IN-APP PURCHASES ON MOBILE GAMING: WHAT MAKES PLAYER WILLING TO PAY BASED ON PERCEIVED VALUES

A THESIS

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DECLARATION OF AUTHENTICITY

Herein I declare the originality of the thesis; I have not presented anyone else's work to obtain my university degree, nor have I presented anyone else's words, ideas or expression without acknowledgment. All quotations are cited and listed in the bibliography of the thesis.

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Yogyakarta, 29 January, 2021

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ABSTRACT

The mobile gaming industry has garnered a high place in the global market. This emerging market has allowed the mobile game industry to be able to implement multiple form of business model to increase its profitability. However, several combinations of business model have not been fully understood yet. One of the more recent combination of business model is the usage of Freemium business model in tandem with the Loot box (*gacha*) mechanism in online mobile gaming. This research aims to find out the impact of mobile game players' perceived value towards in-app purchases in mobile games. This research is done in a quantitative manner with 350 respondents as its sample. Structural Equation Modelling (SEM) is employed to identify whether there is an impact of perceived values towards in-app purchase in a Freemium business model and *gacha* mechanism in the game Fate/Grand Order. The research findings reveal that emotional and social perceived values positively and significantly influences in-app purchases, while value for money influences in-app purchases insignificantly. Other implications are also discussed and elaborated in this research.

Keywords: mobile game, freemium, perceived value, in-app purchase, *fate/grand order*

ABSTRAK

Industri game seluler kini telah memiliki posisi yang cukup signifikan di pasar global. Pasar game seluler sejauh ini telah mampu mengimplementasikan berbagai pendekatan dan model bisnis untuk meningkatkan profitabilitasnya. Meskipun demikian, beberapa kombinasi model bisnis yang diterapkan masih belum sepenuhnya dipahami. Salah satu kombinasi model bisnis yang telah banyak diterapkan adalah kombinasi model bisnis *Freemium* yang dikombinasikan dengan mekanisme *loot box* (*gacha*) pada game seluler daring. Penelitian ini bertujuan untuk memahami pengaruh *perceived value* pemain game seluler terhadap pembelian dalam aplikasi (*in-app purchase*). Penelitian ini menggunakan pendekatan kuantitatif dengan sampel sebanyak 350 responden. Pendekatan *Structural Equation Modelling* digunakan untuk mengidentifikasi apakah ada pengaruh dari *perceived value* terhadap pembelian dalam aplikasi pada game seluler daring yang menggunakan kombinasi model bisnis *Freemium* dan mekanisme *gacha* dengan menggunakan game *Fate/Grand Order* sebagai studi kasusnya. Hasil dari penelitian ini menemukan bahwa nilai emosional (*emotional perceived value*) dan nilai sosial (*social perceived value*) memiliki pengaruh yang positif dan signifikan terhadap pembelian dalam aplikasi berdasarkan pada studi kasus, sementara nilai keuangan (*value for money*) tidak memiliki pengaruh yang signifikan. Implikasi lainnya juga didiskusikan dan dijelaskan secara lebih rinci dalam penelitian ini.

Kata Kunci: game seluler, freemium, *perceived value*, *in-app purchase*, *fate/grand order*

CHAPTER 1

INTRODUCTION

1.1. Background Problem

Mobile device technology has changed the world drastically in the past few decades – it has changed how human lives and work significantly. The ease of access that mobile devices have such as smartphones and tablets provide redefined human behavior fundamentally. In tandem with mobile devices, advances in internet connectivity with technology such as 4G networks as well as its near-global coverage allows mobile device users to connect with the internet with ease. According to the reports by the International Telecommunication Union (ITU), the global number of individual internet user count has tripled since the last 15 years, it is predicted that 53.6% of the world population are using the internet by the year of 2019. Similarly, in the same year, it is also predicted that 97% of the world population lives within the reach of internet mobile network coverage as well as 83% of the world population owns an active mobile-broadband subscription (Bogdan-Martin, 2019). These data indicate the significant impact of how mobile device technology and internet technology have taken over the world.

Both the advancess in mobile technology and internet have sparked an ever-growing market of smartphones. GSM Association reports that the 2018 mobile technology and service market contributed 4.6% of the global GDP and supported almost 32 million all across the world (GSM Association, 2019). This advance also drives a huge demand for more mobile application that improves

the value and usefulness of mobile devices. Mobile applications (or more easily known as mobile apps) are a form of software programs that are created and designed to run on a mobile device and usually are downloaded from apps stores, these apps perform various functions such as calendars, web browsing, social networking, and mobile gaming.

Mobile games are defined as a form of games that are played on a mobile devices (Terlutter & Capella, 2013). Traditionally, mobile games do not require internet connection to be played (offline mobile games) and isn't really considered as a major feature in a mobile device. However, due to the dramatic increase of computing capability of mobile phones, the advent of touchscreen technology, ease of access to the internet, as well as increased affordability of the mobile phones, the online mobile games rose to popularity alongside its offline counterpart. The mobile games market has been rapidly growing, according to a report from Newzoo (Gu et al., 2019) on Global mobile market, mobile game market boasts a massive year-on-year growth of +26.7% as well as $68.5 billion revenue in 2019 alone. Player-wise, there are more than 2.3 billion mobile game players in the world. Interestingly, around 37.5% among them are a group of players known as "mobile game payer" – a group of players that spends their money on mobile gaming, moreover, this number is expected to rise in the following years. These reports show that the mobile gaming industry has proven to be a force to be reckoned with. While a majority of the players are not paying for the mobile game they're playing in yet are still able to play the game like everyone else, the mobile game payer does pay for additional features that might not be available for "free players" – a group of

player that doesn't pay for the game they're playing in. This particular business model that's being applied in most online mobile games are known as "Freemium" pricing strategy.

The term "Freemium" refers to a pricing strategy first coined by Wilson (2006) in which a product is provided for "free" with its basic functionality, however a price is then charged for "premium" additional features or services that expand the free version of the product. Freemium business model is generally used by online mobile games with a much more well-known term of "free-to-play" or F2P games in which the game is free to be downloaded without paying. However, several virtual items that would ease the players gameplay or progression is limited unless the players are willing to pay for such additional features via a microtransaction – a business model generally paired with Freemium in which the players are able to purchase virtual goods to improve their gaming experience – by using a virtual currency in place of actual money which also adheres to a specific real-life currency exchange rate.

In an online game context, the usage of virtual currency in a virtual environment creates a quasi-real economic system with virtual goods measured in a particular virtual currency in a specific game (Xu et al., 2017). This phenomenon of the virtual economy however, still interacts with real-life economies (Knowles & Castranova, 2016) as no matter what kind of virtual goods the player bought or how many layers of abstractions being applied in online mobile games, the virtual currency always traces back to actual money.

Another layer of business model that is being applied in modern online mobile games on top of the Freemium pricing strategy is the loot box mechanism. On the contrary to how normal transaction goes in which one player purchases a fixed virtual goods with a fixed price-point, the loot-box mechanism creates a "box" which holds a pool of items with varying degree of rarity. Instead of purchasing a single item, the player purchases a chance to obtain an item from a particular pool of items on a particular "box" (Zendle et al., 2020a). The item in the loot box all has a graded rarity in which the higher the rarity of such item, the lower the chance of the players obtaining one of them. The chance of getting the items in the loot box is usually shown in a percentage, in which the highest rarity items rarely pass the 5% chance of obtaining per loot boxes.

In Asian market, the mechanism is more well-known with the name of "*gacha*" mechanism, deriving its name from a "gashapon" capsule toys vending machine popularized in Japan. The adaptation of *gacha* mechanism in online mobile games creates another complicated layer of abstraction as it allows the game company to use such mechanism as a "reward" in which the game does not provide for the player any particular item, but instead a chance of obtaining a high-rarity item. This creates a façade that depicts the game developers to be generous by giving the players a free chance to obtain an item. Related to the Freemium pricing strategy, the *gacha* is an extension of the free features given by the F2P game. This mechanism generates additional revenue by giving a limited amount of free *gacha* to the player and controls the item degree of rarity in which the process motivates the player to purchase more *gacha* chance to

obtain more items. In short, *gacha* mechanism acts as both a free and premium feature in a freemium business model, the main difference between both is the amount of *gacha* chance that a player has to obtain a particular item.

Viewing the implementation of *gacha* mechanism in freemium business model via microtransaction by utilizing F2P online mobile games, an issue regarding the mobile game player and mobile game payer arises. When viewing the case from a typical freemium implementation, it is expected that the additional premium features would be something that a number of players might consider purchasing. However, when *gacha* mechanism is added to the equation an interesting situation arises, as the situation now includes the game of chances. The fact that each player is given the same amount of free features in form of *gacha* chances yet some of the players decided to purchase additional *gacha* chances. This begs a questionable condition in which the mobile game payers still choose to purchase additional *gacha* chances despite of its randomized nature and low chance of getting high rarity items. Although the logical deduction regarding the relationship between players' desire to obtain something from a *gacha* and the chance given to the players to purchase is evident, the lack comprehensive and empirical explanation on this phenomenon creates a gap of understanding that needs to be addressed. Moreover, the motivation and driving factors behind the mobile game players and payers are still vague and worth discovering.

Recent studies show that there are multiple driving factors influencing players intention to make an in-app purchase such as loyalty and good prices

(value for money) (Hsiao & Chen, 2016a). Another research shows a more emotional issue regarding the driving factors of in-app purchases in online mobile games as there's an evidence that both loyalty and mobile game addiction influences each other in the process of influencing in-app purchases (Balakrishnan & Griffiths, 2018). Another more generic study regarding players' intention to play online games also mentioned that there might be also another driving factors specifically on loyalty such as inter-customer interaction and ease of use (Agag et al., 2019). However, the existing studies focus only on a single online mobile game, the relevance of the results needs to be recreated in a more generic scope by using multiple online mobile games to improve its validity. In general, in-app purchase intention seems to be influenced by emotional values, social values, and value for money.

This research is intended to address the phenomenon of what driving factors that influence in-app purchase intention by mobile game players might transform into a mobile game payers as well as what influence mobile game payers pays.

To improve the validity of the scope of research, this research focuses on factors affecting mobile game loyalty in one of the most popular online *gacha* mobile games, namely *Fate/Grand Order* (Delightworks, 2015) which is the top mobile game in terms of worldwide consumer spending (Clayton, 2018).

By using the aforementioned two games as a new scope, hence, this research aims to discover the driving factors that influence in-app purchase intention on online mobile games players that play online mobile games

implementing *gacha* mechanism on top of freemium business model on their games.

1.2. Research Question

Based on the background and problems mentioned above, several research questions are formulated as follows:

1. Does emotional values positively influence in-app purchase intention in online mobile game players?
2. Do social values positively influence in-app purchase intention in online mobile game players?
3. Does value for money positively influence in-app purchase intention in online mobile game players?
4. Does mobile game loyalty positively influence in-app purchase intention in online mobile game players?

1.3. Research Hypotheses

Based on the research questions mentioned above, several research hypotheses can be formulated.

1. Emotional values positively influence in-app purchase intention.
2. Social values positively influence in-app purchase intention.
3. Value for money positively influences in-app purchase intention.
4. Mobile game loyalty positively influences in-app purchase intention.

1.4. Research Limitation

This research is limited by several constraints such as:

1. This research limits the factors influencing only emotional values, social values, value for money, and mobile game loyalty.
2. This research is conducted only on Fate/Grand Order.
3. This research limits the control variables only on several demographics which are: platform, age group, gender, income.
4. This research findings focus on the perceived value, further analysis regarding the dimensions that influences the perceived values is not included in this research.

1.5. Research Objective

Based on the research questions mentioned above, this research aims to identify the driving factors based on the existing values (emotional, social, money, & mobile game loyalty) that influence in-app purchases intention in online mobile game players and mobile game payers.

1.6. Research Contribution

This research study provides benefits theoretically and practically. Theoretically it would make a significant contribution to the marketing area. It can be a reference for other researchers to conduct further research on the major driving factors that affect in-app purchase on mobile games players. Practically, marketers can take advantage of the research findings to improve their marketing strategies

1.7. Research Framework

The framework of this research eliminates several unsupported hypotheses from Hsiao & Chen (2016) and adds several *gacha*-specific based on Lax & Mackenzie (2019) and Niedenthal (2009) concept of game aesthetics.

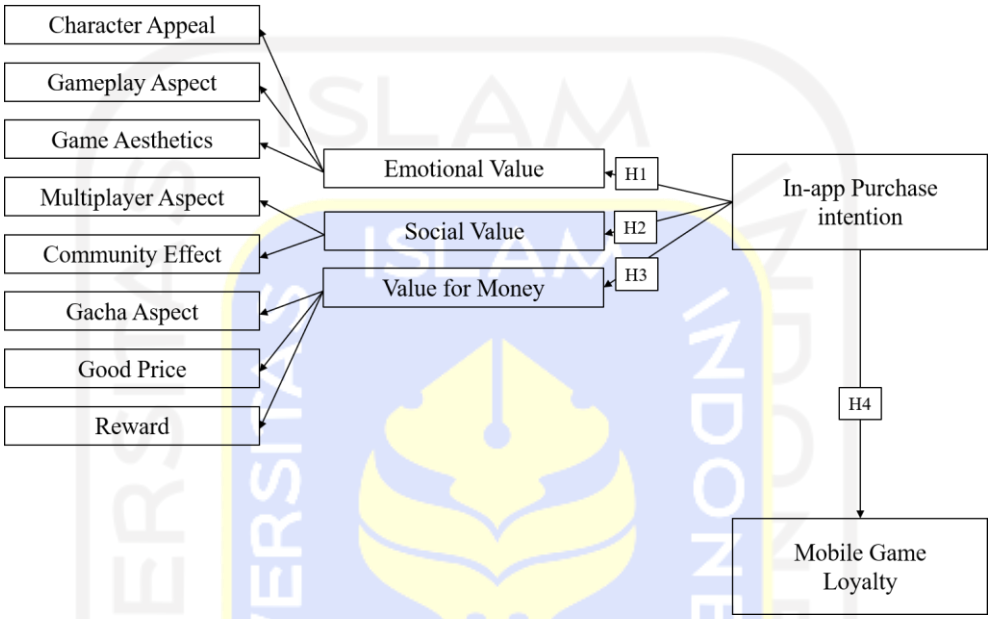

Figure 1.1 Initial Proposed Research Framework
Source: Adapted from Hsiao & Chen (2016).

The proposed framework tries to gather information regarding the perceived emotional values of the players towards the game in which they perceive the character appeal in the game, its gameplay aspect, as well as the game aesthetics itself. The perceived social value is gathered from player's perspective towards the usage of multiplayer in the game as well as how the community affects the player. Finally, the value for money is gathered via players' view towards the price of the *gacha* aspect being applied in the game, the price of premium currency, and the reward they get without spending their money. The mobile game loyalty is adapted based on Hsiao & Chen (2016) and

concerns more towards the general aspect of an online mobile game itself rather than specific games like the perceived values.

CHAPTER 2

LITERATURE REVIEW

This presents the theories on the working variables of this research (factors influencing in-app purchase based on perceived values) as well as the research hypotheses related to each variable.

2.1. Theoretical Background

2.1.1. Mobile Games

Mobile games is a form of mobile application (Korhonen & Koivisto, 2006) that are generally played on a small handheld computing devices such as mobile phones or tablets (Merikivi et al., 2017) with a general purpose of entertaining the user (Liang & Yeh, 2011) via a set of gameplay rules and visuals. The dramatic growth of mobile games market has gained its notorious fame compared to other mobile application in terms of how the users are often willing to pay for services provided by the game itself (Penttinen et al., 2010). This growth has created a surge of numerous studies concerning multiple aspects of mobile games and mobile gaming in general.

Study on mobile games seems to have multiple aspects to discuss., A few studies are concerned with players and social aspects (Wei & Lu, 2014), educational aspect in context of educational games (Hafis & Supianto, 2018), or more interestingly, related to the players' behavior such as in-app purchase driving factors (Hsiao & Chen, 2016b) and purchase decisions (Sifa et al., 2015).

Recent research have investigated multiple driving factors of in-app purchase intention in mobile gaming via understanding the players' perceived values and loyalty towards a particular mobile game, and there have been a clear distinction on types of players by differentiating them into two groups, the paying users and non-paying users (Hsiao & Chen, 2016b). Similarly, recent research by Balakrishnan & Griffiths (2018) reveals additional insight regarding several psychological aspects of mobile gaming such as gaming addiction in regards to their loyalty and in-app purchase. Additionally Ghazali, Mutum, & Woon (2019) explores the social and psychological aspect of mobile gaming in respect to players' purchase intention by considering the effect of community involvement and enjoyment.

The existing recent research focuses on different types of games, as well as different fields of mobile gaming. This research intends to focus on identifying and understanding the driving factors of in-app purchases intention on mobile games based on Hsiao & Chen (2016) by utilizing the perceived values. However, unlike the aforementioned research, this research focuses only on the paying players on a particular mobile game instead of both paying and non-paying users. Additionally, this research intends to replicate recent research that focuses on player behavior as a determinant to the perceived values that has been known to affect players' behavior, including in-app purchases. Lastly, the games being focused in this research uses a key defining feature of freemium business model (also known as free-to-play games) as well as *gacha* mechanism that will be discussed on further section of this chapter.

2.1.2. Freemium Business Model

Freemium business model refers to a pricing strategy in which a product is given for “free” to the customers with its basic functionality. However, to gain additional “premium” features, a price is then charged in which it expands and enhances the functionality of the “free” version of the product (Wilson, 2006b). On the context of mobile games, this business model has been adapted in a form of “free-to-play” or F2P games. The games are free to be downloaded without paying, this also includes the absence of advertisement pop-ups (also simply known as “ad”) as these kinds of games are not ads-supported. However, additional virtual items are introduced to players with a price tag. These items are geared to enhance their gaming experience by easing their gameplay and progression – hence a premium content.

As mentioned on the previous paragraph, ad-supported mobile games are not F2P games. In ads-supported mobile games, the players “support” the game by forced-ads that interrupts them during their gameplay, meanwhile in premium games, the players are required to pay a one-time-price or have no chance of playing the game at all (Khan et al., 2012).

F2P games are fundamentally free to play for all players. The games provides exactly the same features and service whether the player decides to stay being a free user or become a paying user. What makes a huge difference is that the game uses a concept of virtual currency in the game by which can be used to purchase premium contents in the games (Xu et al., 2017). These

premium contents directly affect the player experience mechanically instead of acting just as a cosmetic item that changes the game appearance.

In F2P games, virtual currency is normally provided for free in the game as progression reward and exists in a limited amount. However, the players are given a freedom to purchase additional virtual currency by using real life money. In short, F2P games are essentially free for all players until they decide to spend their real-life money to purchase additional virtual currency.

The approach of monetizing player progression via virtual currency in F2P games has become one of the more interesting topics in mobile gaming consumer behavior due to its inherent contradictive mindset of utilizing players' intention to purchase additional content (Hanner & Zarnekow, 2015). A study has shown that although F2P games are essentially free, the existence of additional contents in exchange of real life money via virtual currency has a significant effect towards spending more money in form of addiction (Dreier et al., 2017). The prominence of F2P games is also heightened by the fact that they also use additional mechanism known as "lootbox" mechanism or also known as "*gacha* mechanism" that will also be covered in this chapter.

2.1.3. *Gacha* Mechanism

The term "*gacha*" is derived from a "gashaphon" capsule toys vending machine popularized in Japan in which someone can purchase a special coin to pull the vending machine and get a capsule (Shibuya et al., 2017). The content of the capsule itself is not fixed but instead chosen from a pool of content with different rarity with lower chances of getting a high-rarity content. This concept

is then adapted in games in form of “loot-box mechanism” that utilizes rarity and chances.

In a normal transaction, a player may purchase a virtual goods with a fixed price-point. However, the lootbox mechanism creates a “box” which holds a pool of items with varying degree of rarity while the player is given a chance to obtain an item from a particular pool of items on a particular “box” (Zendle et al., 2020b).

Both *gacha* and lootbox mechanism refer to the same method (Koeder et al., 2018), however, but the former is much more popular in Asian mobile games. The adaptation of this mechanism in F2P games is used in tandem with the virtual currency as progression reward as stated on the previous section. This creates a “layer of abstraction” which refers to the number of layers one particular virtual commodity can be traded for another item in a game.

The usage of virtual currency as a currency for *gacha* mechanism creates a façade that depicts the game developers to be generous by giving the players a free chance to obtain an item. Related to the Freemium pricing strategy, the *gacha* is an extension of the free features given by the F2P game by giving the players a limited amount of free *gacha* chances while the game developers control the item degree of rarity which in turn motivates the player to purchase more *gacha* virtual currency.

When viewing this phenomenon from a typical freemium business model that uses microtransaction (but not *gacha*), some players may argue that the premium additional features are worth the money and might consider

purchasing them. However, when *gacha* is added to the equation, an interesting situation arises.

Each player given the same number of free features in form of virtual currency that can be used for *gacha*, yet some players decide to purchase additional virtual currency to gain more *gacha* chances. This condition leads to a situation in which those who purchase the virtual currency are not purchasing the item directly but rather purchasing a chance to get a particular item (Yamakami, 2012).

The fact that *gacha* chances are based on different rarity items in which higher rarity items have a naturally low chance to acquire creates an interesting relationship between the players and the items. Although the players are essentially purchasing the virtual currency to get a particular item that they want, the *gacha* acts as sort of a barrier that restraint the player from getting them easily. This leads to player spending way more money than what it is supposed to be.

Recent studies have shown some degree of concern whether *gacha* and lootbox mechanism can be classified as gambling or not due to its random reward mechanism (Nielsen & Grabarczyk, 2019), some others also have focused on what motivates the players' decision on purchasing virtual currency for *gacha* purpose (Seo et al., 2019) as well as its consumptive behavior (Kaneko et al., 2018). By considering basic behavioral theory such as Theory of Planned Behavior (Ajzen, 1991, 2011), this phenomena is rather bizarre

considering that the players actually understand the low chances of getting a particular item that they want.

2.1.4. In-App Purchase Intention

As stated in the previous section, in-app purchase plays a major role in mobile games, especially in mobile games that use both freemium business model as well as *gacha* mechanism added. In-app purchase is currently one of the most well-established revenue models for game providers (Chen et al., 2016; Oh & Min, 2015). Furthermore, Lee & Raghu (2014) specifies that a vast majority of the existing free apps utilizes some degree of an in-app purchase option in the application.

In-app purchase intention refers to users' intention on purchasing a particular service in an application. On the context of mobile games, this refers to players' intention to purchase a particular item that may or may not affect their gaming experience. On the context of mobile games that uses freemium business model, this refers to players' intention to purchase a particular item that will certainly affect their gaming experience mechanically such as progression and their capability to do certain things in the game. Additionally, on the context of mobile games that use freemium business model as well as an adaptation of *gacha* mechanism via virtual currency, in-app purchase intention refers to players' intention to purchase a certain amount of virtual currency that allows them to have a chance to acquire a specific item in the game that will certainly affect their gaming experience mechanically. However, there are no certainty on whether the players are able to get exactly what they want or not.

There have been numerous studies related to in-app purchase intention in mobile games. Some of the most important aspects is what factors that influence in-app purchase intention. On its most basic level, in-app purchase intention applies theory of planned behavior (Ajzen, 1991, 2011) on a certain degree. Hsiao & Chen (2016) suggest that in-app purchase intention is highly influenced by players' perceived values as well as mobile game loyalty. The perceived values used in the research are emotional, performance, social, as well as value for money. However, based on the findings, not all values affect in-app purchase equally, value for money and emotional value influence in-app purchase intention, while other values influence mobile game loyalty more than in-app purchase. Mobile game loyalty then affects in-app purchase intention significantly.

From another perspective, Hsu & Lin (2016) discovered that regularity of a particular application usage has a major contribution towards in-app purchase. The same research also has the same findings. This translates to regular players in mobile games are more likely to have a higher chance of doing an in-app purchase. Interestingly, this research found out that social identification heavily influences in-app purchase intention. On the context of mobile games, social identification refers to the effect of the existing gaming community of a particular game. Additionally, Limanto, Semuel, & Adiwijaya (2018) discovered that player-to-player engagement affects consumer engagement which then influence in-app purchase intention.

It can be justified that there are some evidences that several different players' perceived values influence in-app purchase intention as well as the effect of community which can be categorized as social value in this case. Additionally, mobile game loyalty is also affected by the perceived values, acting as antecedents for mobile game loyalty. However, due to the depth of multiple business model and mechanism being applied in some mobile games, a better understanding is required to further understand what factors that apply to each perceived value as well as how such factors influence each perceived value which in return influences in-app purchase intention in a mobile game.

2.2. *Gacha* Implementation and Virtual Currency in *Gacha* Mobile Games

The implementation of *gacha* mechanism in mobile games has been discussed earlier in general. However, a deeper understanding is required due to that most *gacha* games implements the *gacha* mechanism along with several other additional techniques that are geared towards the player to spend more real-life money to purchase the virtual currency (Shibuya et al., 2017).

One of the concepts that has been stated before is the existence of "layers of abstraction" in *gacha* games. Layer of abstraction refers to how many layers a virtual currency can be exchanged mechanically in the in-game context. By adding multiple layers of abstraction, the true value of a virtual currency can be hard to determine. One of the most basic concepts being adapted in the mobile game that uses *gacha* mechanism is the existence of energy points.

Energy points is a strategy that is applied by mobile game developers to throttle the players progression by giving them a limited amount of energy to

do most actions (Paavilainen et al., 2013). Players can wait for the energy to be slowly regenerated over time, or can spend in-game items to accelerate the energy regeneration or even instantly gain energy. This model creates a psychological dilemma within the players' mind whether the players need to wait until their energy is refilled, or simply use precious in-game items to recover energy instantly.

The usage of energy points in mobile games are mostly to increase the players' levels via experience points as well as increasing the levels of their in-game characters. Most games also utilize the existence of "upgrade materials" by which the players may play certain stages in the game repeatedly to "farm for resources" that can be used to further upgrade their in-game characters (Kaneko et al., 2018). The term "farm" is derived from its literal meaning – to farm – as in agricultural farming, the act of finding more resources by repeatedly replaying a particular stage of the game.

Most games limits the progression of an in-game character level by capping their potency to a certain point. This limit is normally uncapped via additional specific materials that the players need to find by playing more the game and find specific items for this very particular purpose. The gameplay normally allows the players to increase their character level to a certain point and then limit them until they are able to "uncap" their character via in-game items that is need to be "farmed" by playing specific stages of the game.

On the topic of how several items can be farmed, the game normally uses a "loot system" that determines chances of a particular item to be "dropped"

from a particular stage. This loot table also uses a random number generator (RNG) to determine whether an item can be dropped or not. This allows the game to be developed to make the players play even more to gather materials and resources for their playthrough.

Different game uses different flow and method of utilizing the concept of upgrade materials and energy points, but, the implementation of this model is rather similar from one game to another. As being stated before, multiple online *gacha* games somewhat abuses the energy points strategy to sell even more virtual currency by allowing **the exchange of virtual currency for instant energy**. This allows the players to spend their virtual currency to progress more towards the game while sacrificing their *gacha* chances. As such, this creates a varying player behavior that may value their virtual currency more towards the *gacha* chances to get more items or characters, or those who will rather spend their virtual currency for energy.

