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## Factors Affecting the Purchase Intention of Virtual Goods in Mobile Game Clash Royale

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### Abstract

Concerning Indonesia's rapid growth of mobile internet usage and also a growing mobile game market, this research aims to analyze the influence of Customer-to-Customer interaction (C2C) towards the purchase intention of virtual goods in a mobile game. It proposes a conceptual model integrating variables that have been studied in previous research on purchase intention, consumer engagement, brand image, and also C2C interaction, the latter of which plays a critical role, but has received less mobile game attention. The conceptual model has been tested using SmartPLS to a database of 200 players in Indonesia. The results show that consumer engagement, brand image is associated with C2C interaction and purchase intention in mobile game Clash Royale.

**Keywords:** Virtual goods; purchase intention; C2C interaction; consumer engagement; brand image; mobile game.

### 1. Introduction

Recent development and growth of technology impacts on Indonesian's daily life. Transportation, grocery shopping can be done relatively easier compared to 5 years before. To survive, businesses in a marketplace need to adopt e-commerce. According to Rahayu and Day (2015), a new economic era – the information age that has formed today does not only change the way business sells, handle their customer and supplier, but also change their point of view to become closer with the customer.

In the context of e-commerce, businesses exchanges products and services not only with another business (B2B) but also with end-consumer (B2C) (Pienaar, 2015). McCullough (2017) concludes that traditional channels had shifted into informal online channels that are to say C2CI (customer-to-customer). Manufacturer and the conventional retailer could not control interactions between customers outside their formal channel. These interactions could influence product's quality, pricing and its point-of-sale experience. C2C interaction is defined as an active or passive interaction between 2 or more customer inside or outside of service setting (Johnson & Grier, 2013).

The rapid growth of media and channel facilitates information exchange between customers. 12% of smartphone owners said to have purchased a smartphone in the last three months in Q3 2016 according to The Nielsen Company (2016). The majority of them (93%) chose to buy a smartphone,

compared to 90% in Q3 2015 (8% growth). Highest smartphone penetration is in millennials (ages 18-24) of which 98% owns a smartphone (The Nielsen Company, 2016).

A mobile game is defined as a video game played on a mobile device such as smartphone or tablet computer (Hsiao & Chen, 2016). Therefore, a game that is played on a console like PlayStation Vita or Nintendo 3DS or PC is not a mobile game. The development of smartphone technology alongside internet changes the ways games played compared to the last 5-10 years before this research. Mobile games allow players to play in a relatively shorter duration and more comfortable to access compared to other platforms. Recently, social features have been incorporated to allow players interact with another in a mobile game. A mobile game usually has features such as asynchronous gameplay, community, and virtual currency (Radoff, 2011). Asynchronous gameplay allows players to play the game without having to be online at the same time. A game community also attracts players to discuss and share their experience, achievement, and virtual goods which can be purchased for themselves or gifted. To buy virtual currency or virtual goods, players use the real-world money; this can be considered as a game company's primary profit source.

Global Games Market Report shows that 2.2 billion players all over the world expected to generate \$108.9 billion of game revenues in 2017. There is \$7.8 billion growth from a year before. Data shows

that mobile is the most profitable segment – smart-phone and tablet gaming grew 19% each year to \$46.1 billion claiming 42% game market, which is 87% global market. According to McDonald (2017), Asia-Pacific so far is the most massive region with \$27.5 billion that is a quarter of all revenues in 2017.

The C2C interaction could influence consumer's decision through persuasive information (Zhu, Chang, & Luo, 2015). How consumer process information about brand resulting in their final decision, according to Kotler and Keller (2012), evaluation process happens when consumer choose alternative benefit or attributes they want to get (preference) from a brand through interacting with other consumers. Supported by previous literature, the element of social influence in C2C interaction could influence purchase intention, affected by how high the popularity of a brand page (Tiruwa, Yadav, & Suri, 2016).

Kotler and Keller (2012) suggest that brand image is perceived by consumer, previous literature also indicates that this perception-belief could influence purchase intention (Murtiasih, Sucherly, & Siringoringo, 2013; Zhu et al., 2015). A unique perception of a brand in consumer mind makes them want to interact with brands suitable to their preference. Research by Greve (2014) further shows that the stronger the image, the more consumer interacts with it. Brand image develops from a perceptual relationship towards a brand in a consumer's mind. These relationship makes a product more accessible, more likely to be an option, and evaluated positively (Berger & Fitzsimons, 2008). With less research attention, this research aims to analyze how C2C interaction would influence consumer engagement and brand image, and how the two constructs would affect the purchase intention of virtual goods in mobile game Clash Royale.

