What Drives Continuous Intention of Brand Mobile Application? Perspectives from Attachment Theory and Expectation-Confirmation Model

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Abstract
Although an increasing number of firms use them to deliver information and interact with consumer, relatively few studies have examined the continuance intention of branded apps. In addition, scant studies have incorporated the brand–consumer relationship into the branded apps context. By integrating attachment theory into the expectation confirmation model, this study explores the antecedents of continuance intention for branded apps usage. A structural equation modeling analysis was conducted on data from 497 users of the MyStarbucks branded. The findings indicate that the relationship between brand attachment and satisfaction is nonrecursive and that both these factors positively influence continuance intention. Furthermore, the results confirm the interrelationship among confirmation, perceived usefulness, and satisfaction. Moreover, perceived usefulness affects product attachment, which further influences brand attachment and continuance intention. Finally, brand–self congruity has influences on brand attachment, whereas perceived complementarity affects satisfaction.

Keywords: Expectation confirmation model; Perceived complementarity; Brand attachment; Product attachment; Brand–self congruity
1. Introduction

As smartphone apps provide a convenient and pleasant consumer experience, they can be regarded as specific marketing tools (Hyeuk 2016). An increasing number of companies have recently shown an interest in creating branded apps to communicate with and satisfy target audiences. Branded apps are software designed for mobile devices that prominently display a brand identity, though the name of the app and the display of the brand logo (Bellman et al. 2013). Firms use branded apps to deliver product information to consumers, which strongly encourages interactions between consumers and the brand (Jin 2016). Several global brands, such as Chanel, Mercedes Benz, Coca-Cola, Burger King, Harley-Davidson, and BMW, have developed and distributed branded apps to engage with consumers.

Previous studies have used the most popular approaches—the technology acceptance model (Kim et al. 2014b; Park et al. 2014), the theory of planned behavior (Carter et al. 2016; Park et al. 2014), and value-based adoption model (Kim et al. 2014a; Kim et al. 2016a)—to understand consumers’ initial adoption of smartphone apps. Although initial adoption is the first step toward realizing the success of a new system, long-term viability depends on continued use rather than first-time use (Bhattacherjee 2001). Especially in the context of online mobile services, as customers can easily switch to an alternative, service providers need to focus on the willingness of customers to continue to use the service. This study applies the expectation confirmation model (ECM) (Bhattacherjee 2001) to explore consumers’ continuance intention of branded apps.

A branded app is a marketing communication tool that companies use to increase brand awareness and enhance brand experience (Kim et al. 2015; Zhao et al. 2015). By enhancing customer engagement with brand-related content, a branded app establishes an emotional connection with its customers (Chen et al. 2013; Jin 2016). The interactive features of smartphone apps deepen the customer–brand relationship and help consumers form positive attitudes toward the brand (Kim et al. 2015). However, few studies have focused on the brand–consumer relationship in the research context of branded apps (Peng et al. 2014). Furthermore, Lee et al. (2011) argued that these affective factors are temporary and can be changed easily depending on the research context, and they call for a persistent affective factor. Thus, the persistent affect of brand–consumer relationships deserves further consideration while exploring the continuance intention of branded app usage. Compared with other consumer behavior constructs, such as engagement or commitment, brand attachment focuses on consumers’ relationship with a particular brand (Schifferstein et al. 2008); it constitutes the central element of the consumer–brand relationship and can be used to explain the complexity of consumer loyalty behavior (Bahri-Ammari et al. 2016). Several studies have applied attachment theory to explore the connections between a customer and a brand, such as Smaoui et al. (2011), Chung et al. (2016b), and Pedeliento et al. (2016). Therefore, brand attachment is regarded a critical affective factor representing the brand–customer relationship.

As brand firms face the challenge of capturing consumer attention through the continued use of branded apps, this study integrates attachment theory into ECM to explore the antecedents of consumers’ continuance intention. On the basis of the ECM, this study explores the effect of confirmation on perceived usefulness and satisfaction and investigates the interrelationship among perceived benefit, satisfaction, and continuance intention. In addition, this study explores the influence of perceived usefulness on product attachment, which may further influence brand attachment and continuance intention. This study further tests the influence of brand–self congruity on brand attachment, and the influence of perceived complementarity on satisfaction. Moreover, this study investigates the reciprocal relations between brand attachment and satisfaction, and their influence on continuance intention for
using branded apps. This understanding should assist practitioners to develop strategies for effectively building brand–consumer relationships through branded apps.

