

# 科技部補助專題研究計畫報告

探討飢餓行銷策略對顧客購買決策之影響：從神經心理學分析

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本研究具有政策應用參考價值：否 是，建議提供機關  
(勾選「是」者，請列舉建議可提供施政參考之業務主管機關)  
本研究具影響公共利益之重大發現：否 是

中華民國 109 年 11 月 08 日

中文摘要：飢餓行銷是一種行銷手法，即商品提供者有意調低產量達到調控供求關係(Supply-demand relationship)，製造供不應求“假象”，以引發消費者內在慾望的目的。過去飢餓行銷多集中於高價位產品之探討。然而，自平價小米手機限量供貨的成功策略開始，飢餓行銷已變成各級品牌行銷的新顯學。本研究目的是探討飢餓行銷產品資訊的不同呈現會對消費者情緒產生不同影響，進而了解他們心智處理的認知適配與情感適配亦會影響消費者的衝動購買行為。因此，實驗目的在測試產品稀少性的資訊線索(包含限時、限量)對消費者的衝動購買意圖之影響。本研究分成兩個階段。在第一階段，我們使用腦電圖(EEG, Electroencephalogram)來測量神經生理狀態，主要分析消費者對於產品稀少性資訊線索中如何影響消費者的衝動購買決策。透過前額葉腦電圖(EEG)了解消費者的正、負情緒狀態。在第二階段，我們進一步透過實驗研究調查產品稀少性的不同資訊呈現(包含長/短限時、高/低限量)對顧客認知適配與情感適配的心智處理和衝動購買之影響。本研究結果對行銷者與廣告設計師提供完善的行銷策略，以提高銷售利益。

中文關鍵詞：飢餓行銷、EEG、正負情緒、前額葉不對稱、衝動購買

英文摘要：Hunger marketing is a kind of marketing strategy that commodity suppliers intentionally reduce production in order to create demand. The purpose of this study is to explore what kind of the different effects onto consumers' emotions is likely triggered by diverse presentations of the hunger-marketing product information. Moreover, we further examine whether cognitive and affective fits of the mental processes (i.e. cognitive fit theory) can affect consumers' impulsive buying behaviors. We further investigate, the impact of the product scarcity information clue (including long/short time limit and high/low limited stock) onto consumers' impulsive buying intention, as well as mental processing of customers' cognitive and emotional adaption. The research findings could provide a perfect marketing strategy for marketing personnel and ad designers to increase sales profit.

英文關鍵詞：Hunger Marketing, Positive and Negative Emotions, Frontal Asymmetry, Impulse Buying.

## 探討跨境網購購買意圖之決定因素：自陳測量與腦波特徵之比較分析

### Exploring the Determinants of Purchase Intention of Cross-Border Online Shopping: Evidence from Self-Reported and EEG Data

#### *Abstract*

Hunger marketing is a kind of marketing strategy that commodity suppliers intentionally reduce production in order to create demand. The purpose of this study is to explore what kind of the different effects onto consumers' emotions is likely triggered by diverse presentations of the hunger-marketing product information. Moreover, we further examine whether cognitive and affective fits of the mental processes (i.e. cognitive fit theory) can affect consumers' impulsive buying behaviors. We further investigate, the impact of the product scarcity information clue (including long/short time limit and high/low limited stock) onto consumers' impulsive buying intention, as well as mental processing of customers' cognitive and emotional adaption. The research findings could provide a perfect marketing strategy for marketing personnel and ad designers to increase sales profit.

#### **Keywords**

Hunger Marketing, Positive and Negative Emotions, Frontal Asymmetry, Impulse buying.

