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Determinants of Smartphone Conspicuous Consumption

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ABSTRACT

The smartphone is a necessary communication and productivity tool. Unlike other neutral, utilitarian technologies, smartphones are also a social display of wealth, i.e., of conspicuous consumption. Behavior around necessity and conspicuous goods are normally separate research tracks, and we can find no studies for technology products that exhibit both traits. We therefore propose a four-factor model that explains conspicuous consumption of "necessary" smartphones: dependency, social influence, the need for social connection, and convenience, in the United States, Mexico, and the Philippines. This paper provides confirmatory support for extant literature of the four constructs; it demonstrates the viability of the survey instrument across countries; and it shows similar effects among country models. Our structural model results imply the borderless nature of smartphone conspicuous consumption.

Keywords: Conspicuous Consumption, Social Influence, Convenience, Need For Social Connection, Dependency

Ⅰ. Introduction

The IT literature has many theories of technology adoption, with models such as TAM - ease of use, usefulness, PCI - voluntariness, image, compatibility, etc. and UTAUT - expectancy, social influence, enabling conditions (Azjen, 1991; Davis et al., 1989; Moore and Benbasat, 1991; Venkatesh et al., 2003). Adoption theories apply to smartphone technologies as well, but in a different way. Unlike ERPs and productivity apps, smartphones have both utilitarian and hedonistic elements which are in effect "luxury necessities." To economists, luxury and necessity items have high- and low-income elasticities, respectively; as income rises, luxury goods' demand rises disproportionally, and necessity goods' demand increases under-proportionally. Previous literature has called out the limitations of existing adoption models in explaining hedonism or in explaining the impact of behavioral science and neurasthenics on

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"non-neutral" technology such as electric cars (Ayyagari, 2006; Kool et al., 2016; Tchetchik et al., 2020). Unlike utilitarian, "neutral" technologies often studied in the IT literature, it is timely to investigate the drivers of conspicuous consumption of high-priced smartphone brands, such as iPhones or Samsung Galaxies.

We build on the adoption literature for the enabling conditions of smartphone conspicuous consumption, a type of adoption driven by both lower-order utilitarian and higher-order social needs. We collected data from the United States, Mexico, and the Philippines, the 3rd, 10th, and 12th largest countries by population, respectively, representing about 570 million potential consumers. (While countries like China and India have larger populations, our choices were based on our network of collaborators who were studying technology adoption drivers.)

Conspicuous consumption is defined as the purchase of luxury goods to publicly display wealth, get prestige, and ultimately achieve social status (Bronner and de Hoog, 2018; Gurzki and Woisetschlager, 2017). For smartphones, conspicuous consumption is the desire to purchase higher-priced devices to show status within a consumer's social network.

Smartphones are simultaneously a necessity and a luxury. A smartphone is luxury, even among the poor in the Philippines, where mere smartphone ownership is a status symbol (Lasco, 2015). A smartphone is a necessary appliance for most modern consumers; it is an all-in-one communication, financial, social, work, and entertainment device. About 68% of the Philippines' 100 million people uses 119 million SIM cards, indicating multiple account and carrier use (Amoroso et al., 2021). Filipinos spend 4 hours on social media daily, almost double the worldwide average of 2.3 hours. In a lower GDP country like the Philippines, smartphone costs are lower than alternative forms of entertainment.

In Mexico, almost half the population use smartphones as their all-in-one device, averaging 11.6 hours a week. More than 80% used their devices to connect on social network sites (Kemp, 2019; MS Corporate, 2016). With low-cost smartphones, rural Mexican consumers can connect with relatives in Mexico and abroad for social networking and business connections (Lakhani, 2016). At the same time, about 85% of all Americans owned smartphones. These levels are consistent across all demographic and sociographic classes, indicating that smartphones are necessities for Americans.

In all three countries, smartphones are easier to buy, easier to use, and more ubiquitous compared to other appliances, we can therefore conclude that a smartphone is convenient. The need to have social influence drives a consumer's tendency to conspicuously consume. At the same time, convenience and the need for social connection also drive conspicuous consumption of higher-priced, branded smartphones. The smartphone has a distinct social connection element, beyond convenience where usage in the U.S, Mexico, and the Philippines clearly indicate its importance as a social device. Amoroso et al. (2019) suggested that smartphones in the Philippines are media for social exchange and reciprocity. The need for social connection is clearly a critical independent variable (Veissière and Stendel, 2018).

Ⅱ. Research Model

A driver of consumption is dependency on the device. Universal smartphone use is high; at worst, this may manifest a dysfunctional dependence; at best, smartphone use has become part of the human routine. It is not just a United States, Mexican, or

the Philippines, but a worldwide phenomenon (Amoroso et al., 2021; Tolentino, 2019). Datareportal (2022) calculated the average worldwide mobile consumer usage on a smartphone at about 3 hours and 43 minutes a day, or 1,561 minutes a week. Our first driver of consumption is therefore dependency on smartphones:

> *…there is nothing inherently addictive about mobile technology. We suggest, rather, that it is the social expectations and rewards of connecting with other people and seeking to learn from others that induce and sustain addictive relationships with smartphones (Veissière and Stendel, 2018).*

What factors drive dependency and ultimately conspicuous consumption of smartphones? One factor is the need to have social influence. Conspicuous consumption is equated with expected social return, i.e., purchasers expect some recognition or social value from consumption (Beall et al., 2021; O'Cass and McEwen, 2004). Conspicuous consumption is also driven by the need for social connection and interpersonal relations (Patsiaouras and Fitchett, 2012). At worst, conspicuous consumption is driven by narcissism and the need to send signals of status (Sedikides and Hart, 2022).

A second factor is convenience, how a smartphone's convenience makes it an "extension of the self" (Haug et al., 2015). Garcia-Montes et al. (2006) described the feeling of loss when one's phone is missing or has low battery levels - all manifestations of dependence. The convenience of a smartphone becomes automatic, and results in physical manifestations of maladjustment if a smartphone is missing. Hooi et al. (2011) found that university students' dependency on smartphones is influenced by convenience. Suki and Suki (2013) related convenience to smartphone dependency as well. Chiu (2014) describes how students developed strategies to combat smartphone addiction, indicating how smartphone overuse is like cigarettes or alcohol addiction and that mindful action is needed to prevent dependence.