2. Theoretical Background

2.1 Expectation Confirmation Model

The ECM framework has been applied by previous studies in a wide range of information technology products and services, such as mobile apps (Hsu et al. 2015), e-learning (Lee 2010; Lin 2012), electronic textbooks (Stone et al. 2013), and web-based services (Lee et al. 2011). According to the ECM, an individual’s continuance intention toward using an information system depends on three variables: level of satisfaction, confirmation of expectations, and perceived usefulness. Satisfaction is defined as an ex post evaluation of users’ initial trial experience with the information system. It can be reflected in users’ feelings, which may be positive, indifferent, or negative. Confirmation refers to users’ perceptions of the congruity between the expectations and actual performance of the information system. Perceived usefulness is defined as the extent to which users can benefit from using the information system. Confirmation influences perceived usefulness and satisfaction, whereas perceived usefulness affects satisfaction. Both perceived usefulness and satisfaction affect continuance intention.

2.2 Attachment Theory

People are naturally motivated to seek proximity to specific figures to avoid physical and psychological threats and to promote the regulation of affect (Pedeliento et al. 2016). When an individual is highly attached to one object, he or she is strongly disposed to spend more time and effort to seek proximity to and contact with that specific object. Because attachment can be broadly defined as an emotional bond between a person and a specific object, it has been transformed in the marketing arena through such concepts as place attachment (Brocato et al. 2014; Chung et al. 2016a; Gu et al. 2008; Ramkisson et al. 2015), intangible service marketing (Mende et al. 2013), and brand attachment (Malär et al. 2011; Smaoui et al. 2011; Zhang et al. 2015). Brand attachment is defined as an emotion-laden bond between a person and a brand that is characterized by strong and enduring emotions about the brand (Thomson et al. 2005). A customer’s emotional attachment is underpinned by brand love, brand affection, and brand connection (Thomson et al. 2005). Because brand attachment is a brand–consumer relationship construct and can be regarded as emotional consideration linked to user experience, this study uses brand attachment to explore consumers’ continuance intention of branded app usage.

2.3 Online–offline Services fit and Brand–consumer Relationship Fit

Task–technology fit theory was proposed by Goodhue et al. (1995), and it posits that the success of an information system is determined by the task for which the technology is used and the fit between the task and the technology. As the degree of task–technology fit increases, the levels of usage and task performance are enhanced (Osah et al. 2014). Branded apps can be regarded as a new information system and thus task–technology fit should be considered to explore consumers’ continuance intention. This study uses perceived complementarity to replace the notion of task–technology fit, because branded apps are used to acquire complementary services, instead of completing a task. Besides, the concept of complementarity explains that of task–technology fit (Nicolaou 2002). To align the application of task–technology fit to the research context, this study focuses on the fit between applications and services. In this study, perceived complementarity represents the fit between branded apps (online services) and the services at retail stores (offline services).
To understand consumers’ continuance intention for branded apps usage, this study considers not only the fit between online and offline services, but also the fit between the brand and the consumer. Brand–self congruity is defined as the fit between a consumer’s self and a brand’s image or personality (Sirgy 1982). Consumers pursue self-expression by forming attachments to brands (Peng et al. 2014), but if consumers’ beliefs and behaviors are inconsistent, the feeling or unpleasantness and tension become confusing. Park et al. (2010) argued that self-congruence plays an especially prominent role in the development of brand attachment, because consumers’ self-concept must be involved to achieve brand attachment. Thus, this study regards brand–self congruity as a critical determinant of brand attachment.

3. Hypothesis Development

According to the ECM, which is applied to explain the continued use of an information system (Bhattacherjee 2001), perceived usefulness and satisfaction are two primary determinants of information system continuance intention. Moreover, the confirmation of expectation influences both perceived usefulness and satisfaction, whereas perceived usefulness influences satisfaction. Several studies have applied the ECM to explore continued information system use, such as Ramkissoon et al. (2015), and Gao et al. (2014). When the performance of a branded app meets consumers’ expectations, they tend to perceive the branded app as useful and have a high level of satisfaction with it. In addition, the utility received from a branded app enhances consumer satisfaction and continuance intention to use it. Therefore, this study proposes the following hypotheses.