#### **摘要**

飢餓行銷是一種行銷手法，即商品提供者有意調低產量達到調控供求關係(Supply-demand relationship)，製造供不應求“假象”，以引發消費者內在慾望的目的。過去飢餓行銷多集中於高價位產品之探討。然而，自平價小米手機限量供貨的成功策略開始，飢餓行銷已變成各級品牌行銷的新顯學。本研究目的是探討飢餓行銷產品資訊的不同呈現會對消費者情緒產生不同影響，進而了解他們心智處理的認知適配與情感適配亦會影響消費者的衝動購買行為。因此，實驗目的在測試產品稀少性的資訊線索(包含限時、限量)對消費者的衝動購買意圖之影響。本研究分成兩個階段。在第一階段，我們使用腦電圖(EEG, Electroencephalogram)來測量神經生理狀態，主要分析消費者對於產品稀少性資訊線索中如何影響消費者的衝動購買決策。透過前額葉腦電圖(EEG)了解消費者的正、負情緒狀態。在第二階段，我們進一步透過實驗研究調查產品稀少性的不同資訊呈現(包含長/短限時、高/低限量)對顧客認知適配與情感適配的心智處理和衝動購買之影響。本研究結果對行銷者與廣告設計商提供完善的行銷策略，以提高銷售利益。

**關鍵字：**飢餓行銷、EEG、正負情緒、前額葉不對稱、衝動購買

## ***Introduction***

Hunger marketing is one of the marketing techniques, i.e. suppliers intentionally decrease yields to control the supply-demand relation, create a false front of short supply, and maintain a higher selling price and profit margin. Such a manipulated marketing technique is primarily to have the product become in hot demand, further to attract consumers' intensive attention, and generate the consuming subject. Therefore, many traders nowadays will control the quantity in the early stage of the product to be listed, so as to create a false front of short supply and arouse consumers' desire to buy more products. As MIUI was established in 2010, its impression giving to the public was the "Hunger Marketing". In 2011, MIUI took advantage of such a means to sell its cellular phone (to be listed); from publishing the prototype for opening reservation on line, they dragged a long while, and commencing with the formal sales, they intermittently delayed for four months and immediately announced within 3 hours that all product was sold out. The main purpose to do so is to attract the public attention, not but that the initial quantity of MIUI's product is no more than 10%; this is the typical instance of "Hunger Marketing".

In recent years' psychologists have initiated a research on the emotion which has significant influence onto policy decision, or transformation emotions is identified as an important determining factor in consumers' behaviors, as well as a major predicting factor in the process of impulsive buying action (Lee, & Yi, 2008). Mehrabian and Russell (1974), from the angle of environmental psychology, specified that the emotional state of Pleasure (P), Arousal (A), and Dominance (D) can be aroused by stimulation of exterior environment; under the environmental stimulation, different individuals will generate diverse behaviors to reflect his/her mentality of (P), (A), and (D). Thus, consumers' behavior and intention are determined by various clues, stimulations, and mentalities under environment of the network platform (Eroglu et al. 2003), such as layout compilation, product data, etc. This study therefore is to explore the influence of consumers' psychological state and the activity (i.e. the process of emotion or cognitive volition) which induces consumers to act the buying behavior (Jiang et al., 2010; Parboteeah et al., 2009). However, not many researches today can indicate the stimulating factor which may impact and reflect consumers' emotion and cognitive state.

Vessey proposed the CFT (cognitive fit theory) in 1991, explaining the FIT relation existed between presentation format and policy-making task in respect of the information (Vessey 1991; Vessey and Galletta 1991), and interpreting whether the consistency of mental process can be adapted (FIT). Kahneman (2003) therefore assumed, Cognitive fit and Affective fit are "Dual policy-making system", having diverse impacts onto policy-making task under different contexts. Insomuch as the disparity in mental process, facing information of the identical format, the decision maker shall know the mental process necessary for transformation according to the Cognitive fit; therefore, identical presentation format cannot be fitted for two behaviors --- it can only be fitted either Cognitive or Affective decision. This study aims to explore the fitted relation between mental process and information presentation under scarcity of the information stimulation in different products.