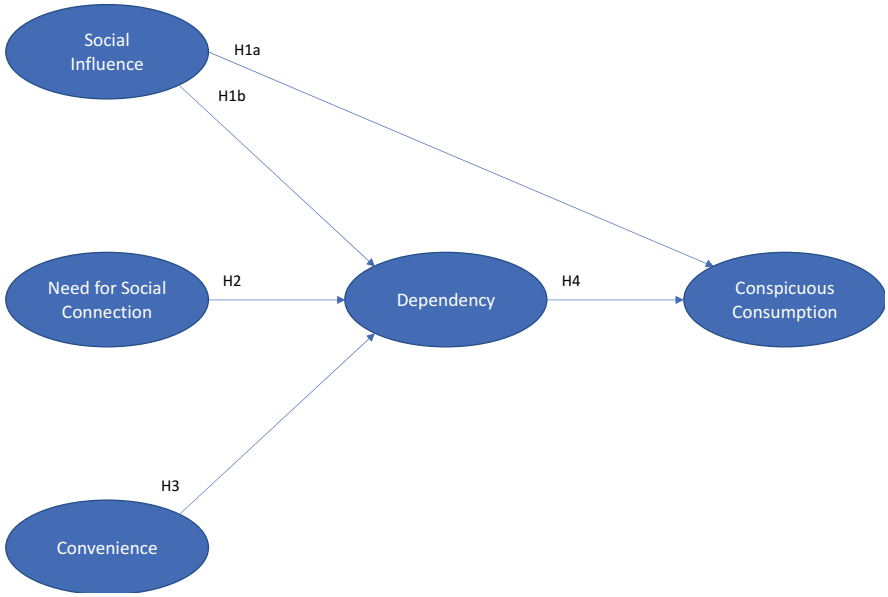
A third factor is the need for social connection, as opposed to the need to socially influence; the latter is perhaps a higher order need. This was present among young students (Hooi et al., 2011; Line et al., 2015; Suki and Suki, 2013) and media consumers (Chan-Olmstead and Xiao, 2019).

We therefore propose a model of three antecedents to smartphone dependency - social influence, the need for social connection, and convenience (See <Figure 1>). Dependency, in turn, is an antecedent to conspicuous consumption. Our research questions are: (1) To what extent is conspicuous consumption of smartphones associated with the states of dependency, social influence, convenience, and need for social connection? (2) Are there differences between consumers in the United States, Mexico, and the Philippines?

Ⅲ. Conceptual Background and Hypotheses

3.1. Conspicuous Consumption

Thorsten Veblen proposed "conspicuous consumption" in 1899 (Booner and De Hoog, 2019; Ryu, 2015). Veblen's 19th century nouveau riche purchased "excellent" luxury goods to demonstrate status and wealth. In Festinger (1954)'s social comparison theory, individuals who wanted to be part of a group tended to compare themselves and then equalized gaps through consumption. Gao et al. (2014) studied how mobile services adoption is a function of how people outwardly express themselves or "show off."



<Figure 1> Research Model

Rozenkrants et al. (2017) studied self-expression of identity, i.e., conspicuous consumption as a social signal. Oe and Yamaoka (2020) found a high level of conspicuous value among Chinese consumers who purchased for fashionableness.

Conspicuous consumption is not necessarily limited to luxury brands, social classes, or lifestyles. Consumers have learned to show off, but subtly (Trigg, 2001). Customers consume club memberships to gain social status and approval (Strombeck and Shu, 2016). Tak et al. (2017) noted that rising income levels in India raised conspicuous consumption levels, not just by functional utility, but also social utility through comparison and ostentation within the social group.

Status can also be displayed by doing social good or by purchasing frugal, not luxury goods. A contrarian fashion statement might be to conspicuously avoid using a smartphone brand or to use cheaper brands (Orr, 2019). The use of sustainable, socially responsible products may manifest conspicuous consumption, which enhances one's "pro-social" self-concept (Johnson et al., 2018).

Conspicuous consumption may be manifested by non-material behavior. Bellezza et al. (2017) suggested that a busy, even overworked lifestyle has become aspirational. The ability to communicate 24/7 on smartphones may contribute to "busyness." In recent articles, Bronner and de Hoog (2018), Bronner and de Hoog (2019) explored immaterial experiences, i.e., attending cultural events, where conspicuous consumption is specifically enhanced by communicating with others through social media, to demonstrate personality and identity, rather than status and wealth.

Conspicuous consumption exists across demographics, not just among Veblen's nouveau riche. Ordabayeva and Chandon (2011) explored how greater equality increases the satisfaction of the lowest tier of the social classes because it reduces the possession gap between what they have versus what others have. For O'Cass and McEwen (2004), millennials conspicuously consume when they can overtly display

possessions to others. Millennials are driven towards conspicuous consumption by brand, novelty, and fashion (Eastman et al., 2012). Shin et al. (2021) showed how Gen-Z consumers achieved self-expression through conspicuous consumption.

Marketers exploit conspicuous consumption to obtain a virtuous cascade of purchasing. Huang and Wang (2017) studied how Chinese workers consumed because of bandwagon effects, including smartphones. Phone companies push consumers to upgrade to new models (Okada, 2005). Luxury class products like Apple's IOS ecosystem of iPhones, iPads, and Apple Watches evoke conspicuous consumption, especially when new models are released (Arruda-Filho et al., 2010). Buyers may purchase new iPhones for symbolic value and to enhance self-image (Chun et al., 2017). To be sure, in 2022 iPhones were not the only "conspicuous" brand. Large Telcos presented the Samsung Galaxy, Moto Stylus, and Google Pixel side-by-side with iPhones at the top of their phone offerings (AT&T website, 2022).

3.2. Social Influence

Our review of social influence follows two related threads: (1) social influence in terms of personal identity and affirmation within the network, and (2) social influence in terms of conspicuous consumption. Leung and Lee (2005) defined social support as emotional, functional, informational, and affectionate. These qualities might be extended to a smartphone. According to Kwon et al. (2013), smartphone use is a proxy for human interaction and a "cure" for low self-esteem. A study on hospital information systems indicated that social influence affects behavior (Engin and Gurses, 2019). A study on consumer loyalty to mobile social networks found that belonging and identity with a social network influences choice (Hajiheydari et al., 2017). In previous Philippine studies, social influence through the smartphone is manifested by people reciprocating gifts of prepaid phone loads (Amoroso et al., 2017). For this study, we therefore ask respondents about their social connection needs vis-a-vis a need for mobile phones.

The dark side of the need to socially connect and to raise esteem might result in anxieties about having no technology to sustain social connections. Various literature (Elhai et al., 2016 and Rosen et al., 2013) discussed "FOMO" (fear or missing out) and later Nomophobia (Han et al., 2017), or "no-mobile phobia," the fear of separation from a smartphone. The greater the need to socially connect, or to be socially influential, the greater the consumer's anxieties over separation. Brailovskaia and Margraf (2017) and Brailovskaia et al. (2018) discussed "Facebook flow," the consumers' need to satisfy social acceptability, and how it results in Facebook addiction disorder (FAD), the need for higher doses of Facebook to have a positive mood. If connected to mindfulness literature (Vaghefi et al., 2017), these consumers may be on the right side of a spectrum of thoughtful to fanatic, uncontrolled usage. Therefore, we theorize that:

H1a: Social Influence has a positive effect on Dependency.

