

# Identifying and Analyzing the Role of Brand Loyalty towards Incumbent Smartphones in New Branded Smartphone Adoption: Approach by Dual Process Theory

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**Abstract**—Fierce competition in smartphone market may encourage users to switch brands when buying a new smartphone. However, many smartphone users continue to use the same brand although other branded smartphones are perceived to be more attractive. The purpose of this study is to identify and analyze the effects of brand loyalty toward incumbent smartphone on new smartphone adoption. For this purpose, a research model including two hypotheses, the positive effect on rational judgments and the negative effect on rational judgments, are proposed based on the dual process theory. For the validation of the research model, the data was collected by surveying Korean university students and tested by the group comparison between high and low brand loyalty. The results show that the two hypotheses were statistically supported.

**Keywords**—Brand loyalty, dual process theory, incumbent smartphone, smartphone adoption.

## I. INTRODUCTION

ALTHOUGH competition among smartphone vendors to attract customers is becoming more intense and can lead to frequent brand switching for new purchases, many users continue to use the same brand even though other branded smartphones in the market are perceived to be more attractive in regard to function and design. According to one survey, many smartphone users who own a major branded phone, such as Apple and Samsung, would purchase and continue to use the same branded phone when it is time to buy a replacement [1]. This implies that the new branded smartphone adoption may be influenced by brand loyalty, the extent of the commitment to the same brand resulting in the consistent purchase of a brand over time [2].

The objective of this study is to identify and analyze the role of brand loyalty towards an in-hand smartphone in the adoption of a new branded smartphone. Specifically, two hypotheses are developed based on dual process theory, under a simplified version of a smartphone adoption research model consisting of two types of determinants, rational judgments and aesthetic evaluations. The research model is empirically tested by surveying Korean university students given a situation of smartphone adoption.

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## II. THEORETICAL BACKGROUND AND HYPOTHESES

### A. Smartphone Adoption

According to conventional information and communication technology (ICT) acceptance frameworks, such as the technology acceptance model (TAM) and the unified theory of acceptance and use of technology (UTAUT), the determinations of ICT adoption are mainly dependent on rational judgments. Since smartphones can be considered a small and portable computer [3], the adoption of a smartphone would also be determined by rational judgments, as shown in previous studies based on traditional ICT frameworks [4]-[7]. Therefore, rational judgments are the main determinants of smartphone adoption. Usefulness is one of the most typical rational judgments, and therefore, one of the most influential factors in the TAM, defined as the extent to which an individual perceives a given smartphone to help what he or she wants to do [8], [9].

Price value, the user's cognitive trade-off between perceived benefits and the monetary costs of buying a new smartphone [10], [11], is another typical rational judgment. Although price value was not considered in traditional ICT acceptance studies, recent studies have shown the significant impact of price value in ICT acceptance [11]. Most users focus on the price of a technology before considering its adoption. Unlike many conventional technologies that have been studied within the traditional ICT frameworks, the price of a smartphone is relatively sensitive for most users. Previous studies also show the effect of price value on smartphone adoption, such as in [5].

The smartphone is a portable device that can be ubiquitously carried and is easily recognizable by anyone, that is, it can be perceived as a fashion item or as a tool for self-presentation [12]. The motivation of many users in purchasing a smartphone may be as a form of self-expression, in addition to rational judgments such as usefulness [13]. Thus, a smartphone purchase should be considered a fashion technology adoption, in which the main focus is on its aesthetics composed of pleasure and beauty, as well as functional utility [14].

### B. Brand Loyalty toward Incumbent Smartphone

According to the dual process theory, there are two processes in the brain: Type 1 and Type 2 processes. Type 1 processes are a set of systems in the brain that do not require working memory, that is, dependent on intuition without consciousness.