## ***Literature Review***

### **Hunger Marketing**

Hunger marketing is a kind of marketing strategy; the merchandise suppliers intentionally limit the product supply to achieve the excessive demand (Chen, Kuo, Jhan, & Chiu, 2014). There are three dimensions of the hunger marketing proposed by Chen, Kuo, Jhan, & Chiu (2014)

respectively as Behavior, Psychology, and Consumption. Behavior in the first place indicates that consumers comprehend and attempt to join in the hunger-marketing activities; secondly, psychology means the internal desire aroused by hunger marketing when consumers accept the rule of limited time and volume; and thirdly, consumption presents consumers' immediate buying behavior aroused by hunger marketing. Therefore, this study is, through merchandise information displayed in hunger marketing, to explore the impact on consumers' emotions and buying policy.

### **Consumers' Emotion**

Regarding consumers' emotion in the past researches, Machleit and Eroglue (2000) have ever presented two aspects as positive emotion and negative emotion. Mehrabian and Russell (1974) proposed three P-A-D emotion dimensions respectively as Pleasure, Arousal, and Dominance, the main purpose of which is to weight consumers' emotional reflection when joining the consuming activities. P (pleasure) is defined as consumers' comfortable, merry, happy, and satisfactory sense aroused by environmental stimulation. D (dominance) is defined as consumers' excited, stimulated and nimble sense aroused by environmental stimulation (Bakker, Voordt, Vink., & Boon., 2014). Either the behavior influence of consumer to product is positive or negative; in the process of consumption, consumers with good emotion reflection hold more positive attitude toward shopping than those with bad emotion reflection; for this reason, this study is, through the product information, to find out consumers' emotion reflection.

### **Cognitive Fit and Affective Fit**

Cognitive fit is defined as a consistent level of the product information and the mental process after consumers purchase the product from webpages (Gillespie., Muehling, & Kareklas, 2018). Vessey in 1991 presented the cognitive fit theory which was used to explain consumers' psychological state affected by the product information when any individual is making a decision while the cognition and comprehension onto various issues can enhance the decision quality and efficiency. Hence, this study is the fit relation between presentation of product information and consumers' mental process, and the reflection thereof.

Affective fit is defined as a correlated consistent level of the information presentation imbedded in products and the consumers' emotional state upon consumption (Gillespie, Muehling, & Kareklas, 2018). The product placement means using an ingenious technique to imbed the marketing objects into existed media, then, by means of media exposure rate to achieve its advertising effect. Psychologists assumed, importance of the emotional function onto the decision process is no less than that of cognition, or under several situations, emotional influence is even more obvious than cognition (Zajonc 1980; Kahneman and Tversky 1986; Slovic, Finucane et al. 2002). Affective heuristics was proposed by Slovic et al. in 2002; manipulating the figure or text content can produce affective impression, rather than cognitive impression, to have people's decision and judgment disobey the rational demand.

### **Impulse Buying**

Impulse buying is defined as consumers may purchase products without the least consideration under the environmental stimulation (buying desire), in other words, such an impulsive buying will be affected by various practicalities, personalities, timing, locations, and cultures, and resulted in diverse impulse buying . The impulse buying before 1982 was concentrated in products rather

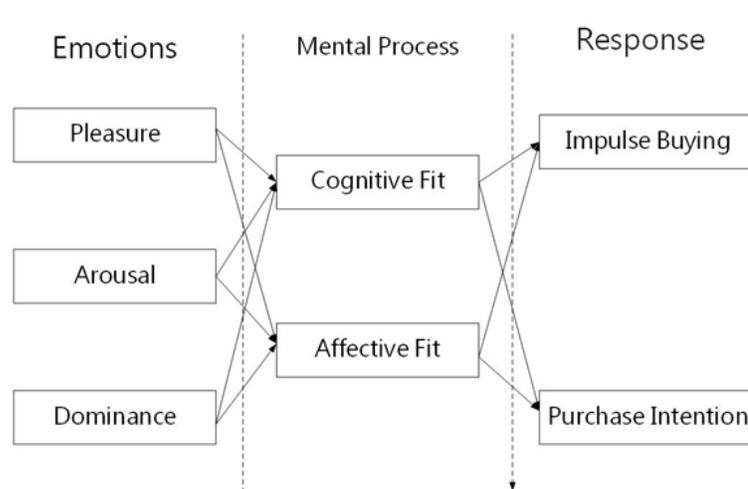
than stimulative factors. Not until 1982, could researchers re-concern with the behavior of impulsive buying and launch the study from the level of the said behavior.