## 2. Literature Review

The new economic era has changed the way businesses handle their customers to be closer to them. Thus, companies adopted e-commerce to survive in a marketplace (Li & Xie, 2011). E-commerce changes how businesses conduct a transaction, exchanging products whether with other business (B2B) or with end-user (B2C) and currently focuses on how customer relates to another customer (C2CI). This interaction is caused by a shift from the traditional channel into online channel. Interaction inside these channels could not be controlled by manufacturer or retailer (McCullough, 2017; Pienaar, 2015). C2C interaction can be defined as a passive or

active interaction between 2 or more customers inside or outside the service setting (Johnson & Grier, 2013).

According to Plouffe (2008), the internet has fostered the development of information exchange between individual consumer (C2CI). It changes how individual consumes specific product category, and within its process evolving various industries. Recently, C2C interaction mainly happens on the internet; some studies also examined its positive consequences (Bruhn, Schnebelen, & Schäfer, 2014; Libai et al., 2010).

Customer may often show lousy behavior, deliberately act thoughtlessly, causing problems for companies, employees, or other customers. Such action is considered as "jaycustomer" (Lloyd & Kate, 2004), this could result in a negative impact in a consumers' perception of service (Pranter & Martin, 1991). Previous studies also investigated customers' respond towards dissatisfying interaction shows that when a customer feels that their self-identity is being threatened, they often react angrily and hostile. Thus, Lloyd and Kate (2004) conclude that jaycustomer behavior is not an irrational behavior, at least from the customer's perspective.

According to Dessart, Veloutsou, and Morgan-Thomas (2015), consumer engagement begins to receive more attention in marketing literature. Originated from relationship marketing, consumer engagement deepens understanding towards concepts about the relationship between consumers and brand. In the literature aspect, consumer engagement is recent; previous studies tried to describe, give more attention to define it (Dessart et al., 2015; Vivek, Beatty, & Morgan, 2012). There is no general agreement as to what sets consumer engagement with some researchers stressed out a psychological process and the others focused on its behavioral aspect.

Van Doom and others (2010) define consumer engagement as consumer's behavioral manifestation toward a brand, beyond purchase. For example, posting a message about a brand positively, or the opposite (negative), such as organizing a public lawsuit against a brand or company. This definition further supported by Hollebeek, Glynn, and Brodie (2014), which according to them, consumer engagement is a positive activity, from consumer related to specific consumer/brand interaction. The concept can be understood in a rich social context such as online brand community (OBC) (Dessart et al., 2015).

According to Barger, Peltier, and Schultz (2016), there are 5 categories of its antecedent i.e.: brand factor (attitude, warmth and status, word-of-mouth and advertising cost (Feng & Papatla, 2012),



company's commitment towards communication technology); product (related to how a hedonic products foster consumer to broadcast viral marketing message across social media); consumer (related to social media content as entertainment, informational, incentive, and social influence to its consumer); content (viral video advertising); social media (the nature of user-generated content in social media). Thus, previous literature also suggests five consequences of consumer engagement: its impact on a brand, consumer (consumption enjoyment), content (re-sharing), and market (willingness-to-pay) (Barger et al., 2016).

Branding has long existed for centuries as a mean to differentiate goods from one firm with another. Keller (1993) described consumer's memory as a function of a group of nodes, connected towards various associations related to a brand. The information is kept inside connecting nodes which is connected with the other group of nodes in the brain. The relationship between those nodes differ in strength, its processing level and involvement will determine the concentration of its relations between nodes (Faircloth, Capella, & Alford, 2001). Thus, becoming antecedent of brand image and further influence consumer's purchasing behavior.

Brand image is defined as a consumers' perception that a brand is unique compared to another in the same product category (Djatriko & Pradana, 2016; Kotler & Keller, 2012). Those associations could come within brand attributes or brand name. Brand attributes are characteristic features which are a product or service characteristics, while brand benefits is a personal value which consumers attached to a product or service attributes (Keller, 2008). Other than that, consumer shapes beliefs about brand attribute through various ways.