Thus, the execution of the Type 1 processes is mandatory when their triggering stimuli are encountered, and they do not depend on input from a high level control system [15]. On the contrary, Type 2 processes are reflective systems using working memory in which conscious effort is exerted for a variety of problem solving activities. Unlike Type 1 processes, Type 2 processes consist of two hierarchical levels, the algorithmic mind and the reflective mind. The algorithmic mind controls and operates the process of cognition using some key functions, such as cognitive simulation and hypothetical thinking [15], [16]. The reflective mind controls the algorithmic mind by higher level goal states and epistemic thinking disposition which would influence and be influenced by beliefs, goals and general knowledge stored as long-term memory [15].

Applying dual process theory to the context of smartphone adoption, aesthetic evaluations is mostly dependent on Type 1 processes. When a new branded smartphone is given, its appearance, at a visceral level, is automatically evaluated focusing on aesthetics without conscious thoughts as to its usefulness and price value [17]. This evaluation is dependent on Type 1 process and forms first impression which would significantly influence the perception of aesthetics on the smartphone [18]. Contrary to aesthetic evaluation, rational judgments are mostly controlled by the Type 2 process. The reflective mind retrieves beliefs in accepting or using the incumbent smartphone which is encapsulated by the brand loyalty associated with long-term memory. Then, it initiates the algorithmic mind for cognitive simulation and hypothetical thinking for rational judgments of a given smartphone considering the brand loyalty towards the in-hand smartphone which is, independently of new smartphone adoption, developed through repetitive satisfactory use, which is stored as long-term memory. This implies that rational judgments would be more dependent on brand loyalty toward a currently owned smartphone than aesthetics evaluations. High brand loyalty implies that the user would want to continue using the same branded smartphone, and hence would have little consideration for adopting other brands. The adoption of a new branded smartphone means brands switching, which is against the initial intention. Therefore, for users with strong brand loyalty towards their current smartphone, the determination of adopting a new smartphone involves more deliberation than the users with lower brand loyalty. On the other hand, aesthetic evaluation is more sensitive in lower brand loyalty since aesthetic evaluation is less influenced by brand loyalty. Moreover, a user with lower smartphone brand loyalty would not be dependent on the rational judgment required for cognitive efforts, which would lead to the strengthening of the role of an aesthetic evaluation in new smartphone adoption.

Based on the above discussion, this study proposes the following hypothesis.

**Hypothesis 1.** *Brand loyalty toward an in-hand smartphone has a positive moderating effect on the relationships between rational judgments and smartphone adoption.*

**Hypothesis 2.** *Brand loyalty toward an in-hand smartphone has a negative moderating effect on the relationships between aesthetics evaluations and smartphone adoption.*

To show the validation of hypotheses 1 and 2, a smartphone adoption framework is needed. While many factors are identified and analyzed in smartphone adoption studies, this study focuses on the rational judgments related factors, usefulness and price value, as well as aesthetical evaluations, beauty and pleasure. These factors were shown to explain smartphone adoption in previous studies. While rational judgments were discussed and tested under traditional ICT acceptance frameworks, the effects or roles of aesthetical evaluations were discussed and analyzed by more interdisciplinary and pragmatic ways as well as traditional frameworks [12], [14]. Thus, this study, in order to show the validity of hypotheses 1 and 2, proposes a research model as shown in Fig. 1.

