

THE INFLUENCE OF KEY OPINION LEADERS AND HEDONIC VALUE ON IMPULSE BUYING IN LIVE STREAMING COMMERCE: THE MEDIATING ROLE OF FLOW EXPERIENCE

Liu Renming
Abu Bakar Abdul Hamid
Noor Inayah Ya'akub

ABSTRACT

Live streaming commerce creates an ecological shopping space for consumers, merchants and supply chain channels through real-time interaction and information sharing. However, few studies have explored the stimuli that drive impulse purchases by live commerce consumers. This research empirically explores the effects of external environmental stimuli and product stimuli of live streaming commerce on consumers' perceived motivation and impulse buying behavior based on the Howard-Sheth model. Through questionnaire survey and convenience sampling strategies, empirical data were collected from 322 Chinese live commerce consumers. The results of the AMOS-SEM and bootstrapping confirmed that: (1) flow experience mediates the relationship between key opinion leaders, perceived hedonic value, and impulse purchases; (2) both key opinion leaders (external stimuli) and the perceived hedonic value of a product (commodity stimuli) can directly influence impulsive buying; and (3) consumer flow experience facilitates impulse purchases. This study enhances the Howard-Sheth theory by exploring the mechanisms by which external and product factors influence consumers' internal cognitive and behavioral outcomes and provides practical implications for live streaming commerce to develop digital marketing strategies.

Keywords: Impulse buying, key opinion leader, perceived value, live streaming, flow experience

INTRODUCTION

In the age of social media, the iterative development of smart technology and social ecology has led brands and retailers to gradually turn their attention to live streaming shopping. E-commerce (e.g., Amazon) and social media (e.g., Instagram) giants are now practicing “live streaming” + “e-commerce sales” to promote product sales and use real-time interactions to encourage social users to make purchases. Live streaming commerce, an online shopping model that connects enterprises, merchants and consumers through online live streaming, digital interaction and social fission, has become the pandemic business model (Apiradee and Nuttapol, 2020; He and Jin, 2022; Zhang et al., 2020). According to Statista (2023), live streaming became normalized after the COVID-19 crisis, with half of the world's social commerce users avidly using streaming platforms to reach brands and purchase necessities. The live commerce is growing rapidly in Asia Pacific and North America, with compound annual growth rates of more than 20% and 30%, respectively (Grand View Research, 2023). McKinsey (2021) noted that the immersive and instantly entertaining nature of live commerce drives consumers to stay on the e-commerce page, where their purchasing behaviour is influenced by the opinion leader and the value of the product, which results in a 30% sales conversion rate for the e-commerce market. Live commerce, represented by TikTok, Facebook Live, Amazon Live, and Instagram Live, has metamorphosed into a new engine of social media consumption growth, and consumer purchasing behavior in the context of live commerce has become a trending topic along the way.

Recent research has shined a spotlight on the impact of streaming stimuli on consumer behavior in live commerce scenarios. Meng et al. (2021) discovered that Internet celebrities enhance the pleasurable emotions of live commerce consumers, which in turn leads to purchase intentions. Shahpasandi et al. (2020) stated that social commerce users behave more impulsively, with personal motivations and internal reactions significantly stimulating user behavior. Based on the construal level perspective, Zhang et al. (2020) revealed that reductions in psychological distance and perceived uncertainty help encourage positive purchasing behavior among live commerce consumers. Apiradee and Nuttapol (2020) found that user behavior was influenced by perceived values and internal psychological responses, with utilitarian, symbolic and hedonic values contributing to consumer behavior in the live streaming scenario. Although prior experts have asserted that live media-related factors positively contribute to consumer behavior, there is little evidence demonstrating the role of opinion leaders and product value in driving consumer impulses. To close the gap, based on the Howard-Sheth model, this study empirically explores the theoretical relationships between key opinion leaders, the perceived hedonic value of products, flow experiences and consumer impulsive behaviors, and verifies the mediating role of flow experiences between external factors and individual behaviors. More specifically, this work is committed to empirically addressing three research questions:

Research question 1: Do key opinion leaders and perceived hedonic value of products influence consumer impulsive buying behavior in a streaming commerce context?

Research question 2: Does consumer flow experience influence impulsive buying behavior in a streaming commerce context?

Research question 3: Does flow experience mediate the relationship between key opinion leaders, perceived hedonic value of products, and impulsive buying in the context of streaming commerce?