Some *gacha* games allow **the exchange of virtual currency for in-game items** that allows their players to progress even faster instead of farming for items. This model is however is limited by a lot of restriction to keep the game balanced for all types of player (Yamaguchi et al., 2017). This model normally allows the exchange of specific items that might require a lot of time and effort to be farmed in normal playthrough, hence easing the progression for the players.

Referring back to the most basic usage of virtual currency, **the exchange of virtual currency for *gacha* chances** also has another layer of abstraction

added in which the player may acquire duplicate items from the *gacha*. Most *gacha* mobile games utilize these duplicate items by giving the player another in-game currency that can be used for multiple usages such as getting additional limited items that may normally be inaccessible with normal circumstances.

Another usage of virtual currency that is less-related to the mechanical aspect of the game is **the exchange of virtual currency for aesthetic purpose** that modifies the in-game sprite of a character or an item in the game. This usage of virtual currency is more geared towards the aesthetic aspect of the game viewed from the players' perspective. *Gacha* mobile games tend to put a massive effort towards their character design which enables to creates some sort of psychological bond with the player in which in turn may influence them to purchase additional virtual currency just to simply increase the aesthetics of a particular character.

Some *gacha* games also create **another virtual currency on top of the existing virtual currency** in which it creates a hierarchy of virtual currency. The purchasable virtual currency acts as the "premium" virtual currency that can be used to purchase the "normal" virtual currency. This model allows the game developer to reward the players with different type of currency by completing stages with different difficulties. This also allows a layer of abstraction in which the premium virtual currency worth way more than the others. This model also normally only allows the player to do a one-way exchange in a form of premium virtual currency to normal virtual currency. This allows the developer to do only need to sell one type of premium virtual

currency as a commodity while giving the players freedom to spend their purchased virtual currency for any purpose they desire.

The versatility of virtual currency in *gacha* game varies from game to game. However, due to the fact that the game utilizes so much randomness on top of mechanically-complicated layer of abstraction, the virtual currency is seen as the most important and rare commodity that can only be found in limited amount in the game as the player make a progress. If a player needs additional virtual currency, the player is required to spend real-life money to purchase such currency.

2.3. Perceived Value

Perceived value can be defined as consumers' overall assessment of the utility of a particular product or service based on what the customer receives and what is being given as a cost (Hsiao & Chen, 2016b). In general, perceived value refers to how consumer perceives the value of a particular service by comparing the cost used and benefit gained.

Multiple recent studies have been conducted to further understand what dimension and factors of perceived value that truly influence customer behavior in general, especially in a context of consumer purchase intention. Sweeney & Soutar (2001) separates perceived value into four distinct perceived values in their PERVAL model, which are: emotional, social, price, and performance. Although there are multiple dimension in PERVAL model, there are some evidence that not all values influence consumer purchase intention in a mobile application context (Hsiao, 2013; Hsiao & Chen, 2016b). Some dimensions

such as performance are less-influential towards purchase intention over the years as mobile phones becomes commonplaces.

In the context of virtual goods, Yang, Huang, & Su (2018) discovered that individual perception as well as social influence play a major role on influencing purchase intention. Cheng & Lin (2017) founded that monetary value (or value for money) highly influences online game purchase intention while both social and emotional value act as the antecedents of the monetary value.

Several studies related to perceived values in *gacha* game contexts have also been done. Hiramitsu (2019) analyzed a much more obscure *gacha*-specific factor such as *gacha* probability announcement. The research also found that emotional values plays a major role in influencing purchase intention, especially on *gacha* games that utilizes aesthetically pleasing character designs.

Based on multiple literatures, this research would employ three major perceived values related to mobile games are then adapted based on the context of *gacha* games. The perceived values that are focused on are the emotional values, social values, as well as value for money. All of the existing values is then adapted into *gacha* games-specific context.

2.3.1. Emotional Value

Emotional value refers to the utility derived from feeling or affection generated by a particular content (Lu & Hsiao, 2010). In the context of mobile games, this refers to individual thoughts on a mobile game such as personal

subjective enjoyment, excitement, fun aspect, as well as personal interest (Zhao & Lu, 2012).

On the context of mobile games that use freemium business model as well as an adaptation of *gacha* mechanism via virtual currency, emotional value can be extended into several dimensions based on how the game is designed. *Gacha* mobile games is known to put a massive amount of effort to polish the aesthetical design of the game such as character design and narrative aspect of story writing (Hartzheim, 2017). As such, aesthetic character design may create emotional bonds between the players and the characters, while intriguing narrative and story writing may also create emotional bonds between the players and the game itself. Additionally, aesthetically pleasing design in general is also known to increase players' enjoyment during the gameplay (Niedenthal, 2009).

Another key point that may determine emotional values are the gameplay of the *gacha* mobile games itself due to the fact that the *gacha* mechanics shapes the gameplay design of the game itself (Giddings & Harvey, 2018). An enjoyable core gameplay loop is needed to keep the players engaged (Guardiola, 2016). However, due to the existence of the *gacha* mechanism as well as aesthetically pleasing character design, the gameplay loop is then shifted and built around the *gacha* and materials farming itself (Chess, 2018).

Based on the findings, emotional value in perceived values can be divided into three dimensions which are: character appeal, gameplay aspect, and game aesthetics. These dimensions are then expanded and adapted based on the

gacha mobile games perspective. With this additional context of emotional value, the first hypothesis of this research is proposed as follows:

H1: Emotional values positively influence in-app purchase intention.

Character appeal is the first dimension of the emotional value in *gacha* mobile games perceived value. The importance of character appeal in *gacha* mobile games are perhaps even more important in its gameplay aspect itself (Hiramitsu, 2019). This is due to the immense effort and emphasis the game has put towards creating an aesthetically pleasing character. The effort can be seen from the emphasis of advertisement that are more focused on the characters instead of the gameplay aspect itself. This doesn't mean that the gameplay department are not being focused, but the existence of appealing character design has been known to improve purchase intention (Kim, 2017).

Character appeal in *gacha* mobile games can be viewed from multiple aspects that contributes to the character aesthetics. The first and foremost important factor is the character visual design, which can range from a normal realistic design to something that are more fantasy-*esque* design depending on the narrative aspect of the game. Character visual design is used for advertising and marketing purposes by the game developer and distributor, as such, the character design needs to be magnificently appealing to the game audience.

One of the most defining features of *gacha* mobile games – especially created for and by the Asian market – is the intensive usage of voice acting for each major character. This perfectly complements the abovementioned character visual design by adding another layer of realism, this time via auditory

instead of visual. The existence of both appealing visual and voice actings that matches the visual design creates not only a sense of realism in general, but also a sense that the character that is being portrayed is “real” and “alive” from the emotional and subjective perspective (Li et al., 2018).

Both visual design and voice actings create a character design that has a sense of realism and certainly has a positive aspect towards any form of consumer behavior (Yuan & Dennis, 2019). However, in *gacha* mobile games, an additional aspect is needed to increase its eligibility as well as realism of the character itself. An appropriate narrative regarding a character is required for a character to be a believable and relevant character in regards to the game story and game settings. The term “lore” is often used to refer to any form of narrative and descriptive background regarding a character in a *gacha* mobile game. By combining the visual design, auditory via voice acting, and lore-wise interesting character, a character design can have a massive impact towards the players’ emotional value.

In addition to the intrinsically aesthetic aspect of the game that may be subjective, the character also has an objective design that improves its appeal via its actual usage during the gameplay. This aspect is directly linked with how useful the character actually is when used during the playthrough. An aesthetically pleasing character can be either also be useful as a character in the gameplay due to its power and utility, or it can be a somewhat lackluster character that only wins in terms of its aesthetic aspect. Either way, this factor is also an important determining factor that creates a degree of emotional bonds

with the player, hence a determinant towards emotional value in terms of character appeal.

Lastly, the existence of a community that supports and likes a particular character also cannot be neglected. The sheer amount of fan-made contents in form of fan-art or fan-comic is also included in the determinant of a character appeal dimension. The term "*waifu*" or "*husbando*" is generally used by the community to display their loyalty and devotion towards a particular character (Galbraith, 2014). In the fan-centric context, the term fandom is then used to refer to any content and fan-culture that revolves around a particular character. The existence of this fandom indirectly enhance the character appeal as one of the major gateways that a player may know a particular character is by the existence of such fandom as well as the fandom notoriety in depicting the character.

As previously mentioned before on the character appeal section, one of the determining factors that may affect character appeal is its gameplay usefulness. A character gameplay usefulness is relative to how the gameplay of a *gacha* mobile game works as a whole. As such, the second dimension on determining emotional value in perceived value for *gacha* mobile games is the gameplay aspect.

The term "gameplay" in *gacha* mobile game contexts refers to everything that the game can offer as a game. A majority of *gacha* games has a well-defined gameplay loop in which the players' main activity during the game revolves around (Guardiola, 2016). Gameplay aspect of a *gacha* mobile games revolves

around the *gacha* mechanics itself. For instance, *gacha* chance would allow the players to get characters and then play the game. After the player finishes a stage, the game rewards the player with experience points which in return upgrades the character as well as giving the player some in-game currency (which is not the premium virtual currency) that allows the player to upgrade the chosen character in some ways. Normally, some games give a small amount of premium virtual currency when the player clears the main game stage for the first time. This allows the players to save up and invest the premium virtual currency that the game provides for free for any action that the player may choose (as being stated on the previous section regarding the usage of premium virtual currency in *gacha* mobile games).

The first major determinant of this dimension is obviously the general playfulness of a particular game. This is a very subjective matter due to how fickle the term "fun" and "playful" can be, due to the fact that fun is relative to the player (Dillon, 2010). Nevertheless, this dimension tries to capture what the player perceives to be "fun" based on the gameplay that a particular game offers. Okazaki, Škapa, & Grande, (2008) defines that perceived playfulness refers to subjective perceived aspects such as enjoyment, entertainment, fun, and happiness in a mobile game. Han & Windsor (2013) that uses Okazaki et al. (2008) definition as a base for their research found that in-game purchase intention is highly influenced by general playfulness factor.

Gameplay mechanics refer to how the game is being played and how the mechanics is able to deliver emotional value to the players. Gameplay

mechanics are highly determined by the game genre. A majority of *gacha* mobile game uses a turn-based mechanics, while some others utilize a much more real-time strategy mechanics which require the player to act quickly and responsively. Gameplay mechanic – similar to general playfulness – is also a highly subjective concept to measure. Hamari (2015) argues that gameplay has an effect on players' purchase intention through a somewhat contradictive relationship. The research found out that enjoyment of the game that is derived from the gameplay mechanics reduces the willingness of in-app purchase while at the same time increases the willingness to play the more of the games. However, continued use of the game positively influences in-app purchase. Nevertheless, gameplay mechanics do play a major factor in determining players' emotional value towards a *gacha* mobile game.

Another gameplay aspect that may influence players' emotional value is the pacing of the game via gameplay progression. Each player progresses the game at a different pace. However, the game does offer content in form of a streamlined story campaign that the player needs to progress through in order to unlock more advanced game contents. This different pacing may affect players' gameplay experience one way or another due to the fact that players' progression may be throttled with the game difficulty (Debeauvais & Lopes, 2015). As being stated on the previous section, some players may spend premium virtual currency to increase their progression speed and advance through the game more easily. However, this action divides the players into multiple groups based on their behavior in spending the premium virtual currency.

In relation to the gameplay progression, the content difficulty is a major determinant on how the gameplay aspect dimension of emotional value may be perceived by the players (Debeauvais & Lopes, 2015). If gameplay progression focuses on how fast the players can reach newer contents, content difficulty on the other hand is concerned with how hard and how much effort the player needs to put to progress though the game. A vast majority of *gacha* mobile games separates contents into two major categories: a story campaign which delivers the main game story as well as relevant narrative, and a free quest which usually focuses on improving and developing the players-owned character as well as a colosseum-esque content that allows the player to test their might. In normal circumstances, generally, the story campaign is nowhere as hard as the free quests, however there are some games that utilize the story campaign progression with over-the-top contents that act both as a test of might as well as story barrier to truly bar the players' progression by giving them truly challenging content.

As being stated in the previous section, *gacha* mobile games revolves around gathering materials to improve and upgrade a character. This action is known as "farming" by the players due to its repetitive manner and sheer importance on the gameplay. This aspect of gameplay is a rather controversial because it is what defines *gacha* mobile games the most after the implementation of *gacha* mechanics itself. In *gacha* games, farming refers to an activity in which player trade their energy points and time in exchange for getting items, these items may or may not be guaranteed to be acquired due to the fact that the game uses a mechanism called a "loot system" to control the

rarity of items. Loot system is a system that allows the developers to create a hierarchy of rarity of items in a game by assigning a percentage of chances for each item in the game as well as where in the game the items can be found at (i.e. in what stages). This allows the players to strategize where to find the items as well as how effective they want to spend their energy points on. This again in return creates an opportunity to allow the players to exchange their virtual premium currency for additional energy, which in turn creates a feedback loop that influences them to spend more on premium virtual currency.

Another aspect that controls players' behavior during their gameplay is how energy is being given by the game to the players. The scarcity of energy in the game limits the extent to which the players can spend their time on the game (Paavilainen et al., 2013). Some games can be quite generous in giving the players a massive amount of energy points while also creating stages that drain their energy points rapidly, while some others do the opposite by limiting the amount of energy points that the player can acquire while reducing the amount of energy points required to play a stage. This creates somewhat complicated exchange rates considering that a premium virtual currency can be exchanged for energy points which in return can be used to play the game more, in the process of playing the game in a particular stage, the player may acquire some items via the loot system explained on the aforementioned paragraph that allows them to upgrade the character. After gaining an upgraded character, the player may gain an urge to try and test the newly upgraded character which requires more energy points which in return creates a loop where the player is somewhat

psychologically forced to purchase the premium virtual currency unless the player is wiling to wait for the energy to be regenerated.

If gameplay aspect focuses on the more mechanical and technical aspect of the game and character aspect focuses on a more character-specific aspect of the game, gameplay aesthetics that acts as the third major dimension of emotional value in *gacha* mobile games focuses on how the game looks like and feels for the player as well as how the game presents the narrative to the players (Niedenthal, 2009). Gameplay aesthetics not only focuses on elements such as narrative and music, but also a more mechanical aspect such as the game user interface that allows them to interact with the game, as well as players' user experience towards the game.

Starting with a more mechanically-heavy aspect, user interface and user experience go hand in hand in a *gacha* mobile game. User interface refers to the game interface that the player interacts with to play the game, this includes objects such as buttons, sliders, indicators that tell the player regarding what is happening during the gameplay (Al-Sa'di et al., 2018). User experience on the other hand refers to the players' experience when playing the game via the user interface, this experience may include subjective indicators such as how easy it is to understand what is happening, how intuitive the user interface is, as well as how easy it is to understand what is going on the game itself (AlDakhil et al., 2019). Both user interface and user experience need to be aesthetically pleasing as well as mechanically accurate to ensure a good playthrough.

Game music, story, and arts are part of the more easily understood aspect of the game aesthetics, this aspect is simply what the game uses to show the player about the game itself as a whole from a non-mechanical point of view. Game music plays a major role in giving the ambience and nuance for the player to play the game, the music includes anything from sound effects to cut-scenes where the game plays a cinematic video with appealing music. *Gacha* mobile games are quite well-known to adopt a strong sense of musical genre related to the game's whole aesthetics. The game whole aesthetics is normally built revolving around the game story which includes most of the narrative as well as the context of what is happening in the game from the lore perspective. The game story is normally presented via the main story campaign content. And perhaps the most important "vehicle" to deliver all of the contents in the game is the game arts. Game arts include everything from the design of user interface, depiction of characters, backgrounds, images of in-game items, virtual currency, animations of characters, and so much more. Game aesthetics on this context includes literally everything that the game uses to deliver the game towards the user via the gameplay (Niedenthal, 2009). A combination of these three game aesthetic factors would certainly indicate the emotional relationship between the player and the game as a whole.

Another additional determinant of game aesthetics that is actually not the part of the game itself is the existence of non-game media. A majority of *gacha* mobile games come from some sort of franchise that expands the *gacha* mobile games into more fields of media such as animated cartoon, comics, and merchandise. The game developer and distributor tend to expand the *gacha*

mobile game as an expansive product that encompasses multiple platforms and media. This action in return affect players' purchase intention in the game because non-game media normally allows the franchise owner to market the game from another form of media.

2.3.2. Social Value

Among some of the most important factors in a *gacha* mobile games there is social value in perceived values. Social value is defined as the utility derived from a *gacha* mobile game concerning the players' social condition. Elements such as how the game encourages social activities during the gameplay via multiplayer aspect as well as outside of the gameplay via the community may influence social values of perceived values which in return influences in-app purchase. Ghazali et al. (2019) considers social values such as community involvement in gaming experience as one of the major influences towards in-app purchase. However there is also an opposing result in which social values do not influence purchase intention (Rezaei & Ghodsi, 2014). Each research employs different questions and different games, hence the validity for specific contexts such as *gacha* mobile games might not be fully adaptable. Hence, the second hypothesis of this research is proposed as follows:

H2: Social values positively influence in-app purchase intention.

The first dimension of social value is the multiplayer aspect. A majority of *gacha* mobile games promotes multiplayer-reliant gameplay in one way or another. In-game multiplayer prominence tends to be quite different between each game as there are two major forms of gameplay in *gacha* mobile games.

A player-versus-player games is a form of *gacha* mobile game where a player competes between one and another whether by facing each other, or battling a single enemy cooperatively and get rewards based on the contribution. This approach has a higher degree of multiplayer as that player faces each other competitively. Another one is a player-versus-environment game where the player does not battle the same enemy nor battling one another, but instead the multiplayer aspect is included in another part where the other players can support the player indirectly via some kind of mechanics to ease the progression. Hence, in-game multiplayer prominence represents how prominent and important is the multiplayer aspect of the game relative to what the player can do.

One of the major elements in multiplayer aspect in *gacha* mobile game is the concept of pride and bragging individual collection to another player. In a typical *gacha* mobile games, players are allowed to show off their characters that they got from *gacha* by putting it into display. This method also normally allows the friends of this player to use or temporarily access that character as a supporting character. While this allows the player to help other players, this also allows one player to exert dominance via something that they own in front of other players.

Competitiveness and collaborative-ness of a multiplayer aspect in *gacha* games go hand-in-hand. Competitiveness refers to how competitive the game is when more than two player compete for a reward. Collaborative-ness refers to how useful and meaningful the effect of another player in supporting the

players' goal or gameplay progression. While both actions may always improve engagement, there's no clear evidence that can show whether any of these factors can influence in-app purchase. Competitiveness may create a sense of jealousy when one player meet another player with a similar level but is able to contribute much more compared to themselves. This phenomenon may influence in-app purchase in some way when combined with other factors.

The second dimension of social value is the community effect, as stated previously, the existence of community effect towards in-app purchase is evident. However, in a context of *gacha* mobile games, the effect can be seen in multiple community behaviors (Malisi et al., 2017). Each one of the existing community behaviors affect the player as an individual differently. *Gacha* game communities are normally based on online forums or social medias, as such, the dynamics of such communities is hard to fully comprehend. Nevertheless, some basic patterns can be elicited and used as a consideration.

Community guidance is a form of action that refers to whether the community is able to guide newer player or players that have questions regarding the game itself. There are a number of community-supported knowledgebases similar to wikis. However, community-based guidance is still a very popular way to get some insights regarding the game itself. A community guidance and players' question are normally delivered in a social media-based groups for specific games where players with different experience are gathered. However, players' behavior inside the community varies greatly between one and another.

Sense of belonging refers to a specific psychological effect in which someone can pridefully identify themselves as part of a particular game community. This sense of belonging positively influences players' decision to create fan-made contents. However, in terms of influencing in-app purchase, there are no clear evidences on this factor. Nevertheless, a strong sense of belonging may affect other players inside the community indirectly via fan-made contents. As mentioned previously on the fandom effect, a strong fandom effect may influence a specific purchase behavior towards a specific character via premium virtual currency purchase.

Specific character ownership is based on Galbraith (2014) concept of "*waifu*" and "*husbando*" in which a player ownership of a particular character creates a special bond between the player and the character. This special bond is somewhat spiritual in which the player perceives the character to be real and become obsessed with the character. This phenomenon has created a community-specific issue in some games where the players claim to be the "true partner" of a particular character and devote their entire gameplay experience towards their favorite character. This phenomenon positively influences in-app purchase specifically on in-game object that is directly related to such characters. This phenomenon also influences other players who don't own the character to purchase premium virtual currency for an additional chance of *gacha*.

There are three major community behaviors that may affect players inside the community. Competitive community behavior will often share

achievement and gameplay replays, most of the times with an ulterior motive of bragging some aspects of the gameplay such as strategy or character ownership. The community tends to respond positively towards this kind of behavior. Toxic community behavior on the other hand often creates commotion within the community with aggressive behavior by deliberately mocking one character (which may affect players who have special bonds towards the character as previously stated), deliberately criticizing the game design or simply being toxic in general. The community tends to respond very negatively towards this kind of behavior, moderators of the existing community usually take care of such issue before the issue goes out of hand and becomes a massive drama within the community. Suggestive community on the other hand deliberately and directly suggest players to go and purchase premium virtual currency so they can progress the game faster, whether this is a good or bad influence; it does however positively influences in-app purchase.

2.3.3. Value for Money

Value for money or monetary value is the third dimension of perceived value. This value focuses on anything that can be directly traced back to real-life money based on the game mechanics. Monetary value is perhaps one of the more important dimensions that can be intuitively understood to be one of the more influential towards in-app purchase. As such, the third hypothesis of this research is proposed as follows:

H3: Value for money positively influences in-app purchase intention.

The first and foremost important value for money determinant is the *gacha* aspect itself. Different game uses different *gacha* mechanics, some game applies a much more "forgiving" *gacha* mechanism while some other somewhat forces the players to spend their real-life money for premium virtual currency.

Gacha rate is one of the keys defining mechanics in *gacha* games (Hiramitsu, 2019). *Gacha* rate refers to the rate of the items that the player can acquire by purchasing the *gacha* chance. This rate forms a hierarchy of characters inside a game based on their rarity. Normally, a *gacha* game would separate the character rarity into three main levels of hierarchy by using terms like Rare (R), Super Rare (SR), Super Super Rare (SSR), in which the rate of SSR can be as low as 1%.

Character pool is another important factor that influences in-app purchase from the *gacha* aspect (Hiramitsu, 2019; Shibuya et al., 2017). Most *gacha* games creates a limited-time promotion on a set of character in which the chance of getting some characters is massively increased. However, most of times, the *gacha* rate stays the same, it's the rate of an individual character's that is increased on top of getting a character in a particular rarity. *Gacha* pool are usually differentiated every time a promotion is held, in which one-character pool has a specific character with increased chance of acquiring, but is limited in time.

Safety net is a community-coined term which refers to a theoretical "net" that catches the player from spending way too much real-life money on the game by giving them a character from the character pool if a player has reached

a particular threshold of money spent. This existence of safety net is sometimes abused by those who farm and invest their free premium virtual currency from the game and refrain from doing *gacha* at any circumstances for a guaranteed acquirement of a specific character. However, this feature is not always available in all mobile games.

Rarity scaling refers to how the hierarchy of rarity of characters are being segregated in the game, some games uses the basic three-level rarity as mentioned on the previous paragraph. Some other use a much more intricate 6-level rarity by using stars (*) to determine rarity. Meanwhile, rarity effectiveness is a term to emphasize how significantly more effective a high-rarity character is compared to a low-rarity one. This is however a very subjective aspect of *gacha* that usually differs between one player and another. When combined, the existence of *gacha* aspect is a huge determining factor that can drive in-app purchase in a *gacha* mobile game due to how the *gacha* system is designed.

A good price is another determinant of the value for money dimension. This determinant refers to how reasonable the price point offered by the game developer for the player to purchase in-game items via premium virtual currency.

As been stated previously, the existence of promotion is highly important in influencing in-app purchase in several players (Teramoto, 2014 in Shibuya et al., 2017). Some players may see that some promos are more worthwhile compared to others based on their subjective and objective assessment of a

particular object being promoted. In case of a character being promoted in a promotional marketing, a player may be influenced to purchase additional premium virtual currency to get a chance to acquire a character.

In regards to the implementation of premium virtual currency in *gacha* mobile games, the sheer usefulness, its price, as well as how many layers of abstraction that can be discovered by the player in the game may be an important determinant due to how premium virtual currency is being a center point of a *gacha* mobile games. Premium currency usefulness is an important determinant because of how the perception of the players' toward owning a premium currency can lead to unpredictable buying behavior. The price of the premium currency being sold as well as its layer of abstraction further emphasize these factors and view such premium currency from its monetary and practical usage. While the price of the premium currency can be easily defined, *gacha* mobile games tend to put additional bonuses by purchasing larger amount of premium currency. This may lead the players to purchase larger quantity of premium virtual currency for *gacha* purpose, influencing the in-app purchase intention significantly. Meanwhile, the layer of abstraction refers to how many other virtual currencies that can be reached either directly or indirectly by the premium virtual currency.

The last determinant for the value for money perceived value is the existence of rewards given by the developer to the players as an incentive towards the game continuation. This is a rather subjective value considering that that each game developer gives different amount of rewards as each *gacha*

games employs different gameplay and genre. One of the most basic important understanding on reward is the relative comparison of a freely farmable item and premium item in terms of their value. This factor acts as a game balance factor in which the game stays healthy with different types of players with different purchasing power which in turn can stay relevant in the game with relative ease. A *gacha* mobile game that has premium players heavily outweighs the strengths of free players can negatively influence in-app purchase for the free players, as this may create an allusion that the game can only be played when the players are spending money in premium virtual currency.

Additionally, the existence of progression gifts and what type of gift is given as being stated on the previous section is also highly important. This is also tied with how valuable the premium virtual currency is in the game, as the premium virtual currency can normally only be gathered in a limited amount via gameplay gifts. Another form of gift is freebies which refers to in-game items freely given by the developer to all the players in the game as a gift or incentive, usually due to some kind of celebration or the game has reached a particular milestone.

2.4. Mobile Game Loyalty

Apart of perceived values, another factor that may influences in-app purchase is the mobile game loyalty (Hsiao & Chen, 2016b). This variable refers to how loyal a player is to a particular *gacha* mobile games. Loyalty in *gacha* mobile game includes players' retention rate and continuity of playing the game (Hamari, 2015). as such, players' loyalty is an important variable to consider as how the player is perceiving the game to be an important part of the

players' life and it may be a determining factor that influences in-app purchase significantly (Agag et al., 2019).

Several previous researches discovered that mobile game loyalty affects multiple factors that supports continued gameplay which in then positively influences in-app purchase (Su et al., 2016). Although it has also been known to affect addictive behavior in which it may increase players' spending habit to be out of control (Balakrishnan & Griffiths, 2018). Nevertheless, it did influence purchase intention. As such, the last hypothesis of this research is stated below:

H4: Mobile game loyalty positively influences in-app purchase intention.