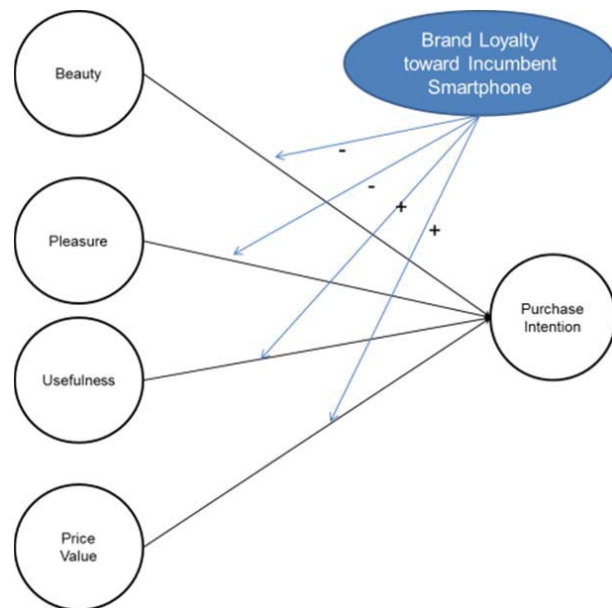


Fig. 1 Research Model

### III. RESEARCH METHOD

To validate the research model, the LG G4 smartphone, was adopted as the target smartphone. The participants were university students in Korea, and all had non-LG smartphones. These students were considered to have sufficient knowledge to evaluate G4 because its launch was already announced and its advertisements were frequently observed through the mass media, including TV and the Internet.

A survey was conducted twice before the launch of the G4. In the first survey, moderating variables, brand loyalty with respect to the incumbent smartphone, were measured for a total of 212 respondents. Two weeks later, the second survey was conducted. Before the survey, the G4's features including its visual appearance and functional performance were introduced to the participants for about 30 minutes. After this introduction, beauty, pleasure, usefulness, price value, and purchase intentions were measured for the G4.

The measurement items for the constructs were adapted from previous studies. The questionnaire was translated from

English into Korean, and all items were measured using a seven-point Likert-type scale ranging from “strongly disagree” (1) to “strongly agree” (7).

In order to analyze the moderation effects, the participants are classified into two groups, high loyalty group (HLG) and low loyalty group (LLG), by the average of brand loyalty measurement items (= 4.6414). The number of participants in HLG and LLG is 105 and 107, respectively.

IV. DATA ANALYSIS

Data was analyzed by the partial least squares (PLS) using smartPLS 3 (<https://www.smartpls.com>). Before testing the structural model, data were analyzed in the measurement model for each group. Both groups showed that composite reliability exceeded the recommended threshold, 0.7 and the square root of the average variance extracted (AVE) for each construct exceeded the correlation between the construct and all others. In the cross loading of each group, all items loaded on their proposed factors. These results indicate discriminant validity.

Using PLS, the structural model was tested as shown in Figs. 2 (LLG) and 3 (HLG). In the case of LLG, most hypotheses except the relationship between price value and purchase intention, were statistically supported as shown in Fig. 2. HLG also showed that within the two hypotheses, most hypotheses were statistically supported with the exception of ‘beauty-purchase intention’ and ‘pleasure-purchase intention’.

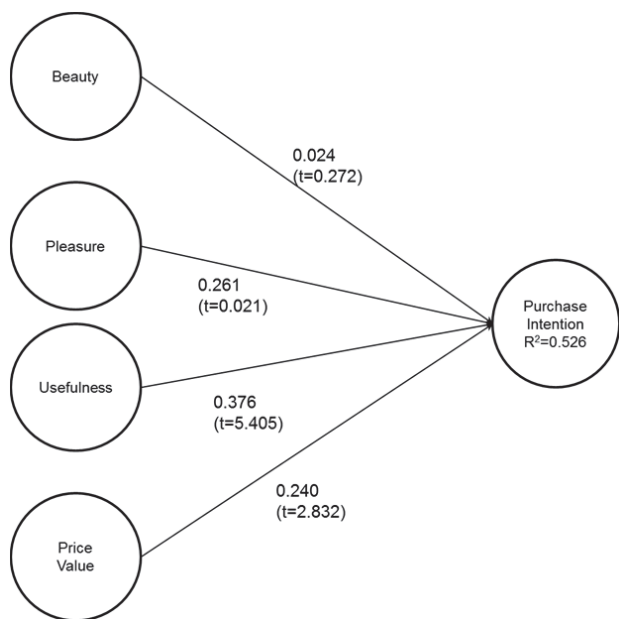


Fig. 2 Path Analysis in High Group

In order to analyze the moderation effects, the effects of independent variables on dependent variable (purchase intention) in each group were compared, as shown Table I. The path coefficients of the two constructs of aesthetics, beauty and pleasure, in LLG were shown to be significantly greater than those of the HLG. On the other hand, in the case of the rational judgments, usefulness and price value, were shown to be

significantly greater in the HLG than the LLG.