H₁ Confirmation exerts a positive influence on the perceived usefulness of a branded app.
H₂ Confirmation exerts a positive influence on the satisfaction with a branded app.
H₃ Perceived usefulness exerts a positive influence on the satisfaction with a branded app.
H₄ Perceived usefulness exerts a positive influence on the continuance intention.
H₅ Satisfaction exerts a positive influence on the continuance intention.

Products with complementary functions and services bring value to consumers, because the availability of complementary functions enhances consumers’ perception of goal achievement. Because value is a considerable determinant of consumer satisfaction (Deng et al. 2010), perceived complementarity enhances consumer satisfaction. Chiu et al. (2013) suggested that providing complementary applications for social network sites stimulates the pleasant emotional state of satisfaction in users. Furthermore, Gao et al. (2014) indicated that apps that increase the availability of complementary products enhance user satisfaction. When consumers perceive that branded apps provide complementary service, they have high levels of satisfaction. Therefore,

H₆ Perceived complementarity exerts a positive influence on satisfaction with branded apps.

Brand–self congruity can be achieved when a brand helps consumers maintain their self-image or enhance their self-esteem (Schifferstein et al. 2008). Consumers are motivated to establish a personal identity that makes them distinct from others (Mugge et al. 2006); therefore, if a brand helps consumers display their individuality and uniqueness, they may develop a strong and positive emotional bond toward the brand. Pedeliento et al. (2016) stated that when a brand is closely tied to a consumer, it can be capable of generating attachment feelings. When consumers feel strong congruity between the brand and themselves, they tend to create an emotional bond with the brand. Accordingly,

H₇ Brand–self congruity exerts a positive influence on brand attachment.
Product attachment implies the emotional bond that a consumer experiences with the product (Mugge et al. 2006). A brand may associate with a number of products, and it can be seen as token-level indexicality (Manning 2010). Products are the means by which consumers can access a brand. When a consumer develops a long-lasting tie with a product, the experience and affections arising from it may affect their evaluation of the brand (Pedeliento et al. 2016). When consumers build an emotional bond with a product, they have durable affective reactions toward the brand. Therefore,

H₈ Product attachment exerts a positive influence on brand attachment.

According to Mugge et al. (2010), attachment comes from the interaction over time between a person and an object. If consumers perceive superior performance and benefit from a product, they tend to judge it as valuable, and if their needs are fulfilled by the interaction with the brand, an emotional bond is built (Fournier 1998). Accordingly, the value judgment of product utility gives rise to the development of emotional attachment. Pedeliento et al. (2016) proposed that brands and products with good performance are likely to evoke feelings of attachment. More specifically, when a product fulfills consumers’ needs, they tend to rely on the product, contributing to attachment experienced. Thus,

H₉ Perceived usefulness exerts a positive influence on product attachment.

Product attachment represents the strength of the bond between consumers and a product (Schifferstein et al. 2008). The tendency to replace the product depends on their experiences and feelings toward the product (Mugge et al. 2010). More specifically, the level of product attachment determines the possibility of product irreplaceability (Mugge et al. 2006; Pedeliento et al. 2016). If a person is attached to a product, he or she would be reluctant to replace it and thus the willingness to continue usage would increase. Furthermore, Mugge et al. (2005) argued that when consumers are attached to a brand, they are likely to care about the product and postpone the replacement. Accordingly, when consumers are highly attached to a branded app, they may consider it irreplaceable and attempt to keep using it.

H₁₀ Product attachment exerts a positive influence on continuance intention.

A higher level of emotional attachment is likely to increase a customer’s emotional dependency on the brand (Theng So et al. 2013). When consumers are highly attached to a brand, they are motivated to expend personal resources to maintain the connection or proximity with the brand (Smaoui et al. 2011), including time, resources, and effort. Moreover, purchasing decisions are strongly affected by emotional considerations linked to a consumer’s experience. Taken together, brand attachment determines consumers’ behavioral reactions, such as purchase intentions, to brand extensions (Fedorikhin et al. 2008). Accordingly, when consumers have emotional attachment with the brand, this encourages the decision to continue usage. Thus,

H₁₁ Brand attachment exerts a positive influence on the continuance intention.