2.5. *Gacha* Mobile Games

To better understand the adaptation of several concepts that has been explained thoroughly on previous section, this research focuses on two *gacha* mobile games that use the same business model of freemium business model as well as an adaptation of *gacha* mechanism via virtual currency and multiple layers of abstraction. This research focuses on two major *gacha* mobile games which employs multiple perceived values combined with *gacha* mechanism and *gacha*-related gameplay. Fate/Grand Order or simply known as FGO (Delightworks, 2015) is one of the major *gacha* online mobile games on the market with the amount of 32 million players respectively.

2.5.1. Fate/Grand Order

Fate/Grand Order is a turn-based tactical RPG in which the player takes a role of a “master” who commands several “servants” whose names are derived from historical, literary figures, and mythological figures from various cultures. The core gameplay revolves around the usage of servants via command cards which determines what kind of attack the servant will deal. Additionally, the main progression is determined by the servants’ experience as well as craft essences. Both servants and craft essences can be obtained via *gacha* by using a virtual premium currency.

2.6. Research Framework

This research uses four independent variables, three of them are derived from the perceived values: emotional value, social value, and value for money, while the last variable is the mobile game loyalty. The dependent variable of this research is the in-app purchase intention.

2.7. Control Variables

Prior studies shown that the addition of several control variables can be used in the research to understand and evaluate the result in a more meaningful way. Age, gender, and monthly income have been observed to affect user’s purchase intention and behavior (Lu & Hsiao, 2010) alongside with different platform used to play mobile games (Hsiao & Chen, 2016b).

CHAPTER 3

RESEARCH METHODOLOGY

3.1. Research Design

This research aims to determine the connection between one variable to another by using quantitative approach. This research uses numerical data to determine the connection. This research has no specific location as a research location. However, all data are gathered via an online questionnaire. Additionally, the respondent's location is then gathered as well to increase the study integrity.

3.2. Population and Sample

Population is a generalization of area that includes some sort of object or subject that have some quality or characteristic that can be used to conclude a particular hypothesis (Creswell & Creswell, 2017). The population of this research is all of the players on FGO player-base.

Sample is a form of representation of a population that is able to explain a the population as a whole (Creswell & Creswell, 2017). This research uses a random sampling method due to the sheer size of the population. A population size of FGO player requires at least 300 sample size for a 5% margin of error.

3.3. Data Acquisition Method

Population This research uses a data acquisition method of online questionnaire to generate a primary data from the FGO players. The questionnaire of this research is divided into several sections, which are:

1. Respondent identity and control variables.
2. Questions regarding emotional values.
3. Questions regarding social values.
4. Questions regarding value for money.
5. Questions regarding mobile game loyalty.
6. Questions regarding customer purchase intention.

All questions are then created in the context of in-app purchase intention. This research uses a Likert scale of 5 with scale 1 representing “strongly disagree” and scale 5 representing “strongly agree”. The questionnaire can be seen in Appendix A.

3.4. Operational Definition and Variable Measurements

The independent variable of this research are perceived values and mobile game loyalty, in which the perceived values are then divided into three major dimensions: emotional value, social value, and value for money. The dependent variable of this research is the in-app purchase intention.

Additionally, this research employs additional demographical variables acting as a control variable. These variables are:

- Platform
- Age
- Gender
- Income

3.4.1. Emotional Value

Emotional value refers to the utility derived from feeling or affection generated by a particular content (Lu & Hsiao, 2010). The dimensions that are

used on this research are based on Niedenthal (2009) definition of aesthetics in games as well as Lax & Mackenzie (2019) concepts on mobile games. Each dimension is also separated into several indication to measure the emotional value. The dimensions as well as their indications are:

- Character appeal
    - Character visual
    - Character voice acting
    - Character lore and narrative
    - Character gameplay and utility
    - Character fandom
- Gameplay aspect
    - General playfulness
    - Gameplay mechanics
    - Gameplay progression
    - Content difficulty
    - Farming difficulty
    - Energy scarcity
- Game aesthetics
    - User interface
    - User experience
    - Game music
    - Game story
    - Game arts
    - Non-game media

3.4.2. Social Value

Social value refers to the utility derived from a *gacha* mobile game concerning the players' social condition (Hsiao & Chen, 2016b). The dimensions that are used on this research are based on Ghazali et al. (2019) as well as contexts from Lax & Mackenzie (2019). The dimensions as well as their indications are:

- Multiplayer aspect
    - In-game multiplayer prominence
    - Pride gained
    - Competitiveness
    - Collaborative-ness
- Community effect
    - Community guidance
    - Sense of belonging
    - Specific character ownership
    - Competitive community behavior
    - Toxic community behavior
    - Suggestive community behavior

3.4.3. Value for Money

Value for money refers to monetary value of the perceived value variable (Cheng & Lin, 2017). The dimensions that are used are based on Hiramitsu (2019) and context from Lax & Mackenzie (2019). The dimensions as well as their indications are:

- *Gacha* aspect
    - *Gacha* rate
    - Character pool
    - Safety net existence
    - Rarity scaling
    - Rarity effectiveness
- Good Price
    - Promo existence
    - Premium currency usefulness
    - Premium currency price
    - Layers of abstraction
- Reward
    - Farmable VS premium item value
    - Freebies
    - Progression gifts

3.4.4. Mobile Game Loyalty

Mobile game loyalty refers to players' personal loyalty towards a particular mobile game that affects their continuity of playing as well as retention rate (Hamari, 2015). The loyalty variable indicator is developed based on (Hsiao & Chen, 2016b). This variable is one dimensional and is focused solely on the loyalty of the mobile game players.

3.5. Validity and Reliability Testing

This research uses a validity testing to measure the instrument validity by using a Pearson bivariate correlation for internal validity testing to 56 randomly selected respondents. This research then uses Cronbach Alpha

reliability testing to measure the instrument reliability by using the same manner.

3.5.1. Validity Testing

Validity testing is done to ensure the validity of an instrument. An instrument is deemed to be valid if it is able to measure its intended purpose (Ghozali, 2013). This research employs a Pearson product moment correlation to measure the validity score. Each statement in the instrument is valid if it has a score of Pearson Correlation Significance of below 0.05, else, the question will be removed from the questionnaire.

Table 3.1 Validity Testing Result

Item	Pearson Correlation	Pearson Correlation Sig	Validity
EVC1	0,431	0,001	Valid
EVC2	0,694	0,000	Valid
EVC3	0,732	0,000	Valid
EVC4	0,748	0,000	Valid
EVC5	0,792	0,000	Valid
EVG1	0,791	0,000	Valid
EVG2	0,784	0,000	Valid
EVG3	0,709	0,000	Valid
EVG4	0,643	0,000	Valid
EVG5	0,299	0,025	Valid
EVG6	0,516	0,000	Valid
EVE1	0,627	0,000	Valid
EVE2	0,704	0,000	Valid
EVE3	0,626	0,000	Valid
EVE4	0,743	0,000	Valid
EVE5	0,679	0,000	Valid
EVE6	0,541	0,000	Valid
SVM1	0,787	0,000	Valid
SVM2	0,798	0,000	Valid
SVM3	0,798	0,000	Valid
SVM4	0,814	0,000	Valid
SVC1	0,595	0,000	Valid

Item	Pearson Correlation	Pearson Correlation Sig	Validity
SVC2	0,673	0,000	Valid
SVC3	0,510	0,000	Valid
SVC4	0,677	0,000	Valid
SVC5	0,408	0,002	Valid
SVC6	0,536	0,000	Valid
VMG1	0,336	0,011	Valid
VMG2	0,728	0,000	Valid
VMG3	0,691	0,000	Valid
VMG4	0,676	0,000	Valid
VMG5	0,646	0,000	Valid
VMP1	0,661	0,000	Valid
VMP2	0,707	0,000	Valid
VMP3	0,472	0,000	Valid
VMP4	0,350	0,008	Valid
VMR1	0,750	0,000	Valid
VMR2	0,714	0,000	Valid
VMR3	0,756	0,000	Valid
LY1	0,783	0,000	Valid
LY2	0,781	0,000	Valid
LY3	0,782	0,000	Valid
LY4	0,862	0,000	Valid
LY5	0,810	0,000	Valid
PI1	0,510	0,000	Valid
PI2	0,666	0,000	Valid
PI3	0,458	0,000	Valid
PI4	0,366	0,006	Valid
PI5	0,507	0,000	Valid
PI6	0,669	0,000	Valid
PI7	0,666	0,000	Valid
PI8	0,753	0,000	Valid
PI9	0,649	0,000	Valid
PI10	0,568	0,000	Valid
PI11	0,601	0,000	Valid
PI12	0,643	0,000	Valid
PI13	0,744	0,000	Valid
PI14	0,645	0,000	Valid
PI15	0,654	0,000	Valid
PI16	0,635	0,000	Valid
PI17	0,638	0,000	Valid
PI18	0,606	0,000	Valid
PI19	0,666	0,000	Valid
PI20	0,592	0,000	Valid

Item	Pearson Correlation	Pearson Correlation Sig	Validity
PI21	0,750	0,000	Valid
PI22	0,689	0,000	Valid
PI23	0,524	0,000	Valid
PI24	0,568	0,000	Valid
PI25	0,624	0,000	Valid
PI26	0,519	0,000	Valid
PI27	0,600	0,000	Valid
PI28	0,781	0,000	Valid
PI29	0,746	0,000	Valid
PI30	0,747	0,000	Valid
PI31	0,702	0,000	Valid
PI32	0,614	0,000	Valid
PI33	0,676	0,000	Valid
PI34	0,790	0,000	Valid
PI35	0,640	0,000	Valid
PI36	0,691	0,000	Valid
PI37	0,752	0,000	Valid
PI38	0,692	0,000	Valid
PI39	0,698	0,000	Valid

Source: Processed Data, 2020.

Based on the result of the validity testing shown in Table 3.1, all of the questions on the instruments are deemed to be valid and is ready to be tested for reliability testing.

3.5.2. Reliability Testing

Reliability testing measures the reliability of an instrument. A reliable questionnaire can be tested repeatedly with the same respondent and creates consistent results. The method that is employed on this research to measure the reliability of the instrument is by calculating the Cronbach's Alpha score of each variable.

Table 3.2 Reliability Testing Result

Variable	Cronbach's Alpha	Critical Value	Details
EVC	0,962	0,6	Reliable
EVG	0,713	0,6	Reliable
EVE	0,658	0,6	Reliable
SVM	0,729	0,6	Reliable
SVC	0,811	0,6	Reliable
VMG	0,579	0,6	Not Reliable
VMP	0,607	0,6	Reliable
VMR	0,177	0,6	Not Reliable
LY	0,567	0,6	Not Reliable
PI	0,860	0,6	Reliable

Source: Processed Data, 2020.

Based on the results shown in Table 3.2, the Cronbach's Alpha values from some of the variables scored lower than 0.6. The variable of VMG (Value for money – *Gacha* Aspect), VMR (Value for Money – Reward) and LY (Mobile Game Loyalty) needs to be improved upon and should not be used on the research. Hence the research model is then updated to follow the instrument capability as shown below. This also removes one of the research questions regarding loyalty.

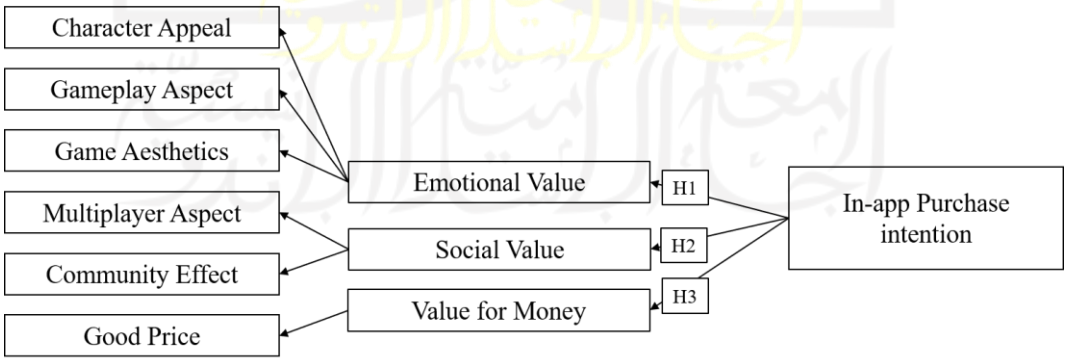

Figure 3.1 Updated Research Methodology

Source: Processed Data, 2020.

3.6. Data Analysis Technique

This research is planned to employ a descriptive analysis based on demographics such as gender, age group, platform, and monthly earnings. This research will also analyze the data descriptively in regards of the variables dimension.

To answer the research hypotheses, this research will employ a structural equation model (SEM) in form of Analysis of Moment Structure (AMOS) using AMOS 23. The analysis will include the model development and assembly of path diagram as well as its structural equation. The developed model is then analyzed using confirmatory analysis, tested for its reliability, detection of outliers using *Mahalanobis Distance*, and data normality check. The finalized model is then tested to see its goodness-of-fit using multiple indices before finally utilized for hypothesis testing.

CHAPTER 4

DATA ANALYSIS AND DISCUSSION

This chapter focuses on elaborating the data that has been gathered via the validated instrument. It also describes and analyzes the data to be inferred later on in the discussion section. A total of 350 respondents has been acquired via a primary method of data collection using validated questionnaire.

In data analysis, the data is first described descriptively by using the control variables, in respect to each of the variables.

Furthermore, the steps of Structural Equation Model (SEM) are explained to answer the research questions posed on the beginning of this research. Lastly, this section discusses the relationship between the literature review, descriptive result, and the SEM analysis result.

4.1. Descriptive Analysis

This section presents the characteristics and demography of the respondents that have participated in this research. The categories are genders, age group, platform used for the game, and monthly earnings. This section will also analyze the gathered data descriptively in respect to each of its research variables as well as grouped based on its characteristics and demography.

4.1.1. Descriptive Analysis based on Characteristics

1. **Gender**

The result shows that among 350 respondents, 276 respondents or 78.89% are male players, while 74 or 21.11% are female players.

Table 4.1 Respondent demography based on gender

Gender	Total Respondents	Percentage
Male	276	78.89%
Female	74	21.11%
Total	350	100.00%

Source: Processed Data, 2020

2. Age Group

Based on the gathered data shown in Table 4.2, this research result is more relevant among the late teens (17 to 22 years old) and young adults (23 to 27) age group of players, encompassing a total of more than 80% of the total respondents.

Table 4.2 Respondent demography based on age group

Age	Total Respondents	Percentage
< 17	13	3.72%
17 – 22	146	41.72%
23 – 27	138	39.42%
28 – 33	48	13.72%
> 33	5	1.42%
Total	350	100%

Source: Processed Data, 2020

3. Platform Used to Play FGO

Based on the gathered data shown in Table 4.3, this research result is more relevant among the players that use Android operating system mobile phone and to some extent iOS operating system mobile phone. Emulator does not seem to be a popular choice among the players, there are only 1 respondent that plays solely on an emulator, while the others play the game on either iOS or Android device with emulator as their secondary device (20 respondents,

5.7% + 1 respondent, 0.29%). Another small group of players (11 respondents, 3.14%) seems to own more than one mobile device with different operating system. Nevertheless, the result will be much more relevant and leans more heavily towards players that play the game on Android device, despite the fact that they play the game on another non-Android device 298 respondents (85.13%).

Table 4.3 Respondent demography based on Platform used to play FGO

Platform	Total Respondents	Percentage
Android only	267	76.29%
iOS only	50	14.29%
Emulator only	1	0.29%
Android & Emulator	20	5.70%
Android & iOS	11	3.14%
iOS & Emulator	1	0.29%
Total	350	100%

Source: Processed Data, 2020

4. Monthly Earnings

Based on the gathered data shown in Table 4.4, this research result is quite relevant among quite a lot of players from several monthly earnings. A majority of players are either on the lowest bracket of monthly earnings lower than 150 USD per month (162 respondents, 46.29%) or on the highest bracket of monthly earnings higher than 451 USD per month (100 respondents, 28.57%). However, its relevance is still quite relevant among the players on the middle layer of monthly earning brackets between 151 USD to 450 USD monthly earnings with a total of 88 respondents (25.14%).

Table 4.4 Respondent demography based on monthly earnings

Monthly earnings (USD)	Total Respondents	Percentage
< 150	162	46.29%

151 – 225	39	11.14%
226 – 300	15	4.29%
301 – 375	13	3.71%
376 – 450	21	6.00%
> 451	100	28.57%
Total	350	100%

Source: Processed Data, 2020

4.1.2. Descriptive Analysis based on Research Variable

Based on the gathered data, the data is then recapitulated and separated based on its variables. This is done to understand the gathered data and get a general insight on the respondents' behavior. This research employs a Likert-5 scale with a minimum score of 1 and maximum score of 5. Based on this scale, an interval of 0.8 is gathered and can be used to create an assessment table as shown in Table 4.5 below. An average score of each statement is then gathered to be used as a representable result of the respondents, separated based on its research variables.

Table 4.5 Assessment criteria interval

Score Interval Range	Assessment
1.00 – 1.80	Strongly disagree
1.81 – 2.60	Disagree
2.61 – 3.40	Neutral
3.41 – 4.20	Agree
4.21 – 5.00	Strongly agree

Source: Processed Data, 2020

1. Descriptive Analysis of Emotional Value

The assessment of each respondent view on perceived emotional value can be seen in Table 4.6 shown below.

Table 4.6 Respondent assessment of emotional value

No.	Code	Dimension	Statement	Score	Assessment
1.	EVC1	Character Appeal	I think that the characters visual design in FGO is aesthetically pleasing.	4.58	Strongly agree
2.	EVC2	Character Appeal	I think that the characters voice acting in FGO is done appropriately and aesthetically.	4.66	Strongly agree
3.	EVC3	Character Appeal	I think that the characters lore and narrative in FGO is well-written.	4.35	Strongly agree
4.	EVC4	Character Appeal	I think that the characters gameplay and utility in FGO is properly balanced.	3.56	Agree
5.	EVC5	Character Appeal	I think that the character-specific fandom in FGO is good and well-maintained.	3.81	Agree
6.	EVG1	Gameplay Aspect	I think that playing FGO is enjoyable.	4.12	Agree
7.	EVG2	Gameplay Aspect	I think that the gameplay mechanics in FGO is fun.	3.83	Agree
8.	EVG3	Gameplay Aspect	I think that the gameplay progression in FGO is fun and well-made.	3.95	Agree
9.	EVG4	Gameplay Aspect	I think that the content difficulty in FGO is quite challenging.	3.94	Agree
10.	EVG5	Gameplay Aspect	I think that farming for materials in FGO is quite frustrating.	4.25	Strongly agree
11.	EVG6	Gameplay Aspect	I think that the “energy” in FGO is quite scarce.	2.97	Neutral
12.	EVE1	Game Aesthetics	I think that FGO has a nice user interface.	4.06	Strongly agree
13.	EVE2	Game Aesthetics	I think that FGO gives a nice user experience.	3.89	Agree
14.	EVE3	Game Aesthetics	I think that FGO has a well-made game music.	4.61	Strongly agree
15.	EVE4	Game Aesthetics	I think that FGO has a well-written game story.	4.53	Strongly agree
16.	EVE5	Game Aesthetics	I think that FGO has a well-crafted game art.	4.55	Strongly agree
17.	EVE6	Game Aesthetics	I think that FGO has a significant non-game product (visual novel, manga, anime).	4.55	Strongly agree

No.	Code	Dimension	Statement	Score	Assessment
Emotional Value Average				4.13	Agree

Source: Processed Data, 2020

Based on the Table 4.6 shown above, the average respondent assessment towards the emotional value variable is 4.13 with assessment criteria of "agree." The highest score can be seen in EVC2 "I think that the characters voice acting in FGO is done appropriately and aesthetically" with an average score of 4.66, while the lowest one is from EVG6 "I think that the "energy" in FGO is quite scarce" with an average score of 2.97.

For more insight, Table 4.7 shows that the respondent values the "game aesthetics" dimension as the most determining factor of emotional values, followed by character appeal and gameplay aspect.

Table 4.7 Respondent assessment of emotional value grouped by dimension

No.	Code	Dimension	Score	Assessment
1.	EVC	Character Appeal	4.192	Agree
2.	EVG	Gameplay Aspect	3.84	Agree
3.	EVE	Game Aesthetics	4.37	Strongly Agree

Source: Processed Data, 2020

2. Descriptive Analysis of Social Value

The assessment of each respondent view on perceived social value can be seen in Table 4.8 shown below.

Table 4.8 Respondent assessment of social value

No.	Code	Dimension	Statement	Score	Assessment
1.	SVM1	Multiplayer Aspect	I think that other players and my friends play a major role in FGO.	3.47	Agree
2.	SVM2	Multiplayer Aspect	I think that if I win against other players and my friends in FGO, I will gain so much pride.	2.18	Disagree

No.	Code	Dimension	Statement	Score	Assessment
3.	SVM3	Multiplayer Aspect	I think that FGO is a very competitive game.	1.86	Disagree
4.	SVM4	Multiplayer Aspect	I think that FGO is a very collaborative game.	3.19	Neutral
5.	SVC1	Community Aspect	I think that FGO community is able to guide me through the game.	4.35	Strongly Agree
6.	SVC2	Community Aspect	I think that FGO community makes me belong to the community.	3.97	Agree
7.	SVC3	Community Aspect	I think that owning a specific character (*waifu/husbando*) in FGO gives me satisfaction.	4.66	Strongly Agree
8.	SVC4	Community Aspect	I think that FGO community is very competitive.	2.91	Neutral
9.	SVC5	Community Aspect	I think that FGO community is very toxic.	2.82	Neutral
10.	SVC6	Community Aspect	I think that FGO community is very suggestive to make me spend more money.	2.15	Disagree
Social Value Average				3.16	Neutral

Source: Processed Data, 2020

Based on the Table 4.8 shown above, the average respondent assessment towards the social value variable is 3.16 with assessment criteria of “neutral.” The highest score can be seen in SVC3 “I think that owning a specific character (*waifu/husbando*) in FGO gives me satisfaction” with an average score of 4.66, while the lowest one is from SVM3 “I think that FGO is a very competitive game” with an average score of 1.86.

To provide more insight, Table 4.9 presents that the respondent values the “community aspect” dimension as the most determining factor of social value compared to the multiplayer aspect.

Table 4.9 Respondent assessment of social value grouped by dimension

No.	Code	Dimension	Score	Assessment
1.	SVM	Multiplayer Aspect	2.68	Neutral
2.	SVC	Community Aspect	3.48	Agree

Source: Processed Data, 2020

3. Descriptive Analysis of Value for Money

The assessment of each respondent view on perceived value for money can be seen in Table 4.10 shown below.

Table 4.10 Respondent assessment of value for money

No.	Code	Dimension	Statement	Score	Assessment
1.	VMP1	Good Price	I think that the promo (*gacha banner*) in FGO is appropriately made and interesting.	3.62	Agree
2.	VMP2	Good Price	I think that Saint Quartz is very versatile and can be used for many purposes in FGO.	3.22	Neutral
3.	VMP3	Good Price	I think that the Saint Quartz is appropriately priced in FGO.	2.53	Neutral
4.	VMP4	Good Price	I think that the resource management in FGO is frustrating.	3.27	Neutral
Value for Money Average				3.16	Neutral

Source: Processed Data, 2020

Based on the Table 4.10 shown above, the average respondent assessment towards the value for money variable is 3.16 with assessment criteria of "neutral." The highest score can be seen in VMP1 "I think that the promo (*gacha banner*) in FGO is appropriately made and interesting" with an average score of 3.62, while the lowest one is from VMP3 "I think that the Saint Quartz is appropriately priced in FGO" with an average score of 2.53.

No additional table is provided for this variable as there are only one dimension that can be gathered via the validated questionnaire on this variable.

4. Descriptive Analysis of Purchase Intention

The assessment of each respondent view on purchase intention can be seen in Table 4.11 shown below.

Table 4.11 Respondent assessment of purchase intention

No.	Code	Statement	Score	Assessment
1.	PI1	I think that the characters' visual design in FGO influences me to purchase more Saint Quartz.	3.6	Agree
2.	PI2	I think that the characters' voice acting in FGO influences me to purchase more Saint Quartz.	3	Neutral
3.	PI3	I think that the characters' lore and narrative in FGO influences me to purchase more Saint Quartz.	3.17	Neutral
4.	PI4	I think that the characters' gameplay utility and usages in FGO influences me to purchase more Saint Quartz.	3.35	Neutral
5.	PI5	I think that the character-specific fandom in FGO influences me to purchase more Saint Quartz.	2.69	Neutral
6.	PI6	I think that I can enjoy playing FGO if I purchase more Saint Quartz.	2.5	Disagree
7.	PI7	I think that the gameplay mechanics in FGO influences me to purchase more Saint Quartz.	2.05	Disagree
8.	PI8	I think that the gameplay progression in FGO influences me to purchase more Saint Quartz.	1.98	Disagree
9.	PI9	I think that the content difficulties in FGO influences me to purchase more Saint Quartz.	1.83	Disagree
10.	PI10	I think that farming for materials in FGO influences me to purchase more Saint Quartz.	1.63	Strongly Disagree
11.	PI11	I think that the "energy scarcity" in FGO influences me to purchase more Saint Quartz.	1.5	Strongly Disagree

No.	Code	Statement	Score	Assessment
12.	PI12	I think that FGO user interface influences me to purchase more Saint Quartz.	1.69	Strongly Disagree
13.	PI13	I think that FGO user experiences influence me to purchase more Saint Quartz.	1.95	Disagree
14.	PI14	I think that FGO game music influences me to purchase more Saint Quartz.	1.66	Strongly Disagree
15.	PI15	I think that FGO game stories influence me to purchase more Saint Quartz.	2.25	Disagree
16.	PI16	I think that FGO game art influences me to purchase more Saint Quartz.	2.85	Neutral
17.	PI17	I think that FGO non-game products (visual novel, manga, anime) influence me to purchase more Saint Quartz.	2.21	Disagree
18.	PI18	I think that playing with other players and my friends in FGO influences me to purchase more Saint Quartz.	2.1	Disagree
19.	PI19	I think that the pride I gained in FGO influences me to purchase more Saint Quartz.	1.79	Strongly Disagree
20.	PI20	I think that FGO competitiveness influences me to purchase more Saint Quartz.	1.59	Strongly Disagree
21.	PI21	I think that FGO collaborative-ness influences me to purchase more Saint Quartz.	1.83	Disagree
22.	PI22	I think that the guides given in the FGO community influence me to purchase more Saint Quartz.	1.77	Strongly Disagree
23.	PI23	I think that being in FGO community influences me to purchase more Saint Quartz.	1.85	Disagree
24.	PI24	I think that specific character ownership (*waifu/husbando*) in FGO influences me to purchase more Saint Quartz.	3.63	Agree
25.	PI25	I think that the competitiveness of FGO community influences me to purchase more Saint Quartz.	1.6	Strongly Disagree
26.	PI26	I think that the toxicity of FGO community influences me to purchase more Saint Quartz.	1.31	Strongly Disagree
27.	PI27	I think that the suggestive behavior in FGO community influences me to purchase more Saint Quartz.	1.69	Strongly Disagree

No.	Code	Statement	Score	Assessment
28.	PI28	I think that the *gacha* rate in FGO influences me to purchase more Saint Quartz.	3.11	Neutral
29.	PI29	I think that the character pool in FGO influences me to purchase more Saint Quartz.	3.2	Neutral
30.	PI30	I think that the existence of safety net in FGO influences me to purchase more Saint Quartz.	2.17	Disagree
31.	PI31	I think that the rarity scaling in FGO influences me to purchase more Saint Quartz.	2.53	Disagree
32.	PI32	I think that the disparity of strength between higher rarity and lower rarity characters in FGO influences me to purchase more Saint Quartz.	2.39	Disagree
33.	PI33	I think that the promo (*gacha banner*) in FGO influences me to purchase more Saint Quartz.	3.36	Neutral
34.	PI34	I think that the usefulness of Saint Quartz in FGO influences me to purchase more Saint Quartz.	2.02	Disagree
35.	PI35	I think that the price for Saint Quartz in FGO influences me to purchase more Saint Quartz.	1.81	Disagree
36.	PI36	I think that the resource management in FGO influences me to purchase more Saint Quartz.	1.77	Strongly Disagree
37.	PI37	I think that the difference of strength between farmable items and premium items in FGO influences me to purchase more Saint Quartz.	1.8	Strongly Disagree
38.	PI38	I think that the freebies in FGO influence me to purchase more Saint Quartz.	1.74	Strongly Disagree
39.	PI39	I think that the amount of progression rewards FGO gave to me influences me to purchase more Saint Quartz.	1.83	Disagree
Purchase Intention Average			2.23	Disagree

Source: Processed Data, 2020

Based on the Table 4.11 shown above, the average respondent assessment towards the purchase intention variable is 2.23 with assessment criteria of "disagree." The highest score can be seen in PI24 "I think that specific character ownership (*waifu*/*husbando*) in FGO influences me to purchase more Saint Quartz" with an average score of 3.63, while the lowest one is from PI26 "I think that the toxicity of FGO community influences me to purchase more Saint Quartz" with an average score of 1.31. No additional table is provided for this variable as there are only one dimension that can be gathered via the validated questionnaire on this variable.

