The workshops were designed to harvest information against convention that would allow respondents to assimilate and provide salient insights through thematic analysis [21,24]. The workshop's objective was to involve attendees in the decision-making process regarding how society could accept LST, and its advantages and it adhered to the DD technique. Respondents were involved in the democratic decision-making process on its possible adoption, and its introduction into relevant discussion. Participants ranged in age from 20 to 67 and came from a variety of demographic backgrounds. To maintain confidentiality and to prevent data protection breach, participant names were coded and recorded with their permission so that these data could be transcribed.

The first theme is the residual pandemic effect. However, the focus was on speaking to people who were not one's friends, while other streams included discussions about performing or playing video games; this urge to converse with people outside of one's typical social group is not supported by previous live streaming research, [37]. For instance, an employee from the Philippines hospitality sector provided some salient insights their LST perceptions and expectations: *"I have experienced the agony of unemployment as a result of the pandemic"* (P213). A Thai micro business entrepreneur said: *"I was not comfortable with LST due to its security features with regards to payment but after getting some positive information from my colleagues, I strongly urge businesses to employ it"* (T2301). An Indonesian homemaker said: *"Interacting with streamers and viewers is a great idea. I can relieve the stress caused by my busy schedule, my kids, and the fast-paced modern world. My friends and peers can't really relate to my suffering"* (I3003); this provides new directions for vendors specifically with captive markets, who see LST as a viable and safe transactional medium.

We next consider the theme of business model potential. Participants talked about the benefits of LST, and they stressed that LST is currently the most user-friendly business model to be employed currently. A small business owner specialising in textiles from Thailand asserted: *"I believe that live streaming retailing may be a novel idea that will be successful for any firm . . . In addition to saving space, it is very advantageous to small and family-owned businesses (SME's) and also for pensioners to earn extra income and also to have passive income"* (T420).

A participant from Vietnam (V6) noted that *"Due to the complexity of SEA cuisine, cooking was especially popular"* in the realm of LST. Another response from a Thai homemaker (T600): *"In view of the fact that Thai recipes don't provide easy-to-understand cooking directions, it really helps me to follow how it is done in real time by the streamer who is friendly, and I can ask questions and they provide answers."* A student from Vietnam (V222) said: *"I discovered that the...hòa hợp or "harmony" that Vietnamese people use social media for was compatible with the purposes of live broadcasting."* Mahayana Buddhism is Vietnam's dominant belief system [79]. This strand of belief discourages hatred and illusion and promotes kindness, peace, and harmony [63]. LST is use mainly used for hedonic purposes, more opportunities for social interaction and a sense of peer review demonstrating their openness to making friends and corresponding with them online.

A viewer from Singapore (S501) said that *"I have many friends in many countries as we network regularly and Live streaming brings my contacts from Wechat, Zalo, TikTok, Telegram, FBlive, Zingr, Kumu, Line and Whatsapp closer and provides the ideal setting for forming socially acceptable friendships with total strangers"*. A Malaysian viewer (M51) observed that live

streaming “offers the ideal setting for making friends with strangers in a proper manner”; this viewpoint is quite illuminating to observe how multiple viewpoints can converge to produce a favourable outlook on LST.

We next explore location as the next theme of analysis. Participants spoke about who will gain from LST and who should use it; these insights helped specify what kind of features and needs should be included in such a platform as well as how it should be developed within the framework of Southeast Asia. The idea of targeting such a strategy at small and medium (SME) enterprises was discussed; this technique of retailing is like tele sales, but it has a much greater impact on my satisfaction levels, as stated by a respondent from Singapore (S6101): “This approach to retailing has a lot more of impact on us as a society”. A viewer from Philippines (P8) noted: “In the past, I’ve had difficulty making purchases while feeling satisfied; in-store purchasing was not only difficult, but also impossible”. An Indonesian university student (I1662) contributed: “Because LST is intriguing and captures our attention, and we are ultimately satisfied with both the product and the experience, I believe it would be beneficial to make it user friendly for people with disabilities to support society as a whole”.

These participant comments indicate that regularly disseminating more inclusive and accessible communication is an important and transformative aspect of how we, as researchers, can support consumer experience. LST has the potential to improve digital accessibility and inclusion for people with disabilities. This discovery is significant not only from the standpoint of the pandemic, but also from an economic standpoint. Participants discussed their interactions with regional live streaming services including BIGO Live, Kitty Live in Thailand, and Singapore’s BeLive. The major participants, such as BIGO and Kitty, are frequently supported or owned by Chinese businesses. Some observations included the absence of language interchangeability for BIGO and Kitty, despite the platforms and the navigation’s excellent engagement. Even if the participants comprehended the language, they had difficulties with BeLive because they regarded the interface to be clumsy and difficult to use. Consequently, opportunities exist for cross-country content customisation. Overall, the workshops shed light on opinions, suggestions, and prospects for LST. However, interface, functionality, connectivity, and system requirements are crucial to the success of LST. The workshop’s insights and findings were very beneficial for a better understanding on SEA consumer’s perception of LST.