### **Purchase Intention**

Purchase intention is defined as consumers will select and purchase a certain part of the commodities (Grewal, Krishnan, Baker, & Borin,. (1998); it can also be named as the planned purchase; seeing the products, consumers will first consider if it is necessary, then, collect the relevant information. During the purchasing process, consumers may, through the media online, secure the product information and many netizen’s messages to enhance consumers’ purchasing intention. Therefore, this study is attempt to explore diverse Scarcities of the information presentation and advance consumers’ different cognitions and emotional decision, further to generate the reflection of planned purchase.

### **Research Model**

This study is primarily to explore the influence of consumers’ emotion to impulsive buying behavior under the information presentation of diverse product scarcities in the process of hunger marketing. Mehrabian and Russel (1974) proposed three P-A-D emotion dimensions respectively as Pleasure, Arousal, and dominance which was mainly used to weight consumers’ emotional reflection during the consuming activity; in addition, Weinberg and Gottwald (1982) assumed, impulsive buying can be defined by three aspects as Cognition, Emotion, and Reflection. Therefore, it is using the supplying time, limited quantity, and high-value/budgeted products, under diverse scarcities information stimulations, to explore the mental process of customers’ cognitive fit and affective fit, further to produce the reflection of impulsive buying. The studying pattern is shown as Figure 1.



**Figure1. Research Model**

### ***Research Hypothesis***

- H1: Pleasure is positively related to cognitive fit.
- H2: Pleasure is positively related to affective fit.
- H3: Arousal is positively related to cognitive fit.
- H4: Arousal is positively related to affective fit.
- H5: Dominance is positively related to cognitive fit.
- H6: Dominance is positively related to affective fit.
- H7: Cognitive fit is positively related to impulsive purchase.
- H8: Cognitive fit is positively related to buying intention.
- H9: Affective fit is positively related to impulsive purchase.
- H10: Affective fit is positively related to buying intention.

### ***Experimental design and EEG's measuring method***

Using the hunger marketing strategy is to enable consumers to produce a hunger feeling and stimulate their purchasing desire. This study uses the “time limit” and “limited stock” to emphasize the limited supply and demand that have consumers engender the impulsive purchase and buying intention. It can be further divided into four situations respectively as 1. Long time limit / High limited stock (LT/HS), 2. Long time limit / Low limited stock (LT/LS), 3. Short time limit / High limited stock (ST/HS), and 4. Short time limit / Low limited stock (ST/LS). This study is to explore consumers’ emotion derived from the product information in hunger marketing period, and the increase of impulsive purchase and buying intention under the stimulation of cognitive and emotional fits.

**Table 1. Design of Experimental Context**

	Long time limit	Short time limit
High limited stock	LT/HS	ST/HS
Low limited stock	LT/LS	ST/LS

The experimental design is operated from the aspect of hunger marketing, by means of reading information of the “time limit” and “limited stock” to stimulate consumer’s impulsive purchase and buying intention. This study is using EEG’s brain-wave instrument to conduct the on-intrusive wireless transmission module and to obtain the completed record of brain-wave activities. We select three groups of AF3 & AF4, F3 & F4, and F7 & F8 as the important frequency to influence experiments. AF3, F3, and F7 are located at left brain, representing the positive emotion while the AF4, F4, and F8 located at right brain representing the negative emotion. We transit the subjects’ brain-wave data and e-prime timestamp back to Emotiv TestBench, simultaneously, receive and record the data of brain wave in relation to other six electrode points. In the end, we use EEG LAP package in MATLAB to proceed with the brain-wave analysis.