The need to build self-image drives behavior; therefore, self-image and prestige might motivate adoption (Moore and Benbasat, 1991). The influence of others drives conspicuous purchase behavior (Eastman et al., 1999; Eastman et al., 2012). Iyer et al. (2017) found how elderly Indians' social relationships impacted consumption. The need to build self-image motivated luxury goods consumption (Charoennan and Huang, 2018) and a smartphone has been per-

ceived as matching one's self-image (Deli-Gray et al., 2010). Therefore, if some buy a luxury product like a smartphone, others might buy it too (Huang and Wang, 2017; Kastanakis and Balabanis, 2014).

The need to socially influence seems universal, and more intense among younger consumers. Nguyen et al. (2009) determined that socialization influences behavior among young adults in lower classes in Thailand. Materialism across Chinese generations is determined by psychological variables such as the power influence and group behavior, and more pronounced in younger generations (Yang and Stening, 2017). Schaefer et al. (2004) discovered that personal and social gains are critical materialism dimensions for adolescents in the United States and Japan. Materialism among the youth influences their parents, who "regard (youth) as more expert with regard to products and they wield more purchase influence on their parents." (Goldberg et al., 2003).

Social influence is also enhanced by brand status. Individuals can improve social standing through brands that confer status to themselves and others (Eastman et al., 1999). According to Fitzmaurice and Comegys (2006), "materialists are sensitive to the social acceptability and communicative ability of products and brands." In South Korea and the United States, the influence of early adaptors and opinion leaders drive purchases. (Workman and Lee, 2010). Hassan et al. (2015) studied how membership on a social media platform persuaded participants to change purchase behavior. Society is organized around the consumption and display of goods, through which individuals gain prestige, identity, and standing (First et al., 2013). Singh and Sahni (2019) studied counterfeit purchases, i.e., fakes of high class "brands," and suggested five behavioral drivers: life satisfaction, self-monitoring, family structure, and status consumption, mediated by social conformity. Social influence is therefore a powerful motivator for consumption. We theorize that:

H1b: Social Influence has a positive effect on Conspicuous Consumption.

3.3. Need for Social Connection

If social influence is about social identity and social affirmation, the need for social connection is a more fundamental human need in Maslow's hierarchy (Cacioppo and Patrick, 2008; Maslow, 1943). Nan et al. (2022) found a strong relationship between social influence and intention to use in a study of future payment services. Karahanna et al. (2018) and Deci and Ryan (1985), defined social connection as the need for a person's "need to love and care and to be loved and cared for." Veissière and Stendel (2018) defined connection as the human need to monitor and be monitored by others. Humans use social networks such as Facebook (Alhabash et al., 2014) to make new friends and keep in touch with old ones (Raacke and Bonds-Raacke, 2008), even asynchronously. Social connection means relationship development, affection, and accessibility to friends (Han et al., 2015). James et al. (2017) suggested that connection comprises the need to belong, which gratifies people's need for purposive value, self-discovery, maintaining interpersonal interconnectivity, and social enhancement.

People connect to negate loneliness. People in modern societies are becoming lonelier because of changing lifestyles and demographics (Dykstra, 2009). Lee and Shin (2016) tested preference of social interaction (POSI), a salve for loneliness and shyness. Loneliness can be triggered by materialism (Pieters, 2013). Loneliness can result in extreme forms, in that lonely people perceived friendships even with retail salespersons (Rippe et al., 2018). Bian and Leung (2015)

linked loneliness to smartphone addiction. Brailovskaia et al. (2018) investigated how consumers escaped their everyday obligations on Facebook. We therefore theorize that:

H2: The need for social connection has a positive effect on Dependency.

3.4. Convenience

A smartphone is ubiquitous, compact, has multiple uses, and can deployed anywhere. It is easily acquired from multiple channels and is relatively inexpensive to buy and operate. A smartphone is an efficient, functional, and omplete appliance—in short, it is convenient.

On the plus side, convenience results in greater productivity. Duke and Montag (2017) and Lee and Shin (2016) used Flow Theory (Csikszentmihalyi and Csikszentmihalyi, 1992), an "optimal experience" where smartphone consumers are absorbed and productive at work. Flow leads to positive human-computer interaction (Weibel et al., 2008) and positive attitudes to messaging and behavioral intention (Lu et al., 2009). Chen et al. (2017) discussed Collier and Kimes (2013)'s concept of "feasibility," the immediacy of access to technology, ease of using the interface or ease of use, and lower post-use costs.

On the minus side, convenience is associated with addiction and a loss of mindfulness. Cha and Seo (2018) studied how people spent problematic time on mobile messengers, followed by Internet surfing, gaming, and social networking. Griffiths et al. (2014) showed the effects of convenience on social network addiction. Given that people use smartphones for social networking, dependency will then follow. The ubiquity of smartphones might result in automatic response behavior, e.g., "A phone buzzes in a crowded bus; without thinking, a handful of people reach for their mobile devices" (Bayer et al., 2016; LaRose 2010; Orbell and Verplanken, 2010; Wood et al., 2014). Automatic behavior might be more intense, given improvements in broadband speeds and innovative apps. In short, automatic behavior replaces consumer mindfulness, i.e., a lower cognitive function and lower control of mobile device use. Regardless of the pluses or minuses of a smartphone, its sheer convenience encourages continued use and dependence. Therefore, we theorize that:

H3: Convenience has a positive effect on Dependency.

3.5. Dependency

How is smartphone dependency related to conspicuous consumption? We posited that dependency may be a manifestation of deeper feelings of lack of control, fears and anxieties, insecurities, and low self-esteem. Conspicuous consumption may be a compensatory mechanism for these deep feelings.

Zhang and Rau (2016) found how obsessive feelings, neglect of relationships and jobs, and lack of control correlated with excessive smartphone use. Lin et al. (2015) likened smartphone dependency to substance abuse such as nicotine. A core symptom of dependency was "impaired control," referring to distress, compulsive use in hazardous situations, and declining relationships and job performance.

A type of dependency is Nomophobia, or "no-mobile phobia." Davie and Hilber (2017) studied student respondents' smartphone use. While 86% of their sample put their phones on silent in class, 95% nevertheless accessed smartphones to enhance learning inside and outside the classroom. Almost half of the student body showed signs of moderate to severe

nomophobia, which was linked to insufficient self-control, emotional instability, and low self-esteem.

Smartphone dependency is a lead indicator for the lack of self-control. Collecting luxury goods may come from a lack of self-control (Belk, 1995). Cho et al. (2017) showed how stress is related to smartphone addiction and low self-control. Khang et al. (2011) found that low self-esteem, self-efficacy, and self-control are significant predictors of smartphone dependency. Similarly, online addictive buying is correlated with deficient self-regulation (LaRose and Eastin, 2002). Martin et al. (2013) described a consumption continuum, where marketing cues initially trigger various levels of consumption and where increased dependency leads to further maladaptive consumption, in a vicious circle.