Consumers' decision on purchasing products according to Jones and Cheeseman (2005), has many influences and obstacles. Some of it came from external aspects such as financial condition. Another influence such as technological advancement changes how consumer access services in a better way. Purchase intention represents the possibility that consumers are willing to purchase a specific product or service in the future (Wu, Yeh, & Hsiao, 2011). Huang (2012) defined purchase intention as a desire to buy virtual goods in social networking sites.

Alnawas and Aburub (2016) examined that integrative social benefits may allow individuals to connect with each other, developing a relationship, causing them to interact. In mobile app context, these advantages are obtained from such relationship that is nurtured over time. Thus, how far a mobile app could support values that are similar to themselves to make

them feel they are part of the community. Previous studies show that social integrative benefits did not affect purchase intention (Alnawas & Aburub, 2016) even though C2C interaction on the other research could influence consumers' purchase decision through persuasive information (Zhu et al., 2015). The purpose of social values is derived from mobile game service in improving social self-concept. In mobile game context, social values come from connectedness, how an individual perceives that they are connected to each other through playing (Hsiao & Chen, 2016). Meanwhile, Zhao and Lu (2012) pointed out playfulness, refers that player enjoyed time spent with other players while playing reflects social interactivity and a sense of closeness. Still, it can be concluded that previous literature does not support a direct influence, while according to Zhao and Lu (2012), the influence exists only on emotional aspect thus this research do not test C2C interaction's direct influence towards purchase intention.

When the brand image is present in consumers' mind, consumers are willing to interact with brands that suit their preferences (Keller, 2008). Greve (2014) concludes that the stronger the image a brand has, the more interaction between consumer and the brand will happen. Previous studies supported that there is a significant relationship between brand image and consumer engagement. Millennials purchase products not in a functional manner unlike generation X, but in a more emotional manner—that is by paying attention to its image and feel of a brand (symbolic characteristics). In a fashion apparel context, brand image significantly influences consumer engagement (Hapsari, 2015; Ul Islam & Rahman, 2017).

H1. Brand image is associated with consumer engagement

Previously, van Doorn and others (2010) noted consumer engagement as a strategic requirement to create an increasing company performance including sales growth, competitive advantage, and profitability in an always changing and interactive business environment (Brodie, Hollebeek, Jurić, & Ilić, 2011). An engaged customer plays a crucial role in viral marketing activity through, for example, recommend a brand to others in their interaction.

H2. C2C interaction is associated with consumer engagement

Previous studies had been done to investigate whether the interaction between consumer and brand could influence their intention to buy (Alnawas & Aburub, 2016; Hsiao & Chen, 2016; Murtiasih et al.,

2013). On the information age today, consumers seek information through the internet, gathering information about products before purchasing. Tiruwa and others (2016) noted that when consumers are engaged with a brand in the context of OBC could positively influence purchase intention. The reason is that their attachment towards a brand is dominantly emotional, this leads to consumers' commitment to repetitive purchasing behavior.

H3. Consumer engagement is associated with purchase intention

C2C interaction (related cues) according to Blasco-Arcas, Hernandez-Ortega, and Jimenez-Martinez (2016) refers to aspects that offer a possibility to develop a network (friendship) and foster interaction between customers. It allows customers to contribute and generate new content while enhancing their connectivity and participation. Cues contained in the interaction also provides an opportunity for them to learn from each other, resulting them to have more knowledge about the brand (brand image) from previous experiences.

The brand image emerged from a perceptual or conceptual relationship towards a brand that exists within consumers' mind. The association makes products more accessible, more likely to be chosen, and evaluated positively (Berger & Fitzsimons, 2008), this is because consumers received stimuli associated with the brand in the real world. Those incentives may also come from interactions between customers.

H4. C2C interaction is associated with brand image

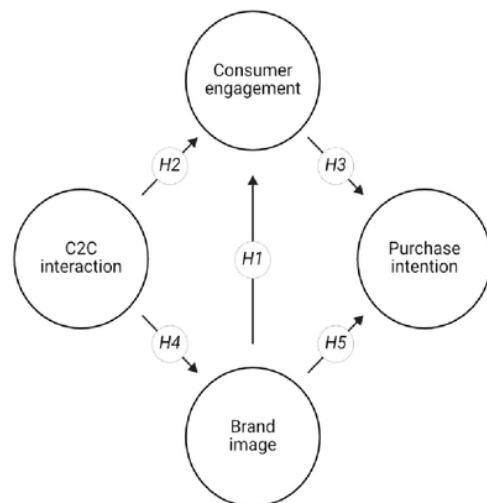


Figure 1. Conceptual Model with Hypotheses

The image of a brand is perceived by consumers' mind resulting in beliefs can also affect purchase intention as shown by previous studies (Murtiasih et al., 2013; Zhu et al., 2015). It is very likely such brand image generated from interactions between consumers and also consumer-brand interaction could influence positive attitude towards purchasing products from a brand (Blasco-Arcas et al., 2016; Teng & Laroche, 2007).