### ***Experimental Process***

This experiment is adopting the EEG and using the framework of 2 (long/short limited time) × 2 (high/low limited stock) as benchmark to take two websites collocated with different product information to serve as the measurement design. This experimental process can be divided into 7 major steps. The first step: we interpret all experimental process to subjects, the process of which is to ensure consistency of the sample. The second step: wear the brain-wave instrument and

calibrate the eye tracker to affirm that signal can be correctly received and transited. The third step: start the experiment on brain wave and eye tracker. The subject in the first place shall look attentively at the symbol of “+” about 5 seconds. To enhance subjects’ concentration, we have the subjects practice several times to ensure completeness of the collected signal. The fourth step: looking on hunger-marketing product information page, each subject is randomly distributed with diverse contexts of the information clue. Within the specific circumstance, look on the time-limited and the stock-limited pages in turn. Finally, collect subjects’ questionnaires. To encourage subjects able to fill in the questionnaire carefully, we reciprocate subjects with a reward (approximate US\$ 7) after the EEG and eye-movement information is completely collected and approved as available.

### ***Questionnaire design***

All of the measures was applied a seven-point Likert scale, with ranged from strongly disagree (score of ‘1’) to strongly agree (score of ‘7’). Among them, the measures in this study were all adopted from existing measures. To preserve the richness of each construct, all of the constructs were measured with a multipleitem scale. Moreover, measurement items were adapted from the literature. The measurements constructs of P-A-D (Pleasure-Arousal-Dominance) were developed according to Koo & Lee, (2011) 、Im & Ha, (2011) 、Soriano, Foxall, & Pearson, (2002); constructs of cognitive fit and the affective fit were developed according to Gillespie et al., (2018); constructs of impulsive purchase and buying intention were developed according to Parboteeah, Valacich, & Wells, (2009), Badgaiyan & Verma, (2015), Dodds, Monroe, & Grewal, (1991), and Grewal et al., (1998).

### ***Pretest***

Before the experiment, five experts from information management and technological management related fields (three PhDs and two experts in the industry) were requested to first perform the pretest. Thirty participants were invited to undergo the pilot test. The experimental process is in line with the formal experiment. Results of reliability shows that the Cronbach’s  $\alpha$  of constructs all exceed 0.7 (Nunnally, 1978). In questionnaire validity, the indicator loading all exceeded 0.5 (Fornell & Larcker, 1981).

### ***Data Analysis***

The data analysis utilized a two-step approach, as recommended by Anderson & Gerbing (1988). The first step analyses the measurement model, while the second tests the structural relationships among the latent constructs. The aim of the two-step approach is to establish the reliability and validity of the measures before assessing the structural relationships of the model. SmartPLS 2.0.M3 was used because partial least squares (PLS) places minimal restrictions on the measurement scales, sample size and residual distribution (Chin & Newsted, 1999).

### ***Measurement model***

Reliability was measured based on the component reliability. Nunnaly (1978) suggested that the acceptable level of component reliability should above 0.7, and all of the values in this paper are