Conspicuous consumption becomes a mechanism to compensate for these dysfunctions. Individuals with higher levels of dependency tend to engage in conspicuous consumption to overcome feelings of insecurity. Conspicuous consumption can boost self-esteem, to gain social approval (Belk, 1985). Moreover, individuals may rely on material possessions to alleviate negative emotions associated with their dependency-related traits (Richins, 1994). Tech-dependent individuals may be more likely to engage in excessive materialistic consumption to fulfill cravings and to alleviate distress (Dittmar et al., 2014). Societies which celebrate wealth and status may be fertile environments for individuals with higher dependencies and neediness to engage in compensatory conspicuous consumption (Richins and Dawson, 1992). We therefore hypothesize:

H4: Dependency is positively correlated with Conspicuous Consumption.

Ⅳ. Research Methodology

4.1. Measures

We developed a survey instrument to measure social influence, convenience, the need to connect, and dependency (Amoroso, et al., 2021). Two to four scales per construct were selected to keep the survey length reasonable (see <Appendix B>). We pre-tested the items to discard ambiguous questions and to avoid cross loadings on alternative factors. We asked questions early in the survey to find out if the respondents had consumed the product and displayed conspicuous consumption. Those who answered no to these questions did not complete the survey.

4.2. Data Collection

We used the snowball approach to collect data in the United States, Mexico, and the Philippines. Snowball is a high-quality alternative for procuring large sample sizes (Balter and Brunet, 2012; Kosinski at al., 2015). Atkinson and Flint (2001) found that snowball-sampling mirrors true randomization, while adding increased sample sizes and new respondents that might not have been targeted using traditional data collection techniques. We used SurveyMonkey to collect our responses where the electronic survey link was posted on different social media. We eliminated cases with biased responses and incomplete answers. After cleaning the data, we generated a final Philippine sample of 900, a 92.1% usability rate. Mexico had a final sample of 251 with a 87.3% usability rate: and the United States had a final sample of 719 with a 93.8% usability rate. The demographics are shown in <Table 1>.

<Table 1> Demographics

	USA		Mexico		Philippines	
Gender	Freq	%	Freq	%	Freq	%
Male	361	50.20%	136	54.20%	397	46.70%
Female	358	49.80%	115	45.80%	454	53.30%
Total	719	100.00%	251	100.00%	851	100.00%
Age	Freq	%	Freq	%	Freq	%
<18	64	8.90%	10	4.00%	132	14.70%
18-22	233	32.40%	21	8.40%	393	43.70%
23-30	212	29.50%	41	16.30%	185	20.60%
30-40	82	11.40%	81	32.30%	92	10.20%
40-50	76	10.60%	82	32.70%	52	5.80%
>50	52	7.20%	16	6.40%	46	5.10%
Total	719	100.00%	251	100.00%	900	100.00%
Education	Freq	%	Freq	%	Freq	%
High school	378	52.60%	91	36.30%	452	50.20%
Undergraduate	254	35.30%	104	41.40%	198	22.00%
Graduate	87	12.10%	56	22.30%	250	27.80%
Total	719	100.00%	251	100.00%	900	100.00%
Phone	Freq	%	Freq	%	Freq	%
iPhone	438	60.90%	98	39.00%	330	36.70%
Android	228	31.70%	143	57.00%	523	58.10%
Other	53	7.40%	10	4.00%	47	5.20%
Total	719	100.00%	251	100.00%	900	100.00%

4.3. Reliability Analysis

Our survey scales are based on prior research, and we tailored the scales to ensure reliability and construct validity. All measurement scales showed high Cronbach alphas (see <Table 2>) at $\alpha \geq 0.70$ for all measures (Moore and Benbasat, 1991). This high scale reliability is consistent with prior research dealing with similar constructs. Average variance extracted (AVE) is the amount of variance captured by a construct in relation to the variance due to random measurement error. Discriminant validity requires that the square roots of the AVE be greater than inter-construct correlations. The AVE indicators showed that each construct shared more variance with their own indicators than with others. Our measures therefore exhibited sufficient discriminant validity with respect to AVE.

4.4. Validity Analysis

Exploratory factor analysis (see <Appendix A>) establishes convergent validity where indicators are loaded to the construct as intended and not cross-loaded on other factors. Principle components analysis was used with eigenvalues greater than 1.0

<Table 2> Construct Reliability

Correlations - USA						
	Cronbach Alpha	1	2	3	4	5
1. Need for Social Connection	0.899	1				
2. Social Influence	0.889	.125**	1			
3. Convenience	0.799	.436**	.224**	1		
4. Dependency	0.830	.262**	.583**	.526**	1	
5. Conspicuous Consumption	0.840	.098	.723**	.316**	.616**	1
Note: ** p < 0.01						
Correlations - Mexico						
	Cronbach Alpha	1	2	3	4	5
1. Need for Social Connection	0.883	1				
2. Social Influence	0.754	.228**	1			
3. Convenience	0.767	.276**	.225**	1		
4. Dependency	0.819	.309**	.344**	.496**	1	
5. Conspicuous Consumption	0.798	.107	.452**	.294**	.392**	1
Note: ** p < 0.01						
Correlations - Philippines						
	Cronbach Alpha	1	2	3	4	5
1. Need for Social Connection	0.928	1				
2. Social Influence	0.807	.299**	1			
3. Convenience	0.814	.728**	.562**	1		
4. Dependency	0.852	.617**	.539**	.755**	1	
5. Conspicuous Consumption	0.857	.119	.658**	.388**	.476**	1
Note: ** p < 0.01						

and Varimax rotation; 71.7% of total variance was found for the United States sample, 75.4% of the total variance for the Philippine sample, and 65.5% pf the total variance for the Mexico sample. The results showed that all factor loadings were greater than 0.576, confirming the construct convergent validity with little evidence of cross-loadings with the United States sample. All the factor loadings were greater than 0.499, also confirming construct convergent validity for the Philippine sample. Finally, the Mexican sample showed factor loadings of 0.457, with little evidence of cross-loadings.

We used the Kaiser Meyer Olkin (KMO) Measure of Sampling Adequacy to indicate the proportion

<Table 3> Goodness of Fit Indicators

Confirmatory Factor Analysis			
Indicator	USA	Philippines	Mexico
NFI	0.911	0.897	0.895
RFI	0.893	0.895	0.888
IFI	0.927	0.906	0.933
TLI	0.900	0.901	0.916
CFI	0.926	0.906	0.932
RMSEA	0.077	0.079	0.064

Structural Model			
Indicator	USA	Philippines	Mexico
NFI	0.940	0.870	0.913
RFI	0.891	0.900	0.881
IFI	0.954	0.879	0.974
TLI	0.909	0.910	0.950
CFI	0.954	0.878	0.972
RMSEA	0.059	0.075	0.042

of variance in the studied variables that could be caused by the underlying factors. KMO values between 0.8 and 1.0 indicate that the sampling is adequate (Cerny and Kaiser, 1977). The value of sampling adequacy was 0.905 for the United States sample, 0.946 for the Philippine sample, and 0.832 for the Mexican sample, validating that a confirmatory factor analysis (CFA) will be useful for this research.