5. Descriptive Analysis based on Control Variables

The assessment of each respondent view on each variable based on the players' gender as well as its relative score compared to overall score is shown on Table 4.12.

Table 4.12 Respondent assessment on each variable separated by gender

Variable	Male Score N = 276 (*)	Female Score N = 74 (*)	Overall Score N = 350
Emotional Value	4.11 (-0.02)	4.19 (+0.06)	4.13
Social Value	3.11 (-0.05)	3.33 (+0.17)	3.16
Value for Money	3.13 (-0.03)	3.26 (+0.10)	3.16
Purchase Intention	2.20 (-0.03)	2.34 (+0.11)	2.23
(*) Relative difference vs overall score.			

Source: Processed Data, 2020

Based on the result shown in Table 4.12 above, male players assess all values lower than the female respondents, this result shows that female players

have a higher perceived value of the game compared to their counterpart, including regarding their purchase intention.

The assessment of each respondent view on each variable based on the players' age group as well as its relative score compared to overall score is shown on Table 4.13.

Table 4.13 Respondent assessment on each variable separated by age group

Variable	**< 17 N = 13 (*, **)**	**17 – 22 N = 146 (*)**	**23 – 27 N = 138 (*)**	**28 – 33 N = 48 (*)**	**> 33 N = 5 (*, ***)**	**Overall Score N = 350**
Emotional Value	4.22 (+0.09)	4.15 (+0.02)	4.08 (-0.05)	4.16 (+0.03)	4.25 (+0.12)	4.13
Social Value	3.14 (-0.02)	3.19 (+0.03)	3.17 (+0.01)	3.08 (-0.08)	2.66 (-0.50)	3.16
Value for Money	3.17 (+0.01)	3.14 (-0.02)	3.19 (+0.03)	3.13 (-0.03)	3.05 (-0.11)	3.16
Purchase Intention	1.90 (-0.33)	2.22 (-0.01)	2.30 (+0.07)	2.15 (-0.08)	2.25 (+0.02)	2.23

(*) Relative difference vs overall score.
(**) Data may not be representative due to low sample size (N < 30).
(***) Data cannot be used reliably to represent the demography due to a very low sample size (N < 10).

Source: Processed Data, 2020

Based on the result shown in Table 4.13 above, there are two age groups having less than 30 sample size, one of which even only has 5 respondents, hence the result of those age groups cannot be used reliably to arrive at some kind of conclusion. This may not be representative as it is not statistically sufficient enough to fully represent the behavior of such age group. The rest of the other age groups somewhat values one value more than the others, this is especially apparent in the age group of 23 – 27 years old of young adults that has a higher degree of purchase intention compared to other demography.

The assessment of each respondent view on each variable based on the platform used to play FGO as well as its relative score compared to overall score is shown on Table 4.14.

Table 4.14 Respondent assessment on each variable separated by platform used

Variable	A only N = 267 (*)	i only N = 50 (*)	E only N = 1 (*, ***)	A & E N = 20 (*, **)	A & i N = 11 (*, **)	I & E N = 1 (*, ***)	Overall Score N = 350
Emotional Value	4.13 (+0.00)	4.09 (-0.04)	4.41 (+0.28)	4.18 (+0.05)	4.19 (+0.06)	3.71 (-0.42)	4.13
Social Value	3.17 (+0.01)	2.93 (-0.23)	3.60 (+0.44)	3.55 (+0.39)	2.99 (-0.17)	2.90 (-0.26)	3.16
Value for Money	3.16 (+0.00)	3.00 (-0.16)	4.00 (0.84)	3.28 (+0.12)	3.48 (+0.32)	3.50 (+0.34)	3.16
Purchase Intention	2.21 (-0.02)	2.20 (-0.03)	3.31 (+1.08)	2.38 (+0.15)	2.30 (+0.07)	2.72 (+0.49)	2.23

(*) Relative difference vs overall score.
(**) Data may not be fully representative due to low sample size (N < 30).
(***) Data cannot be used reliably to represent the demography due to a very low sample size (N < 10).
A = Android | i = iOS | E = Emulator

Source: Processed Data, 2020

Based on the result shown in Table 4.14, there are 4 categories of players that cannot be processed due to their low sample size, two of which have a single respondent. Hence, the result of such data is also heavily skewed towards the extremes. However, based on the existing two major groups of players, it can be seen that the group of respondents that uses iOS is scores the social value and value for money relatively lower compared to the overall score.

The assessment of each respondent view on each variable based on their monthly income as well as its relative score compared to overall score is shown on Table 4.15.

Table 4.15 Respondent assessment on each variable based on their monthly income (in USD per month)

Variable	< 150 N = 162 (*)	151 – 225 N = 39 (*)	226 – 300 N = 15 (*, **)	301 – 375 N = 13 (*, **)	376 – 450 N = 21 (*, **)	> 451 N = 100 (*)	Overall Score N = 350
Emotional Value	4.09 (-0.04)	4.31 (+0.18)	4.11 (-0.02)	4.14 (+0.01)	4.19 (+0.06)	4.12 (-0.01)	4.13
Social Value	3.14 (-0.02)	3.26 (+0.10)	2.99 (-0.17)	3.22 (+0.06)	3.28 (+0.12)	3.13 (-0.03)	3.16
Value for Money	3.11 (-0.05)	3.41 (+0.25)	3.25 (+0.09)	3.35 (+0.19)	3.12 (-0.04)	3.12 (+0.04)	3.16
Purchase Intention	2.08 (-0.15)	2.34 (+0.11)	2.17 (-0.06)	2.34 (+0.11)	2.36 (+0.13)	2.38 (+0.15)	2.23
(*) Relative difference vs overall score. (**) Data may not be representative due to low sample size (N < 30).							

Source: Processed Data, 2020

Based on the result shown in Table 4.15, there are 3 categories of players that cannot be processed due to their low sample size. Hence, the result might not representative of the player group. The group of players with least monthly income scored relatively low on all variables especially the purchase intention. Meanwhile the group with slightly higher income values the game much higher compared to the rest of the groups. The purchase intention score on this group is particularly interesting as it can be seen that the group with highest monthly income did have a higher degree of purchase intention, but has a relatively normal degree of perceived value towards the game.

4.2. Structural Equation Modelling (SEM) Analysis

To prove the hypotheses, this research uses a Structural Equation Modelling using AMOS 23 with the following steps:

1. **Model Development based on Theory**

The first step of SEM is the model development based on the theoretical background of the research. The genous variables of this research are Emotional Value (EV) with three dimensions of Character Appear (EVC), Gameplay Aspect (EVG) and Game Aesthetics (EVG). Social value (SV) with two dimensions of Multiplayer Aspect (SVM) and Community Effect (SVC), and Value for Money (VM) and an endogenous variable of Purchase Intention (PI).

2. **Assembling Path Diagram & Structural Equation**

The next step of SEM is to arrange and assemble a causal relationship with a path diagram and assemble a structural equation. There are two important steps that need to be done in creating a proper structural model, which are: creating a relationship between each latent construct for both endogenous and exogenous variables, and determining the appropriate model in which the latent constructs of both endogenous and exogenous variables are connected to each of their indicator variables or manifest as shown on Figure 4.1.

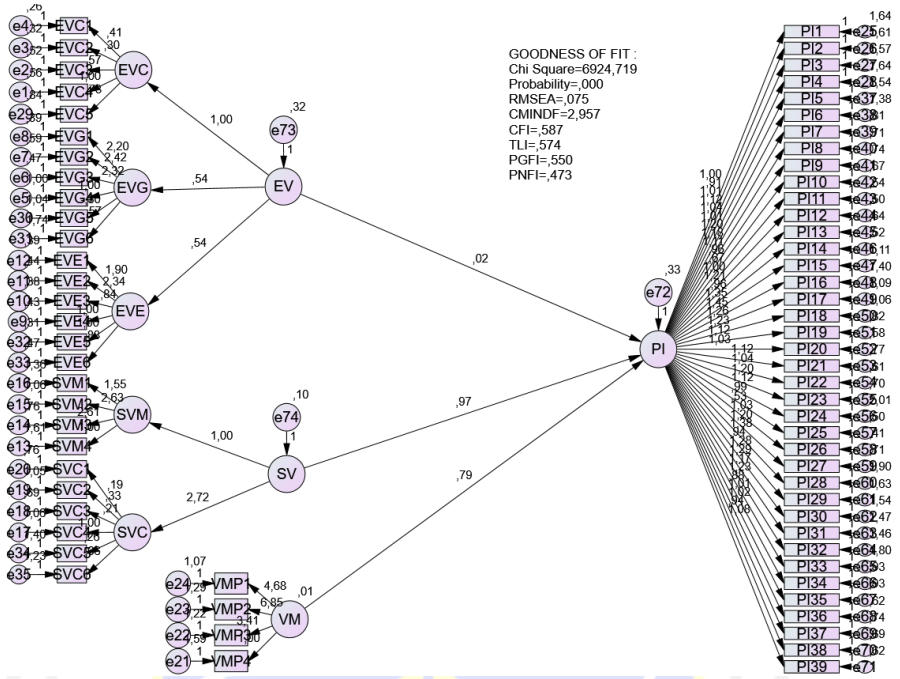

Figure 4.1 Path diagram based on developed model

3. Model Development based on Theory

SEM uses a somewhat different technique of multivariate analysis when it uses the input data of variance matrices and covariance matrices (correlation matrices). Model estimation method that can be used on this step is the Maximum Likelihood estimation based on several assumptions that needs to be fulfilled.

Confirmatory Analysis

Confirmatory analysis is used to test the developed concept by using several measured indicators. One of the first things that needs to be observed in a confirmatory analysis is the Loading Factor used to measure the construct validity of a questionnaire. The minimum value of Loading factor that can be

used for a SEM analysis is more than or equal to 0.5 (ideally 0.7). Any value below 0.5 will be removed from the analysis (Hair et al., 2010). The Loading Factor of this research is shown below in Table 4.16.

Table 4.16 Loading factor value

			Estimate
EVC1	**<---**	**EVC**	**0,413**
EVC2	**<---**	**EVC**	**0,286**
EVC3	**<---**	**EVC**	**0,409**
EVC4	<---	EVC	0,604
EVC5	**<---**	**EVC**	**0,411**
EVG1	<---	EVG	0,736
EVG2	<---	EVG	0,698
EVG3	<---	EVG	0,722
EVG4	**<---**	**EVG**	**0,295**
EVG5	**<---**	**EVG**	**-0,089**
EVG6	**<---**	**EVG**	**0,132**
EVE1	<---	EVE	0,677
EVE2	<---	EVE	0,733
EVE3	**<---**	**EVE**	**0,384**
EVE4	**<---**	**EVE**	**0,42**
EVE5	**<---**	**EVE**	**0,479**
EVE6	**<---**	**EVE**	**0,345**
SVM1	**<---**	**SVM**	**0,38**
SVM2	<---	SVM	0,618
SVM3	<---	SVM	0,678
SVM4	**<---**	**SVM**	**0,236**
SVC1	**<---**	**SVC**	**0,181**
SVC2	**<---**	**SVC**	**0,261**
SVC3	**<---**	**SVC**	**0,212**
SVC4	<---	SVC	0,633
SVC5	**<---**	**SVC**	**0,179**
SVC6	**<---**	**SVC**	**0,447**
VMP1	**<---**	**VM**	**0,484**
VMP2	<---	VM	0,594
VMP3	**<---**	**VM**	**0,352**
VMP4	**<---**	**VM**	**0,097**
PI1	**<---**	**PI**	**0,455**
PI2	**<---**	**PI**	**0,427**
PI3	**<---**	**PI**	**0,467**
PI4	**<---**	**PI**	**0,498**

			Estimate
PI5	**<---**	**PI**	**0,483**
PI6	**<---**	**PI**	**0,491**
PI7	<---	PI	0,657
PI8	<---	PI	0,676
PI9	<---	PI	0,646
PI10	<---	PI	0,61
PI11	<---	PI	0,513
PI12	<---	PI	0,68
PI13	<---	PI	0,703
PI14	<---	PI	0,658
PI15	<---	PI	0,644
PI16	<---	PI	0,626
PI17	<---	PI	0,621
PI18	<---	PI	0,616
PI19	<---	PI	0,63
PI20	<---	PI	0,662
PI21	<---	PI	0,641
PI22	<---	PI	0,658
PI23	<---	PI	0,685
PI24	**<---**	**PI**	**0,461**
PI25	<---	PI	0,677
PI26	**<---**	**PI**	**0,48**
PI27	<---	PI	0,628
PI28	**<---**	**PI**	**0,496**
PI29	<---	PI	0,578
PI30	**<---**	**PI**	**0,446**
PI31	<---	PI	0,571
PI32	<---	PI	0,575
PI33	**<---**	**PI**	**0,497**
PI34	<---	PI	0,643
PI35	<---	PI	0,515
PI36	<---	PI	0,641
PI37	<---	PI	0,612
PI38	<---	PI	0,595
PI39	<---	PI	0,669

Source: Processed Data, 2020

Based on Table 4.16 shown above, there are 32 indicators with a Loading Factor below the required value of 0.5, of which labeled with different formatting.

The next suitability of the confirmatory model is then tested by using Goodness of Fit Index which has three criteria of Absolute Fit Indices, Incremental Fit Indices, and Parsimony Fit Indices. These criteria use Chi Square, Probability, CMINDF and RMSEA to represent absolute fit indices, CFI and TLSI for incremental fit indices, and PGFI & PNFI to represent parsimony fit indices. The result of the confirmatory analysis model is shown in Figure 4.2, while the Goodness of Fit table is shown in Table 4.17.

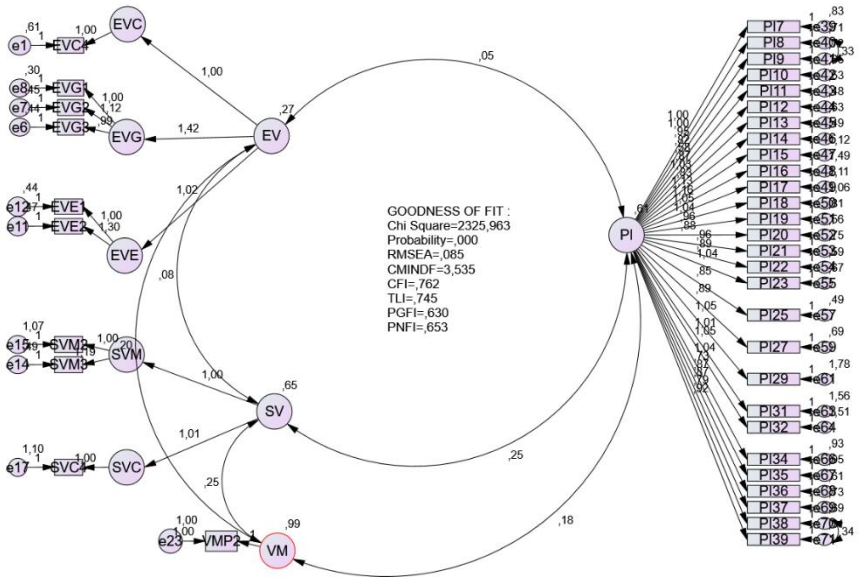

Figure 4.2 Model result based on confirmatory analysis

Table 4.17Goodness of fit test based on confirmatory analysis

Fit Indices	Goodness of Fit	Criteria	Cut-off value	Conclusion
Absolute Fit	Chi Square	small	2,323.903	Not Acceptable
	Probability	≤ 0,05	0,000	Acceptable
	RMSEA	≤ 0.08	0.085	Marginal
	CMINDF	≤ 2,00	3.535	Not Acceptable
Incremental Fit	TLI	≥ 0.90	0.745	Not Acceptable
	CFI	≥ 0.90	0.762	Not Acceptable
Parsimony Fit	PGFI	≥ 0.60	0.630	Acceptable
	PNFI	≥ 0.60	0.653	Acceptable

Source: Processed Data, 2020

Based on Table 4.17, there are only two acceptable criteria that have the "acceptable" predicate. To improve the GOF score, a modification of model is done based on the modification table index to create a covariance relationship or eliminating the indicators that has a high value of modification index. Several items with high modification index and low loading factors are dropped from the analysis. The result of this step is shown in Figure 4.3 and Table 4.18 below.

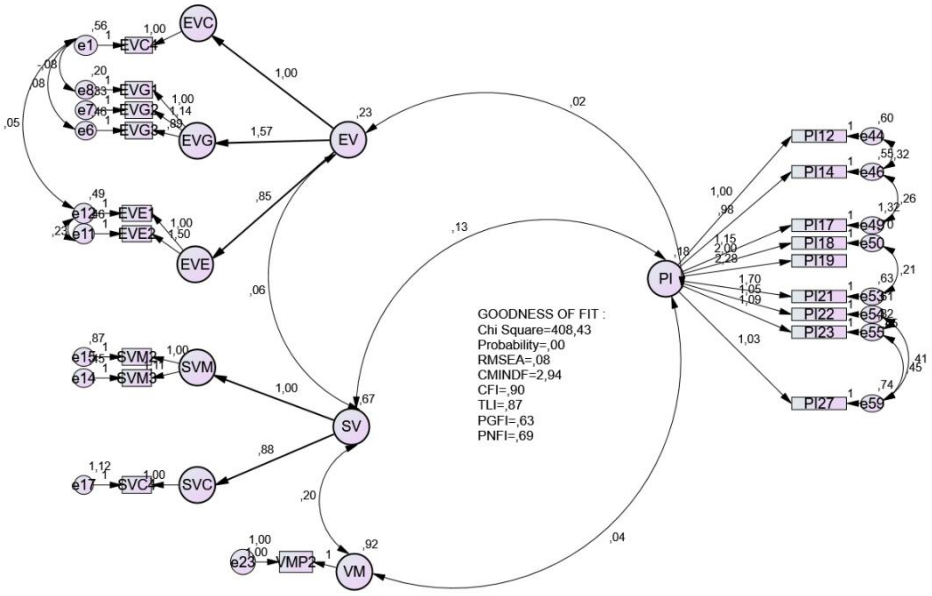

Figure 4.3 Modified model

Table 4.18 Goodness of fit test based on the modified model

Fit Indices	Goodness of Fit	Criteria	Cut-off value	Conclusion
Absolute Fit	Chi Square	small	408,43	Acceptable
	Probability	≤ 0,05	0,00	Acceptable
	RMSEA	≤ 0.08	0,08	Acceptable
	CMINDF	≤ 2,00	2,94	Marginal
Incremental Fit	TLI	≥ 0.90	0.87	Marginal
	CFI	≥ 0.90	0.90	Acceptable
Parsimony Fit	PGFI	≥ 0.60	0.63	Acceptable
	PNFI	≥ 0.60	0.69	Acceptable

Source: Processed Data, 2020

Reliability Testing

Reliability testing is done to measure reliability of each variable.. The reliability coefficient ranges between 0 and 1 with a minimum of construct reliability coefficient needed > 0.7 and its extracted variance > 0.5. The result of this step is shown in Table 4.19 below.

Table 4.19 SEM reliability testing result

Variable	Indicator	Loading Std.	Loading Std²	Measurement Error	CR	VE
EV	EVC4	0,60	0,36	0,64	0,8	0,5
	EVG3	0,72	0,52	0,48		
	EVG2	0,70	0,49	0,51		
	EVG1	0,74	0,54	0,46		
	EVE2	0,73	0,54	0,46		
	EVE1	0,68	0,46	0,54		
SV	SVM3	0,68	0,46	0,54	0,7	0,5
	SVM2	0,62	0,38	0,62		
	SVC4	0,63	0,40	0,60		
VM	VMP2	0,59	0,35	0,65	0,7	0,5
PI	PI12	0,68	0,46	0,54	0,9	0,5
	PI14	0,66	0,43	0,57		
	PI17	0,62	0,39	0,61		
	PI18	0,62	0,38	0,62		
	PI19	0,63	0,40	0,60		
	PI21	0,64	0,41	0,59		
	PI22	0,66	0,43	0,57		
	PI23	0,69	0,47	0,53		
	PI27	0,63	0,39	0,61		
	PI37	0,61	0,37	0,63		
	PI38	0,60	0,35	0,65		
	PI39	0,67	0,45	0,55		

Source: Processed Data, 2020

Based on the result shown in Table 4.19, the construct reliability of all the variables has reach the minimum criteria of > 0.7 and extracted variance of > 0.5. This shows that the questionnaire used on this research is proven to be reliable.

Outliers

Outliers are observed data with unique characteristics that appears to be extreme values that are different from the rest of the data. This research evaluates the existence of outliers via analysis of multivariate outliers in form of *Mahalanobis Distance*. This test measures the Chi Square by using a degree-

of-freedom of 38 indicators and $p < 0.001$ with a value of χ_2 value of (38;0.001) = 61.162. The result of this analysis is shown in Table 4.20 below.

Table 4.20 Mahalanobis Distance test result

Observation number	Mahalanobis d-squared	p1	p2
92	***121,569***	***,000***	***,000***
102	***105,870***	***,000***	***,000***
259	***91,510***	***,000***	***,000***
223	***89,674***	***,000***	***,000***
14	***87,226***	***,000***	***,000***
241	***86,827***	***,000***	***,000***
152	***86,588***	***,000***	***,000***
121	***85,682***	***,000***	***,000***
25	***83,933***	***,000***	***,000***
183	***83,648***	***,000***	***,000***
114	***83,159***	***,000***	***,000***
310	***79,538***	***,000***	***,000***
246	***78,574***	***,000***	***,000***
204	***77,683***	***,000***	***,000***
327	***77,523***	***,000***	***,000***
312	***77,500***	***,000***	***,000***
2	***76,951***	***,000***	***,000***
295	***76,352***	***,000***	***,000***
72	***76,284***	***,000***	***,000***
296	***75,833***	***,000***	***,000***
126	***75,710***	***,000***	***,000***
21	***75,061***	***,000***	***,000***
225	***74,796***	***,000***	***,000***
172	***74,477***	***,000***	***,000***
43	***73,919***	***,001***	***,000***
211	***72,506***	***,001***	***,000***
57	***72,377***	***,001***	***,000***
132	***72,277***	***,001***	***,000***
193	***71,544***	***,001***	***,000***
47	***71,426***	***,001***	***,000***
273	***71,082***	***,001***	***,000***
317	***70,572***	***,001***	***,000***
225	***70,796***	***,000***	***,000***
181	***70,477***	***,000***	***,000***
41	***68,919***	***,001***	***,000***
269	***68,506***	***,001***	***,000***
56	***68,377***	***,001***	***,000***

Observation number	Mahalanobis d-squared	p1	p2
122	***67,277***	***,001***	***,000***
192	***66,544***	***,001***	***,000***
46	***66,426***	***,001***	***,000***
271	***66,082***	***,001***	***,000***
316	***65,572***	***,001***	***,000***
88	***65,303***	***,001***	***,000***
71	***64,381***	***,002***	***,000***
279	***64,211***	***,002***	***,000***
262	***64,036***	***,002***	***,000***
272	***62,795***	***,003***	***,000***
202	***62,094***	***,003***	***,000***
186	***61,481***	***,004***	***,000***
15	***61,429***	***,004***	***,000***
165	***61,342***	***,004***	***,000***
325	60,753	,004	,000
91	59,997	,005	,000
101	59,827	,006	,000
263	59,457	,006	,000
163	59,252	,006	,000
30	58,327	,008	,000
231	58,153	,008	,000
212	57,675	,009	,000
343	57,641	,009	,000
158	57,639	,009	,000
131	57,241	,010	,000
89	57,150	,010	,000
292	57,111	,011	,000
188	56,919	,011	,000
144	56,778	,011	,000
51	56,563	,012	,000
248	56,423	,012	,000
160	56,327	,013	,000
203	56,113	,013	,000
240	55,972	,014	,000

Source: Processed Data, 2020

Based on Table 4.20 above, among 350 data, there are 51 data with a Mahalanobis d-squared value more than 61,162, hence these 51 data contain outliers and needs to be eliminated in order that SEM can be conducted properly.

Data Normality

The assumption of data normality must be fulfilled in order that SEM can be conducted properly. This can be done by observing the critical value of the multivariate data in which it needs to be on a range of ± 2.58 to be considered as normal data. The result of this test is shown in Table 4.21 below.