H5. Brand image is associated with purchase intention.

### 3. Methods

The study was conducted using quantitative causal method through testing variables that are estimated to influence the dependent variable to test the existing concept. The research was also done using non-probability sampling technique because the individuals that will be chosen as the sample was not known, which in this study, is Clash Royale player. According to Hair, Black, Babin, and Anderson (2010), SEM needs a relatively more significant sample compared to other multivariate approaches. For research with 5 or fewer constructs, the required minimum sample size is 100 up to 150 (p. 662, p. 102). Also according to the general rule of thumb, the recommended size is specifically 5 cases for each parameter (5:1), while 10:1 are more acceptable which is a total sample of 200 (Hair et al., 2010; Kline, 2005). Thus, the sample size in this study is 200. Unit analysis for this research is players of mobile game Clash Royale in Java region in Indonesia with a minimum age of 17 years old and actively playing in the last three months.

The questionnaire comprises of two sections: demographic profile and constructs items. The items used in the study operationalize the constructs included in the model were adapted and slightly modified from prior studies to fit the context. The final questionnaire items as measurements of each construct can be consulted in Appendix A. Items for measuring C2C interaction were adapted from Moore, Moore, and Capella (2005) consists of friendship development (Alnawas & Aburub, 2016), enjoying time spent with others (Zhao & Lu, 2012), and chance of meeting a friend (Hsiao & Chen, 2016). Items for measuring purchase intention were adapted from Taylor and Baker (1994) which consists of interest to buy, a necessity to purchase, and interest to re-buy. Items for measuring consumer engagement were adapted from Hollebeck and others (2014) which consists of thinking to win battles, information



seeking, comfort, happiness, pride, time spent for playing. Items for measuring brand image were adapted from (Salinas & Pérez, 2009) which consists of overall quality, character uniqueness, price, visual quality, gameplay uniqueness, satisfaction, reputation (Yüksel & Akgül, 2007). All items were measured using a 5-point Likert scale (Sekaran, 2003), ranging from “strongly disagree” (1) to “strongly agree” (5). Data collection were conducted through an online and offline questionnaire.

In the latter section of the analysis, respondents’ answers regarding C2C interaction, consumer engagement, brand image, and purchase intention will be described. Respondents’ answers are described by calculating the mean value and the percentage of their top two boxes/bottom two boxes scores.

## 4. Results

### 4.1 Profile of Respondents

Respondents’ answers show (see Table 1) that the majority of respondents were students (40.5%) that is 54.5% of which were senior high students. The results also show that 49.5% of respondents’ money spent for gaming per month is less than IDR 15,000 followed by 33% spent more than IDR 15,000 and a maximum spending of IDR 75,000.

Table 1. Profile of Respondents

Category	Subcategory	Frequency	%
Education	Senior High	109	54.5
	Bachelor	58	29.0
	Master	2	1.0
	D3	19	9.5
	D2	1	0.5
	D1	2	1.0
	Junior High	6	3.0
Job status	Elementary	3	1.5
	Student	81	40.5
	Entrepreneur	20	10
	Employee	67	33.5
Money spent on game per month	Others	32	16
	≤ IDR 15,000	99	49.5
	IDR 15,001 – IDR 75,000	66	33
	IDR 75,001 – IDR 149,000	26	13
	IDR 149,001 – IDR 299,000	8	4
	IDR 299,001 – IDR 739,000	1	0.5

### 4.2 Measurement model evaluation

The study employed SmartPLS as the main data analysis method. To validate the measurement model, reliability and validity analyses were performed. The study further examined the instrument used regarding

its composite reliability, convergent validity, and also discriminant validity. The composite reliability of the four constructs ranged between 0.821 and 0.946 (see Table 2), which exceeded 0.70 (Hair et al., 2010)s, achieving acceptable internal consistency. The average variance extracted (AVE) for all constructs ranged between 0.578 and 0.853, indicates that the variance explained by more than 50% (Hair et al., 2010). The tests show that the instrument achieves acceptable convergent validity in the questionnaire.