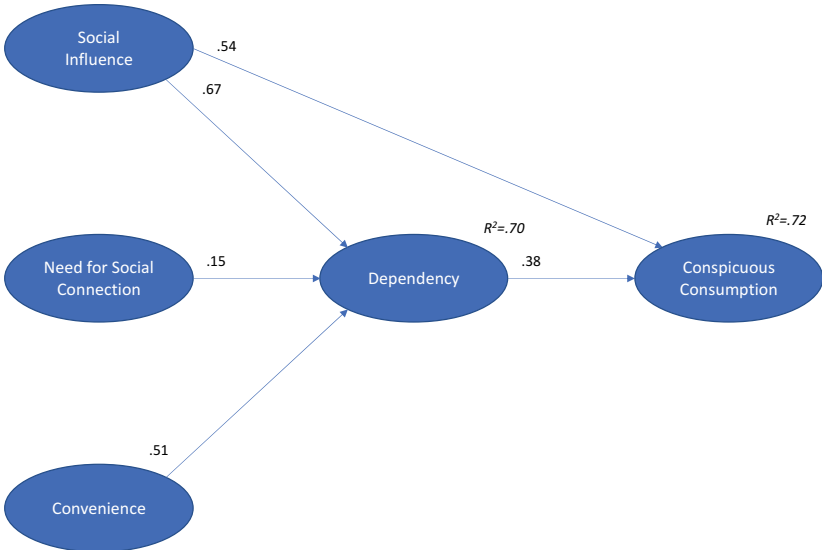
Confirmatory factor analysis (CFA) was performed to confirm the instrument based upon five hypothetical factors using AMOS 29. To check the congruity of the measurement model, a confirmatory factor analysis for each data set was performed. To evaluate the goodness of fit of the CFA measurement model, the model fit indicators (see <Table 3>) were all reasonable where recommended values should exceed 0.90 and RMSEA is less than 0.80 (Hair et al., 2011). Most of the goodness of fit indicators were above .90 or close to the threshold. According to Hair et al. (2011), the sample size exceeding 250 respondents requires a loading factor of at least 0.35 to determine significance at the .05 level, which determines the strength of an item or indicator as it relates to a construct or latent variable in a CFA analysis.

Ⅴ. Data Analysis and Results

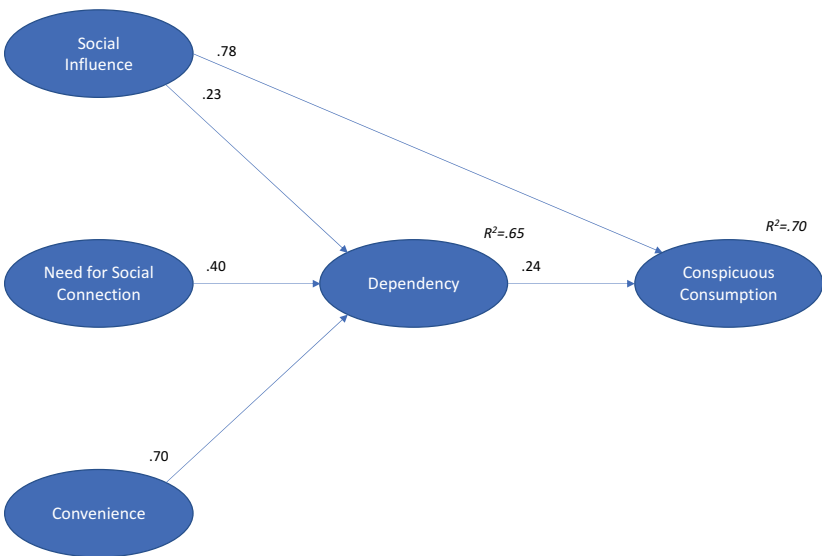
5.1. Structural equation model analysis

Structural equation models (SEM) were developed for each of the three countries (see <Figures 2-4>) with AMOS 29. <Figure 2> is our SEM for conspicuous consumption in the United States We found (see <Table 3>) that NFI (.940), RFI (.891), IFI (.954), TLI (.909), and CFI (.954) are reasonable > 0.90, and RMSEA is reasonable at 0.059. For United States consumers, we found strong adjusted R^2 values for both dependency and conspicuous consumption, at .70 and .72, respectively. Social influence had a strong relationship with dependency (ß = .67, p < .001) and conspicuous consumption (ß = .54, p < .001). Likewise, convenience had a positive effect on dependency (ß = 0.51, p < .001). Need to Connect had a weak positive effect on dependency (ß = 0.15, p < .027). Dependency was found to be strongly related with conspicuous consumption (ß = 0.38, p < .001).

<Figure 3> is our SEM for conspicuous consumption in the Philippines. In <Table 3>, NFI (.870), RFI (.900), IFI (.879), TLI (.910), and CFI (.878) are reasonable > 0.90, and RMSEA is reasonable at 0.075. For Filipino consumers, we found strong

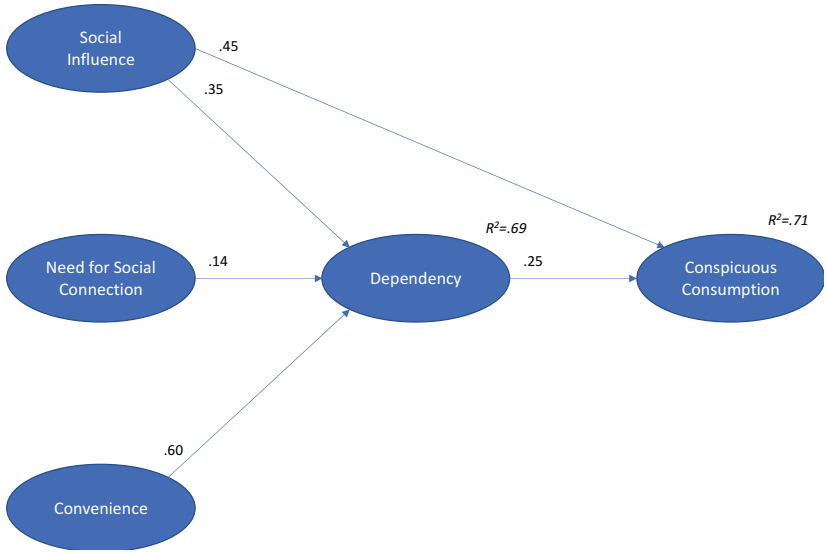


<Figure 2> SEM Results for the United States Consumers



<Figure 3> SEM Results for Filipino Consumers

adjusted R^2 for both dependency and conspicuous consumption, at .65 and .70, respectively. Social influence had a strong relationship with dependency (ß = .23, p < .001) and continuous intention (ß = .78, p < .001). The relationship to continuous intention was much stronger than the consumers in both the United States and Mexico. Likewise, convenience had a strong positive effect on dependency (ß = 0.70, p < .001). The need for social connection had a positive effect on dependency (ß = 0.40, p < .001), again much stronger than with the United States and Mexican consumers. Dependency had a positive effect



<Figure 4> SEM Results for the Mexican Consumers

on conspicuous consumption (ß = 0.24, p < .001).