Table 4.21 Data Normality test result

Variable	min	max	skew	c.r.	kurtosis	c.r.
PI39	1,000	5,000	1,124	7,932	,435	1,535
PI38	1,000	5,000	1,337	9,436	1,269	4,480
PI37	1,000	5,000	1,304	9,202	,956	3,373
PI36	1,000	5,000	1,085	7,656	,161	,569
PI35	1,000	5,000	1,370	9,673	1,136	4,011
PI34	1,000	5,000	1,104	7,794	,285	1,007
PI32	1,000	5,000	,623	4,396	-1,011	-3,568
PI31	1,000	5,000	,527	3,723	-1,071	-3,780
PI29	1,000	5,000	-,210	-1,483	-1,524	-5,378
PI27	1,000	5,000	1,693	11,949	2,336	8,244
PI23	1,000	5,000	1,404	9,911	1,321	4,663
PI22	1,000	5,000	1,126	7,950	,225	,796
PI21	1,000	5,000	1,219	8,608	,395	1,395
PI20	1,000	5,000	1,735	12,244	2,332	8,231
PI19	1,000	5,000	1,535	10,835	1,577	5,565
PI18	1,000	5,000	,935	6,603	-,411	-1,451
PI17	1,000	5,000	,873	6,163	-,440	-1,552
PI15	1,000	5,000	,773	5,455	-,698	-2,463
PI14	1,000	5,000	1,466	10,351	1,751	6,180
PI12	1,000	5,000	1,275	9,000	1,101	3,887
PI11	1,000	5,000	1,714	12,098	2,539	8,960
PI10	1,000	5,000	1,784	12,595	2,675	9,440
PI9	1,000	5,000	1,380	9,739	1,237	4,365
PI8	1,000	5,000	1,146	8,089	,702	2,477
PI7	1,000	5,000	,997	7,040	,068	,239
VMP2	1,000	5,000	-,244	-1,721	-1,169	-4,125
SVC4	1,000	5,000	,096	,677	-1,022	-3,606
SVM2	1,000	5,000	,803	5,670	-,435	-1,537

Variable	min	max	skew	c.r.	kurtosis	c.r.
SVM3	1,000	5,000	1,285	9,073	,725	2,559
EVE1	2,000	5,000	-,586	-4,135	-,214	-,757
EVE2	1,000	5,000	-,732	-5,171	,572	2,020
EVG1	1,000	5,000	-,956	-6,749	,758	2,676
EVG2	1,000	5,000	-,859	-6,067	,371	1,309
EVG3	1,000	5,000	-,799	-5,639	,319	1,127
EVC4	1,000	5,000	-,570	-4,023	,491	1,733
Multivariate					45,751	1,750

Source: Processed Data, 2020

Based on the table 4.21 above, the critical value of the multivariate data is 1.750 which is within the range of ± 2.58, which proves that the data in this research is normally distributed. Hence the SEM analysis can be conducted.

4. Model Finalization & Goodness-of-Fit Test of the Complete Model

The modified model that has been validated via multiple assumptions is shown in Figure 4.4 below, while the Goodness of Fit test of the modified model is shown in Table 4.22.

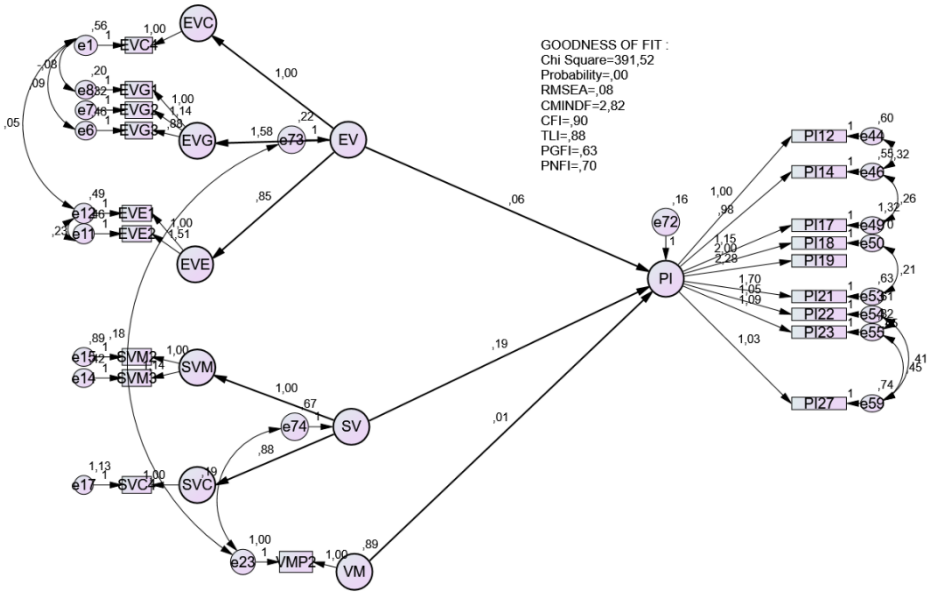

Figure 4.4 Finalized model

Table 4.22 Goodness of fit test of the finalized model

Fit Indices	Goodness of Fit	Criteria	Cut-off value	Conclusion
Absolute Fit	Chi Square	Small	391,52	Acceptable
	Probability	≤ 0,05	0,00	Acceptable
	RMSEA	≤ 0.08	0,08	Acceptable
	CMINDF	≤ 2,00	2,82	Marginal
Incremental Fit	TLI	≥ 0.90	0.88	Marginal
	CFI	≥ 0.90	0.90	Acceptable
Parsimony Fit	PGFI	≥ 0.60	0.63	Acceptable
	PNFI	≥ 0.60	0.70	Acceptable

Source: Processed Data, 2020

5. Hypothesis Testing

The final step is to do the SEM on the complete model. The result of the SEM analysis of the regression weight can be seen in Table 4.23 below.

Table 4.23 Regression Weight test

			Estimate	S.E.	C.R.	P	Label
PI	<---	EV	,063	,053	1,173	,241	Positive but not significant
PI	<---	SV	,188	,041	4,594	***	Positive significant
PI	<---	VM	,005	,035	,157	,875	Positive but not significant

Source: Processed Data, 2020

To determine the result of the hypothesis testing, a critical ratio (CR) and probability value (P) of the processed data need to be observed. If the CR is > 1.96 and P is < 0.05 (5%), then the hypothesis is failed to be rejected.

H1: Emotional Value (EV) positively and significantly influences Purchase Intention (PI)

Based on the processed data, the CR is 1.173 with a P value of 0.241. As the CR value is < 1.96 and P value of > 0.05, this result concludes that Emotional Value (EV) positively influences Purchase Intention, but the influence is not significant. Thus, H1 of this research is not supported by the hypothesis testing.

H2: Social Value (SV) positively and significantly influences Purchase Intention (PI)

Based on the processed data, the CR is 4.594 with a P value of 0.000. As the CR value is > 1.96 and P value of < 0.05, this indicates that Social Value (SV) significantly and positively influences Purchase Intention. Thus, H2 of this research is supported by the hypothesis testing.

H3: Value for Money (VM) positively influences Purchase Intention (PI), but, the effect is not significant.

Based on the processed data, the CR is 0.157 with a P value of 0.875. As the CR value is < 1.96 and P value of < 0.05, this result concludes that Value for Money (VM) positively influences Purchase Intention, but the influence is not significant. Thus, H3 of this research is not supported by the hypothesis testing.

4.3. Discussion

4.3.1. H1: Emotional Value (EV) positively influences Purchase Intention (PI) but not significantly

Based on the hypothesis testing done, there is a sufficient evidence showing that emotional value positively influences purchase intention in the context of FGO players. However, it does not significantly influence it in the context of FGO players. This shows that the higher the player values emotional value of the game in question (FGO), the higher the purchase intention of such player to spend money on premium currency. However, this relationship is observed to be not significant.

This affirms the partial relationship that Hsiao & Chen (2016) founds in which the relationship between emotional value and purchase intention is partially supported. The research found out that the relationship between paying and nonpaying groups are different, in which the nonpaying group have lower emotional value compared to the paying group of players.

Based on the findings of Hiramitsu (2019) and Kim (2017) that mention how emotional value may influence purchase intention. The combination of appealing character design, fun and entertaining gameplay as well as charming

game aesthetics can be attributed to how the players perceive the emotional value to be one of the major determinants of their purchase intention. This also implies that better character design, gameplay, and game aesthetics is required for a game to allure the players to purchase premium currency.

On another side of how the players perceive the game itself emotionally, the result shows an astonishingly high degree of emotional value as the players are either agreeing or strongly agreeing that the game has created a strong emotional bond among players. This result is consistent among both genders, age groups, platform, and income level.

The result is particularly strong among middle-income players, this may be a result of how alluring the game for the players, yet their income may be a barrier to purchase premium currency. This may cause the player to value the game more emotionally compared to the other groups based on player income.

However, this relationship is observed to be not significant in the context of FGO due to several reasons. There exist several aspects of emotional value that may be valued highly by the players among all of the demography, but such emotional value may not translate to a higher purchase intention. It may be true that the middle-income players are skewed towards high emotional value compared to the rest of the respondents. However, their proportion is much lower compared to high-income or low-income players. This result may confirm that such phenomenon only applies to middle-income players, but not low-income or high-income players.

4.3.2. H2: Social Value (SV) positively influences Purchase Intention (PI)

Based on the hypothesis testing done, there is a sufficient evidence that shows that social value positively and significantly influences purchase intention in the context of FGO players. This shows that the higher the player values the social perceived value of the game in question (FGO), the higher the purchase intention of such player to spend money on premium currency.

This result corroborates the findings of Ghazali et al. (2019) that mention how social value such as community aspect may positively influences purchase intention. The result of this section can be traced and confirmed internally by understanding how the player perceives the social values of the game itself. The player generally views and perceives the community to be helpful and has a strong sense of belonging. In addition to helpful community, the negative terms, such as “toxic” or “suggestive” do not apply.

One of the most strongly agreed question is the “I think that owning a specific character (*waifu/husbando*) in FGO gives me satisfaction” in which the result is consistent among the players in all control variables.

In general, how the player perceives the social value can be seen from two points of view, which are the multiplayer aspect of playing together with friends, and the community aspect where the player belongs to. Behavioral difference in multiplayer aspect is the most apparent between groups of players based on its age group. The degree of multiplayer lowers as the age group goes up. This may imply that younger players do value “playing with friends” much

more compared to the other age groups, while older players tend to play the game by themselves and do not really require a partner to play with. The community aspect is rather different because the highest degree of perceived social value of community aspect was found among the group of late teens and young adults (17 – 33 years old). This can be seen as a prime age of community-focused interaction among players that play the same game, hence making them be part of the community much more compared to much older players or much younger players.

In the relation to the purchase intention, it can be seen that the strongest driving factor of purchase intention among the players is the ownership of a specific character. Therefore, further research is needed to elaborate the relationship between the emotional values of character aesthetics and specific character ownership in influencing players purchase intention. Nevertheless, the result seems to show some degree of understanding that there is a relationship between such aspects.

4.3.3. H3: Value for Money (VM) positively influences Purchase Intention (PI) but not significantly

Based on the hypothesis testing done, there exist a sufficient evidence that shows that value for money positively influences purchase intention, however it does not significantly influence it in the context of FGO players. This shows that the higher the player values the value for money of the game in question (FGO), the higher the purchase intention of such player to spend money on premium currency. However, this relationship is observed to be not significant.

This affirms the partial relationship that Hsiao & Chen (2016) founds in which the relationship between value for money and purchase intention is partially supported. The research found out that the relationship between paying and nonpaying groups are different, in which the nonpaying group have lower value for money compared to the paying group of players.

This is most apparent when validated internally between the players with different income levels. The group with lower income values the game value for money much lower compared to those with higher income. Although there exists a somewhat different result on the lower end income (151 – 225 USD per month) that actually values not only value for money higher, but also emotional and social values as well as purchase intention. This is clearly an interesting finding that could be discussed further with more specific research focused on lower-middle income players, as their behavior is found to be rather unique compared to very high income or very low-income players.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

5.1. Conclusions

Based on the research findings, several conclusions can be drawn. It can be concluded that one of the perceived values influence mobile player in-app purchase intention positively and significantly, namely social value. While emotional value and value for money also influence in-app purchase intention, but insignificantly. Additionally, the mobile game loyalty variable is then dropped from the research due to its low reliability on the instrument.

1. Emotional Value (EV) positively influences Purchase Intention (PI) but not significantly.

This research discovers that emotional value positively influences purchase intention, but the relationship is observed to be not significant. Mobile *gacha* games do invest heavily on emotional aspect such as character design and interesting gameplay mechanics. This has been proven to be a very good move as it does evoke in-app purchase intention among the players, while this research simply proves and validate the general public's view.

However, this decision might require more study, as the relationship observed can only be attributed to middle-income players based on this research result. Low-income and high-income players may behave differently and require different treatment in term of emotional value in mobile *gacha* games as the games main way of generating profit is via in-app purchases.

2. Social Value (SV) positively and significantly influences Purchase Intention (PI).

. The existence of mobile *gacha* game communities and social groups also influence in-app purchase influence through enjoyable experience of "playing with friends" which enables the members to provide suggestions relating to in-app purchase. This research reaffirms such proposition that mobile *gacha* games are social games that requires other players to perform properly.

Unlike offline games that can be played alone, mobile *gacha* games requires the player to communicate with other players and discuss about the game itself.

3. Value for Money (VM) positively influences Purchase Intention (PI) but not significantly.

Value for money is observed to influence in-app purchase positively, but it does influence it significantly. It can be concluded that different type of players values the game value for money in a different way.

5.2. Recommendations

This research uses the FGO mobile *gacha* games as a case study to understand the effect of perceived values towards in-app purchase intention. The game itself is a rather unique form of games that provides the players multitude of ways to spend their money. However, the very same game design rationale might be rather skewed towards a more spending-heavy behavior.

Therefore, it is recommended that future studies focus on other types of games to validate the research findings.

This study was initially meant to also include mobile game loyalty on is research. Then, the variable was dropped due to its low reliability score on the instrument reliability testing. Additionally, the existing value for money variable has two of its three dimensions dropped as well. It is highly recommended that future research develops a new and more reliable instrument to measure perceived values influence towards in-app purchase intention.

This research study has found some unique findings regarding specific player groups based on control variables such as the middle income players. The research also has founded a potential relationship between social values on influencing in-app purchase intention. It is recommended that further researchers to expand upon these findings and validate the result found on this research.

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APPENDICES

APPENDICES

Appendix A Proposed Questionnaire

PART 1. Respondent Identity

1. Gender
- Male
- Female
2. Age (years)
- <17
- 17 – 22
- 23 – 27
- 28 – 33
- > 33
3. Platform
- iOS/Android
- PC Emulator
- Both
4. Income (USD/month)
- < 100 USD
- 100 – 150 USD
- 151 – 200 USD
- 201 – 250 USD
- 251 – 300 USD
- > 300 USD

PART 2. Emotional Values

A. Character Appeal

1. I think that the characters visual design in FGO is aesthetically pleasing.
2. I think that the characters voice acting in FGO is done appropriately and aesthetically.
3. I think that the characters lore and narrative in FGO is well-written.
4. I think that the characters gameplay and utility in FGO is properly balanced.
5. I think that the character-specific fandom in FGO is good and well-maintained.

B. Gameplay Aspect

6. I think that playing FGO is enjoyable.
7. I think that the gameplay mechanics in FGO is fun.
8. I think that the gameplay progression in FGO is fun and well-made.
9. I think that the content difficulty in FGO is quite challenging.
10. I think that farming for materials in FGO is quite frustrating.
11. I think that the “energy” in FGO is quite scarce,

C. Game Aesthetics

12. I think that FGO has a nice user interface.
13. I think that FGO gives a nice user experience.
14. I think that FGO has a well-made game music.

15. I think that FGO has a well-written game story.
16. I think that FGO has a well-crafted game art.
17. I think that FGO has a significant non-game product (visual novel, manga, anime).

PART 3. Social Values

A. Multiplayer Aspect

18. I think that other players and my friends plays a major role in FGO.
19. I think that if I win against other players and my friends in FGO, I will gain so much pride.
20. I think that FGO is a very competitive game.
21. I think that FGO is a very collaborative game.

B. Community Aspect

22. I think that FGO community is able to guide me through the game.
23. I think that FGO community makes me belong as a member of the community.
24. I think that owning a specific character (*waifu/husbando*) in FGO gives me satisfaction.
25. I think that FGO community is very competitive.
26. I think that FGO community is very toxic.
27. I think that FGO community is very suggestive to make me spend more money.

PART 4. Value for Money

A. *Gacha* Aspect

28. I think that the *gacha* rate in FGO is quite frustrating and bizarre.
29. I think that the character pool in FGO is varied and interesting.
30. I think that the existence of safety net (*spark system*) for *gacha* in FGO is effective.
31. I think that the rarity scaling in FGO is effective and justified.
32. I think that in FGO, higher rarity characters are significantly stronger compared to lower rarity ones.

B. Good Price

33. I think that the promo (*gacha banner*) in FGO is appropriately made and interesting.
34. I think that Saint Quartz is very versatile and can be used for many purposes in FGO.
35. I think that the Saint Quartz is appropriately priced in FGO.
36. I think that the resource management in FGO is frustrating.

C. Reward

37. I think that the difference of strength between farmable items and premium items in FGO is quite huge.
38. I think that FGO gives a lot of freebies for the players.
39. I think that FGO gives appropriate rewards for progressing through the game.

PART 5. Mobile Game Loyalty

40. FGO is my first choice in *gacha* mobile games.
41. I will continue playing FGO.
42. I am willing to say positive things about FGO to others.
43. If others want to play a *gacha* mobile games, I will recommend FGO.
44. I will encourage friends and relatives to play FGO.

PART 6. Purchase Intention

Character Appeal

45. I think that the characters visual design in FGO influences me to purchase more Saint Quartz.
46. I think that the characters voice acting in FGO influences me to purchase more Saint Quartz.
47. I think that the characters lore and narrative in FGO influences me to purchase more Saint Quartz.
48. I think that the characters gameplay utility and usages in FGO influences me to purchase more Saint Quartz.
49. I think that the character-specific fandom in FGO influences me to purchase more Saint Quartz.

Gameplay Aspect

50. I think that I can enjoy playing FGO if I purchase more Saint Quartz.
51. I think that the gameplay mechanics in FGO influences me to purchase more Saint Quartz.
52. I think that the gameplay progression in FGO influences me to purchase more Saint Quartz.
53. I think that the content difficulty in FGO influences me to purchase more Saint Quartz.
54. I think that farming for materials in FGO influences me to purchase more Saint Quartz.
55. I think that the “energy scarcity” in FGO influences me to purchase more Saint Quartz.

Game Aesthetics

56. I think that FGO user interface influences me to purchase more Saint Quartz.
57. I think that FGO user experience influences me to purchase more Saint Quartz.
58. I think that FGO game music influences me to purchase more Saint Quartz.
59. I think that FGO game story influences me to purchase more Saint Quartz.
60. I think that FGO game art influences me to purchase more Saint Quartz.

61. I think that FGO non-game product (visual novel, manga, anime) influences me to purchase more Saint Quartz.

Multiplayer Aspect

62. I think that playing with other players and my friends in FGO influences me to purchase more Saint Quartz.
63. I think that the pride I gained in FGO influences me to purchase more Saint Quartz.
64. I think that FGO competitiveness influences me to purchase more Saint Quartz.
65. I think that FGO collaborative-ness influences me to purchase more Saint Quartz.

Community Aspect

66. I think that the guides given in the FGO community influences me to purchase more Saint Quartz.
67. I think that being in FGO community influences me to purchase more Saint Quartz.
68. I think that specific character ownership (*waifu/husbando*) in FGO influences me to purchase more Saint Quartz.
69. I think that the competitiveness of FGO community influences me to purchase more Saint Quartz.
70. I think that the toxicity of FGO community influences me to purchase more Saint Quartz.
71. I think that the suggestive behavior in FGO community influences me to purchase more Saint Quartz.

***Gacha* Aspect**

72. I think that the *gacha* rate in FGO influences me to purchase more Saint Quartz.
73. I think that the character pool in FGO influences me to purchase more Saint Quartz.
74. I think that the existence of safety net in FGO influences me to purchase more Saint Quartz.
75. I think that the rarity scaling in FGO influences me to purchase more Saint Quartz.
76. I think that the disparity of strength between higher rarity and lower rarity characters in FGO influences me to purchase more Saint Quartz.

Good Price

77. I think that the promo (*gacha banner*) in FGO influences me to purchase more Saint Quartz.
78. I think that the usefulness of Saint Quartz in FGO influences me to purchase more Saint Quartz.
79. I think that the price for Saint Quartz in FGO influences me to purchase more Saint Quartz.

80. I think that the resource management in FGO influences me to purchase more Saint Quartz.

Reward

81. I think that the difference of strength between farmable items and premium items in FGO influences me to purchase more Saint Quartz.
82. I think that the freebies in FGO influences me to purchase more Saint Quartz.

I think that the amount of progression rewards FGO gave to me influences me to purchase more Saint Quartz.

Appendix B Validated Questionnaire

PART 1. Respondent Identity

1. Gender
- Male
- Female
2. Age (years)
- <17
- 17 – 22
- 23 – 27
- 28 – 33
- > 33
3. Platform
- iOS/Android
- PC Emulator
- Both
4. Income (USD/month)
- < 100 USD
- 100 – 150 USD
- 151 – 200 USD
- 201 – 250 USD
- 251 – 300 USD
- > 300 USD

PART 2. Emotional Values

A. Character Appeal

5. I think that the characters visual design in FGO is aesthetically pleasing.
6. I think that the characters voice acting in FGO is done appropriately and aesthetically.
7. I think that the characters lore and narrative in FGO is well-written.
8. I think that the characters gameplay and utility in FGO is properly balanced.
9. I think that the character-specific fandom in FGO is good and well-maintained.

B. Gameplay Aspect

10. I think that playing FGO is enjoyable.
11. I think that the gameplay mechanics in FGO is fun.
12. I think that the gameplay progression in FGO is fun and well-made.
13. I think that the content difficulty in FGO is quite challenging.
14. I think that farming for materials in FGO is quite frustrating.
15. I think that the “energy” in FGO is quite scarce,

C. Game Aesthetics

16. I think that FGO has a nice user interface.
17. I think that FGO gives a nice user experience.
18. I think that FGO has a well-made game music.
19. I think that FGO has a well-written game story.

20. I think that FGO has a well-crafted game art.
21. I think that FGO has a significant non-game product (visual novel, manga, anime).

PART 3. Social Values

A. Multiplayer Aspect

22. I think that other players and my friends plays a major role in FGO.
23. I think that if I win against other players and my friends in FGO, I will gain so much pride.
24. I think that FGO is a very competitive game.
25. I think that FGO is a very collaborative game.

B. Community Aspect

26. I think that FGO community is able to guide me through the game.
27. I think that FGO community makes me belong as a member of the community.
28. I think that owning a specific character (*waifu/husbando*) in FGO gives me satisfaction.
29. I think that FGO community is very competitive.
30. I think that FGO community is very toxic.
31. I think that FGO community is very suggestive to make me spend more money.

PART 4. Value for Money

A. Good Price

32. I think that the promo (*gacha banner*) in FGO is appropriately made and interesting.
33. I think that Saint Quartz is very versatile and can be used for many purposes in FGO.
34. I think that the Saint Quartz is appropriately priced in FGO.
35. I think that the resource management in FGO is frustrating.

PART 5. Purchase Intention

36. I think that the characters visual design in FGO influences me to purchase more Saint Quartz.
37. I think that the characters voice acting in FGO influences me to purchase more Saint Quartz.
38. I think that the characters lore and narrative in FGO influences me to purchase more Saint Quartz.
39. I think that the characters gameplay utility and usages in FGO influences me to purchase more Saint Quartz.
40. I think that the character-specific fandom in FGO influences me to purchase more Saint Quartz.
41. I think that I can enjoy playing FGO if I purchase more Saint Quartz.
42. I think that the gameplay mechanics in FGO influences me to purchase more Saint Quartz.

43. I think that the gameplay progression in FGO influences me to purchase more Saint Quartz.
44. I think that the content difficulty in FGO influences me to purchase more Saint Quartz.
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49. I think that FGO game music influences me to purchase more Saint Quartz.
50. I think that FGO game story influences me to purchase more Saint Quartz.
51. I think that FGO game art influences me to purchase more Saint Quartz.
52. I think that FGO non-game product (visual novel, manga, anime) influences me to purchase more Saint Quartz.
53. I think that playing with other players and my friends in FGO influences me to purchase more Saint Quartz.
54. I think that the pride I gained in FGO influences me to purchase more Saint Quartz.
55. I think that FGO competitiveness influences me to purchase more Saint Quartz.
56. I think that FGO collaborative-ness influences me to purchase more Saint Quartz.
57. I think that the guides given in the FGO community influences me to purchase more Saint Quartz.
58. I think that being in FGO community influences me to purchase more Saint Quartz.
59. I think that specific character ownership (*waifu/husbando*) in FGO influences me to purchase more Saint Quartz.
60. I think that the competitiveness of FGO community influences me to purchase more Saint Quartz.
61. I think that the toxicity of FGO community influences me to purchase more Saint Quartz.
62. I think that the suggestive behavior in FGO community influences me to purchase more Saint Quartz.
63. I think that the *gacha* rate in FGO influences me to purchase more Saint Quartz.
64. I think that the character pool in FGO influences me to purchase more Saint Quartz.
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70. I think that the price for Saint Quartz in FGO influences me to purchase more Saint Quartz.

71. I think that the resource management in FGO influences me to purchase more Saint Quartz.
72. I think that the difference of strength between farmable items and premium items in FGO influences me to purchase more Saint Quartz.
73. I think that the freebies in FGO influences me to purchase more Saint Quartz.
74. I think that the amount of progression rewards FGO gave to me influences me to purchase more Saint Quartz.