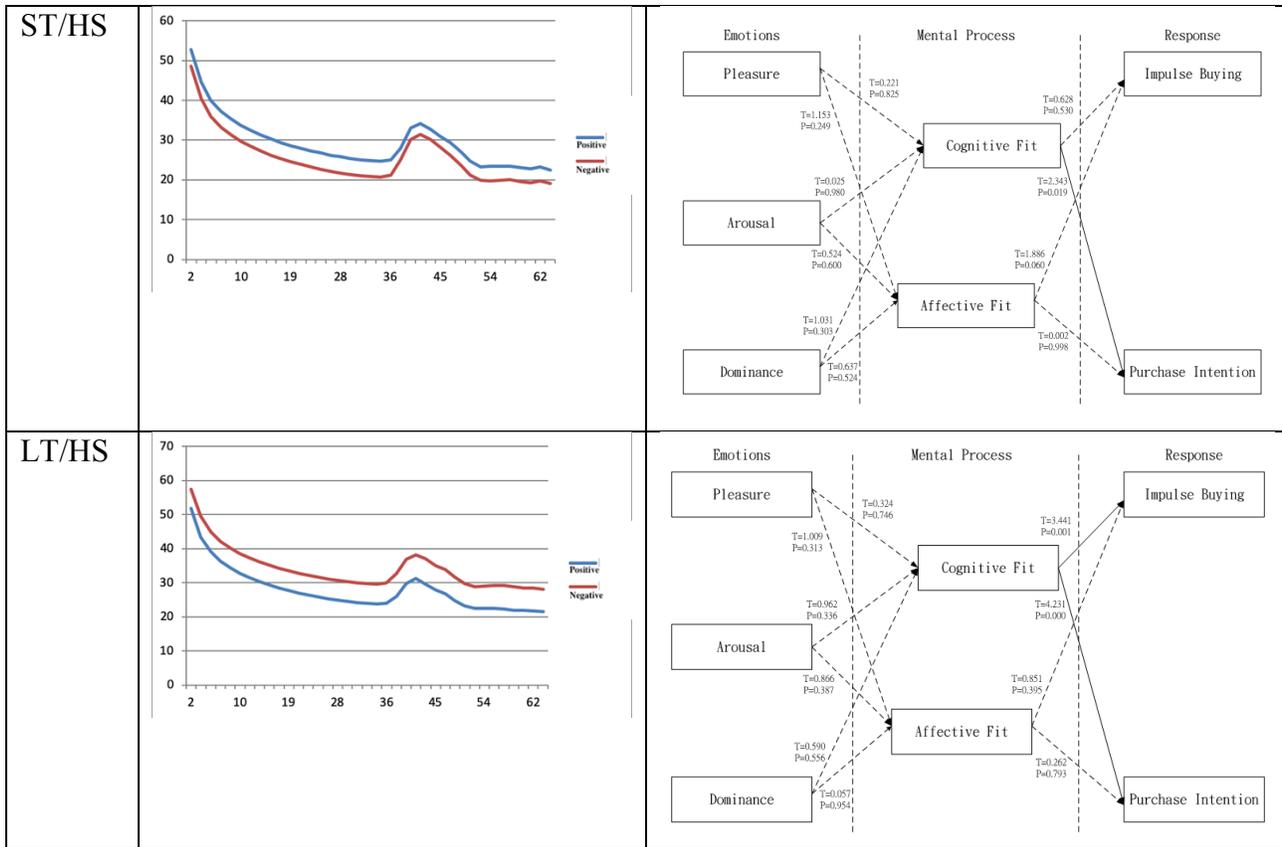
above 0.7. According to the research of Fornell & Larcker (1981), the scales of the convergent validity was assessed by two criteria: (1) all indicator loading should be significant and exceed 0.7; (2) each construct of the average variance extracted (AVE) should be significant and exceed 0.5. Results in this paper shows that all of the AVEs ranges from 0.519 to 0.843. Thus, this paper possessed good convergent validity. Discriminant validity was examined using the following three tests: (1) the square root of each AVEs should exceed the correlation shared between the construct and other construct (Fornell & Larcker, 1981); (2) the cross-factor loadings indicate good discriminant validity when the loading of each measurement item on its assigned latent variable is higher than its loading on any other constructs (Chin, 1998); (3) the correlations among all constructs should less than 0.852 threshold (Kline, 1998). The result shows that all values were conform to these three criteria and possessed good discriminant validity.

**Structural model**

In this research, SmartPLS was used for statistical analysis tools. We examined the structural paths and the R<sup>2</sup> values to assess the explanatory power of our structural model. The significance of all paths was assessed with 500 bootstrap run by bootstrap resampling method. Research model of four scarcity appeal contexts: Long time limit / High limited stock (LT/HS), Long time limit / Low limited stock (LT/LS), Short time limit / High limited stock (ST/HS), and Short time limit / Low limited stock (ST/LS), were analyzed respectively (Table 2).