<Figure 4> is our SEM for conspicuous consumption in Mexico. We found (see <Table 3>) that NFI (.913), RFI (.881), IFI (.974), TLI (.950), and CFI (.972) are reasonable at > 0.90, and RMSEA at 0.042. For Mexican consumers, we found strong adjusted R^2 values for both dependency and conspicuous consumption at .69 and .71, respectively. Social influence had a strong relationship with dependency (ß = .35, p < .001) and conspicuous consumption (ß = .45, p < .001), but less than United States consumers. Likewise, convenience had a strong positive effect on dependency (ß = 0.60, p < .001). The need for social connection had a weak positive effect on dependency (ß = 0.14, p = .028), like United States consumers. Dependency had a positive effect on conspicuous consumption (ß = 0.25, p < .001).

5.2. Mediation Analysis

We then analyzed the mediation effects of social influence on conspicuous consumption. Using Amos 29, we generated statistics for the indirect, direct, and total effects. Cheung and Lau (2008) recommend generating 1,000 bootstrap samples to determine the Type 1 error rate and generate standardized indirect effects and the two-tailed significance for both the lower bounds and upper bounds using a 95% bootstrap confidence interval. We met the criterion for mediation analysis as there was a statistically significant indirect effect of the social influence construct on the conspicuous consumption construct, rather than a significant decrease in the direct effect. We found that dependency mediates the path from social influence on conspicuous consumption for all three models. The mediation effect was statistically significant at the p < 0.01 level, as the indirect effect was statistically significant.

5.3. Hypotheses Support

The relationship between social influence and dependency, H1a, was supported by the three models. Whether social influence is manifested by the need

for self-esteem (Kwon et al., 2013) or the need to build self-image (Charoennan and Huang, 2018), social influence attracts higher and eventually problematic use of smartphones. The need to be socially influential is reflected in the literature as FOMO (fear of missing out) and Nomophobia (no mobile phone phobia) phenomena (Elhai et al., 2016; Han et al., 2017). If social media such as Facebook, Instagram, and Twitter evoke dependency disorders, then smartphones might facilitate disorders. By affinity, social media dependency means dependency on smartphones (Brailovskaia et al., 2018).

For H1a, the coefficient in the United States, (β = 0.67) was significantly higher than the other two countries (β = 0.35 for Mexico and β = 0.23 for the Philippines), see <Table 4>. This may be a function of specific country sample demographics, which might contradict the cultural theory (Hofstede, 1983) that United States consumers tend to be less hierarchical, versus Mexico and the Philippines, and therefore less needful of social influence. Culture effects are not part of this study and could be investigated separately.

H1b, social influence on conspicuous consumption, was likewise supported by the three country models. The need to be socially influential pervades a purchase, such as social acceptability, status-seeking, and bandwagon effects, (Fitzmaurice and Comegys, 2006; Huang and Wang, 2017; Kastanakis and Balabanis, 2014). Status-seeking and materialistic behaviors pervade not just first-world economies such

<Table 4> Hypotheses Support

No	Hypotheses	USA	Philippines	Mexico
Path coefficient				
H1a	Social influence → Dependency	0.65	0.23	0.35
H1b	Social influence → Conspicuous Consumption	0.54	0.78	0.45
H2	Need for Social Connection → Dependency	0.15	0.40	0.14
H3	Convenience → Dependency	0.52	0.70	0.60
H4	Dependency → Conspicuous Consumption	0.38	0.24	0.25
p-Value				
H1a	Social influence → Dependency	<.000	<.000	<.000
H1b	Social influence → Conspicuous Consumption	<.000	<.000	<.000
H2	Need for Social Connection → Dependency	<.027	<.000	<.028
H3	Convenience → Dependency	<.000	<.000	<.000
H4	Dependency → Conspicuous Consumption	<.000	<.001	<.001
Support				
H1a	Social influence → Dependency	Yes	Yes	Yes
H1b	Social influence → Conspicuous Consumption	Yes	Yes	Yes
H2	Need for Social Connection → Dependency	Yes	Yes	Yes
H3	Convenience → Dependency	Yes	Yes	Yes
H4	Dependency → Conspicuous Consumption	Yes	Yes	Yes

as Korea and the United States (Workman and Lee, 2010), but also emerging countries such as China and Thailand (Nguyen et al., 2009; Yang and Stening, 2017). Status signaling, materialism, and consumption might be particularly acute for adolescents (Goldberg et al., 2003; Schaefer et al., 2004). Like H1a, the higher coefficient for the Philippines (β = 0.78) may indicate the power of social influence on Filipinos' conspicuous consumption vs. β = 0.54 for the United States and β = 0.45 for Mexico. However, these differences may simply be due to specific Philippine sample demographics.

The relationship between the need for social connections and dependency, H2, was also supported. Smartphones help fill the basic human need for maintaining relationships (Veissière and Stendel, 2018), curing loneliness (Lee and Shin, 2016) and generally connecting socially (Roberts et al., 2014), all are statistically related with smartphone dependency. A meta-analysis by Malinauskas and Malinauskiene (2019) noted that intervention has a beneficial effect on smartphone addiction, so increased social connections not only build relationships but also offer opportunities for positive intervention. As in previous hypotheses one country, the United States, displayed a stronger relationship between the need to connect and dependency (β = 0.40 vs the Philippines' β = 0.15 and Mexico's β = 0.14).

H3, convenience's relationship with dependency, was supported. Except for a minority of non-consumers (4% in the United States; 14% in Mexico; and 20% in the Philippines) ownership of smartphones was almost universal. Smartphones may be the conduit to establish, maintain, and resolve differences in relationships. Given the smartphone's inherent efficiency and ubiquity—compared to alternative methods of social connecting, such as face-to-face meetings, email, or landline phones—people may find smartphones more convenient and compelling, and therefore more dependent on them as necessary devices.

Finally, H4, dependency's relationship with conspicuous consumption, was supported in all three models. Dependency is a manifestation of low self-control: many smartphone consumers are plainly unable to be without their devices (Cho et al., 2017; Khang et al., 2011). Low self-control converts to conspicuous consumption (LaRose and Eastin, 2002). As in previous hypotheses, one country, the United States, displayed a slightly stronger relationship between the dependency and conspicuous consumption (β = 0.38 vs Mexico's β = 0.25 and the Philippines' β = 0.24).