LITERATURE REVIEW AND RESEARCH HYPOTHESIS

HOWARD-SHETH MODEL

The Howard-Sheth model aims to explore the relationship between external environmental stimuli, internal perceptions, and individual behavioral intentions (Juan et al., 2017; Vijay and Kumar, 2020). The model consists of several elements: (1) input factors, which refer to the external signals received by the individual that motivate the individual's behavior, such as product stimuli and human factors; (2) perceptual and learning factors, which refer to the individual's emotional response to the outside world, such as emotional experiences and positive attitudes; and (3) output factors, which refer to the individual's behavioral response to the influence of stimulus antecedents and perceptual factors, such as purchasing tendency and impulse shopping. According to Howard-Sheth's theory, an individual's willingness to act is triggered by a combination of external signals, stimulus signals and psychological motivation (Juan et al., 2017). The process of impulse buying formation can thus be explained in terms of external factors, product stimuli and emotional motivation (Vijay and Kumar, 2020). Impulsive purchasing is not motivated by a specific plan or intent; it is an irrational buying behavior that occurs when consumers lack rational guidance (Beatty and Ferrell, 1998). This shopping behavior is subject to a variety of stimuli such as individual, situational, product and external factors (Vijay and Kumar, 2020), internal response factors (Wu et al., 2016) and motivational, value and emotional factors (Chandan et al., 2021). Even in online environments, consumers may be impulsive to buy when stimulated by external factors in the absence of a shopping goal (Mandolfo and Lamberti, 2021). Wu et al. (2016) consider online buying impulses to be the result of behavior triggered by a combination of external factors and internal psychological responses. Shahpasandi et al. (2020) confirm that external motives encourage positive psychological responses in social commerce consumers, which in turn induce impulsive behaviors. Dey and Srivastava (2017) assert that consumer-perceived value factors are antecedents that induce impulse purchases. From Howard-Sheth's perspective, external environmental inputs, product stimulus inputs, and perceived cognition induce consumer purchasing behavior in a streaming environment (Juan et al., 2017).

KEY OPINION LEADERS

A key opinion leader is a person who provides key information to others in interpersonal interactions and influences others' behavioral decisions and buying attitudes through leadership influence (He and Jin, 2022). Opinion leaders, as top opinion promoters, exist in a wide range of interpersonal communication and social groups, such as residential neighborhoods, family members, or company colleagues, all of whom have equal opportunities to play the role of key opinion leaders. However, in live commerce, famous anchors, celebrity endorsers and internet hosts are typically viewed as key opinion leaders. He and Jin (2022) point out that key opinion leaders who are highly credible, attractive and professional are external factors that stimulate consumer behavior. Once consumers absorb information from key opinion leaders that can help them make shopping decisions, they will be motivated to make purchases. For example, Li Jiaqi, one of the top anchors on Douyin Live, directly influences the purchasing intentions of online participants by virtue of his influence and credibility. Li Ziqi, also an internet celebrity, guides the shopping behavior of a large number of her fans by virtue of her distinctive personality trait and appeal. Through information processing and interpretation, key opinion leaders convey important information about a product or service to consumers with different cognitive abilities and cultural backgrounds, and they utilize their personal influence to expand the scope of information dissemination; therefore, key opinion leaders are regarded as decision influencers and information disseminators (Song et al., 2017). Chen et al. (2021) emphasized that online consumers tend to follow and support opinion leaders, especially those with strong personal expertise, product engagement, and popularity, which aids in boosting online consumers' interest in purchasing. Song et al. (2017) believes that opinion leaders on social media channels significantly enhance user behavior, especially leaders with strong interpersonal skills, extroversion, and self-expression. From a leadership perspective, Casaló et al. (2020) found that Instagram users tend to support the advice of leaders who are original and personalized and that the information released by opinion leaders positively influences consumers' behavioral intentions. Meng et al. (2021) assert that online celebrities as shopping leaders significantly stimulate the pleasure emotions of live commerce consumers, resulting in purchase behavior. Based on the discussed literature, the hypothesis (H) is formulated:

H1: Key opinion leaders significantly promote impulse buying in live streaming commerce scenarios.