Brand attachment represents the strength of the bond connecting consumers and a brand (Park et al. 2010). According to Bhattacherjee (2001), satisfaction refers to users’ ex post evaluation portrayed as a positive, indifferent, or negative feeling. Satisfaction is an emotional evaluative response (Hsu et al. 2016). Consumers with a strong attachment to a brand, positively evaluate their service experience. Dennis et al. (2016) found that those strongly attached to their institution tended to have high levels of satisfaction. Similarly, consumers strongly attached to the brand tend to have positive feelings toward its branded apps. Hence,

H₁₂ Brand attachment exerts a positive influence on the satisfaction with branded apps.
When consumers’ needs are satisfied by a brand, they identify with that brand (Kuenzel et al. 2008). High levels of identification facilitate the relationship between the brand and the customers; in other words, consumers tend to form attachments with a brand if it can fulfill their needs (Thomson et al. 2005). When consumers are highly satisfied, they tend to reflect the brand personality by using symbols related to the brand (Chiu et al. 2010); in this way, brand personality influences on consumers’ emotional attachments to brands (Orth et al. 2012). Furthermore, Bahri-Ammari et al. (2016) suggested that customer satisfaction can be used to explain brand attachment. Therefore, when consumers are highly satisfied with a brand, they tend to develop strong a relationship with it. Accordingly, 

H13 Satisfaction with branded apps exerts a positive influence on brand attachment.

4. Methodology

4.1 Measurement Development

Because a questionnaire was used in this study, a scale purification process was developed on the basis of Churchill (1979). A 7-point Likert-type scale ranging from 1 (strongly disagree) to 7 (strongly agree) was used to measure the questionnaire items. To rectify ambiguous wording and mitigate the length of the instrument, a pretest was used with 3 experts and 30 respondents familiar with branded apps. Subsequently, the feedback from 5 experts and 10 branded app users via pilot test was used to refine the instrument. Brand-self congruity was assessed by four items adapted from Zhang et al. (2015). Product attachment which includes three items was based on Mugge et al. (2010). Three items adapted from Pedeliento et al. (2016) was used to measure brand attachment. Perceived usefulness was measured by four items adapted from Bhattacherjee (2001). Three items adapted from Roca et al. (2006) were used to assess confirmation. Satisfaction was used assessed by three items adapted from Roca et al. (2006), whereas perceived complementarity was measured by two items adapted from Zhao et al. (2012a). Continuance intention was measured by three items adapted from Roca et al. (2006).

4.2 Survey Administration

This study collected data from an online survey. The unit of analysis was customers using Starbucks’s branded mobile app (called “MyStarbucks”) in Taiwan. MyStarbucks was used as the research context because it is one of the world’s most successful branded apps and considered as a trend setter in the aspect of mobile marketing (Hyeuk 2016). In addition, Starbucks is a famous enterprise in Taiwan and MyStarbucks has been downloaded more than 1,000,000 times from the Apple Store and Google Play. The app enables customers to pay for their favorite drinks and food quickly and easily, as well as tip the barista digitally or download the free pick of the week.

A questionnaire was distributed online between September 20 and November 10, 2016. Customers with experience using MyStarbucks were invited to participate in the survey and recruited from a number of bulletin board systems, Facebook fan pages, chat rooms, and other virtual communities. To restrict the data to responsive customers, only those respondents that had at least one transaction on MyStarbucks were selected. After incomplete responses and duplicates were eliminated, 497 questionnaires were usable. The analysis of the sample shows that 45% of the respondents were male, 52% had completed a university education, nearly 61% of the respondents were between 20 and 34 years of age, and more than 58% had 1–2 years of experience using MyStarbucks. About 37% indicated spending more than 2 hours using apps every day, which corresponded to app users demographics in Taiwan (MIC 2016).
To test the validity of the survey data, multiple tests were adopted. First, this study compared the responses of early and late returned surveys to detect nonresponse bias (Armstrong et al. 1977). The t-test results indicated that the response differences were nonsignificant (confidence interval, 99%). Furthermore, the analysis proposed by Harman (1967) was used to test for common method bias; the results showed that no single factor emerged and that the first factor did not account for most of the variance. Accordingly, common method bias was not likely to be a major factor.