Appendix C Validity and Reliability Testing Detailed Results

Correlations

		EVC1	EVC2	EVC3	EVC4	EVC5	EVC
EVC1	Pearson Correlation	1	.208	.113	.116	.201	.431**
	Sig. (2-tailed)		.124	.406	.395	.138	.001
	N	56	56	56	56	56	56
EVC2	Pearson Correlation	.208	1	.489**	.449**	.369**	.694**
	Sig. (2-tailed)	.124		.000	.001	.005	.000
	N	56	56	56	56	56	56
EVC3	Pearson Correlation	.113	.489**	1	.462**	.438**	.732**
	Sig. (2-tailed)	.406	.000		.000	.001	.000
	N	56	56	56	56	56	56
EVC4	Pearson Correlation	.116	.449**	.462**	1	.490**	.748**
	Sig. (2-tailed)	.395	.001	.000		.000	.000
	N	56	56	56	56	56	56
EVC5	Pearson Correlation	.201	.369**	.438**	.490**	1	.792**
	Sig. (2-tailed)	.138	.005	.001	.000		.000
	N	56	56	56	56	56	56
EVC	Pearson Correlation	.431**	.694**	.732**	.748**	.792**	1
	Sig. (2-tailed)	.001	.000	.000	.000	.000	
	N	56	56	56	56	56	56

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		EVG1	EVG2	EVG3	EVG4	EVG5	EVG6	EVG
EVG1	Pearson Correlation	1	.818**	.614**	.492**	.040	.133	.791**
	Sig. (2-tailed)		.000	.000	.000	.770	.328	.000
	N	56	56	56	56	56	56	56
EVG2	Pearson Correlation	.818**	1	.632**	.400**	-.010	.193	.784**
	Sig. (2-tailed)	.000		.000	.002	.944	.154	.000
	N	56	56	56	56	56	56	56
EVG3	Pearson Correlation	.614**	.632**	1	.526**	-.205	.184	.709**
	Sig. (2-tailed)	.000	.000		.000	.129	.174	.000
	N	56	56	56	56	56	56	56
EVG4	Pearson Correlation	.492**	.400**	.526**	1	.066	.031	.643**
	Sig. (2-tailed)	.000	.002	.000		.628	.822	.000

	N	56	56	56	56	56	56	56
EVG5	Pearson Correlation	.040	-.010	-.205	.066	1	.138	.299*
	Sig. (2-tailed)	.770	.944	.129	.628		.311	.025
	N	56	56	56	56	56	56	56
EVG6	Pearson Correlation	.133	.193	.184	.031	.138	1	.516**
	Sig. (2-tailed)	.328	.154	.174	.822	.311		.000
	N	56	56	56	56	56	56	56
EVG	Pearson Correlation	.791**	.784**	.709**	.643**	.299*	.516**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.025	.000	
	N	56	56	56	56	56	56	56

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		EVE1	EVE2	EVE3	EVE4	EVE5	EVE6	EVE
EVE1	Pearson Correlation	1	.558**	.241	.228	.292*	.062	.627**
	Sig. (2-tailed)		.000	.074	.091	.029	.652	.000
	N	56	56	56	56	56	56	56
EVE2	Pearson Correlation	.558**	1	.388**	.295*	.267*	.192	.704**
	Sig. (2-tailed)	.000		.003	.028	.047	.157	.000
	N	56	56	56	56	56	56	56
EVE3	Pearson Correlation	.241	.388**	1	.478**	.326*	.101	.626**
	Sig. (2-tailed)	.074	.003		.000	.014	.457	.000
	N	56	56	56	56	56	56	56
EVE4	Pearson Correlation	.228	.295*	.478**	1	.495**	.481**	.743**
	Sig. (2-tailed)	.091	.028	.000		.000	.000	.000
	N	56	56	56	56	56	56	56
EVE5	Pearson Correlation	.292*	.267*	.326*	.495**	1	.289*	.679**
	Sig. (2-tailed)	.029	.047	.014	.000		.031	.000
	N	56	56	56	56	56	56	56
EVE6	Pearson Correlation	.062	.192	.101	.481**	.289*	1	.541**
	Sig. (2-tailed)	.652	.157	.457	.000	.031		.000
	N	56	56	56	56	56	56	56
EVE	Pearson Correlation	.627**	.704**	.626**	.743**	.679**	.541**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	.000	
	N	56	56	56	56	56	56	56

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		SVM1	SVM2	SVM3	SVM4	SVM
SVM1	Pearson Correlation	1	.457**	.461**	.636**	.787**
	Sig. (2-tailed)		.000	.000	.000	.000
	N	56	56	56	56	56
SVM2	Pearson Correlation	.457**	1	.576**	.497**	.798**
	Sig. (2-tailed)	.000		.000	.000	.000
	N	56	56	56	56	56
SVM3	Pearson Correlation	.461**	.576**	1	.487**	.798**
	Sig. (2-tailed)	.000	.000		.000	.000
	N	56	56	56	56	56
SVM4	Pearson Correlation	.636**	.497**	.487**	1	.814**
	Sig. (2-tailed)	.000	.000	.000		.000
	N	56	56	56	56	56
SVM	Pearson Correlation	.787**	.798**	.798**	.814**	1
	Sig. (2-tailed)	.000	.000	.000	.000	
	N	56	56	56	56	56

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		SVC1	SVC2	SVC3	SVC4	SVC5	SVC6	SVC
SVC1	Pearson Correlation	1	.705**	.256	.269*	-.182	-.063	.595**
	Sig. (2-tailed)		.000	.057	.045	.179	.644	.000
	N	56	56	56	56	56	56	56
SVC2	Pearson Correlation	.705**	1	.177	.337*	-.073	.078	.673**
	Sig. (2-tailed)	.000		.193	.011	.592	.570	.000
	N	56	56	56	56	56	56	56
SVC3	Pearson Correlation	.256	.177	1	.151	.307*	.078	.510**
	Sig. (2-tailed)	.057	.193		.266	.021	.566	.000
	N	56	56	56	56	56	56	56
SVC4	Pearson Correlation	.269*	.337*	.151	1	.108	.351**	.677**
	Sig. (2-tailed)	.045	.011	.266		.429	.008	.000
	N	56	56	56	56	56	56	56
SVC5	Pearson Correlation	-.182	-.073	.307*	.108	1	.318*	.408**
	Sig. (2-tailed)	.179	.592	.021	.429		.017	.002

	N	56	56	56	56	56	56	56
SVC6	Pearson Correlation	-.063	.078	.078	.351**	.318*	1	.536**
	Sig. (2-tailed)	.644	.570	.566	.008	.017		.000
	N	56	56	56	56	56	56	56
SVC	Pearson Correlation	.595**	.673**	.510**	.677**	.408**	.536**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.002	.000	
	N	56	56	56	56	56	56	56

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlations

		VMG1	VMG2	VMG3	VMG4	VMG5	VMG
VMG1	Pearson Correlation	1	.050	.128	-.141	.183	.336*
	Sig. (2-tailed)		.714	.347	.301	.177	.011
	N	56	56	56	56	56	56
VMG2	Pearson Correlation	.050	1	.335*	.516**	.313*	.728**
	Sig. (2-tailed)	.714		.012	.000	.019	.000
	N	56	56	56	56	56	56
VMG3	Pearson Correlation	.128	.335*	1	.375**	.282*	.691**
	Sig. (2-tailed)	.347	.012		.004	.035	.000
	N	56	56	56	56	56	56
VMG4	Pearson Correlation	-.141	.516**	.375**	1	.213	.676**
	Sig. (2-tailed)	.301	.000	.004		.115	.000
	N	56	56	56	56	56	56
VMG5	Pearson Correlation	.183	.313*	.282*	.213	1	.646**
	Sig. (2-tailed)	.177	.019	.035	.115		.000
	N	56	56	56	56	56	56
VMG	Pearson Correlation	.336*	.728**	.691**	.676**	.646**	1
	Sig. (2-tailed)	.011	.000	.000	.000	.000	
	N	56	56	56	56	56	56

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		VMP1	VMP2	VMP3	VMP4	VMP
VMP1	Pearson Correlation	1	.275*	.099	.188	.661**

	Sig. (2-tailed)		.040	.466	.166	.000
	N	56	56	56	56	56
VMP2	Pearson Correlation	.275*	1	.254	.005	.707**
	Sig. (2-tailed)	.040		.059	.973	.000
	N	56	56	56	56	56
VMP3	Pearson Correlation	.099	.254	1	-.408**	.472**
	Sig. (2-tailed)	.466	.059		.002	.000
	N	56	56	56	56	56
VMP4	Pearson Correlation	.188	.005	-.408**	1	.350**
	Sig. (2-tailed)	.166	.973	.002		.008
	N	56	56	56	56	56
VMP	Pearson Correlation	.661**	.707**	.472**	.350**	1
	Sig. (2-tailed)	.000	.000	.000	.008	
	N	56	56	56	56	56

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		VMR1	VMR2	VMR3	VMR
VMR1	Pearson Correlation	1	.201	.313*	.750**
	Sig. (2-tailed)		.138	.019	.000
	N	56	56	56	56
VMR2	Pearson Correlation	.201	1	.475**	.714**
	Sig. (2-tailed)	.138		.000	.000
	N	56	56	56	56
VMR3	Pearson Correlation	.313*	.475**	1	.756**
	Sig. (2-tailed)	.019	.000		.000
	N	56	56	56	56
VMR	Pearson Correlation	.750**	.714**	.756**	1
	Sig. (2-tailed)	.000	.000	.000	
	N	56	56	56	56

*. Correlation is significant at the 0.05 level (2-tailed).

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

	LY1	LY2	LY3	LY4	LY5	LY

		LY1	LY2	LY3	LY4	LY5	LY
LY1	Pearson Correlation	1	.791**	.555**	.486**	.379**	.783**
	Sig. (2-tailed)		.000	.000	.000	.004	.000
	N	56	56	56	56	56	56
LY2	Pearson Correlation	.791**	1	.584**	.483**	.386**	.781**
	Sig. (2-tailed)	.000		.000	.000	.003	.000
	N	56	56	56	56	56	56
LY3	Pearson Correlation	.555**	.584**	1	.554**	.532**	.782**
	Sig. (2-tailed)	.000	.000		.000	.000	.000
	N	56	56	56	56	56	56
LY4	Pearson Correlation	.486**	.483**	.554**	1	.851**	.862**
	Sig. (2-tailed)	.000	.000	.000		.000	.000
	N	56	56	56	56	56	56
LY5	Pearson Correlation	.379**	.386**	.532**	.851**	1	.810**
	Sig. (2-tailed)	.004	.003	.000	.000		.000
	N	56	56	56	56	56	56
LY	Pearson Correlation	.783**	.781**	.782**	.862**	.810**	1
	Sig. (2-tailed)	.000	.000	.000	.000	.000	
	N	56	56	56	56	56	56

**. Correlation is significant at the 0.01 level (2-tailed).

Correlations

		PI1	PI2	PI3	PI4	PI5	PI6	PI7	PI8	PI9	PI10	PI11	PI12	PI13	PI14	PI15	PI16	PI17	PI18	PI19	PI20
PI1	Pearson Correlation	1	.591**	.527**	.350**	.414**	.381**	.206	.195	.185	.209	.145	.171	.338*	.302*	.248	.441**	.189	.228	.199	.099
	Sig.		.0	.0	.0	.0	.0	.1	.1	.1	.1	.2	.2	.0	.0	.0	.0	.1	.0	.1	.4

		PI21	PI22	PI23	PI24	PI25	PI26	PI27	PI28	PI29	PI30	PI31	PI32	PI33	PI34	PI35	PI36	PI37	PI38	PI39	PI
PI1	Pearson Correlation	.223	.238	.137	.363**	.231	.187	.357**	.438**	.521**	.309*	.370**	.337*	.594**	.357**	.400**	.330*	.283*	.287*	.178	.510**
	Sig.	.0	.0	.3	.0	.0	.1	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.0	.1	.0

	(2-tailed)		00	00	08	01	04	28	50	73	22	85	06	11	24	65	01	64	91	42	67	99	77	15	06	87	68	07	01	00	21	05	11	00	07	02	13	34	32	89	00
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI2	Pearson Correlation	.591**	1	.568**	.271*	.484**	.362**	.386**	.330*	.329*	.347**	.353**	.377**	.526**	.426**	.420**	.458**	.412**	.287*	.315*	.254	.467**	.574**	.370**	.371**	.369**	.341*	.405**	.472**	.558**	.436**	.429**	.222	.521**	.460**	.396**	.487**	.519**	.382**	.348**	.666**
	Sig. (2-tailed)	.000		.000	.044	.000	.006	.003	.013	.013	.009	.008	.004	.000	.001	.001	.000	.002	.032	.018	.058	.000	.000	.005	.005	.005	.010	.002	.000	.000	.001	.001	.100	.000	.000	.003	.000	.000	.004	.009	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI3	Pearson Correlation	.527**	.568**	1	.357**	.376**	.202	.279*	.215	.221	.275*	.256	.180	.385**	.339*	.302*	.322*	.299*	.089	.129	.081	.282*	.399**	.084	.000	.076	.176	.087	.336*	.408**	.339*	.320*	.277*	.354**	.394**	.369**	.335*	.278*	.357**	.230	.458**
	Sig. (2-tailed)	.000	.000		.007	.004	.135	.037	.112	.102	.040	.057	.185	.003	.011	.024	.015	.025	.514	.345	.552	.035	.002	.539	.999	.576	.195	.523	.011	.002	.011	.016	.039	.007	.003	.005	.012	.038	.007	.089	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI4	Pearso	.35	.27	.35	1	.1	.2	.1	.0	.1	.1	.1	.1	.1	-.0	-.0	.0	.1	.1	.28	.31	.27	.27	.2	.0	.34	.0	.1	.2	.42	.34	.2	.2	.44	.45	.1	.27	.30	.1	.1	.36

	n Correlation	0**	1*	7**		77	36	67	79	68	92	96	12	33	49	57	92	12	13	7*	9*	7*	8*	10	83	6**	41	60	59	9**	3**	32	11	3**	5**	65	5*	6*	55	54	6**
	Sig. (2-tailed)	.008	.044	.007		.193	.080	.217	.563	.216	.156	.148	.411	.329	.719	.674	.502	.413	.406	.032	.016	.039	.038	.121	.543	.009	.762	.239	.054	.001	.010	.086	.119	.001	.000	.224	.040	.022	.254	.256	.006
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI5	Pearson Correlation	.414**	.484**	.376**	.177	1	.377**	.462**	.442**	.354**	.283*	.108	.381**	.193	.260	.278*	.237	.443**	.124	.229	.179	.273*	.227	.183	.117	.193	.198	.172	.542**	.408**	.425**	.407**	.345**	.308*	.499**	.222	.356**	.242	.297*	.402**	.507**
	Sig. (2-tailed)	.001	.000	.004	.193		.004	.000	.001	.007	.035	.428	.004	.154	.053	.038	.079	.001	.362	.089	.186	.042	.093	.177	.390	.153	.143	.206	.000	.002	.001	.002	.009	.021	.000	.099	.007	.072	.026	.002	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI6	Pearson Correlation	.381**	.362**	.202	.236	.377**	1	.649**	.663**	.469**	.424**	.223	.453**	.420**	.512**	.488**	.438**	.405**	.372**	.452**	.389**	.498**	.278*	.240	.367**	.361**	.082	.340*	.596**	.538**	.413**	.472**	.421**	.555**	.500**	.263	.371**	.436**	.512**	.500**	.669**
	Sig. (2-tail	.004	.006	.135	.080	.004		.000	.000	.000	.001	.098	.000	.001	.000	.000	.001	.002	.005	.000	.003	.000	.038	.075	.005	.006	.550	.010	.000	.000	.002	.000	.001	.000	.000	.051	.005	.001	.000	.000	.000

	ed)																																								
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI7	Pearson Correlation	.206	.386**	.279*	.167	.462**	.649**	1	.766**	.725**	.530**	.290*	.502**	.413**	.507**	.509**	.346**	.405**	.291*	.365**	.344**	.494**	.367**	.260	.239	.254	.142	.176	.572**	.372**	.530**	.457**	.411**	.326*	.480**	.381**	.431**	.532**	.632**	.602**	.666**
	Sig. (2-tailed)	.128	.003	.037	.217	.000	.000		.000	.000	.000	.030	.000	.002	.000	.000	.009	.002	.029	.006	.009	.000	.005	.053	.076	.058	.297	.196	.000	.005	.000	.000	.002	.014	.000	.004	.001	.000	.000	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI8	Pearson Correlation	.195	.330*	.215	.079	.442**	.663**	.766**	1	.773**	.478**	.363**	.678**	.549**	.742**	.733**	.540**	.684**	.449**	.446**	.426**	.671**	.465**	.319*	.410**	.354**	.272*	.309*	.554**	.419**	.468**	.479**	.434**	.328*	.515**	.378**	.300*	.536**	.631**	.642**	.753**
	Sig. (2-tailed)	.150	.013	.112	.563	.001	.000	.000		.000	.000	.006	.000	.000	.000	.000	.000	.000	.001	.001	.001	.000	.000	.017	.002	.007	.042	.020	.000	.001	.000	.000	.001	.014	.000	.004	.025	.000	.000	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI9	Pearson Co	.185	.329*	.221	.168	.354	.469	.725	.773	1	.494	.383	.622	.505	.642	.604	.407	.552	.331*	.321*	.323*	.479	.446	.343	.268*	.318*	.243	.245	.450	.277*	.474	.317*	.339*	.252	.431	.430	.192	.428	.602	.625	.649

	Correlation					**	**	**	**		**	**	**	**	**	**	**	**	**					**	**	**					**		**				**	**		**	**	**	**
	Sig. (2-tailed)	.173	.013	.102	.216	.007	.000	.000	.000		.000	.004	.000	.000	.000	.000	.002	.000	.013	.116	.015	.000	.001	.010	.046	.017	.071	.072	.000	.039	.000	.017	.011	.061	.001	.001	.156	.001	.000	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI10	Pearson Correlation	.209	.347**	.275*	.192	.283*	.424**	.530**	.478**	.494**	1	.719**	.620**	.393**	.530**	.582**	.298*	.334*	.141	.262	.267*	.244	.315*	.212	.093	.340*	.252	.118	.406**	.225	.436**	.313*	.372**	.199	.567**	.250	.461**	.425**	.521**	.536**	.568**
	Sig. (2-tailed)	.122	.009	.040	.156	.035	.001	.000	.000	.000		.000	.000	.003	.000	.000	.026	.012	.300	.051	.046	.070	.018	.117	.495	.010	.061	.386	.002	.095	.001	.019	.005	.141	.000	.063	.000	.001	.000	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI11	Pearson Correlation	.145	.353**	.256	.196	.108	.223	.290*	.363**	.383**	.719**	1	.538**	.616**	.422**	.517**	.180	.304*	.307*	.414**	.426**	.426**	.497**	.374**	.212	.543**	.595**	.252	.459**	.258	.472**	.273*	.315*	.198	.627**	.291*	.591**	.488**	.401**	.530**	.601**
	Sig. (2-tailed)	.285	.008	.057	.148	.428	.098	.030	.006	.004	.000		.000	.000	.001	.000	.183	.023	.022	.001	.001	.001	.000	.005	.117	.000	.000	.061	.000	.055	.000	.042	.018	.144	.000	.030	.000	.000	.002	.000	.000

	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI12	Pearson Correlation	.171	.377**	.180	.112	.381**	.453**	.502**	.678**	.622**	.620**	.538**	1	.682**	.703**	.701**	.488**	.497**	.337*	.379**	.378**	.539**	.395**	.409**	.224	.330*	.287*	.301*	.457**	.274*	.368**	.307*	.292*	.237	.522**	.273*	.219	.345**	.432**	.475**	.643**
	Sig. (2-tailed)	.206	.004	.185	.411	.004	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.011	.004	.004	.000	.003	.002	.098	.013	.032	.024	.000	.041	.005	.022	.029	.079	.000	.042	.104	.009	.001	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI13	Pearson Correlation	.338*	.526**	.385**	.133	.193	.420**	.413**	.549**	.505**	.393**	.616**	.682**	1	.722**	.634**	.513**	.481**	.391**	.495**	.439**	.685**	.619**	.459**	.438**	.434**	.453**	.457**	.501**	.482**	.488**	.463**	.311*	.437**	.578**	.483**	.388**	.495**	.424**	.441**	.744**
	Sig. (2-tailed)	.011	.000	.003	.329	.154	.001	.002	.000	.000	.003	.000	.000		.000	.000	.000	.000	.003	.000	.001	.000	.000	.001	.001	.001	.000	.000	.000	.000	.000	.000	.020	.001	.000	.000	.003	.000	.001	.001	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI14	Pearson Corre	.302*	.426**	.339*	-.049	.260	.512**	.507**	.742**	.642**	.530**	.422**	.703**	.722**	1	.882**	.640**	.653**	.233	.337*	.271*	.540**	.483**	.264*	.341*	.224	.292*	.259*	.355**	.290*	.346**	.344**	.309*	.272*	.393**	.289*	.108	.358**	.531**	.468**	.645**

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	Sig. (2-tailed)	.024	.001	.011	.719	.053	.000	.000	.000	.000	.000	.010	.000	.000		.000	.000	.000	.083	.011	.043	.000	.000	.049	.010	.097	.029	.053	.007	.030	.009	.009	.021	.042	.003	.031	.428	.007	.000	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI15	Pearson Correlation	.248	.420**	.302*	-.057	.278*	.488**	.509**	.733**	.604**	.582**	.517**	.701**	.634**	.882**	1	.655**	.663**	.360**	.444**	.337*	.466**	.447**	.262	.346**	.278*	.322*	.210	.377**	.306*	.261	.286*	.300*	.214	.425**	.280*	.195	.400**	.509**	.592**	.654**
	Sig. (2-tailed)	.065	.001	.024	.674	.038	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.006	.001	.011	.000	.001	.051	.009	.038	.016	.120	.004	.022	.052	.033	.024	.113	.001	.036	.149	.002	.000	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI16	Pearson Correlation	.441**	.458**	.322*	.092	.237	.438**	.346**	.540**	.407**	.298*	.180	.488**	.513**	.640**	.655**	1	.629**	.511**	.397**	.166	.519**	.412**	.188	.566**	.212	.168	.393**	.317*	.517**	.281*	.423**	.394**	.472**	.330*	.441**	.198	.344**	.468**	.365**	.635**
	Sig. (2-tailed)	.001	.000	.015	.502	.079	.001	.009	.000	.002	.026	.183	.000	.000	.000	.000		.000	.000	.002	.220	.000	.002	.165	.000	.117	.216	.003	.017	.000	.036	.001	.003	.000	.013	.001	.145	.009	.000	.006	.000

	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI17	Pearson Correlation	.189	.412**	.299*	.112	.443**	.405**	.405**	.684**	.552**	.334*	.304*	.497**	.481**	.653**	.663**	.629**	1	.300*	.344**	.183	.571**	.605**	.417**	.407**	.322*	.213	.273*	.377**	.450**	.418**	.377**	.284*	.249	.456**	.222	.197	.408**	.504**	.465**	.638**
	Sig. (2-tailed)	.164	.002	.025	.413	.001	.002	.002	.000	.000	.012	.023	.000	.000	.000	.000	.000		.025	.009	.178	.000	.000	.001	.002	.016	.116	.041	.004	.001	.001	.004	.034	.064	.000	.100	.145	.002	.000	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI18	Pearson Correlation	.228	.287*	.089	.113	.124	.372**	.291*	.449**	.331*	.141	.307*	.337*	.391**	.233	.360**	.511**	.300*	1	.681**	.473**	.491**	.373**	.325*	.467**	.457**	.441**	.494**	.464**	.488**	.380**	.316*	.383**	.435**	.344**	.484**	.406**	.501**	.368**	.361**	.606**
	Sig. (2-tailed)	.091	.032	.514	.406	.362	.005	.029	.001	.013	.300	.022	.011	.003	.083	.006	.000	.025		.000	.000	.000	.005	.015	.000	.000	.001	.000	.000	.000	.004	.018	.004	.001	.009	.000	.002	.000	.005	.006	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI19	Pearson Corre	.199	.315*	.129	.287*	.229	.452**	.365**	.446**	.321*	.262	.414**	.379**	.495**	.337*	.444**	.397**	.344**	.681**	1	.813**	.613**	.563**	.405**	.483**	.540**	.384**	.331*	.393**	.427**	.473**	.279*	.415**	.337*	.555**	.284*	.499**	.574**	.371**	.495**	.666**

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	Sig. (2-tailed)	.142	.018	.345	.032	.089	.000	.006	.001	.016	.051	.001	.004	.000	.011	.001	.002	.009	.000		.000	.000	.000	.002	.000	.000	.003	.013	.003	.001	.000	.037	.001	.011	.000	.034	.000	.000	.005	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI20	Pearson Correlation	.099	.254	.081	.319*	.179	.389**	.344**	.426**	.323*	.267*	.426**	.378**	.439**	.271*	.337*	.166	.183	.473**	.813**	1	.588**	.485**	.318*	.355**	.605**	.442**	.326*	.399**	.340*	.476**	.244	.347**	.263*	.571**	.249	.503**	.467**	.342**	.502**	.592**
	Sig. (2-tailed)	.467	.058	.552	.016	.186	.003	.009	.001	.015	.046	.001	.004	.001	.043	.011	.220	.178	.000	.000		.000	.000	.017	.007	.000	.001	.014	.002	.010	.000	.070	.009	.050	.000	.064	.000	.000	.010	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI21	Pearson Correlation	.223	.467**	.282*	.277*	.273*	.498**	.494**	.671**	.479**	.244	.426**	.539**	.685**	.540**	.466**	.519**	.571**	.491**	.613**	.588**	1	.778**	.513**	.526**	.564**	.406**	.373**	.472**	.466**	.525**	.450**	.322*	.344**	.561**	.346**	.429**	.600**	.466**	.412**	.750**
	Sig. (2-tailed)	.099	.000	.035	.039	.042	.000	.000	.000	.000	.070	.001	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000	.002	.005	.000	.000	.000	.001	.015	.010	.000	.009	.001	.000	.000	.002	.000

	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI22	Pearson Correlation	.238	.574**	.399**	.278*	.227	.278*	.367**	.465**	.446**	.315*	.497**	.395**	.619**	.483**	.447**	.412**	.605**	.373**	.563**	.485**	.778**	1	.667**	.499**	.672**	.488**	.302*	.321*	.374**	.461**	.360**	.303*	.262	.475**	.259	.425**	.580**	.411**	.408**	.689**
	Sig. (2-tailed)	.077	.000	.002	.038	.093	.038	.005	.000	.001	.018	.000	.003	.000	.000	.001	.002	.000	.005	.000	.000	.000		.000	.000	.000	.000	.024	.016	.005	.000	.006	.023	.051	.000	.054	.001	.000	.002	.002	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI23	Pearson Correlation	.137	.370**	.084	.210	.183	.240	.260	.319*	.343**	.212	.374**	.409**	.459**	.264*	.262	.188	.417**	.325*	.405**	.318*	.513**	.667**	1	.331*	.594**	.368**	.443**	.362**	.268*	.302*	.318*	.182	.277*	.257	.233	.272*	.536**	.306*	.251	.524**
	Sig. (2-tailed)	.315	.005	.539	.121	.177	.075	.053	.017	.010	.117	.005	.002	.000	.049	.051	.165	.001	.015	.002	.017	.000	.000		.013	.000	.005	.001	.006	.046	.024	.017	.180	.039	.056	.084	.042	.000	.022	.062	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI24	Pearson Corre	.363**	.371**	.000	.083	.117	.367**	.239	.410**	.268*	.093	.212	.224	.438**	.341*	.346**	.566**	.407**	.467**	.483**	.355**	.526**	.499**	.331*	1	.458**	.251	.459**	.310*	.438**	.229	.392**	.334*	.516**	.325*	.351**	.356**	.421**	.286*	.340*	.568**

	lation																																								
	Sig. (2-tailed)	.006	.005	.999	.543	.390	.005	.076	.002	.046	.495	.117	.098	.001	.010	.009	.000	.002	.000	.000	.007	.000	.000	.013		.000	.062	.000	.020	.001	.090	.003	.012	.000	.015	.008	.007	.001	.033	.010	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI25	Pearson Correlation	.231	.369**	.076	.346**	.193	.361**	.254	.354**	.318*	.340*	.543**	.330*	.434**	.224	.278*	.212	.322*	.457**	.540**	.605**	.564**	.672**	.594**	.458**	1	.669**	.454**	.464**	.341*	.538**	.303*	.277*	.362**	.547**	.244	.540**	.428**	.225	.362**	.624**
	Sig. (2-tailed)	.087	.005	.576	.009	.153	.006	.058	.007	.017	.010	.000	.013	.001	.097	.038	.117	.016	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.010	.000	.023	.039	.006	.000	.070	.000	.001	.096	.006	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI26	Pearson Correlation	.187	.341*	.176	.041	.198	.082	.142	.272*	.243	.252	.569**	.287*	.453**	.292*	.322*	.168	.213	.441**	.384**	.442**	.406**	.488**	.368**	.251	.669**	1	.418**	.411**	.237	.535**	.285*	.294*	.183	.444**	.315*	.518**	.387**	.234	.330*	.519**
	Sig. (2-tailed)	.168	.010	.195	.762	.143	.550	.297	.042	.071	.061	.000	.032	.000	.029	.016	.216	.116	.001	.003	.001	.002	.000	.005	.062	.000		.001	.002	.079	.000	.033	.028	.177	.001	.018	.000	.003	.083	.013	.000