PRODUCTS' PERCEIVED HEDONIC VALUE

Live commerce consumers' willingness to buy (He and Jin, 2022) and engage (Apiradee and Nuttapol, 2020) depends on whether product value is realized or not. Consumers who perceive the value of the product will build enough trust in the product and will be willing to purchase the target product through social interaction (Apiradee and Nuttapol, 2020). Due to the entertaining nature of social shopping, prior work (Apiradee and Nuttapol, 2020; He and Jin, 2022) has placed greater emphasis on the impact of hedonic value on consumer behavior in live commerce scenarios. Perceived hedonic value refers to the pleasurable emotional experiences that consumers derive from a product, such as fun, enjoyment, immersion and fantasy (He and Jin, 2022). Consumers who focus on the hedonic value of a product mostly want to get mental enjoyment and emotional satisfaction from the product (He and Jin, 2022). Dey and Srivastava (2017) implied that the Indian youth tends to shop hedonistically and that the hedonic value of products drives individuals to make impulse purchases. Chandan et al. (2021) believe that unplanned purchases are driven by hedonic values and that hedonic shopping processes that are fun, exciting and adventurous are highly sought after by consumers. Based on prior literature, the hypothesis is proposed:

H2: The perceived hedonic value of a product significantly contributes to impulse purchases in live streaming commerce scenarios.

FLOW EXPERIENCE

As an internal perceptual motivator, the flow experience reflects a heightened sense of focus and pleasure in an individual's mental activity, and pleasurable flow states are elicited when an individual is immersed and focused on something (Csikszentmihalyi, 2008). In the flow state, the individual is surrounded by a relaxed and pleasant atmosphere, and the focus of the individual's

consciousness is placed only on the target object and not on other perceptions (Wu et al., 2016). Shahpasandi et al. (2020) point out that flow experiences include time distortion, enjoyment, curiosity, telepresence, focus, etc. Wu et al. (2016) showed that consumer behavior tends to be positive when the individual is in a state of perceived control, preoccupation, and perceived hedonism. In an online shopping environment, flow experience emphasizes the individual's perception of his or her own emotions, and flow experience is a pleasurable emotional response to external stimuli. Hsu et al. (2017) found that website-related factors and user-perceived beliefs play a significant role in the flow experience, which further motivates consumers to buy. Shahpasandi et al. (2020) found that social commerce users' impulsive behavior is closely related to external motivation and flow perception and that there is a positive correlation between flow experience and purchase impulses. Wu et al. (2016) discovered that flow experiences motivate positive user behavior and that online impulse purchases are driven by flow experience antecedents. Based on previous work, the hypothesis is proposed:

H3: Consumer flow experience significantly contributes to impulse buying in live streaming commerce scenarios.

IMPULSE BUYING

Impulsive buying is an unplanned and sudden shopping behavior which is spontaneously generated by the consumer prior to purchase and which is activated by environmental factors and positive emotional stimuli (Beatty and Ferrell, 1998; Shahpasandi et al., 2020). Mandolfo and Lamberti (2021) summarize the characteristics of impulsive purchases as: on-the-spot decision-making, immediate response, intrinsic impulse, emotional impact, instant gratification and short-term benefits. When consumers perceive strong environmental stimuli such as website-related factors (Wu et al., 2016) and hedonic-related factors (Shahpasandi et al., 2020), they react immediately to the object and are likely to make shopping decisions. When consumers are subjected to emotional factors and are immersed in positive emotional hedonism, the psyche will also experience an impulsive feeling of wanting something (Chandan et al., 2021; Dey and Srivastava, 2017).

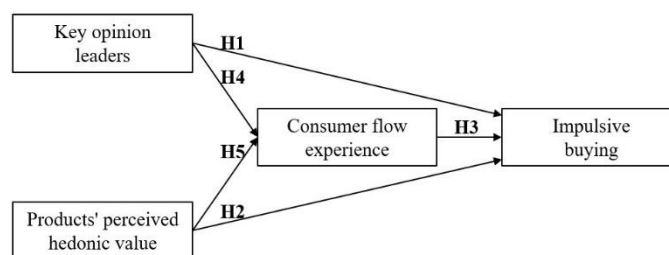
Previous works have explored the drivers of impulse buying behavior from the perspectives of environmental factors, product factors, and internal perceptions. Wu et al. (2016) noted that the flow experience enhances the relationship between external stimulus and purchase impulses. In a live service scenario, Apiradee and Nuttapol (2020) found an indirect relationship between customer value and customer engagement, with hedonic and utilitarian values significantly contributing to internal trust, which in turn promotes consumer behavior. Hsu et al. (2017) highlighted the mediating effect of flow experience in social shopping environments, where human and website factors drive social users to enter a state of pleasurable flow, and flow perceptions drive social buyers' positive purchase intentions. Shahpasandi et al. (2020) similarly emphasized the mediating role of flow perceptions in the relationship between external motivations and the behavior of social commerce consumers, where hedonic motivations drive consumers to indulge in an unselfconscious pleasurable state of mind, which significantly contributes to the purchase impulses. Song et al. (2017) discover that flow experiences enhance the theoretical relationship between opinion leaders and individual behavior. Based on prior research, the mediation hypotheses are formulated:

H4: Consumer flow experience mediates the relationship between key opinion leaders and impulse purchases in live streaming commerce contexts.

H5: Consumer flow experience mediates the relationship between perceived product value and impulse purchase in live streaming commerce contexts.

In summary, based on the Howard-Sheth theory, a conceptual model (see Figure 1) is proposed to capture and examine the relationship between key opinion leaders (independent variable), products' perceived hedonic value (independent variable), consumer flow experience (mediator variable), and impulsive buying (dependent variable) in a live streaming commerce environment.

Figure 1: Conceptual framework



RESEARCH METHOD

INSTRUMENT DESIGN

A 7-point Likert self-administered questionnaire was employed and three sections of the questionnaire were set up. A screening question was set at the very beginning so that only participants who indicated that they had experience with live commerce shopping were included in the valid sample. Each measurement variable consists of three items, all of which were derived from well-established scales with descriptions that are appropriate to the research context. Product-perceived hedonic value was derived

from Apiradee and Nuttapol (2020), key opinion leader was from Casaló et al. (2020), flow experience was sourced from Hsu et al. (2017), and impulse purchase was sourced from Wu et al. (2016).

As China's live streaming market is relatively mature and China has a large user base (McKinsey, 2021; Statista, 2023), Chinese live streaming consumers are taken as survey respondents and empirical data are collected through a convenience sampling strategy. As the respondents were Chinese, a reverse translation between Chinese and English was executed on the research instrument and two PhDs in linguistics were invited to check the consistency, balance and linguistic quality of the two versions of the scale. 50 valid samples were then collected for pilot testing, which helped measure scale feasibility and accuracy.

DATA COLLECTION AND SAMPLE DESCRIPTION

400 offline questionnaires were distributed at the entrance of large shopping malls in Qingdao, China, through the street interception method, and 392 were returned on the spot. After manual screening, 70 questionnaire responses were deleted because they failed the screening questions or had irregularities such as multiple choices, irregular completion, blank responses, and incomplete responses. Finally, this work obtained a total of 322 effective responses from the target audience, the proportion of males and females accounted for 40.99% and 59% respectively, among which the youth group aged 18-30 years old accounted for more than 60%. In addition, the 31-40 age group accounted for 24.84% of the total, while the remaining groups accounted for a smaller percentage. In terms of education, more than 70% of the participants indicated that they had a bachelor's degree or above, and the overall educational background was good. In terms of occupation, the top three percentages were students (22.36%), employees of state-owned enterprises (21.12%) and civil servants (16.15%). More than half of the respondents stated that they participate in live shopping 1-5 times a week. 29.81% of participants reported engaging in streaming shopping 6-10 times per week, and the remaining participants said they engaged in streaming shopping more than 10 times per week.

DATA ANALYSIS

RELIABILITY AND VALIDITY OF CONSTRUCTS

According to the output of the SPSS 25 statistical system (see Table 1), the credibility of key opinion leaders (KEL Cronbach's alpha=0.91), perceived product hedonic value (PHV Cronbach's alpha=0.899), consumer flow experience (CFE Cronbach's alpha=0.976) and impulse purchase (IB Cronbach's alpha=0.927) is good and the KMO values are all above 0.7 (Hair et al., 2010). The factor loadings of the observed variables all exceeded 0.8 and CR values>0.8, and AVE>0.6 (Hair et al., 2010). To test the degree of differentiation among the four constructs, the criterion of Fornell and Larcker (1981) was adopted for discriminant validity analysis. The results show that the VIF values of KEL, PHV, CFE and IB are below 3 and the square root coefficients of the AVE values of each construct are significantly higher than the correlation coefficients of the remaining variables, thus confirming that the samples have good discriminant validity (Fornell and Larcker, 1981). Then, AMOS 24 software was utilized to analyze the goodness-of-fit between the expected model and the valid sample, and the results showed CMIN/DF=1.357, GFI=0.969, AGFI=0.95, SRMR=0.02, CFI=0.996, RMSEA=0.033, and all the indicators were in the acceptable range regardless of whether it was the absolute or incremental fit indicators, etc.