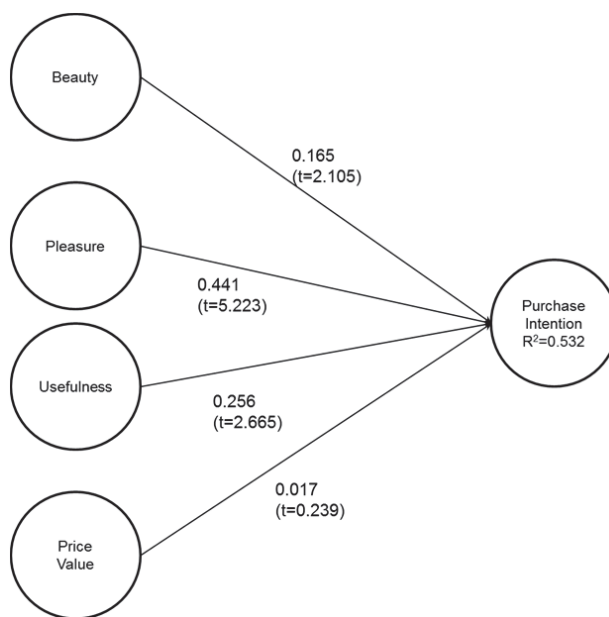


Fig. 3 Path Analysis in Low Group

TABLE I  
COEFFICIENTS COMPARISON BETWEEN HIGH AND LOW GROUP

Variable	High Group		Low Group		t <sub>H</sub> -t <sub>L</sub>	t-statics
	Coefficient	SE <sup>2</sup>	Coefficient	SE <sup>2</sup>		
Beauty	0.024	0.009	0.1650	0.006	-0.141	-11.842
Pleasure	0.261	0.012	0.4410	0.007	-0.180	-13.406
Usefulness	0.376	0.004	0.2560	0.009	0.120	10.792
Price Value	0.930	0.010	0.0170	0.005	0.913	76.258

V. CONCLUSION

The objective of this study is to understand the role of brand loyalty towards an in-hand smartphone in new branded smartphone adoption considering aesthetics evaluation and rational judgment. For this purpose, two hypotheses, based on dual process theory, are proposed. For the validation of these hypotheses, the LG brand G4 smartphone was adopted as the target smartphone. The participants were university students in Korea, and all were non-LG smartphone users. The results of the two hypotheses were statistically supported.

The implications and findings of this study are the following. First, the roles of brand loyalty towards a currently owned smartphone are identified in smartphone adoption. More specifically, this study showed that users with higher brand loyalty to their smartphone would be more sensitive to rational judgment while lower brand loyalty would be more sensitive to aesthetic evaluation. While brand loyalty in smartphone adoption is not a new topic [19], [20], most studies focused on the antecedents of brand loyalty. However, the focus of this study is not the antecedents but the role of brand loyalty in smartphone adoption. Moreover, since the research setting is switching brands, the brand of the current smartphone is not the same of the adoption target.

Second, dual process theory was adopted for the proposal of

the hypotheses. Although dual process theory has provided significant contributions in explaining various facets of human behavior, there are few trials to analyze user behaviors based on dual process theory. This study analyzed the effects of brand loyalty on smartphone adoption via dual process theory.

Although this study provided significant implications, there are some limitations. First, a more comprehensive research model should have been adopted. This study adopted a very simple research model since our target is to analyze brand loyalty towards a current in-hand smartphone. However, many psychological factors not adopted in this study would impact smartphone adoption such as social influence, innovativeness, etc. In addition to the smartphone, network service providers would be influential in the choice of a brand.

Second, the target smartphone's brand should be more diverse. The target model in this study is the LG G4. The brand power of LG in the smartphone market is considered weak in comparison to other brands such as Apple and Samsung. For a more persuasive argument, a larger variety of brands should be tried in a more comprehensive research model.

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