4.3 Nonrecursive Model

A nonrecursive relationship incorporates a feedback loop between two variables in a structural model. Nonrecursive approaches can be tested in a cross-sectional model for a viable representation of reality (Chang et al. 2008; Hsu et al. 2012). This study tested the reciprocal relationship between brand attachment and satisfaction with a nonrecursive model. According to Wong et al. (1999), three criteria can be used to identify the nonrecursive model with cross-sectional data. First, a nonrecursive model with two reciprocal paths between two endogenous variables is identified; instrumental variables are exogenous and can be used to predict only one of the endogenous variables. In this study, brand–self congruity is adopted to predict brand attachment, whereas perceived complementarity is the instrumental variable for satisfaction. Second, the influences of each instrumental variable on each endogenous variable should be similar. If this is not the case, the findings may be biased, because the endogenous variable with a weaker instrumental variable may have a relatively larger disturbance term. Third, because two endogenous variables cause each other in turn, the nonrecursive models allow the disturbance terms of two endogenous variables to be correlated.

5. Research Results

5.1 Assessment of the Measurement Model

A structural equation modeling (SEM) analysis was conducted to test the hypotheses using AMOS 22.0. A confirmatory factor analysis was conducted, and the measurement model yielded a $\chi^2$ of 764.92 with 223 degrees of freedom. In addition to the chi-square test, the comparative fit index (CFI), the goodness of fit index (GFI), the adjusted goodness of fit index (AGFI), the normed fit index (NFI), and root mean square error of approximation (RMSEA) were assessed to evaluate the fit of the model. The ratio of $\chi^2$ to the degrees of freedom was 3.43, which was lower than the recommended level of 5 (Bagozzi et al. 1988), but a comparison of all indices with the corresponding recommended values revealed a good model fit (RMSEA = 0.07, GFI = 0.89, AGFI = 0.85, CFI = 0.94, NFI = 0.91). Although the GFI value of 0.89 was slightly below 0.9, it exceeded the acceptable value of 0.8 (Etezadi-Amoli et al. 1996). Cronbach’s alpha, composite reliability (CR), and the average variance extracted (AVE) were explored. As shown in Table 1, Cronbach’s alpha ranged between 0.79 and 0.94; all CR statistics were above 0.7; and AVE values exceeded 0.5, demonstrating convergent validity. Table 2 shows that the square root of the AVEs was greater than all of the interconstruct correlations, indicating sufficient discriminant validity.

5.2 Assessment of the Structural Model

The ratio of the chi-square to the degrees of freedom was 3.77. The structural model of this study provided an adequate fit to the data (RMSEA = 0.07, GFI = 0.87, AGFI = 0.83, CFI = 0.92, NFI = 0.90). Although the GFI value of 0.87 was below 0.9, it was above the marginal acceptance level (0.8) (Etezadi-Amoli et al. 1996). On the basis of Kline (2005), instrumental variables can be added to the nonrecursive model for model estimation. Brand–self congruity
and perceived complementarity are instrumental variables that ensure the model can be estimated for the nonrecursive relationship between brand attachment and satisfaction. In addition, the construct-level error terms of brand attachment and satisfaction are allowed to correlate with others for model specification. Accordingly, the reciprocal relationship between brand attachment and satisfaction fulfills the conditions of the nonrecursive model.