Table 2. Results Summary for Reflective Measurement Models

Latent Variable	Indicators	Loadings	Indicator Reliability	Composite Reliability	AVE	Discriminant Validity?
BIMG	bimg_1	0.828	0.686	0.921	0.628	Yes
	bimg_2	0.831	0.691			
	bimg_3	0.653	0.426			
	bimg_4	0.715	0.511			
	bimg_5	0.808	0.653			
	bimg_6	0.834	0.696			
	bimg_7	0.856	0.733			
C2CI	c2ci_1	0.753	0.567	0.821	0.608	Yes
	c2ci_2	0.897	0.805			
	c2ci_3	0.672	0.452			
CONE	cone_1	0.523	0.274	0.904	0.578	Yes
	cone_2	0.741	0.549			
	cone_3	0.831	0.691			
	cone_4	0.826	0.682			
	cone_5	0.846	0.716			
	cone_6	0.768	0.590			
	cone_7	0.736	0.542			
PINT	pint_1	0.935	0.874	0.946	0.853	Yes
	pint_2	0.931	0.867			
	pint_3	0.905	0.819			

Table 2 shows that all indicators on each of latent constructs significantly exceeded the threshold recommended (0.708) (Hair et al., 2010), which means all items used in this study meet the criteria of convergent validity. The second item states “I enjoy my time playing with other players in Clash Royale” describes its latent variable (C2CI) the most compared to the first and the third items. From the result, it can be concluded that players are more likely to enjoy their time playing with other players rather than feeling connected with another player or having a chance to meet their friend in-game. It is also known that the fifth item of consumer engagement reflects the construct the most, it shows that occurring engagement between a player with the brand while they play, are manifested by their pride. As for the brand image, are most reflected by the existence of unique characters such as barbarians, goblins, witches, wizards, and so on, which on their mind, differentiate the game brand than its similar competitors. Their intention to purchase is strongly reflected by

players' interest to buy and further, purchasing to win battles.

#### 4.3 Discriminant validity

Table 2 also shows that the reflective measurement models used in the study meet the criteria of discriminant validity, which is the extent to which a construct is distinct from the others by empirical standards (Hair Jr., Hult, Ringle, & Sarstedt, 2014). Table 3 shows that all items correlate with its respective constructs, while Table 4 compares the square root of the AVE values with the latent correlations of a latent construct, precisely the square root of AVE values in each construct is higher than its highest association with the others.

**Table 3.** Discriminant Validity Assessment (Cross Loadings)

	BIMG	C2CI	CONE	PINT
bimg_1	<b>0.828</b>	0.416	0.633	0.495
bimg_2	<b>0.831</b>	0.375	0.597	0.391
bimg_3	<b>0.653</b>	0.320	0.543	0.525
bimg_4	<b>0.715</b>	0.355	0.486	0.255
bimg_5	<b>0.808</b>	0.406	0.606	0.394
bimg_6	<b>0.834</b>	0.475	0.738	0.542
bimg_7	<b>0.856</b>	0.412	0.666	0.486
c2ci_1	0.328	<b>0.753</b>	0.361	0.151
c2ci_2	0.507	<b>0.897</b>	0.590	0.363
c2ci_3	0.297	<b>0.672</b>	0.406	0.389
cone_1	0.391	0.430	<b>0.523</b>	0.187
cone_2	0.597	0.540	<b>0.741</b>	0.434
cone_3	0.607	0.498	<b>0.831</b>	0.465
cone_4	0.670	0.499	<b>0.826</b>	0.432
cone_5	0.660	0.503	<b>0.846</b>	0.539
cone_6	0.556	0.382	<b>0.768</b>	0.561
cone_7	0.620	0.354	<b>0.736</b>	0.576
pint_1	0.572	0.438	0.624	<b>0.935</b>
pint_2	0.488	0.312	0.546	<b>0.931</b>
pint_3	0.509	0.329	0.533	<b>0.905</b>

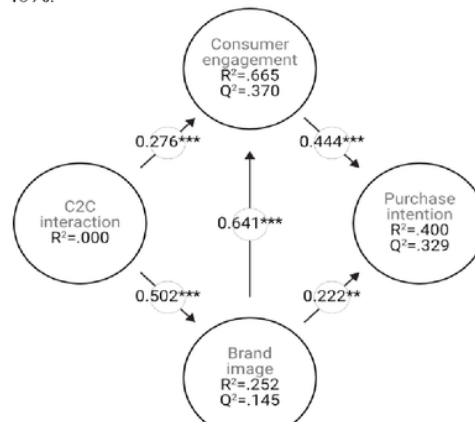
**Table 4.** Discriminant Validity Assessment (Fomell-Larcker Criterion)