## 7. Hypothesis Validation

The structural equation model in this study provides support for all seven of the research hypotheses, except for hypothesis four. The fit metrics for the structural equation model and the confirmed moderated mediation model support the remaining five study hypotheses. The 8613 respondents utilised in this study were divided into categories and integrated to determine how the two factors of experience and four factors of temperament type influence impulsive consumption behaviour; this study’s findings demonstrate the numerous advantages of LST for boosting business sustainability through widely popular consumer mobile devices, which has an impact on a company’s profits and the environment.

## 8. Discussion

We found that the extent to which participants believed live-streaming transaction practises were helpful or harmful was significantly influenced by how much control they felt they had over the situation. The social constraints and financial uncertainty brought on by the COVID-19 pandemic has exacerbated this effect.

This research is the first to compile data on how LST affects impulsive consumption and behavioural outcomes across a sizable cross-country population. There were very limited systematic literature reviews previously that had focused specifically on cross-country research within large populations as we have achieved here. Some cases in which LST participation has been linked to benefits were revealed by observational studies of varying quality, while other cases have not. Our qualitative research results, on the other hand, provide important additional insight for older adults as well as across

other generational demographics. The mixed method and the theoretical underpinning with comprehensive SEA population of this study provide a novel and contemporary research direction.

### *8.1. Theoretical Contributions*

Our contribution focuses on the salient factors that support impulsive consumption behaviour, specifically cognitive absorption (flow state) and arousal (experience state). According to the findings, arousal has a greater influence on consumer behaviour than cognitive absorption, which contributes to a deeper understanding of the organism effect on flow theory.

An additional theoretical contribution highlights the degree of LST challenge matching the level of viewer and streamer capabilities in propagating impulsive consumption analogous to flow on the impact of streaming experience; these expand our knowledge of how psychological states and the perception of flow interact where the psychosocial condition has considerably greater influence than the cognitive state. We found that not only intrinsic motivation leads to state of flow but also extrinsic (such as promotional vouchers to entice impulsive consumption). Therefore intervention (such as peer pressure to consume impulsively) and immersion can be viewed as having equal strength in generating a state of flow.

### *8.2. Practical Implications*

Our research has several useful applications that are pertinent to the live streaming sector. Streamers and SME vendors must offer a simple, reliable, and unified interface for recording, importing, cropping, and editing short videos; this will enable viewers to add value to their original content through customised secondary development. In addition, its applications across SEA must be deployed with a set of comprehensive features, such as resumable recording, real-time filters, animated stickers, subtitles, music, and beautification effects; this is specifically pertinent in Thailand as BigoLive has dedicated a platform for SMEs.

According to [28], administrators should seek out, hire, and promote streamers who are popular with their audience and give them more resources with which to improve their capacity to draw viewers, influence potential customers to learn about products, and motivate customers to make purchases in accordance with their audience's preferences for the most popular broadcasting philosophies, personalities, appearances, and skills. Streamers should customise content via native languages and culturally attuned emoticons and ensure a safe streaming environment. The provision of complex features to improve consumer views of product information quality, including completeness, accuracy, currency, and information reliability is key [109]. Vendors and streamers should leverage on powerful elastic and scalable cloud computing technologies, and to build a strong infrastructure to support the application's exponential demand and growth and provide curators and viewers with rich and seamless platform experience.

Marketing information such as quick discounts or special offers to help increase extrinsic motivation must be made clear to viewers in order to persuade them to make impulsive purchases. In order to increase debate about products [110], vendors should include a variety of interactive features to foster interaction; this will also make it simpler for viewers to receive simultaneous feedback and provide feedforward thereof. The conveying of high-quality information should be properly prepared in ways which can support viewers to assimilate new information and to modify their attitudes so they can engage in consumption and other social behaviours. Through engagement between streamers and viewers, the flow experience of social interaction can be improved in bridging real operational issues with digital solutions.

### *8.3. Circumscription, Contemporary Research and Future Development Directions*

The most significant limitation is the variations in sample sizes between nations. Although adjustments for sample structure were made, some of these elements might have

had an impact on how comparable the results were. Translations of the various questionnaire versions contributed to even more complexity between nations, which requires highly experienced moderators.