Table 1. Factor Loadings and Reliability

<table>
<thead>
<tr>
<th>Construct</th>
<th>Loading</th>
<th>Cronbach’s α</th>
<th>CR</th>
<th>AVE</th>
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</thead>
<tbody>
<tr>
<td>Brand-self congruity</td>
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<tr>
<td>A1</td>
<td>0.75</td>
<td>0.80</td>
<td>0.84</td>
<td>0.63</td>
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<tr>
<td>A2</td>
<td>0.80</td>
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<tr>
<td>A3</td>
<td>0.84</td>
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<tr>
<td>Product attachment</td>
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<tr>
<td>B1</td>
<td>0.92</td>
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<tr>
<td>B2</td>
<td>0.93</td>
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<tr>
<td>B3</td>
<td>0.87</td>
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<td>Brand attachment</td>
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<tr>
<td>C1</td>
<td>0.88</td>
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<tr>
<td>C2</td>
<td>0.86</td>
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<tr>
<td>C3</td>
<td>0.79</td>
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<tr>
<td>Perceived usefulness</td>
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<tr>
<td>D1</td>
<td>0.75</td>
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<td>D2</td>
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<td>D3</td>
<td>0.80</td>
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<td>D4</td>
<td>0.77</td>
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<tr>
<td>Confirmation</td>
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<tr>
<td>E1</td>
<td>0.91</td>
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<tr>
<td>E2</td>
<td>0.78</td>
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<tr>
<td>E3</td>
<td>0.86</td>
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<tr>
<td>Perceived complementarity</td>
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<tr>
<td>F1</td>
<td>0.97</td>
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<tr>
<td>F2</td>
<td>0.97</td>
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<tr>
<td>Satisfaction</td>
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<tr>
<td>G1</td>
<td>0.93</td>
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<tr>
<td>G2</td>
<td>0.94</td>
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<tr>
<td>G3</td>
<td>0.90</td>
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<tr>
<td>Continuance intention</td>
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<tr>
<td>H1</td>
<td>0.92</td>
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<tr>
<td>H2</td>
<td>0.95</td>
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<tr>
<td>H3</td>
<td>0.88</td>
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Note: Diagonal elements are the square root of AVE of the reflective scales. Off-diagonal elements are correlations between construct.

Table 2. Correlations among Major Constructs

<table>
<thead>
<tr>
<th>Variable</th>
<th>(a)</th>
<th>(b)</th>
<th>(c)</th>
<th>(d)</th>
<th>(e)</th>
<th>(f)</th>
<th>(g)</th>
<th>(h)</th>
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<tbody>
<tr>
<td>(a) Brand-self congruity</td>
<td>0.79</td>
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<td>(b) Product attachment</td>
<td>0.37</td>
<td>0.91</td>
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<tr>
<td>(c) Brand attachment</td>
<td>0.54</td>
<td>0.47</td>
<td>0.84</td>
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<tr>
<td>(d) Perceived usefulness</td>
<td>0.42</td>
<td>0.25</td>
<td>0.42</td>
<td>0.78</td>
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<tr>
<td>(e) Confirmation</td>
<td>0.49</td>
<td>0.53</td>
<td>0.48</td>
<td>0.35</td>
<td>0.85</td>
<td></td>
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<tr>
<td>(f) Perceived complementarity</td>
<td>0.54</td>
<td>0.10</td>
<td>0.54</td>
<td>0.48</td>
<td>0.59</td>
<td>0.97</td>
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<tr>
<td>(g) Satisfaction</td>
<td>0.60</td>
<td>0.47</td>
<td>0.50</td>
<td>0.48</td>
<td>0.65</td>
<td>0.68</td>
<td>0.92</td>
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<tr>
<td>(h) Continuance intention</td>
<td>0.58</td>
<td>0.51</td>
<td>0.62</td>
<td>0.42</td>
<td>0.48</td>
<td>0.62</td>
<td>0.62</td>
<td>0.92</td>
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</tbody>
</table>
Figure 2 shows that confirmation positively influenced perceived usefulness ($\beta = 0.52$, $p < .001$) and product attributes ($\beta = 0.18$, $p < .01$). Perceived usefulness had an influence on satisfaction ($\beta = 0.07$, $p < .05$), which further impacts continuance intention ($\beta = 0.24$, $p < .001$) but did not directly have an effect on continuance intention ($\beta = 0.02$, $p > .05$). Therefore, H$_1$–H$_3$, and H$_5$ were supported, but H$_4$ was not. Furthermore, perceived complementarity exerted positive influences on satisfaction ($\beta = 0.16$, $p < .01$), whereas brand–self congruity positively influenced brand attachment ($\beta = 0.52$, $p < .01$), supporting H$_6$ and H$_7$.