Table 1: Reliability and convergent validity

Construct	Items	References	Reliability	KMO	Load factor	CR	AVE		
Key opinion leaders (KEL)	KEL1	Casaló et al. (2020)	Cronbach's α=0.91	0.75	0.831	0.86	0.68		
	KEL2			1	0.820			9	8
	KEL3							0.838	
Perceived hedonic value (PHV)	PHV1	Apiradee and Nuttapol (2020)	Cronbach's α=0.899	0.74	0.801	0.86	0.67		
	PHV2			2	0.832			3	7
	PHV3							0.835	
Consumer flow experience (CFE)	CFE1	Hsu et al. (2017)	Cronbach's α=0.976	0.76	0.868	0.90	0.75		
	CFE2			8	0.866			4	8
	CFE3							0.878	
Impulsive buying (IB)	IB1	Wu et al. (2016)	Cronbach's α=0.927	0.75	0.821	0.87	0.69		
	IB2			9	0.847			1	2
	IB3							0.828	

STRUCTURAL MODEL AND PATH ANALYSIS

The significance of the three direct effect pathways was determined by path coefficients using AMOS 24 statistical software, and the results are reported in Table 2. KEL (T=3.05, P<0.01) significantly and positively promoted IB; PHV (T=4.535, P<0.001) significantly and positively promoted IB; and CFE (T=6.139, P<0.001) also significantly influenced IB. Hence, all direct effects (H1, H2 and H3) hold true in this work. CFE has 45% explanatory power (R-squared=0.45) and IB has 55% explanatory power (R-squared=0.55).

Table 2: Structural model path coefficient

Hypotheses	Hypothetical relationship	Path coefficients	Standard error	T-value	Significance	Results
H1	KEL-IB	0.192	0.063	3.05	0.002 (P<0.01)	Supported
H2	PHV-IB	0.256	0.056	4.535	*** (P<0.001)	Supported
H3	CFE-IB	0.344	0.056	6.139	*** (P<0.001)	Supported

BOOTSTRAPPING DETECTION

The AMOS-Bootstrapping mediation results are shown in Table 3. Based on Zhao et al. (2010), the effective sample was set to be sampled 5,000 times and the 95% confidence interval (CI) was selected. The results of the bias-corrected (BC) method for the KEL-CFE-IB pathway were 0.082 (lower) and 0.213 (upper), and the results of the percentile method were 0.078 (lower) and 0.205 (upper), and the upper and lower bounds for both of the above methods did not include 0. Based on this, H4 was established. Besides, the results of the BC method for the PHV-CFE-IB pathway yielded results of 0.066 (lower) and 0.177 (upper), and the percentile method yielded results of 0.061 (lower) and 0.17 (upper), and none of the above methods had upper or lower bounds of 0. So, H5 was also established.

Table 3: Mediation test results

Hypotheses	Hypothetical relationship	95% Confidence Interval (Bias-corrected)		95% Confidence Interval (Percentile)		Significance	Results
		Upper	Lower	Upper	Lower		
H4	KEL-CFE-IB	0.213	0.082	0.205	0.078	*** (P<0.001)	Supported
H5	PHV-CFE-IB	0.177	0.066	0.17	0.061	*** (P<0.001)	Supported