Future studies should aim to investigate live-streaming transactions in various national demographics and geographies beyond Asia. A cross-national comparison may also result in more thorough comprehension and broadly applicable findings. Participants in the sessions discussed the topic of censorship and indicated some concern about live-streaming transactions as a potential drawback. For instance, the global gaming live streaming service Twitch recently noticed an uptick in accounts that acted like bots and flooded streamers' chats with hateful and aggressive comments [53]. Therefore, it is essential to secure the censorship of such heinous and abusive remarks, content, or materials when establishing a new platform, and this must be taken into account during adoption. Although it is not always necessary to accomplish saturation [21], we were sometimes unable to meet saturation in our interviews with each participant group due to the large sample size. Our results provide strong empirical guidance on effective sample sizes for qualitative research, which can be used in conjunction with the characteristics of individual studies to estimate an appropriate sample size prior to data collection; this synthesis also provides an important resource for researchers, academic journals, journal reviewers, ethical review boards, and funding agencies to facilitate greater transparency in justifying and reporting sample sizes in qualitative research. Future empirical research is needed to explore how various parameters affect sample sizes for saturation, employing a systematic sampling based on fixed intervals.

The buying experience could be enhanced with artificial intelligence which allows consumers to view intangible and tangible products holistically. The qualities of Gen Z and millennial streamers, such as their interpersonal skills and marketing techniques, can also be a suitable agenda for future studies. In addition, studies might want to examine the varied orientation of transgenders across nations that are promoted by interactions between vendors in different countries with regards to both extrinsic and intrinsic motivations on compulsive and impulsive consumption between global regions to better meet the rapidly growing demand for cloud technology. Another salient area for future consideration is the psychological stress of streamers and viewers which reduces the state of flow and raises levels of anxiety and boredom. Fans no longer want to passively watch; they want to connect and interact with the content experience. One of the keys to creating that connection will be integrating virtual reality into live-streamed events to integrate the events across different geographical areas; this suggests a possible bio behavioural mechanism for the association between psychosocial factors and streaming activities in the flow experiential state. The spatial impacts in sedentary co-presence and non-sedentary co-presence on spatial consumer behaviour in finite venues highlighting the industry's contingent influence of distance, choice, and co-presence [110] of LST of impulsive behaviour would be a fruitful area to explore. Because behavioural interventions have been shown to impact consumption parameters in other populations, it is reasonable to examine behavioural intervention effects among viewers. Moreover, the relationship between live streaming watching and compulsive purchase behaviour by obtaining viewers' longitudinal live streaming watching data to explore the dynamic drivers of viewers' watching behaviours is an interesting research topic worthy of future research.

Another contemporary research area is live streamed concerts [111] that may slowly replace traditional radio stations. The rise of 5G networks also provide new directions, as this will only speed up this process, allowing the consumer to choose from thousands of different options. Alongside this, the stronger providers will curate a range of audio-video experiences ranging from mass-market pop concerts to niche genre events. Live sports, more than ever before, can be streamed across the world, bringing fans together digitally; and, finally, video games hold potential increasingly to become part of the Over-the-Top Video (OTT) experience. These developments offer contemporary and exciting areas for further research and avenues for providers to adapt their networks towards the millions



of gamers, exponential growth, and evolution with more streaming services entering the market, competing for eyeballs and clicks across the globe.

## 9. Conclusions and Implications

Traditional marketing techniques are no longer sufficient because consumers want more interactive touchpoints for entertainment and education. In southeast Asia, live-streaming transactions has proven to be an effective strategy towards achieving this goal. Our study provides a comprehensive framework for defining the process by which the aspects of experience are influenced by consumer temperament; this research is a pioneering attempt from SEA to pursue this line of research using the four-factor and flow theories with a large sample in a mixed method approach employing a mediation moderation model. In order to understand the exploding popularity of live-streaming transactions, retailers must first understand the shift in consumer mind sets in terms of impulsive purchasing behaviour.

We started by closely analysing the use of live-streaming transactions to support internet shopping in Southeast Asia. Additionally, we have discussed customer satisfaction and how streaming live may help attain it. Although this integration would need a significant change in our purchasing habits, it is a strategy that will be most advantageous to the businesses involved, while the broadcast industry is constantly changing live streaming.

**Author Contributions:** Conceptualisation, P.P.; methodology, P.P., S.A. (Sanmugam Annamalah) and S.A. (Selim Ahmed); software, P.P.; validation, P.P., S.A. (Sanmugam Annamalah), A.B., P.V. and M.R.; formal analysis, P.P.; investigation, B.K.; resources, W.C.H.; data curation, P.P., S.A. (Sanmugam Annamalah), P.V. and S.A. (Selim Ahmed); writing—original draft preparation, P.P. and S.A. (Sanmugam Annamalah); writing and editing, P.P. and P.V.; visualisation, S.A. (Sanmugam Annamalah); supervision, M.R., S.A. (Selim Ahmed), A.B. and B.K.; project administration, P.P. and S.A. (Sanmugam Annamalah); funding acquisition, W.C.H. and S.A. (Sanmugam Annamalah). All authors have read and agreed to the published version of the manuscript.

**Funding:** This project is funded by Inti International University.

**Institutional Review Board Statement:** Not applicable.

**Informed Consent Statement:** Informed consent was obtained from all subjects involved in the study.

**Data Availability Statement:** Primary data are private and confidential, as they concern a third party.

**Conflicts of Interest:** The authors declare no conflict of interest.

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