**Table 2. Data Analysis of Four Scarcity Appeal Contexts**

	EEG	SEM
ST/LS	<p>The EEG graph for the ST/LS context shows two waveforms: a blue line for 'Positive' and a red line for 'Negative'. The x-axis represents time points (2, 10, 19, 28, 36, 45, 54, 62) and the y-axis represents amplitude (0 to 60). Both waveforms start at approximately 50 at time 2 and decrease to around 20 by time 36. At time 45, there is a secondary peak where the positive waveform reaches about 35 and the negative waveform reaches about 30. After time 45, both waveforms stabilize around 20.</p>	<p>The SEM path diagram for the ST/LS context shows the following standardized path coefficients and p-values:</p> <ul style="list-style-type: none"> <li>Emotions (Pleasure, Arousal, Dominance) to Cognitive Fit: <ul style="list-style-type: none"> <li>Pleasure to Cognitive Fit: T=0.829, P=0.407</li> <li>Arousal to Cognitive Fit: T=0.276, P=0.783</li> <li>Dominance to Cognitive Fit: T=1.352, P=0.177</li> </ul> </li> <li>Emotions (Pleasure, Arousal, Dominance) to Affective Fit: <ul style="list-style-type: none"> <li>Pleasure to Affective Fit: T=0.608, P=0.546</li> <li>Arousal to Affective Fit: T=1.251, P=0.001</li> <li>Dominance to Affective Fit: T=2.031, P=0.042</li> </ul> </li> <li>Mental Process (Cognitive Fit, Affective Fit) to Response (Impulse Buying, Purchase Intention): <ul style="list-style-type: none"> <li>Cognitive Fit to Impulse Buying: T=0.159, P=0.873</li> <li>Cognitive Fit to Purchase Intention: T=0.873, P=0.379</li> <li>Affective Fit to Impulse Buying: T=1.708, P=0.000</li> <li>Affective Fit to Purchase Intention: T=4.025, P=0.000</li> </ul> </li> </ul>
LT/LS	<p>The EEG graph for the LT/LS context shows two waveforms: a blue line for 'Positive' and a red line for 'Negative'. The x-axis represents time points (2, 10, 19, 28, 36, 45, 54, 62) and the y-axis represents amplitude (0 to 60). Both waveforms start at approximately 50 at time 2 and decrease to around 20 by time 36. At time 45, there is a secondary peak where the positive waveform reaches about 35 and the negative waveform reaches about 30. After time 45, both waveforms stabilize around 20.</p>	<p>The SEM path diagram for the LT/LS context shows the following standardized path coefficients and p-values:</p> <ul style="list-style-type: none"> <li>Emotions (Pleasure, Arousal, Dominance) to Cognitive Fit: <ul style="list-style-type: none"> <li>Pleasure to Cognitive Fit: T=1.591, P=0.112</li> <li>Arousal to Cognitive Fit: T=0.146, P=0.884</li> <li>Dominance to Cognitive Fit: T=0.828, P=0.408</li> </ul> </li> <li>Emotions (Pleasure, Arousal, Dominance) to Affective Fit: <ul style="list-style-type: none"> <li>Pleasure to Affective Fit: T=2.610, P=0.009</li> <li>Arousal to Affective Fit: T=0.125, P=0.996</li> <li>Dominance to Affective Fit: T=0.006, P=0.996</li> </ul> </li> <li>Mental Process (Cognitive Fit, Affective Fit) to Response (Impulse Buying, Purchase Intention): <ul style="list-style-type: none"> <li>Cognitive Fit to Impulse Buying: T=0.451, P=0.652</li> <li>Cognitive Fit to Purchase Intention: T=5.303, P=0.000</li> <li>Affective Fit to Impulse Buying: T=1.372, P=0.170</li> <li>Affective Fit to Purchase Intention: T=0.573, P=0.566</li> </ul> </li> </ul>