	BIMG	C2CI	CONE	PINT
BIMG	<b>0.792</b>			
C2CI	0.502	<b>0.779</b>		
CONE	0.780	0.598	<b>0.760</b>	
PINT	0.568	0.393	0.617	<b>0.924</b>

#### 4.4 Structural model evaluation

The R-square is obtained using SmartPLS as shown in Figure 2, the value of consumer engagement is 0.665, which means the variance of C2C interaction can explain brand image by 66.5%. It can be concluded that C2C interaction and brand image can influence consumer engagement by 66.5%. It is also

shown that the value of R-square on brand image is 0.252, which means the variance that can be explained by C2C interaction is 25.2%. The result says that C2C interaction can affect the brand image by 25.2%, while on purchase intention, the R-square value is 0.400, which means the variance that can be explained by the structural model is approximately 40%.



Note.  $p < .10$ ,  $**p < .05$ ,  $***p < .01$

**Figure 2.** PLS-SEM Results for the Conceptual Model

In the structural model, its predictive relevance can be assessed from Geisser and Stone's Q-square criteria (Geisser, 1974; Stone, 1974). When the Q-square value exceeds 0, indicates that the structural model predicts the explained topic accurately. Results show that all values exceed zero (see Table 5), meaning that the structural model developed in the study accurately predicts the data points of indicators (reflective measurement model) by 85%. Also, collinearity assessment shows that the variance inflation factor does not exceed 5 (see Table 6).

#### 4.5 Results of hypotheses testing

The hypotheses were tested using SmartPLS. Figure 2 shows the main path coefficients, t-values, and explained endogenous variables' variance ( $R^2$ ) for the structural model. Hypotheses are supported if  $t$  statistics  $> t$  table on error rate ( $\alpha$ ) 5% that is 1.96. Figure 2 also shows that the value of  $t$  statistics of BIMG's influence towards CONE is 13.726 which exceeds 1.96, indicates that the brand image of Clash Royale significantly influences consumer engagement. The value of the resulting coefficient is 0.641 (positive), thus, supporting  $H2$  which presumes that brand image positively and substantially affects consumer engagement.

**Table 5.** Significance Testing Results of the Structural Model Path Coefficients

Structural Model Prediction Assessment			
Latent Variable	Accuracy	Relevance	
	R <sup>2</sup>	Q <sup>2</sup>	
BIMG	.252	.144	
CONE	.665	.353	
PINT	.400	.316	
Structural Model Path Coefficients Significance Test			
	Path	t values	p values
	Coefficient		
BIMG→CONE	.641***	12.747	.000
BIMG→PINT	.222**	2.261	.024
C2CI→BIMG	.502***	9.016	.000
C2CI→CONE	.276***	4.397	.000
CONE→PINT	.444***	4.689	.000

Note. The cross-validated redundancy measure Q-square is obtained from the blindfolding procedure with an omission distance of seven; the t-values and p values are obtained from the bootstrapping procedure (200 cases, 5,000 subsamples, no sign changes, and 95% confidence interval two-tailed test).

\*p < .10, \*\*p < .05, \*\*\*p < .01 (two-sided test).

**Table 6.** Collinearity Assessment

	BIMG	C2CI	CONE	PINT
BIMG			1.337	2.549
C2CI	1.000		1.337	
CONE				2.549
PINT				

Note. Values of variance inflation factor should not exceed the value of 5.

The value of *t* statistics between C2CI and CONE is 4.628, exceeding 1.96 means that C2C interaction significantly influences consumer engagement. The amount of coefficient generated a positive value of 0.276 shows that the higher the frequency of player-to-player interaction the better the consumer engagement, which further supports *H3*, presumed that C2C interaction has a significant influence towards consumer engagement. While the value of *t* statistics on the relationship between CONE and PINT is 4.910 (> 1.96), show that consumer engagement significantly influences purchase intention. The coefficient is a positive value of 0.444 indicates that the better the consumer engagement, the more likely players' intent to purchase virtual goods, therefore, *H4* is supported.