Ⅵ. Discussion and Implications

6.1. Contribution to Academic Research

Our model confirms the significance of our hypotheses, with sufficient discriminant and construct validity for the three countries' respondents. While our original research was not intended to make cross-cultural comparisons, the multi-country results appear to indicate the robustness and validity of the survey methodology across the three countries. Moreover, smartphone usage appears consistent across the three-country demographics. The smartphone may be a paragon device that triggers universal behaviors, including negative ones such as dependency, regardless of context.

This paper has two contributions: it provides confirmatory support for extant literature on smartphone dependency, social signaling, the need to connect socially, and convenience; and it demonstrates the viability of the survey instrument across cultures. First, the four hypotheses were supported across the three countries, though with varying coefficient magnitudes.

All pathways were significant ($\alpha < .05$). The positive coefficients were consistent across the three models. The variance explained for the dependency and conspicuous consumption constructs ranged from 65% to 71% respectively.

The second significant contribution of this paper is in survey validity and survey process. In all three countries the surveys showed consistent results, despite the use of English, Spanish, and Tagalog. The data showed strong construct reliability and discriminant validity; and it supports the use of the snowball sampling technique, particularly because of the nature of the object, a smartphone. Also, the likelihood of smartphone usage is high and consistent across different demographic lines. This suggests the power of the snowball approach in sampling generates larger sample sizes to run statistically significant structural equation models.

6.2. Contribution to Practicing Managers

At the surface level, this study implies that marketing managers and technology designers might control consumption behavior by identifying intrinsic and extrinsic consumer aspirations, as suggested by Truong et al. (2010). Aspirations lead to increased consumer purchases and upgrading, and eventually, conspicuous consumption. Dependency on smartphones will additionally lock in ongoing conspicuous re-consumption. Social influence thus offers another tool for practitioners to encourage conspicuous consumption since it involves elements other than the traditional approaches of the economics of income and price. Social influence by a Key Opinion Leader (KoL) in a network can direct purchases to others in the group. Even low-income earners value new models of their smartphones, which usually appear annually, thus conveniently reinforcing the frequency of and dependency on the conspicuous purchase. Both the practitioner-oriented frameworks, such as AIDA and the academic literature, for example, on product satisfaction, brand association and happiness - reinforce the importance of the constructs in our SEM.

At a deeper level, this study reveals more insights than just social signaling, aspiration, and technology dependency. Managers might focus on the deeper, virtuous cycle of consumption, enhanced self-image, and increased emotional attachment, the psychological process of transformation, the possible role of behavioral economics, and the smartphone as an information good.

Branding is about creating a consumer self-image and instilling into the consumer emotional attachment. Brand marketing is about creating a clear brand concept that fits a certain image (Park et al., 1986) and transferring a unique identity into the consumers' self-image, called congruence (Kressman et al., 2006). Klabi (2020) studied how actual and ideal self-image congruence on emotional brand attachment are stronger for high-status brands. Self-image is more intense for conspicuously consumed high-status brands, and therefore has higher emotional brand attachment.

The concept of virtuous image and attachment can lead to consumer feelings of transformation and self-improvement. Conspicuous consumption and social status also virtuously reinforce each other (Yoon and Seok, 1996). To conspicuously consume newer and better versions of smartphones and apps means not just additional social display, but also enhancing and upgrading self-image. In effect, the smartphone has become a vehicle for self-transformation. Such transformation is played out in social groups, either work or friends or social networking (Rotary club, LinkedIn) or family, where the brand buyer establishes self-image and compares self to others.

Consumer self-image and transformation, however, do not exist in a vacuum. Consumers must compare their position vs. peers' work, professional, social, and family positions. They benchmark their own image against others to see improvement. Social benchmarking is not bounded in a classic economic sense. Managers might therefore explore the literature of behavioral economics techniques (Ariely, 2008) to help in the comparison process. Marketing managers might utilize endowment effects, the tendency of overvalue one's own assets, and to encourage continued consumption and nudges to help in the conspicuous consumption of goods (Thaler and Sunstein, 2008).

Finally, managers might take cues from Shapiro and Varian (1999)'s summary of information goods and networks. Smartphones are currently a hybrid of a physical good, i.e., the phone as an appliance and a platform, and an information good, i.e., operating system, apps, and content. If viewed as a near-pure information good, the rules of information pricing, network effects and feedback loops, versioning, and price discrimination, lock-in, and bundling might apply to smartphones as opposed to "pure" information-rich content, such as music, videos, news. This was demonstrated by the radical strategies of the Reliance Group of India, which launched its nascent brand, Reliance Jio, in 2015. They entered a crowded and competitive market and by 2022 had captured the leading share of market of 35%, or 410 million consumers in India (Bhalla, 2022). Reliance did this by using Shapiro's and Varian's concepts of network effects and feedback loops, by initially offering "unlimited free voice calls, 4G data, messaging, and related services" (Team TBH, 2020) at nearly zero cost. In effect, Reliance started with "free." The smartphone to Reliance Jio was a come-on commodity, while they sold initial connectivity and services. Such positioning now allows Reliance Jio a jump-off to higher brand status, brand commitment and conspicuous consumption.

6.3. Future Research and Limitations

The construct loadings and pathway coefficients supported the hypotheses but displayed variation in magnitudes and explanatory power. The relationship between social influence and dependency showed sufficient variation to suggest alternative explanations, such as multicultural differences, or other country-specific variables, which we did not cover in our model. Social influence and the need to connect are also important constructs with respect to conspicuous consumption. The convenience construct also has a positive effect to dependency and suggests the pervasiveness of smartphone usage. We might also test if smartphone convenience trumps alternatives such as face-to-face, emails, or land lines, and encourages dependency. Dependency, in turn, enhances conspicuous consumption, as supported in all three models. Aside from its relationship to dependency, social influence also directly affects conspicuous consumption by involving status seeking and signaling and materialism—all critical factors in describing conspicuous consumption.

The results yield preliminary but interesting research questions, and multiple pathways for further empirical research on cross-cultural aspects of technology and smartphone conspicuous consumption. For instance, without prior cross-cultural theory and a relatively heterogenous sampling frame, we find evidence that social influence seems to weigh more heavily on dependency in the United States compared to the other two countries. Our results may be a result of specific country variable interactions rather than actual cultural differences. This may also be

a fruitful path for future research, in that United States consumers are stereotypically theorized to be more individualistic and less collectivist and less needful of social influence (Hofstede, 1983). The results of this study show otherwise.