Figure 2 shows that perceived benefit had a positive influence on product attachment ($\beta = 0.28$, $p < .001$), and that product attachment exerted a significant negative effect on both brand attachment ($\beta = 0.15$, $p < .001$) and continuance intention ($\beta = 0.14$, $p < .001$). Furthermore, brand attachment exerted a significant positive effect on continuance intention ($\beta = 0.52$, $p < .001$). Therefore, H$_8$–H$_{11}$ were supported. As hypothesized, the relationship between brand attachment and satisfaction were nonrecursive. Brand attachment significantly positively affects satisfaction ($\beta = 0.53$, $p < .001$). Similarly, consumers’ satisfaction with the product significantly positively affects their brand attachment ($\beta = 0.62$, $p < .001$). Thus, H$_{12}$ and H$_{13}$ were supported.

![Expectation confirmation model](image_url)

**Figure 2. PLS Results for the Proposed Model**

6. Research Suggestions and Implications

6.1 Research Findings

This study produced several findings. First, confirmation exhibited positive influences on perceived usefulness and satisfaction. Perceived usefulness had a significant effect on satisfaction, which further influenced continuance intention. These findings were consistent with the ECM (Bhattacherjee 2001), which noted that perceived usefulness was influenced by users’ confirmation level. Perceived usefulness, confirmation and satisfaction are determinants of information system continuance intention (Hsu et al. 2015). However, perceived usefulness
had a nonsignificant influence on continuance. This finding contradicted our prediction that perceived usefulness might predict continuance intention. One possible explanation is that perceived usefulness may directly impact satisfaction or attachment, which in turn strengthens continuance intention.

Second, perceived usefulness exerted a positive influence on product attachment. When consumers perceived the usefulness of the branded app, this evoked feelings of attachment. This finding is consistent with Pedeliento et al. (2016), who suggested that perceived superior performance pushes consumers to positively judge a product and develop an emotional attachment. In addition, product attachment had a positive effect on brand attachment. This finding was consistent with previous studies. For example, Mugge et al. (2010) argued that attachment to a product may be transferred to the brand. Furthermore, both product attachment and brand attachment had positive impacts on continuance intention. The finding agreed with the claim of Pedeliento et al. (2016) that product attachment strengthens product irreplaceability.

Finally, brand–self congruity exerted a positive influence on brand attachment. As proposed by Quester et al. (2013), self-congruity is an important predictor of consumer behavior, such as brand attitudes and choices. When a brand is able to meet a consumer’s image of self, their relationship with the brand is strengthened. This finding is consistent with Malär et al. (2011), who argued that self-congruity is a strong precursor of brand attachment. Moreover, perceived complementarity positively impacted consumer satisfaction toward the branded app. The complementary functions provided by branded apps offer additional services and value to consumers, and thus enhance their satisfaction levels. This finding is consistent with Chiu et al. (2013), who found that both perceived compatibility and perceived complementarity positively affect user satisfaction toward social network sites.

6.2 Theoretical Implications

This study differs from previous studies in three major ways. First, postadoption continuance is much more critical than initial adoption, because the eventual success of an information system depends on continued rather than first-time use, even though postadoption continuance is the extension of initial adoption. Previous studies have adopted the ECM framework in various research contexts such as e-learning (Lee 2010; Limayem et al. 2008; Lin 2012), web-based service and application (Lee et al. 2011; Vatanasombut et al. 2008), paid mobile app (Hsu et al. 2015), e-text book (Stone et al. 2013), and mobile instant messaging (Oghuma et al. 2016), but few studies have examined the postadoption of branded apps. This study investigates the antecedents of consumers’ continuance intention to use branded apps on the basis of the ECM, responding to Gao et al. (2014) that “compared to the studies of the initial adoption and usage of mobile commerce, there have been relatively few IS studies which examine the postadoption of mobile services” (p.169-170).