	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI27	Pearson Correlation	.357**	.405**	.087	.160	.172	.340*	.176	.309*	.243	.118	.252	.301*	.457**	.259	.210	.393**	.273*	.494**	.331*	.326*	.373**	.302*	.443**	.459**	.454**	.418**	1	.481**	.659**	.458**	.551**	.248	.638**	.451**	.631**	.456**	.430**	.324*	.236	.600**
	Sig. (2-tailed)	.007	.002	.523	.239	.206	.010	.196	.020	.072	.386	.061	.024	.000	.053	.120	.003	.041	.000	.013	.014	.005	.024	.001	.000	.000	.001		.000	.000	.000	.000	.065	.000	.000	.000	.000	.001	.015	.080	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI28	Pearson Correlation	.438**	.472**	.336*	.259	.542**	.596**	.572**	.554**	.450**	.406**	.459**	.457**	.501**	.355**	.377**	.317*	.374**	.464**	.393**	.399**	.472**	.321*	.362**	.310*	.464**	.411**	.481**	1	.661**	.743**	.628**	.576**	.692**	.683**	.561**	.644**	.562**	.527**	.547**	.781**
	Sig. (2-tailed)	.001	.000	.011	.054	.000	.000	.000	.000	.000	.002	.000	.000	.000	.007	.004	.017	.004	.000	.003	.002	.000	.016	.006	.020	.000	.002	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI29	Pearson Corre	.521**	.558**	.408**	.429**	.408**	.538**	.372**	.419**	.277*	.225	.258	.274*	.482**	.290*	.306*	.517**	.450**	.488**	.427**	.340*	.466**	.374**	.268*	.438**	.341*	.237	.659**	.661**	1	.529**	.744**	.522**	.784**	.601**	.617**	.550**	.552**	.422**	.429**	.746**

	lation																																								
	Sig. (2-tailed)	.000	.000	.002	.001	.002	.000	.005	.001	.039	.095	.055	.041	.000	.030	.022	.000	.001	.000	.001	.010	.000	.005	.046	.001	.010	.079	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.001	.001	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI30	Pearson Correlation	.309*	.436**	.339*	.433**	.425**	.413**	.530**	.468**	.474**	.436**	.472**	.368**	.488**	.346**	.261	.281*	.418**	.380**	.473**	.476**	.525**	.461**	.302*	.229	.538**	.535**	.458**	.743**	.529**	1	.549**	.587**	.489**	.755**	.554**	.696**	.579**	.538**	.454**	.747**
	Sig. (2-tailed)	.021	.001	.011	.010	.001	.002	.000	.000	.000	.001	.000	.005	.000	.009	.052	.036	.001	.004	.000	.000	.000	.000	.024	.090	.000	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.000	.000	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI31	Pearson Correlation	.370**	.429**	.320*	.232	.407**	.472**	.457**	.479**	.317*	.313*	.273*	.307*	.463**	.344**	.286*	.423**	.377**	.316*	.279*	.244	.450**	.360**	.318*	.392**	.303*	.285*	.551**	.628**	.744**	.549**	1	.665**	.689**	.579**	.654**	.545**	.497**	.410**	.441**	.702**
	Sig. (2-tailed)	.005	.001	.016	.086	.002	.000	.000	.000	.017	.019	.042	.022	.000	.009	.033	.001	.004	.018	.037	.070	.001	.006	.017	.003	.023	.033	.000	.000	.000	.000		.000	.000	.000	.000	.000	.000	.002	.001	.000

	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI32	Pearson Correlation	.337*	.222	.277*	.211	.345**	.421**	.411**	.434**	.339*	.372**	.315*	.292*	.311*	.309*	.300*	.394**	.284*	.383**	.415**	.347**	.322*	.303*	.182	.334*	.277*	.294*	.248	.576**	.522**	.587**	.665**	1	.514**	.470**	.442**	.488**	.418**	.363**	.395**	.614**
	Sig. (2-tailed)	.011	.100	.039	.119	.009	.001	.002	.001	.011	.005	.018	.029	.020	.021	.024	.003	.034	.004	.001	.009	.015	.023	.180	.012	.039	.028	.065	.000	.000	.000	.000		.000	.000	.001	.000	.001	.006	.003	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI33	Pearson Correlation	.594**	.521**	.354**	.443**	.308*	.555**	.326*	.328*	.252	.199	.198	.237	.437**	.272*	.214	.472**	.249	.435**	.337*	.263*	.344**	.262	.277*	.516**	.362**	.183	.638**	.692**	.784**	.489**	.689**	.514**	1	.490**	.607**	.471**	.444**	.324*	.313*	.676**
	Sig. (2-tailed)	.000	.000	.007	.001	.021	.000	.014	.014	.061	.141	.144	.079	.001	.042	.113	.000	.064	.001	.011	.050	.001	.051	.039	.000	.006	.177	.000	.000	.000	.000	.000	.000		.000	.000	.000	.001	.015	.019	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI34	Pearson Corre	.357**	.460**	.394**	.455**	.499**	.500**	.480**	.515**	.431**	.567**	.627**	.522**	.578**	.393**	.425**	.330*	.456**	.354**	.555**	.571**	.561**	.475**	.257	.325*	.547**	.444**	.451**	.683**	.601**	.755**	.579**	.470**	.490**	1	.468**	.735**	.526**	.427**	.565**	.790**

	lation																																								
	Sig. (2-tailed)	.007	.000	.003	.000	.000	.000	.000	.000	.001	.000	.000	.000	.000	.003	.001	.013	.000	.009	.000	.000	.000	.000	.056	.015	.000	.001	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.001	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI35	Pearson Correlation	.400**	.396**	.369**	.165	.222	.263	.381**	.378**	.430**	.250	.291*	.273*	.483**	.289*	.280*	.441**	.222	.484**	.284*	.249	.346**	.259	.233	.351**	.244	.315*	.631**	.561**	.617**	.554**	.654**	.442**	.607**	.468**	1	.500**	.459**	.467**	.418**	.640**
	Sig. (2-tailed)	.002	.003	.005	.224	.099	.051	.004	.004	.001	.063	.030	.042	.000	.031	.036	.001	.100	.000	.034	.064	.009	.054	.084	.008	.070	.018	.000	.000	.000	.000	.000	.001	.000	.000		.000	.000	.000	.001	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI36	Pearson Correlation	.330*	.487**	.335*	.275*	.356**	.371**	.431**	.300*	.192	.461**	.591**	.219	.388**	.108	.195	.198	.197	.406**	.499**	.503**	.429**	.425**	.272*	.356**	.540**	.518**	.456**	.644**	.550**	.696**	.545**	.488**	.471**	.735**	.500**	1	.685**	.528**	.528**	.691**
	Sig. (2-tailed)	.013	.000	.012	.040	.007	.005	.001	.025	.156	.000	.000	.104	.003	.428	.149	.145	.145	.002	.000	.000	.001	.001	.042	.007	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000		.000	.000	.000	.000

	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI37	Pearson Correlation	.283*	.519**	.278*	.306*	.242	.436**	.532**	.536**	.428**	.425**	.488**	.345**	.495**	.358**	.400**	.344**	.408**	.501**	.574**	.467**	.600**	.580**	.536**	.421**	.428**	.387**	.430**	.562**	.552**	.579**	.497**	.418**	.444**	.526**	.459**	.685**	1	.750**	.631**	.752**
	Sig. (2-tailed)	.034	.000	.038	.022	.072	.001	.000	.000	.001	.001	.000	.009	.000	.007	.002	.009	.002	.000	.000	.000	.000	.000	.000	.001	.001	.003	.001	.000	.000	.000	.000	.001	.001	.000	.000	.000		.000	.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI38	Pearson Correlation	.287*	.382**	.357**	.155	.297*	.512**	.632**	.631**	.602**	.521**	.401**	.432**	.424**	.531**	.509**	.468**	.504**	.368**	.371**	.342**	.466**	.411**	.306*	.286*	.225	.234	.324*	.527**	.422**	.538**	.410**	.363**	.324*	.427**	.467**	.528**	.750**	1	.742**	.692**
	Sig. (2-tailed)	.032	.004	.007	.254	.026	.000	.000	.000	.000	.000	.002	.001	.001	.000	.000	.000	.000	.005	.005	.010	.000	.002	.022	.033	.096	.083	.015	.000	.001	.000	.002	.006	.015	.001	.000	.000	.000		.000	.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI39	Pearson Corre	.178	.348**	.230	.154	.402**	.500**	.602**	.642**	.625**	.536**	.530**	.475**	.441**	.468**	.592**	.365**	.465**	.361**	.495**	.502**	.412**	.408**	.251	.340**	.362**	.330**	.236	.547**	.429**	.454**	.441**	.395**	.313*	.565**	.418**	.528**	.631**	.742**	1	.698**

	lation																																								
	Sig. (2-tailed)	.189	.009	.089	.256	.002	.000	.000	.000	.000	.000	.000	.000	.001	.000	.000	.006	.000	.006	.000	.000	.002	.002	.062	.010	.006	.013	.080	.000	.001	.000	.001	.003	.019	.000	.001	.000	.000	.000		.000
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56
PI	Pearson Correlation	.510**	.666**	.458**	.366**	.507**	.669**	.666**	.753**	.649**	.568**	.601**	.643**	.744**	.645**	.654**	.635**	.638**	.606**	.666**	.592**	.750**	.689**	.524**	.568**	.624**	.519**	.600**	.781**	.746**	.747**	.702**	.614**	.676**	.790**	.640**	.691**	.752**	.692**	.698**	1
	Sig. (2-tailed)	.000	.000	.000	.006	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	.000	
	N	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56	56

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

RELIABILITY

/VARIABLES=EVC1 EVC2 EVC3 EVC4 EVC5

/SCALE('ALL VARIABLES') ALL

/MODEL=ALPHA.

Reliability

Notes

Output Created		06-Jun-2020 10:45:06
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	56
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=EVC1 EVC2 EVC3 EVC4 EVC5

		/SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.713	5

```
RELIABILITY
  /VARIABLES=EVG1 EVG2 EVG3 EVG4 EVG5 EVG6
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

Notes

Output Created		06-Jun-2020 10:45:31
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>

	Split File	<none>
	N of Rows in Working Data File	56
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=EVG1 EVG2 EVG3 EVG4 EVG5 EVG6 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.047
	Elapsed Time	00:00:00.031

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.658	6

```
RELIABILITY
  /VARIABLES=EVE1 EVE2 EVE3 EVE4 EVE5 EVE6
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

Notes

Output Created		06-Jun-2020 10:45:55
Comments		
Input	Active Dataset	DataSet1
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	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	56
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=EVE1 EVE2 EVE3 EVE4 EVE5 EVE6 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.110

Elapsed Time	00:00:00.110

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items

.729	6

```
RELIABILITY
  /VARIABLES=SVM1 SVM2 SVM3 SVM4
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

Notes

Output Created		06-Jun-2020 10:46:16
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	56
	Matrix Input	

Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=SVM1 SVM2 SVM3 SVM4 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.016
	Elapsed Time	00:00:00.016

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

	N	%

Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.811	4

```
RELIABILITY
  /VARIABLES=SVC1 SVC2 SVC3 SVC4 SVC5 SVC6
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

Notes

Output Created		06-Jun-2020 10:46:41
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	56
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=SVC1 SVC2 SVC3 SVC4 SVC5 SVC6 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.062
	Elapsed Time	00:00:00.094

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.579	6

```
RELIABILITY
  /VARIABLES=VMG1 VMG2 VMG3 VMG4 VMG5
```

/SCALE('ALL VARIABLES') ALL

/MODEL=ALPHA.

Reliability

Notes

Output Created		06-Jun-2020 10:47:02
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	56
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY

		/VARIABLES=VMG1 VMG2 VMG3 VMG4 VMG5 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.109
	Elapsed Time	00:00:00.078

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.607	5

```
RELIABILITY
  /VARIABLES=VMP1 VMP2 VMP3 VMP4
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

Notes

Output Created		06-Jun-2020 10:47:26
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>

	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	56
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=VMP1 VMP2 VMP3 VMP4 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.177	4

```
RELIABILITY
  /VARIABLES=VMR1 VMR2 VMR3
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

Notes

Output Created		06-Jun-2020 10:47:46
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	56
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=VMR1 VMR2 VMR3 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.

Resources	Processor Time	00:00:00.094
	Elapsed Time	00:00:00.079

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.567	3

```
RELIABILITY
  /VARIABLES=LY1 LY2 LY3 LY4 LY5
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

Notes

Output Created		06-Jun-2020 10:48:04
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>

	N of Rows in Working Data File	56
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=LY1 LY2 LY3 LY4 LY5 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.079
	Elapsed Time	00:00:00.062

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.860	5

RELIABILITY

/VARIABLES=PI1 PI2 PI3 PI4 PI5 PI6 PI7 PI8 PI9 PI10 PI11 PI12 PI13 PI14 PI15 PI16 PI17 PI18 PI19 PI20 PI21 PI22 PI23 PI24 PI25 PI2

6 PI27 PI28 PI29 PI30 PI31 PI32 PI33 PI34 PI35 PI36 PI37 PI38 PI39

/SCALE('ALL VARIABLES') ALL

/MODEL=ALPHA.

Reliability

Notes

Output Created		06-Jun-2020 10:48:39
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>
	N of Rows in Working Data File	56
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=PI1 PI2 PI3 PI4 PI5 PI6 PI7 PI8 PI9 PI10 PI11 PI12 PI13 PI14 PI15 PI16 PI17 PI18 PI19 PI20 PI21 PI22 PI23 PI24 PI25 PI26 PI27 PI28 PI29 PI30 PI31 PI32 PI33 PI34 PI35 PI36 PI37 PI38 PI39 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.

Resources	Processor Time	00:00:00.000
	Elapsed Time	00:00:00.000

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.962	39