**Conclusion**

This study is primarily to explore diverse scarcity product information that may induce different emotion reflection, through hunger-marketing context design of the “time limit” and “limited stock” to comprehend the mental process of consumers’ emotion, cognitive fit and affective fit, as well as the influence of their behavior intention (impulsive purchase and buying intention). The contributions are shown as follows:

- (a.) Through brain-wave analysis to explore consumers’ positive and negative emotion reflection induced by stimulation of the marketing information;
- (b.) From the angle of hunger marketing to subsume the budgeted product which is rarely explored in the past, and to know its discrepancy in comparison with high-end product.
- (c.) From the angle of cognition, emotion, and reflection to explore the impulsive buying behaviors; in other words, this study is comprehending the influence of impulsive buying reflection from the mental process of customers’ cognitive fit, and affective fit.

In conclusion, this research finding may serve marketing personnel as references to develop their marketing strategies.

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108年度專題研究計畫成果彙整表

計畫主持人：吳雅鈴		計畫編號：108-2410-H-032-059-			
計畫名稱：探討飢餓行銷策略對顧客購買決策之影響：從神經心理學分析					
成果項目		量化	單位	質化 (說明：各成果項目請附佐證資料或細項說明，如期刊名稱、年份、卷期、起訖頁數、證號...等)	
國內	學術性論文	期刊論文	1	篇	Shang, S. S.-C., Wu, Ya-Ling, Wu, J.-Y., and Chen, C.-C. (2020), "Leveraging IT-Enabled Service Innovation in a Highly Competitive Market," Journal of Management and Business Research, Accepted. (TSSCI in English)
		研討會論文	1		Wu, Ya-Ling, Lai, S.-T., and , Chen, K.-H., "The Effects of Scarcity Appeals on Consumer Behavior," Proceedings of the 31st International Conference on Information Management (ICIM 2020), Chiayi, Taiwan, December 12, 2020.
		專書	0	本	
		專書論文	0	章	
		技術報告	0	篇	
		其他	0	篇	
國外	學術性論文	期刊論文	0	篇	
		研討會論文	3		<p>[1]Wu, Ya-Ling, and Liu, Y.-H., "Exploring the Retargeting Strategy of Telepresence," Proceedings of the 26th Americas Conference on Information Systems 2020 (AMCIS 2020), Virtual conf., August 10-14, 2019.</p> <p>[2]Wu, Ya-Ling, and Lai, S.-T., "The Effects of Hunger Marketing Strategy and Customer Emotion on Purchase Behavior," Proceedings of the 25th Americas Conference on Information Systems 2019 (AMCIS 2019), Cancún, México, August 15-17, 2019.</p> <p>[3]Wu, Ya-Ling, and Sun, Y.-H., "Re-conceptualizing Scarcity Effects on Desirability for Hunger Marketing," Proceedings of the 25th Americas Conference on Information Systems 2019 (AMCIS 2019), Cancún, México, August 15-</p>

					17, 2019.
		專書	0	本	
		專書論文	0	章	
		技術報告	0	篇	
		其他	0	篇	
參與計畫人力	本國籍	大專生	1	人次	本計畫需要大量蒐集大量蒐集實驗資料，故需要一名大專學生級臨時助理，一個月短期協助本計畫之資料檢索、實驗活動宣傳、實驗活動執行、資料整理、以及一般事務性工作(如：聯絡受測者、郵寄、實驗場地租借等)
		碩士生	4		本計畫需要大量蒐集實驗資料，故需要四名碩士級研究助理，最高學歷至少為資訊或企業管理相關領域之大學畢業生，以協助本計畫之資料檢索、實驗活動執行、文獻探討、以及一般事務性工作(如：報帳等)
		博士生	0		
		博士級研究人員	0		
		專任人員	0		
	非本國籍	大專生	0		
		碩士生	0		
		博士生	0		
		博士級研究人員	0		
		專任人員	0		
其他成果 (無法以量化表達之成果如辦理學術活動、獲得獎項、重要國際合作、研究成果國際影響力及其他協助產業技術發展之具體效益事項等，請以文字敘述填列。)					