The influence of C2CI towards BIMG shows the value of *t* statistics of 9.039, which exceeds 1.96, this means C2C interaction has a significant impact on brand image. The coefficient is a positive value of 0.502, thus, the higher the frequency of C2C interaction between players then the brand is more likely to

be perceived uniquely on players' mind, supporting *H5*. While *H6* is also supported with its *t* statistics value equals to 2.318 (> 1.96) with a positive coefficient value of 0.222, which means the better the brand image on players' mind, hence the higher their intention to purchase in-game virtual goods.

It can be concluded that brand image is associated with consumer engagement, C2C interaction is associated with consumer engagement, consumer engagement is associated with purchase intention, C2C interaction is associated with the brand image, and brand image is associated with purchase intention.

## 5. Discussion

The results show that the items 'uniqueness of in-game characters', 'satisfaction while playing,' and 'perception that Clash Royale is one of the best mobile game' are the strongest item reflecting brand image (BIMG) with its highest factor loading. While the item 'feeling comfortable during the game' and 'pride while playing' are the most reliable reflecting items of consumer engagement (CONE), also with mean values on each item in the excellent category. The data explains that the characters developed have a unique art style across all games developed by Supercell, which affects the comfort and pride of the player when they are playing. Characters such as barbarian, witch, wizard, goblin, and so on have a unique shape, colors, voices, and animations compared to other similar games. Thus, making the players feel proud because they perceived the brand Clash Royale as one of the best mobile game, supported by its ranking on App Store and Play Store; in addition, when the player has a higher arena, higher win rate, and a right amount of rare card owned, could make them feel proud. The highest mean value in the item good graphics quality supports that intuitive user interface, daily rewards, the number of battles won cause the player feel satisfied and comfortable. The findings regarding the influence of BIMG towards CONE supports previous studies (Greve, 2014; Hapsari, 2015; Ul Islam & Rahman, 2017).

As a consumer in an online community, players collect information about the brand according to their expectation, causing them to interact and engage in the game platform to get rewards such as clan chests, free chests, winning battles, and so on. It shows how psychological and monetary appreciation could be obtained by them. Both information quality and rewards are contained in the enjoyment aspect of C2C interaction (C2CI), as well as the cognitive and affective aspect of players' interaction with the brand (CONE).



Results show that when players enjoy their time spent playing with others, they would like to be rewarded (appreciated) both monetarily and socially, thus affecting their pride, feeling of comfort, and pleasure when they play the game, such as getting the rare legendary chest drop, or winning clan chest from battling together. The appreciation further encourages the player to win more battles, shown by its high mean value and more than 80% top scores (TTB). Therefore, it can be concluded that the mediating role of CONE strengthens C2CI's influence towards purchase intention (PINT) because when the players are playing the game, they intend to purchase virtual goods through emotional aspect of CONE, in line with previous studies (Ul Islam & Rahman, 2017).

Several previous studies related to player-brand interactions (CONE) have been conducted to examine if such interactions could affect their intention to purchase (PINT) (Alnawas & Aburub, 2016; Hsiao & Chen, 2016; Murtiasih et al., 2013). Players search for information regarding products on the internet such as online forums or while playing the game before purchasing, which influence their purchase intention also encourages them to share their purchasing experience (Murtiasih et al., 2013). Also, the players' positive activity towards the brand has a stronger indirect influence as a mediating variable; this is because CONE could be built in a relatively shorter time using marketing communication when compared to BIMG as a mediating variable. Thus, it can be concluded that CONE has a significant influence on PINT supporting previous studies (Tiruwa et al., 2016), which suggests that the players' positive attachment or activity towards the brand positively influences their purchase intention, the reasoning behind is that the attachment is almost emotional or affective in nature, resulting in the players' commitment that is in line with repetitive buying behavior. The mediating role of CONE in the direct relationship between C2CI and PINT also has a stronger indirect effect than BIMG.

Cues related to interactions between players refer to aspects that offer the possibility of them developing "connectedness" or friendships thus fostering their interactions (Blasco-Arcas et al., 2016). These aspects allow them to contribute and generate new content such as online fan art on social media while enhancing their connectivity and participation between them (Libai et al., 2010). Cues contained in such interactions provide players a new opportunity to see and learn from each other, which could help them gain knowledge and access to information regarding the brand Clash Royale from a more experienced player (C2CI) generating a more favorable brand image.