```
RELIABILITY
  /VARIABLES=EVC1 EVC2 EVC3 EVC4 EVC5
  /SCALE('ALL VARIABLES') ALL
  /MODEL=ALPHA.
```

Reliability

Notes

Output Created		07-Jun-2020 05:58:36
Comments		
Input	Active Dataset	DataSet1
	Filter	<none>
	Weight	<none>
	Split File	<none>

	N of Rows in Working Data File	56
	Matrix Input	
Missing Value Handling	Definition of Missing	User-defined missing values are treated as missing.
	Cases Used	Statistics are based on all cases with valid data for all variables in the procedure.
Syntax		RELIABILITY /VARIABLES=EVC1 EVC2 EVC3 EVC4 EVC5 /SCALE('ALL VARIABLES') ALL /MODEL=ALPHA.
Resources	Processor Time	00:00:00.031
	Elapsed Time	00:00:00.037

[DataSet1]

Scale: ALL VARIABLES

Case Processing Summary

		N	%
Cases	Valid	56	100.0
	Excluded[a]	0	.0
	Total	56	100.0

a. Listwise deletion based on all variables in the procedure.

Reliability Statistics

Cronbach's Alpha	N of Items
.713	5

Appendix D SEM using AMOS Detailed Results

Analysis Summary

Date and Time

Date: 20 June 2020
Time: 10:54:29

Title

Amos3: 20 June 2020 10:54

Number of variables in your model: 82
Number of observed variables: 35
Number of unobserved variables: 47
Number of exogenous variables: 39
Number of endogenous variables: 43

	Weights	Covariances	Variances	Means	Intercepts	Total
Fixed	47	0	1	0	0	48
Labeled	0	0	0	0	0	0
Unlabeled	34	71	38	0	0	143
Total	81	71	39	0	0	191

Variable	min	max	skew	c.r.	kurtosis	c.r.
PI39	1,000	5,000	1,124	7,932	,435	1,535
PI38	1,000	5,000	1,337	9,436	1,269	4,480
PI37	1,000	5,000	1,304	9,202	,956	3,373
PI36	1,000	5,000	1,085	7,656	,161	,569
PI35	1,000	5,000	1,370	9,673	1,136	4,011
PI34	1,000	5,000	1,104	7,794	,285	1,007
PI32	1,000	5,000	,623	4,396	-1,011	-3,568
PI31	1,000	5,000	,527	3,723	-1,071	-3,780
PI29	1,000	5,000	-,210	-1,483	-1,524	-5,378
PI27	1,000	5,000	1,693	11,949	2,336	8,244
PI23	1,000	5,000	1,404	9,911	1,321	4,663
PI22	1,000	5,000	1,126	7,950	,225	,796
PI21	1,000	5,000	1,219	8,608	,395	1,395
PI20	1,000	5,000	1,735	12,244	2,332	8,231
PI19	1,000	5,000	1,535	10,835	1,577	5,565
PI18	1,000	5,000	,935	6,603	-,411	-1,451
PI17	1,000	5,000	,873	6,163	-,440	-1,552
PI15	1,000	5,000	,773	5,455	-,698	-2,463

Variable	min	max	skew	c.r.	kurtosis	c.r.
PI14	1,000	5,000	1,466	10,351	1,751	6,180
PI12	1,000	5,000	1,275	9,000	1,101	3,887
PI11	1,000	5,000	1,714	12,098	2,539	8,960
PI10	1,000	5,000	1,784	12,595	2,675	9,440
PI9	1,000	5,000	1,380	9,739	1,237	4,365
PI8	1,000	5,000	1,146	8,089	,702	2,477
PI7	1,000	5,000	,997	7,040	,068	,239
VMP2	1,000	5,000	-,244	-1,721	-1,169	-4,125
SVC4	1,000	5,000	,096	,677	-1,022	-3,606
SVM2	1,000	5,000	,803	5,670	-,435	-1,537
SVM3	1,000	5,000	1,285	9,073	,725	2,559
EVE1	2,000	5,000	-,586	-4,135	-,214	-,757
EVE2	1,000	5,000	-,732	-5,171	,572	2,020
EVG1	1,000	5,000	-,956	-6,749	,758	2,676
EVG2	1,000	5,000	-,859	-6,067	,371	1,309
EVG3	1,000	5,000	-,799	-5,639	,319	1,127
EVC4	1,000	5,000	-,570	-4,023	,491	1,733
Multivariate					45,751	1,750

Observation number	Mahalanobis d-squared	p1	p2
25	74,869	,000	,030
134	72,809	,000	,001
229	72,456	,000	,000
196	72,431	,000	,000
87	71,198	,000	,000
140	70,110	,000	,000
171	69,030	,001	,000
222	69,029	,001	,000
249	68,842	,001	,000
123	68,797	,001	,000
179	68,290	,001	,000
236	67,866	,001	,000
85	66,901	,001	,000
4	66,897	,001	,000
96	66,867	,001	,000
210	66,335	,001	,000
255	65,095	,001	,000
21	65,072	,001	,000
5	64,684	,002	,000
77	64,229	,002	,000
84	64,175	,002	,000
137	64,125	,002	,000
287	64,088	,002	,000

Observation number	Mahalanobis d-squared	p1	p2
175	63,343	,002	,000
44	62,995	,003	,000
135	62,672	,003	,000
24	62,633	,003	,000
234	62,629	,003	,000
56	62,325	,003	,000
158	62,235	,003	,000
154	61,886	,003	,000
245	61,558	,004	,000
238	60,980	,004	,000
114	60,222	,005	,000
49	59,868	,006	,000
2	59,717	,006	,000
177	59,358	,006	,000
108	58,978	,007	,000
149	58,687	,007	,000
193	58,320	,008	,000
100	57,848	,009	,000
163	57,526	,010	,000
72	56,977	,011	,000
197	56,537	,012	,000
261	56,464	,012	,000
117	56,379	,012	,000
230	56,180	,013	,000
186	55,258	,016	,000
26	55,196	,016	,000
109	54,840	,018	,000
70	54,802	,018	,000
288	54,774	,018	,000
285	54,512	,019	,000
258	54,349	,020	,000
23	54,099	,021	,000
113	53,898	,022	,000
275	53,882	,022	,000
192	53,735	,022	,000
102	53,392	,024	,000
51	52,962	,026	,000
7	52,841	,027	,000
295	52,813	,027	,000
80	52,747	,028	,000
18	51,932	,033	,000
185	50,821	,041	,000

Observation number	Mahalanobis d-squared	p1	p2
35	50,758	,041	,000
38	50,707	,042	,000
246	50,563	,043	,000
111	50,547	,043	,000
71	50,508	,044	,000
53	50,475	,044	,000
176	50,332	,045	,000
217	49,987	,048	,000
299	49,925	,049	,000
272	49,588	,052	,000
103	49,203	,056	,000
207	48,941	,059	,000
241	48,858	,060	,000
107	48,008	,070	,000
290	48,004	,070	,000
144	47,871	,072	,000
279	47,692	,075	,000
110	47,324	,080	,000
259	46,655	,090	,000
162	46,458	,093	,000
212	46,399	,094	,000
150	46,223	,097	,000
66	46,165	,098	,000
166	45,447	,111	,000
265	45,227	,115	,000
182	44,944	,121	,000
204	44,814	,124	,000
75	44,731	,125	,000
47	44,660	,127	,000
48	44,438	,132	,000
27	44,370	,133	,000
218	44,052	,140	,000
289	43,570	,152	,000
159	43,270	,159	,000
124	43,142	,162	,000

Number of distinct sample moments: 630
Number of distinct parameters to be estimated: 143
Degrees of freedom (630 - 143): 487

			Estimate	S.E.	C.R.	P	Label
EVC	<---	EV	1,000				
EVG	<---	EV	1,527	,178	8,595	***	
EVE	<---	EV	,810	,116	6,955	***	

			Estimate	S.E.	C.R.	P	Label
SVM	<---	SV	1,000				
SVC	<---	SV	,931	,119	7,833	***	
PI	<---	EV	,192	,096	1,996	,046	
PI	<---	SV	,332	,070	4,752	***	
PI	<---	VM	,082	,064	1,271	,204	
EVC4	<---	EVC	1,000				
EVG3	<---	EVG	,910	,069	13,181	***	
EVG2	<---	EVG	1,136	,072	15,721	***	
EVG1	<---	EVG	1,000				
EVE2	<---	EVE	1,537	,150	10,256	***	
EVE1	<---	EVE	1,000				
SVM3	<---	SVM	1,127	,134	8,396	***	
SVM2	<---	SVM	1,000				
SVC4	<---	SVC	1,000				
VMP2	<---	VM	1,000				
PI7	<---	PI	1,000				
PI8	<---	PI	,982	,063	15,533	***	
PI9	<---	PI	,975	,073	13,324	***	
PI10	<---	PI	,884	,071	12,418	***	
PI11	<---	PI	,685	,068	10,031	***	
PI12	<---	PI	,917	,077	11,982	***	
PI14	<---	PI	,839	,081	10,409	***	
PI15	<---	PI	1,077	,111	9,701	***	
PI17	<---	PI	1,002	,105	9,506	***	
PI18	<---	PI	,918	,101	9,109	***	
PI19	<---	PI	,835	,082	10,179	***	
PI20	<---	PI	,728	,073	9,998	***	
PI21	<---	PI	,955	,092	10,398	***	
PI22	<---	PI	,918	,074	12,364	***	
PI23	<---	PI	,997	,088	11,361	***	
PI27	<---	PI	,888	,083	10,738	***	
PI29	<---	PI	,998	,130	7,686	***	
PI31	<---	PI	,894	,115	7,792	***	
PI32	<---	PI	,996	,114	8,717	***	
PI34	<---	PI	1,059	,099	10,658	***	
PI35	<---	PI	,793	,087	9,106	***	
PI36	<---	PI	,854	,078	11,010	***	
PI37	<---	PI	,940	,082	11,485	***	
PI38	<---	PI	,819	,080	10,277	***	
PI39	<---	PI	,951	,085	11,249	***	

			Estimate
EVC	<---	EV	1,000

			Estimate
EVG	<---	EV	1,000
EVE	<---	EV	1,000
SVM	<---	SV	1,000
SVC	<---	SV	1,000
PI	<---	EV	,125
PI	<---	SV	,358
PI	<---	VM	,103
EVC4	<---	EVC	,550
EVG3	<---	EVG	,708
EVG2	<---	EVG	,829
EVG1	<---	EVG	,855
EVE2	<---	EVE	,668
EVE1	<---	EVE	,493
SVM3	<---	SVM	,801
SVM2	<---	SVM	,649
SVC4	<---	SVC	,585
VMP2	<---	VM	,686
PI7	<---	PI	,670
PI8	<---	PI	,706
PI9	<---	PI	,705
PI10	<---	PI	,705
PI11	<---	PI	,638
PI12	<---	PI	,779
PI14	<---	PI	,706
PI15	<---	PI	,613
PI17	<---	PI	,601
PI18	<---	PI	,576
PI19	<---	PI	,647
PI20	<---	PI	,624
PI21	<---	PI	,664
PI22	<---	PI	,767
PI23	<---	PI	,734
PI27	<---	PI	,689
PI29	<---	PI	,479
PI31	<---	PI	,485
PI32	<---	PI	,547
PI34	<---	PI	,682
PI35	<---	PI	,573
PI36	<---	PI	,707
PI37	<---	PI	,691
PI38	<---	PI	,650
PI39	<---	PI	,723

			Estimate	S.E.	C.R.	P	Label
e70	<-->	e71	,322	,037	8,762	***	
e40	<-->	e41	,316	,040	7,826	***	
e67	<-->	e68	,239	,035	6,771	***	
e66	<-->	e68	,134	,029	4,539	***	
e69	<-->	e71	,178	,033	5,332	***	
e63	<-->	e66	,279	,061	4,558	***	
e63	<-->	e64	,656	,092	7,150	***	
e61	<-->	e64	,397	,093	4,255	***	
e61	<-->	e63	,700	,104	6,752	***	
e55	<-->	e59	,154	,033	4,627	***	
e54	<-->	e59	,152	,028	5,364	***	
e54	<-->	e55	,143	,028	5,061	***	
e52	<-->	e53	,229	,035	6,612	***	
e51	<-->	e68	-,045	,020	-2,266	,023	
e51	<-->	e53	,246	,040	6,139	***	
e51	<-->	e52	,232	,032	7,256	***	
e50	<-->	e68	-,032	,026	-1,207	,228	
e50	<-->	e53	,340	,053	6,394	***	
e50	<-->	e52	,267	,041	6,459	***	
e50	<-->	e51	,395	,050	7,881	***	
e49	<-->	e61	,317	,073	4,324	***	
e47	<-->	e49	,468	,069	6,812	***	
e47	<-->	e52	-,037	,025	-1,446	,148	
e46	<-->	e49	,144	,035	4,093	***	
e46	<-->	e47	,201	,038	5,299	***	
e44	<-->	e46	,120	,022	5,475	***	
e42	<-->	e69	,085	,024	3,483	***	
e42	<-->	e43	,089	,022	4,037	***	
e41	<-->	e42	,203	,032	6,418	***	
e39	<-->	e40	,303	,043	7,049	***	
e39	<-->	e42	,119	,034	3,559	***	
e11	<-->	e12	,226	,033	6,877	***	
e69	<-->	e70	,155	,033	4,692	***	
e39	<-->	e41	,194	,039	4,960	***	
e64	<-->	e66	,199	,057	3,468	***	
e52	<-->	e71	-,024	,014	-1,653	,098	
e50	<-->	e71	,017	,029	,594	,553	
e50	<-->	e70	-,046	,030	-1,511	,131	
e49	<-->	e66	-,095	,040	-2,343	,019	
e47	<-->	e71	,030	,027	1,114	,265	
e47	<-->	e69	-,096	,037	-2,583	,010	
e47	<-->	e61	,208	,071	2,927	,003	

			Estimate	S.E.	C.R.	P	Label
e46	<-->	e70	,037	,017	2,171	,030	
e43	<-->	e50	-,079	,027	-2,889	,004	
e43	<-->	e44	,032	,019	1,690	,091	
e42	<-->	e47	,028	,030	,938	,348	
e41	<-->	e71	-,046	,016	-2,931	,003	
e41	<-->	e67	-,067	,024	-2,831	,005	
e41	<-->	e53	-,058	,021	-2,700	,007	
e41	<-->	e44	,032	,017	1,883	,060	
e40	<-->	e69	-,008	,024	-,343	,731	
e40	<-->	e42	,096	,031	3,145	,002	
e39	<-->	e69	,073	,032	2,287	,022	
e39	<-->	e46	-,062	,022	-2,761	,006	
e23	<-->	e73	,186	,045	4,095	***	
e23	<-->	e74	,199	,073	2,712	,007	
e61	<-->	e66	,158	,066	2,378	,017	
e42	<-->	e51	,043	,019	2,261	,024	
e39	<-->	e54	,043	,021	2,015	,044	
e1	<-->	e6	,081	,036	2,212	,027	
e1	<-->	e8	-,081	,027	-3,005	,003	
e1	<-->	e12	,047	,027	1,747	,081	
e6	<-->	e70	-,065	,021	-3,052	,002	
e15	<-->	e51	,078	,034	2,263	,024	
e23	<-->	e66	,162	,060	2,710	,007	
e52	<-->	e74	,133	,033	4,044	***	
e8	<-->	e47	-,072	,029	-2,510	,012	
e23	<-->	e52	,099	,039	2,512	,012	
e12	<-->	e71	-,039	,017	-2,294	,022	
e64	<-->	e67	-,093	,044	-2,121	,034	
e1	<-->	e39	-,072	,030	-2,387	,017	

			Estimate
e70	<-->	e71	,662
e40	<-->	e41	,583
e67	<-->	e68	,440
e66	<-->	e68	,246
e69	<-->	e71	,355
e63	<-->	e66	,273
e63	<-->	e64	,477
e61	<-->	e64	,254
e61	<-->	e63	,424
e55	<-->	e59	,318
e54	<-->	e59	,378
e54	<-->	e55	,360

			Estimate
e52	<-->	e53	,450
e51	<-->	e68	-,095
e51	<-->	e53	,414
e51	<-->	e52	,498
e50	<-->	e68	-,051
e50	<-->	e53	,433
e50	<-->	e52	,432
e50	<-->	e51	,550
e49	<-->	e61	,232
e47	<-->	e49	,452
e47	<-->	e52	-,056
e46	<-->	e49	,230
e46	<-->	e47	,308
e44	<-->	e46	,345
e42	<-->	e69	,174
e42	<-->	e43	,217
e41	<-->	e42	,415
e39	<-->	e40	,496
e39	<-->	e42	,216
e11	<-->	e12	,478
e69	<-->	e70	,295
e39	<-->	e41	,320
e64	<-->	e66	,205
e52	<-->	e71	-,055
e50	<-->	e71	,026
e50	<-->	e70	-,066
e49	<-->	e66	-,112
e47	<-->	e71	,042
e47	<-->	e69	-,125
e47	<-->	e61	,146
e46	<-->	e70	,081
e43	<-->	e50	-,131
e43	<-->	e44	,095
e42	<-->	e47	,040
e41	<-->	e71	-,092
e41	<-->	e67	-,108
e41	<-->	e53	-,097
e41	<-->	e44	,080
e40	<-->	e69	-,015
e40	<-->	e42	,196
e39	<-->	e69	,119
e39	<-->	e46	-,119

			Estimate
e23	<-->	e73	,380
e23	<-->	e74	,247
e61	<-->	e66	,136
e42	<-->	e51	,087
e39	<-->	e54	,090
e1	<-->	e6	,160
e1	<-->	e8	-,243
e1	<-->	e12	,090
e6	<-->	e70	-,133
e15	<-->	e51	,111
e23	<-->	e66	,191
e52	<-->	e74	,261
e8	<-->	e47	-,153
e23	<-->	e52	,156
e12	<-->	e71	-,083
e64	<-->	e67	-,097
e1	<-->	e39	-,117

	Estimate	S.E.	C.R.	P	Label
VM	,888	,154	5,765	***	
e73	,238	,052	4,574	***	
e74	,651	,123	5,300	***	
e72	,473	,076	6,220	***	
e23	1,000				
e1	,549	,051	10,672	***	
e6	,459	,044	10,390	***	
e7	,327	,040	8,136	***	
e8	,204	,029	6,989	***	
e11	,459	,042	10,890	***	
e12	,487	,042	11,711	***	
e14	,460	,089	5,180	***	
e15	,893	,099	8,982	***	
e17	1,086	,108	10,087	***	
e39	,685	,060	11,436	***	
e40	,544	,049	11,075	***	
e41	,539	,048	11,234	***	
e42	,444	,039	11,414	***	
e43	,384	,033	11,474	***	
e44	,305	,029	10,589	***	
e46	,396	,035	11,431	***	
e47	1,079	,092	11,698	***	
e49	,994	,085	11,656	***	
e50	,951	,081	11,682	***	

	Estimate	S.E.	C.R.	P	Label
e51	,542	,047	11,526	***	
e52	,400	,035	11,373	***	
e53	,649	,057	11,356	***	
e54	,331	,031	10,660	***	
e55	,477	,044	10,882	***	
e59	,489	,044	11,157	***	
e61	1,874	,156	12,044	***	
e63	1,453	,122	11,865	***	
e64	1,302	,111	11,755	***	
e66	,723	,063	11,428	***	
e67	,718	,061	11,716	***	
e68	,409	,036	11,395	***	
e69	,543	,048	11,305	***	
e70	,512	,044	11,549	***	
e71	,463	,042	11,096	***	

	VM	SV	EV	PI	SVM	EVE	EVG
PI	,082	,332	,192	,000	,000	,000	,000
SVC	,000	,931	,000	,000	,000	,000	,000
SVM	,000	1,000	,000	,000	,000	,000	,000
EVE	,000	,000	,810	,000	,000	,000	,000
EVG	,000	,000	1,527	,000	,000	,000	,000
EVC	,000	,000	1,000	,000	,000	,000	,000
PI39	,078	,316	,182	,951	,000	,000	,000
PI38	,067	,272	,157	,819	,000	,000	,000
PI37	,077	,313	,180	,940	,000	,000	,000
PI36	,070	,284	,164	,854	,000	,000	,000
PI35	,065	,264	,152	,793	,000	,000	,000
PI34	,087	,352	,203	1,059	,000	,000	,000
PI32	,082	,331	,191	,996	,000	,000	,000
PI31	,073	,297	,171	,894	,000	,000	,000
PI29	,082	,332	,191	,998	,000	,000	,000
PI27	,073	,295	,170	,888	,000	,000	,000
PI23	,082	,331	,191	,997	,000	,000	,000
PI22	,075	,305	,176	,918	,000	,000	,000
PI21	,078	,317	,183	,955	,000	,000	,000
PI20	,060	,242	,140	,728	,000	,000	,000
PI19	,068	,278	,160	,835	,000	,000	,000
PI18	,075	,305	,176	,918	,000	,000	,000
PI17	,082	,333	,192	1,002	,000	,000	,000
PI15	,088	,358	,206	1,077	,000	,000	,000
PI14	,069	,279	,161	,839	,000	,000	,000
PI12	,075	,305	,176	,917	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI11	,056	,228	,131	,685	,000	,000	,000
PI10	,072	,294	,169	,884	,000	,000	,000
PI9	,080	,324	,187	,975	,000	,000	,000
PI8	,080	,327	,188	,982	,000	,000	,000
PI7	,082	,332	,192	1,000	,000	,000	,000
VMP2	1,000	,000	,000	,000	,000	,000	,000
SVC4	,000	,931	,000	,000	,000	,000	,000
SVM2	,000	1,000	,000	,000	1,000	,000	,000
SVM3	,000	1,127	,000	,000	1,127	,000	,000
EVE1	,000	,000	,810	,000	,000	1,000	,000
EVE2	,000	,000	1,244	,000	,000	1,537	,000
EVG1	,000	,000	1,527	,000	,000	,000	1,000
EVG2	,000	,000	1,735	,000	,000	,000	1,136
EVG3	,000	,000	1,390	,000	,000	,000	,910
EVC4	,000	,000	1,000	,000	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI	,103	,358	,125	,000	,000	,000	,000
SVC	,000	1,000	,000	,000	,000	,000	,000
SVM	,000	1,000	,000	,000	,000	,000	,000
EVE	,000	,000	1,000	,000	,000	,000	,000
EVG	,000	,000	1,000	,000	,000	,000	,000
EVC	,000	,000	1,000	,000	,000	,000	,000
PI39	,075	,259	,090	,723	,000	,000	,000
PI38	,067	,233	,081	,650	,000	,000	,000
PI37	,071	,248	,086	,691	,000	,000	,000
PI36	,073	,253	,088	,707	,000	,000	,000
PI35	,059	,206	,072	,573	,000	,000	,000
PI34	,070	,244	,085	,682	,000	,000	,000
PI32	,056	,196	,068	,547	,000	,000	,000
PI31	,050	,174	,061	,485	,000	,000	,000
PI29	,049	,172	,060	,479	,000	,000	,000
PI27	,071	,247	,086	,689	,000	,000	,000
PI23	,076	,263	,092	,734	,000	,000	,000
PI22	,079	,275	,096	,767	,000	,000	,000
PI21	,068	,238	,083	,664	,000	,000	,000
PI20	,064	,224	,078	,624	,000	,000	,000
PI19	,067	,232	,081	,647	,000	,000	,000
PI18	,059	,206	,072	,576	,000	,000	,000
PI17	,062	,215	,075	,601	,000	,000	,000
PI15	,063	,220	,077	,613	,000	,000	,000
PI14	,073	,253	,088	,706	,000	,000	,000
PI12	,080	,279	,097	,779	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI11	,066	,229	,080	,638	,000	,000	,000
PI10	,073	,253	,088	,705	,000	,000	,000
PI9	,073	,253	,088	,705	,000	,000	,000
PI8	,073	,253	,088	,706	,000	,000	,000
PI7	,069	,240	,084	,670	,000	,000	,000
VMP2	,686	,000	,000	,000	,000	,000	,000
SVC4	,000	,585	,000	,000	,000	,000	,000
SVM2	,000	,649	,000	,000	,649	,000	,000
SVM3	,000	,801	,000	,000	,801	,000	,000
EVE1	,000	,000	,493	,000	,000	,493	,000
EVE2	,000	,000	,668	,000	,000	,668	,000
EVG1	,000	,000	,855	,000	,000	,000	,855
EVG2	,000	,000	,829	,000	,000	,000	,829
EVG3	,000	,000	,708	,000	,000	,000	,708
EVC4	,000	,000	,550	,000	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI	,082	,332	,192	,000	,000	,000	,000
SVC	,000	,931	,000	,000	,000	,000	,000
SVM	,000	1,000	,000	,000	,000	,000	,000
EVE	,000	,000	,810	,000	,000	,000	,000
EVG	,000	,000	1,527	,000	,000	,000	,000
EVC	,000	,000	1,000	,000	,000	,000	,000
PI39	,000	,000	,000	,951	,000	,000	,000
PI38	,000	,000	,000	,819	,000	,000	,000
PI37	,000	,000	,000	,940	,000	,000	,000
PI36	,000	,000	,000	,854	,000	,000	,000
PI35	,000	,000	,000	,793	,000	,000	,000
PI34	,000	,000	,000	1,059	,000	,000	,000
PI32	,000	,000	,000	,996	,000	,000	,000
PI31	,000	,000	,000	,894	,000	,000	,000
PI29	,000	,000	,000	,998	,000	,000	,000
PI27	,000	,000	,000	,888	,000	,000	,000
PI23	,000	,000	,000	,997	,000	,000	,000
PI22	,000	,000	,000	,918	,000	,000	,000
PI21	,000	,000	,000	,955	,000	,000	,000
PI20	,000	,000	,000	,728	,000	,000	,000
PI19	,000	,000	,000	,835	,000	,000	,000
PI18	,000	,000	,000	,918	,000	,000	,000
PI17	,000	,000	,000	1,002	,000	,000	,000
PI15	,000	,000	,000	1,077	,000	,000	,000
PI14	,000	,000	,000	,839	,000	,000	,000
PI12	,000	,000	,000	,917	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI11	,000	,000	,000	,685	,000	,000	,000
PI10	,000	,000	,000	,884	,000	,000	,000
PI9	,000	,000	,000	,975	,000	,000	,000
PI8	,000	,000	,000	,982	,000	,000	,000
PI7	,000	,000	,000	1,000	,000	,000	,000
VMP2	1,000	,000	,000	,000	,000	,000	,000
SVC4	,000	,000	,000	,000	,000	,000	,000
SVM2	,000	,000	,000	,000	1,000	,000	,000
SVM3	,000	,000	,000	,000	1,127	,000	,000
EVE1	,000	,000	,000	,000	,000	1,000	,000
EVE2	,000	,000	,000	,000	,000	1,537	,000
EVG1	,000	,000	,000	,000	,000	,000	1,000
EVG2	,000	,000	,000	,000	,000	,000	1,136
EVG3	,000	,000	,000	,000	,000	,000	,910
EVC4	,000	,000	,000	,000	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI	,103	,358	,125	,000	,000	,000	,000
SVC	,000	1,000	,000	,000	,000	,000	,000
SVM	,000	1,000	,000	,000	,000	,000	,000
EVE	,000	,000	1,000	,000	,000	,000	,000
EVG	,000	,000	1,000	,000	,000	,000	,000
EVC	,000	,000	1,000	,000	,000	,000	,000
PI39	,000	,000	,000	,723	,000	,000	,000
PI38	,000	,000	,000	,650	,000	,000	,000
PI37	,000	,000	,000	,691	,000	,000	,000
PI36	,000	,000	,000	,707	,000	,000	,000
PI35	,000	,000	,000	,573	,000	,000	,000
PI34	,000	,000	,000	,682	,000	,000	,000
PI32	,000	,000	,000	,547	,000	,000	,000
PI31	,000	,000	,000	,485	,000	,000	,000
PI29	,000	,000	,000	,479	,000	,000	,000
PI27	,000	,000	,000	,689	,000	,000	,000
PI23	,000	,000	,000	,734	,000	,000	,000
PI22	,000	,000	,000	,767	,000	,000	,000
PI21	,000	,000	,000	,664	,000	,000	,000
PI20	,000	,000	,000	,624	,000	,000	,000
PI19	,000	,000	,000	,647	,000	,000	,000
PI18	,000	,000	,000	,576	,000	,000	,000
PI17	,000	,000	,000	,601	,000	,000	,000
PI15	,000	,000	,000	,613	,000	,000	,000
PI14	,000	,000	,000	,706	,000	,000	,000
PI12	,000	,000	,000	,779	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI11	,000	,000	,000	,638	,000	,000	,000
PI10	,000	,000	,000	,705	,000	,000	,000
PI9	,000	,000	,000	,705	,000	,000	,000
PI8	,000	,000	,000	,706	,000	,000	,000
PI7	,000	,000	,000	,670	,000	,000	,000
VMP2	,686	,000	,000	,000	,000	,000	,000
SVC4	,000	,000	,000	,000	,000	,000	,000
SVM2	,000	,000	,000	,000	,649	,000	,000
SVM3	,000	,000	,000	,000	,801	,000	,000
EVE1	,000	,000	,000	,000	,000	,493	,000
EVE2	,000	,000	,000	,000	,000	,668	,000
EVG1	,000	,000	,000	,000	,000	,000	,855
EVG2	,000	,000	,000	,000	,000	,000	,829
EVG3	,000	,000	,000	,000	,000	,000	,708
EVC4	,000	,000	,000	,000	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI	,000	,000	,000	,000	,000	,000	,000
SVC	,000	,000	,000	,000	,000	,000	,000
SVM	,000	,000	,000	,000	,000	,000	,000
EVE	,000	,000	,000	,000	,000	,000	,000
EVG	,000	,000	,000	,000	,000	,000	,000
EVC	,000	,000	,000	,000	,000	,000	,000
PI39	,078	,316	,182	,000	,000	,000	,000
PI38	,067	,272	,157	,000	,000	,000	,000
PI37	,077	,313	,180	,000	,000	,000	,000
PI36	,070	,284	,164	,000	,000	,000	,000
PI35	,065	,264	,152	,000	,000	,000	,000
PI34	,087	,352	,203	,000	,000	,000	,000
PI32	,082	,331	,191	,000	,000	,000	,000
PI31	,073	,297	,171	,000	,000	,000	,000
PI29	,082	,332	,191	,000	,000	,000	,000
PI27	,073	,295	,170	,000	,000	,000	,000
PI23	,082	,331	,191	,000	,000	,000	,000
PI22	,075	,305	,176	,000	,000	,000	,000
PI21	,078	,317	,183	,000	,000	,000	,000
PI20	,060	,242	,140	,000	,000	,000	,000
PI19	,068	,278	,160	,000	,000	,000	,000
PI18	,075	,305	,176	,000	,000	,000	,000
PI17	,082	,333	,192	,000	,000	,000	,000
PI15	,088	,358	,206	,000	,000	,000	,000
PI14	,069	,279	,161	,000	,000	,000	,000
PI12	,075	,305	,176	,000	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI11	,056	,228	,131	,000	,000	,000	,000
PI10	,072	,294	,169	,000	,000	,000	,000
PI9	,080	,324	,187	,000	,000	,000	,000
PI8	,080	,327	,188	,000	,000	,000	,000
PI7	,082	,332	,192	,000	,000	,000	,000
VMP2	,000	,000	,000	,000	,000	,000	,000
SVC4	,000	,931	,000	,000	,000	,000	,000
SVM2	,000	1,000	,000	,000	,000	,000	,000
SVM3	,000	1,127	,000	,000	,000	,000	,000
EVE1	,000	,000	,810	,000	,000	,000	,000
EVE2	,000	,000	1,244	,000	,000	,000	,000
EVG1	,000	,000	1,527	,000	,000	,000	,000
EVG2	,000	,000	1,735	,000	,000	,000	,000
EVG3	,000	,000	1,390	,000	,000	,000	,000
EVC4	,000	,000	1,000	,000	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI	,000	,000	,000	,000	,000	,000	,000
SVC	,000	,000	,000	,000	,000	,000	,000
SVM	,000	,000	,000	,000	,000	,000	,000
EVE	,000	,000	,000	,000	,000	,000	,000
EVG	,000	,000	,000	,000	,000	,000	,000
EVC	,000	,000	,000	,000	,000	,000	,000
PI39	,075	,259	,090	,000	,000	,000	,000
PI38	,067	,233	,081	,000	,000	,000	,000
PI37	,071	,248	,086	,000	,000	,000	,000
PI36	,073	,253	,088	,000	,000	,000	,000
PI35	,059	,206	,072	,000	,000	,000	,000
PI34	,070	,244	,085	,000	,000	,000	,000
PI32	,056	,196	,068	,000	,000	,000	,000
PI31	,050	,174	,061	,000	,000	,000	,000
PI29	,049	,172	,060	,000	,000	,000	,000
PI27	,071	,247	,086	,000	,000	,000	,000
PI23	,076	,263	,092	,000	,000	,000	,000
PI22	,079	,275	,096	,000	,000	,000	,000
PI21	,068	,238	,083	,000	,000	,000	,000
PI20	,064	,224	,078	,000	,000	,000	,000
PI19	,067	,232	,081	,000	,000	,000	,000
PI18	,059	,206	,072	,000	,000	,000	,000
PI17	,062	,215	,075	,000	,000	,000	,000
PI15	,063	,220	,077	,000	,000	,000	,000
PI14	,073	,253	,088	,000	,000	,000	,000
PI12	,080	,279	,097	,000	,000	,000	,000

	VM	SV	EV	PI	SVM	EVE	EVG
PI11	,066	,229	,080	,000	,000	,000	,000
PI10	,073	,253	,088	,000	,000	,000	,000
PI9	,073	,253	,088	,000	,000	,000	,000
PI8	,073	,253	,088	,000	,000	,000	,000
PI7	,069	,240	,084	,000	,000	,000	,000
VMP2	,000	,000	,000	,000	,000	,000	,000
SVC4	,000	,585	,000	,000	,000	,000	,000
SVM2	,000	,649	,000	,000	,000	,000	,000
SVM3	,000	,801	,000	,000	,000	,000	,000
EVE1	,000	,000	,493	,000	,000	,000	,000
EVE2	,000	,000	,668	,000	,000	,000	,000
EVG1	,000	,000	,855	,000	,000	,000	,000
EVG2	,000	,000	,829	,000	,000	,000	,000
EVG3	,000	,000	,708	,000	,000	,000	,000
EVC4	,000	,000	,550	,000	,000	,000	,000

			M.I.	Par Change
e73	<-->	e74	6,417	,065
e61	<-->	e74	4,516	-,129
e50	<-->	e73	5,254	-,050
e41	<-->	e73	5,374	-,035
e1	<-->	e72	4,788	,068
e1	<-->	e61	4,183	,103

	M.I.	Par Change

			M.I.	Par Change
SV	<---	EV	6,928	,292
EV	<---	SV	7,746	,114
EVC	<---	PI	5,909	,144
PI38	<---	EV	4,640	,138
PI38	<---	EVE	4,640	,170
PI38	<---	EVG	4,640	,090
PI38	<---	EVC	4,640	,138
PI38	<---	EVG2	4,396	,060
PI36	<---	PI39	4,152	,066
PI36	<---	PI38	4,983	,075
PI32	<---	EVG3	4,701	-,131
PI29	<---	SV	4,975	-,217
PI29	<---	SVC	4,975	-,233
PI29	<---	SVM	4,975	-,217
PI29	<---	SVM3	5,489	-,142
PI29	<---	EVC4	4,034	,156
PI18	<---	EV	7,995	-,268
PI18	<---	EVE	7,995	-,331

			M.I.	Par Change
PI18	<---	EVG	7,995	-,175
PI18	<---	EVC	7,995	-,268
PI18	<---	VMP2	4,199	-,065
PI18	<---	EVG1	7,155	-,134
PI18	<---	EVG2	7,841	-,119
PI18	<---	EVG3	5,807	-,109
PI12	<---	EVG3	4,710	,068
PI10	<---	SVC4	4,072	,051
PI9	<---	EV	6,831	-,173
PI9	<---	EVE	6,831	-,214
PI9	<---	EVG	6,831	-,114
PI9	<---	EVC	6,831	-,173
PI9	<---	EVE2	6,229	-,084
PI9	<---	EVG1	6,400	-,089
PI9	<---	EVG3	4,188	-,065
SVC4	<---	PI37	4,528	,134
SVC4	<---	PI36	5,364	,165
SVC4	<---	PI10	5,197	,156
SVC4	<---	EVG3	5,724	,160
SVM3	<---	PI29	4,530	-,070
EVG3	<---	SV	4,349	,117
EVG3	<---	SVC	4,349	,125
EVG3	<---	SVM	4,349	,117
EVG3	<---	PI11	5,046	,111
EVG3	<---	SVC4	5,961	,075
EVC4	<---	PI	5,909	,144
EVC4	<---	PI39	4,144	,088
EVC4	<---	PI38	4,969	,101
EVC4	<---	PI36	8,683	,139
EVC4	<---	PI35	4,921	,091
EVC4	<---	PI34	4,203	,075
EVC4	<---	PI32	4,219	,064
EVC4	<---	PI29	9,945	,086
EVC4	<---	PI23	4,415	,088
EVC4	<---	PI17	6,802	,089

Iteration		Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	NTries	Ratio
0	e	49		-3,230	9999,000	6283,961	0	9999,000
1	e	43		-,648	1,985	4090,764	18	,357

Iteration		Negative eigenvalues	Condition #	Smallest eigenvalue	Diameter	F	NTries	Ratio
2	e *	18		-,632	1,223	2532,692	4	1,010
3	e *	5		-,634	,533	2010,003	5	,817
4	e	4		-,588	,767	1533,229	6	,770
5	e	3		-,194	1,464	1016,987	6	,629
6	e	1		-,046	,771	770,781	5	,760
7	e	0	550,748		,773	635,789	5	,844
8	e	0	265,611		,973	591,172	2	,000
9	e	0	620,808		,668	544,757	1	1,135
10	e	0	1077,578		,349	540,280	1	1,122
11	e	0	1274,980		,141	539,987	1	1,060
12	e	0	1290,749		,015	539,984	1	1,008
13	e	0	1296,356		,000	539,984	1	1,000

Model	NPAR	CMIN	DF	P	CMIN/DF
Default model	143	539,984	487	,048	1,109
Saturated model	630	,000	0		
Independence model	35	6770,871	595	,000	11,380

Model	RMR	GFI	AGFI	PGFI
Default model	,061	,910	,883	,703
Saturated model	,000	1,000		
Independence model	,385	,189	,142	,179

Model	NFI Delta1	RFI rho1	IFI Delta2	TLI rho2	CFI
Default model	,920	,903	,992	,990	,991
Saturated model	1,000		1,000		1,000
Independence model	,000	,000	,000	,000	,000

Model	PRATIO	PNFI	PCFI
Default model	,818	,753	,811
Saturated model	,000	,000	,000

Model	PRATIO	PNFI	PCFI
Independence model	1,000	,000	,000

Model	NCP	LO 90	HI 90
Default model	52,984	,486	113,824
Saturated model	,000	,000	,000
Independence model	6175,871	5914,438	6443,778

Model	FMIN	F0	LO 90	HI 90
Default model	1,812	,178	,002	,382
Saturated model	,000	,000	,000	,000
Independence model	22,721	20,724	19,847	21,623

Model	RMSEA	LO 90	HI 90	PCLOSE
Default model	,019	,002	,028	1,000
Independence model	,187	,183	,191	,000

Model	AIC	BCC	BIC	CAIC
Default model	825,984	865,282	1355,148	1498,148
Saturated model	1260,000	1433,130	3591,279	4221,279
Independence model	6840,871	6850,490	6970,387	7005,387

Model	ECVI	LO 90	HI 90	MECVI
Default model	2,772	2,596	2,976	2,904
Saturated model	4,228	4,228	4,228	4,809
Independence model	22,956	22,079	23,855	22,988

Model	HOELTER .05	HOELTER .01
Default model	298	311
Independence model	29	30

Minimization:	,196
Miscellaneous:	8,348
Bootstrap:	,000
Total:	8,544