Second, a branded app provides a valuable utility to the consumer and establishes an emotional connection with them (Bhave et al. 2013). Branded apps are developed by companies to build their brand (Chen et al. 2013), and represent a new possibility for strengthening the relationship between the brand and the consumers. Although several previous studies have explored consumers’ brand attitude and purchase intention (Bellman et al. 2011), the important attributes of branded apps (Kim et al. 2013), branded app strategies (Zhao et al. 2015), the interaction-based benefits of branded apps (Alnawas et al. 2016), and brand experience or engagement (Hyeuk 2016; Kim et al. 2016b), few studies have focused on brand–consumer relationships in the research context of branded apps. By integrating attachment theory and the ECM, this study empirically accounts for the brand–customer relationship factor, in terms of
brand attachment, to investigate consumers’ continuance intention. This study addresses Peng et al.’s (2014) assertion that “little research has focused on the actual effects of brand–consumer relationships and the value of the brand on consumers’ app adoption” (p. 1133).

Third, whether attachment is an antecedent of satisfaction or vice versa remains contradictory and ambiguous. For example, Prayag et al. (2012) confirmed that place attachment has a positive influence on satisfaction, whereas Levy et al. (2016) suggested that customers’ emotional attachment has a positive influence on satisfaction. This study verified the nonrecursive relationship between satisfaction and brand attachment. Although nonrecursive structural equation models are less frequently applied than recursive mediated models, researchers have called for further studies to establish the relationship between satisfaction and attachment. For example, Ramkissoon et al. (2015) mentioned that “only a limited number of studies have specifically suggested the mechanisms that link place attachment and satisfaction” (p. 2593). This study developed a comprehensive research framework to determine how product benefits and brand–consumer relationship affect consumers’ continuance intention.

6.3 Managerial Implications

This study provides relevant insights for the brand management of branded apps. First, the relationship between brand attachment and satisfaction is nonrecursive. As consumer satisfaction increases because of strengthened brand attachment, further enhancements in satisfaction follow. More specifically, managers could initiate the feedback loop either by enhancing consumer evaluations of the product or strengthening the brand–consumer relationship. Although continuance intention may come from satisfaction with the branded app or attachment toward the brand, the influence of brand attachment on continuance intention ($\beta = 0.52$) is much stronger than that of satisfaction ($\beta = 0.24$). Therefore, when organizational resources are limited, managers should focus on strengthening the consumer–brand relationship rather than consumer satisfaction.

Second, consumers’ attachment to the brand comes from the congruity between the brand and consumers’ attachment with the product. Although branded firms cannot manipulate consumers to having a similar personality to the brand image, they may position themselves to attract consumers by initiating marketing activities that deliver a rich portrayal of the brand image. For instance, if firms target consumers concerned with being smart about mobile shopping, they may promote the branded app by advertising its money-saving mechanisms, such as accumulating points or giving reward coupons. For customers attracted to the latest technology, managers may design branded apps that provide rich sensory experiences through virtual, augmented, or mixed reality technology. Consumers’ attachment to the product may then transfer to the brand. A product that fulfills a utilitarian function may contribute to the attachment that consumers experience. As suggested by Schifferstein et al. (2008), product attachment occurs when a product performs better than average. Therefore, a brand manager must consider the usefulness of a branded app and ensure its superiority is maintained.

Finally, mobile applications may cost millions of dollars to develop (Hoehle et al. 2015). As technology utilization depends on the fit between the technology and the tasks it supports, the complementary service provided by branded apps needs to be compatible with other online (official website) and offline (in-store) services. Brand managers can provide supplementary services through the branded app to supplement insufficiencies in the retail store. For example, to decrease consumers’ waiting time, a customer may use the branded app to see the number of people in front of him or her, instead standing in line. A customer is also able to browse the menu, order food or drink online, and arrive at the restaurant at the estimated time. Therefore,
in addition to superior functionality and usability, the fit between the branded app and other services should be considered by the branded firm. In summary, a consumer’s continuance intention for a branded app may result from the positive evaluation of the product and the attachment to the brand. An understanding of how the brand and the branded app influence consumer behavior can aid online retailers in managing brand strategies that successfully attract customers.

6.4 Research Limitations and Directions for Further Study

This study has several limitations. First, although it integrated the ECM with attachment theory to investigate consumers’ continuance intention, other branded app variables remain to be investigated, such as user interfaces and interactivity. Second, this study was conducted in Taiwan; future research may include a cross-cultural component to enhance the generalizability of the results. Third, this study selected one of the most popular branded apps as the research context. Different branded apps may reveal different results; therefore, future studies should consider other branded apps.

References


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