A brand image could be obtained because of a perceptual or conceptual relationship towards the brand in the players' mind originated from the cues as mentioned earlier. These relationships make the product more accessible and more likely to be evaluated positively due to stimuli obtained while the players are interacting with each other within the game (Berger & Fitzsimons, 2008). The analysis supports that the items used in the study, on the functional aspect—that the price of virtual goods sold in-game are relatively cheaper than other similar games' virtual goods and on the affective side—regarding a unique playing experience with a high mean values and 79% top scores of a total of 82% respondents' answer. Thus, it can be concluded that C2C interaction significantly influences the brand image. Also noted before that the mediating role of BIMG has a weaker effect on its relationship.

The value as mentioned earlier of *t* statistics of BIMG's influence towards PINT shows that the better the perceived uniqueness that the brand has, the higher their likelihood of purchasing virtual goods in Clash Royale. As pointed out, the brand image is recognized by the players' mind, originated from their memory. The data supports that it is very likely that the brand image players hold obtained through their interaction with each other, influences their positive attitudes towards their purchasing behavior (Blasco-Arcas et al., 2016; Teng & Laroche, 2007).

The results show that the item stating that the brand Clash Royale is perceived as one of the best mobile game with mean values categorized as "good" is best reflecting the construct BIMG. It shows that when a game specifically, Clash Royale has a good image on the players' mind, they can feel satisfied during the game and will not hesitate to purchase represented by the item stating players' interest to purchase virtual goods, further supports *H6* (Murtiasih et al., 2013; Zhu et al., 2015).

### 5.1 Limitations & future research directions

Despite the paper contributes to the existing literature on how C2C interaction indirectly influences the purchase intention of virtual goods in mobile game context, it has some limitations as follows: first, the study is based on a sample size of 200 in Indonesia's mobile game player, thus limiting the generalizability of the current study. Future research should consider a larger sample size. Second, the study is limited only in a specific brand of mobile games, which cannot be applied in a general mobile game context, future research could be done with all mobile game generally or another specific brand of it.

## 6. Conclusions

Brand image significantly influences consumer engagement, which means that the uniqueness of the brand image in the players' mind gives a significant influence towards players' closeness and their activity towards the brand. Data also shows that C2C interaction also significantly influences consumer engagement, which further supports that consumer engagement significantly affects the purchase intention of virtual goods. The results also show that when players are playing, they are interested in purchasing virtual goods due to their emotion. Players should have a favorable brand image such as its brand name and other marketing communication activities. Regarding the findings, firms inside the game industry should increase players' engagement with their brands to enhance their intent to purchase. The study also pointed out that the mediating role of consumer engagement is critical because the players' perception of information following their expectations will lead to positive action towards the brand which may generate purchase intention. While the weaker mediating role of a brand image comes from their interactions, allowing them to learn, gaining access to information regarding the brand from older players, resulting the virtual goods to be evaluated positively.

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#### Appendix: A Indicators of the Reflective Measurement Models

<b>Brand Image (BIMG)</b>		<b>Source</b>
bimg_1	Clash Royale has better quality compared to other similar games	Salinas & Pérez (2009)
bimg_2	The characters in Clash Royale are unique compared to characters in other similar games	
bimg_3	Virtual goods in Clash Royale are cheaper compared to virtual goods in other similar games	
bimg_4	Clash Royale have a good graphics	
bimg_5	Clash Royale offers a unique playing experience	
bimg_6	I feel satisfied when I play Clash Royale	
bimg_7	Clash Royale is one of the best mobile game	
<b>C2C interaction (C2CI)</b>		
c2ci_1	I can connect with another player while playing Clash Royale	Moore et al. (2005)
c2ci_2	I enjoy my time playing with other players in Clash Royale	
c2ci_3	I have a chance to meet a friend while playing Clash Royale	
<b>Consumer Engagement (CONE)</b>		
cone_1	I am thinking about winning battles while playing Clash Royale	Hollebeek et al. (2014)
cone_2	Playing Clash Royale stimulates my interest to know more about the game	
cone_3	I enjoy playing Clash Royale	
cone_4	I feel happy when I play Clash Royale	
cone_5	I feel proud when I play Clash Royale	
cone_6	I spend a lot of time playing Clash Royale	
cone_7	I spend a lot of time playing Clash Royale compared to similar games	
<b>Purchase Intention (PINT)</b>		
pint_1	I am interested in purchasing virtual goods in Clash Royale	Taylor & Baker (1994)
pint_2	I will purchase virtual goods to win battles in Clash Royale	
pint_3	I will purchase virtual goods in Clash Royale in the future	

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