CONCLUSION, IMPLICATION AND LIMITATION

RESEARCH RESULTS

Based on Howard-Sheth's theory, the theoretical relationship between key opinion leaders, products' hedonic value, flow experience and impulse purchases was explored. First, the study confirms that key opinion leaders are significant antecedents for inducing impulse purchases, which can directly influence live commerce consumers to make impulsive buying decisions. The facilitating role of key opinion leaders on consumer behavior has also been emphasized in prior literature (He and Jin, 2022). In live commerce, key opinion leaders provide key shopping information to other consumers, and consumers' buying attitudes and purchasing behaviors are influenced by key opinion leaders. Second, the research found that product-perceived hedonic value can directly induce consumers to generate purchase desires and make purchase decisions on the spot. In the context of live commerce, consumers pay more attention to the hedonic value of the product, hoping to get mental satisfaction and emotional enjoyment from the product. Dey and Srivastava (2017) and Chandan et al. (2021) have a similar viewpoint that once consumers are immersed in the hedonic elements, they are very likely to make impulsive purchasing decisions. Third, the results reveal a positive association between flow experience and impulse purchase. In live commerce, the flow experience drives positive affective perceptions in consumers, which in turn influences impulsive purchases. The pleasurable flow state stimulates consumers to create an immediate impulsive feeling of wanting to make a purchase, a finding that supports Shahpasandi et al. (2020) and Wu et al. (2016). Fourth, the present work uncovered that flow experience significantly mediates the relationship between key opinion leaders (external environmental stimuli), the perceived hedonic value of the product (product stimuli), and impulse buying behavior (behavioral outcome factors). The influence of key opinion leaders on impulse buying was indirectly influenced by the pleasurable flow state, and the flow experience could facilitate the relationship between key opinion leaders and impulsive buying. The effect of the perceived hedonic value of a product on impulsive buying was also indirectly influenced by the flow experience, and the flow state significantly enhanced the relationship between perceived hedonic value and impulse purchasing. In live streaming commerce, external motivations and product stimuli lead to pleasure perceptions, and consumers then activate impulse buying behaviors under the influence of a persistent flow state.

RESEARCH IMPLICATION

The current study upgrades the Howard-Sheth theoretical connotation and extends the Howard-Sheth model to the live streaming context, and reveals the theoretical relationship between external stimuli, psychological perception, and behavioral willingness from the perspective of flow experience. To the best of the authors' knowledge, this study is an early empirical work revealing the impact of live commerce opinion leaders, product hedonic value and pleasure psychological perception on consumer impulse purchases in live streaming commerce. Based on the empirical results, the following practical implications are currently provided for live commerce marketers and their interest affiliates.

Live streaming commerce should focus on the role of key opinion leaders, hedonic elements and pleasure perception in promoting consumer behavior. Live streaming commerce can support popular anchors and internet celebrities to become key opinion leaders, and allow opinion leaders to offer consumers hedonic products to stimulate impulse purchases. Besides, live commerce should focus on the facilitating effect of positive emotions on consumer behavior. Consumers are highly likely to make impulse purchases

when they perceive a pleasurable flow during the shopping process. Given this, live streaming commerce can stimulate consumer behavior by creating a pleasurable and relaxing shopping environment for both online participants and online buyers, prompting consumers to enter a flow state.

LIMITATIONS AND FUTURE RESEARCH

Despite enhancing key opinion leaders, perceived hedonic value, flow experience, and impulse purchase literature, some limitations need to be acknowledged. First, due to limited funding, only convenience sampling was adopted to collect empirical data on Chinese live streaming consumers. This study strongly recommends that future work use different sampling strategies and collect consumer data from other cultural contexts, which could potentially provide different perspectives for understanding the relationship between environmental stimuli, product stimuli, psychological perceptions, and consumer behavior. Second, based on the Howard-Sheth framework, only one contextual factor i.e., key opinion leaders and one product factor i.e., perceived hedonic value are currently considered. Perhaps, subsequent work could consider other unknown stimuli such as peer motivation and social influence. Third, only one mediating variable, flow experience, was considered in the research model, and other mediating variables were not yet investigated. Perhaps, in the future, scholars could discuss other mediating variables, such as the mediating effects of cognitive trust, perceived value, and consumer emotions between external stimuli and behavioral outcomes.

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Liu Renming

*Faculty of Business, Information & Human Sciences
Infrastructure University Kuala Lumpur, Malaysia
Email: jeremylurm@163.com*

Abu Bakar Abdul Hamid

*Faculty of Business, Information & Human Sciences
Infrastructure University Kuala Lumpur, Malaysia
Email: abubakarhamid@iukl.edu.my*

Noor Inayah Ya'akub

*Faculty of Business, Information & Human Sciences
Infrastructure University Kuala Lumpur, Malaysia
Email: inayah@iukl.edu.my*