Demographic filtering may also be another path of research. This study did not separate demographic factors such as age, social class, and gender. Could it be that for specific United States, Mexican, or Philippine segments, smartphone use presents an immediate outward show of social status? In considering this, future studies can control, for example, high school or college age vs. Gen-X consumers across various countries. A device like a smartphone may result in compelling differences between segments and subcultures, e.g., devices might be "cooler" or more attractive (Nan et al., 2022; Sundar et al., 2014). We do have the ability to survey large bodies of consumers through Web and Internet channels, and this will give researchers robust sample sizes for modeling.

Philippine consumers show stronger replacement between social influence and conspicuous consumption, and stronger positive effect between the need for connection and dependency, although all countries had a significant effect with convenience to conspicuous consumption. Again, without attempting to focus on specific demographics or measuring interaction effects, why would Philippine consumers be more susceptible to social influence to consume conspicuously? This is an area for future research. Further research may find that certain countries are susceptible to conspicuous consumption, again, if one can control for demographic variability in samples.

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<Appendix A> Exploratory Factor Analysis

Construct Validity (United States Consumers)

Factor Analysis - USA					
	1	2	3	4	5
Connect Need1	0.094	0.829	0.133	0.005	-0.012
Connect Need2	0.119	0.841	0.138	0.041	0.013
Connect Need3	0.002	0.895	0.156	0.075	0.014
Connect Need4	-0.041	0.876	0.171	0.060	0.071
Social Influence1	0.011	0.001	0.020	0.188	0.861
Social Influence2	0.206	0.069	0.064	0.207	0.806
Social Influence3	0.117	0.091	0.039	0.169	0.871
Social Influence4	0.003	0.057	0.117	0.096	0.762
Convenience1	-0.030	0.383	0.576	0.114	0.378
Convenience2	0.201	0.113	0.743	0.29	0.002
Convenience3	0.142	0.156	0.844	0.048	0.025
Convenience4	0.031	0.239	0.749	0.186	0.063
Dependence1	-0.111	0.46	0.325	0.636	0.414
Dependency2	0.345	0.106	0.195	0.596	0.305
Dependency3	0.230	0.048	0.286	0.764	0.005
Dependency4	0.611	-0.057	0.099	0.612	-0.070
Dependency5	0.435	0.114	0.125	0.685	0.128
ConspCons1	0.693	0.002	0.108	0.196	0.392
ConypCons2	0.644	0.022	0.124	0.211	0.563
ConspCons3	0.697	-0.045	0.092	0.097	0.441

Construct Validity (Mexican Consumers)

Factor Analysis - Mexico					
	1	2	3	4	5
Connect Need1	0.827	0.078	0.022	0.066	0.063
Connect Need2	0.831	0.022	0.138	0.100	0.069
Connect Need3	0.867	0.085	0.136	0.016	0.055
Connect Need4	0.839	0.106	0.091	-0.061	0.067
Social Influence1	0.083	0.219	0.136	0.111	0.729
Social Influence2	-0.019	0.022	-0.023	0.061	0.814
Social Influence3	0.116	0.197	0.088	0.383	0.662
Social Influence4	0.218	-0.054	0.107	0.364	0.548
Convenience1	0.239	0.210	0.643	0.032	0.083
Convenience2	0.003	0.253	0.770	0.145	0.172
Convenience3	0.044	0.127	0.769	0.076	0.099
Convenience4	0.178	0.042	0.722	0.071	-0.082
Dependence1	0.441	0.498	0.268	0.094	-0.053
Dependency2	0.232	0.700	0.097	0.163	0.203
Dependency3	0.026	0.661	0.411	0.095	0.033
Dependency4	-0.033	0.795	0.162	0.089	0.108
Dependency5	0.156	0.835	0.091	0.218	0.097
ConspCons1	-0.014	0.263	0.064	0.809	0.137
ConspCons2	0.137	0.083	0.101	0.755	0.146
ConspCons3	-0.081	0.187	0.095	0.849	0.102

<Appendix A> Exploratory Factor Analysis (Cont.)

Construct Validity (Filipino Consumers)

Factor Analysis - Philippines					
	1	2	3	4	5
Connect Need1	0.856	-0.002	0.116	0.010	0.067
Connect Need2	0.871	0.068	0.181	0.054	0.094
Connect Need3	0.868	0.122	0.182	0.040	0.091
Connect Need4	0.881	0.034	0.153	-0.019	0.160
Social Influence1	0.164	0.740	0.217	0.326	-0.030
Social Influence2	0.613	0.522	0.025	0.011	0.051
Social Influence3	-0.065	0.769	0.216	0.384	0.161
Social Influence4	-0.038	0.732	0.167	0.322	0.315
Convenience1	0.293	0.370	0.399	0.052	0.457
Convenience2	0.381	0.299	0.229	0.188	0.657
Convenience3	0.481	0.182	0.213	0.154	0.659
Convenience4	0.271	-0.024	0.266	0.028	0.783
Dependence1	0.355	-0.034	0.563	0.133	0.262
Dependency2	0.521	0.032	0.602	0.158	0.271
Dependency3	0.342	0.189	0.752	0.130	0.095
Dependency4	0.092	0.367	0.757	0.259	0.072
Dependency5	0.272	0.202	0.671	0.265	0.161
ConspCons1	-0.109	0.461	0.215	0.706	0.075
ConspCons2	0.149	0.155	0.191	0.853	0.113
ConspCons3	0.028	0.335	0.170	0.801	0.088

<Appendix B> Survey Items

(From: Amoroso et al., 2021)

Social Influence

1. It is important that my friends like the brand of smartphone I'm using.
2. The pressure from friends and family is likely to influence the usage rate of smartphone.
3. I would buy a smartphone if it helped me fit in with my social group better.
4. I would be susceptible to being persuaded into using a smartphone if I had a low self-esteem.

Convenience Mobile Addiction

1. Using a smartphone would allow me to accomplish tasks more quickly.
2. In my work, a smartphone saves me time and effort; I would prefer to carry my smartphone rather than my laptop.
3. Having a smartphone is like having both a mobile phone and a computer together.
4. A smartphone enables me to receive learning materials anywhere I go.

Need for Social Connection

1. I use smartphone to stay connected with friends and family through social networking web sites (Twitter, Facebook, etc.).
2. It is easy for me to observe others' happenings by using the smartphone.
3. I use my smartphone to catch up with friends and relatives.
4. Smartphone allows me to stay connected with those I care about.

Dependency

1. In my daily life, usage of smartphones is high.
2. I will feel insecure when my smartphone is not with me.
3. I always use my smartphone to deal with my job.
4. I cannot do anything with my job without the smartphone.
5. I feel jittery and anxious when I do not have my mobile phone with me.

Conspicuous Consumption

1. I want to buy the latest phone before others get it.
2. I pay a great deal of attention to the latest trend when I buy a mobile phone.
3. People with expensive and good quality mobile phones seem to have a higher status in society.

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