



## PREFERENCES OF UNIPIN MOBILE APPLICATION USING CONJOINT ANALYSIS (CASE STUDY: PT. DUA PULUH EMPAT JAM ONLINE)

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### Abstract

*The purpose of this study is to determine the customers preferences in developing UNIPIN's mobile application that can help PT. Dua Puluh Empat Jam Online increases their sales of mobile games vouchers. Data collection methods using questionnaires and interviews on 100 gamers of UNIPIN. The research method used in this study is conjoint analysis which was preceded by Cochran Q-test to test the validity of application attributes and conjoint analysis to know the utility value of each attribute that became the main preference of gamers. The attributes tested include the attributes contained in the 7C Framework such as context, content, community, customization, communication, connection, and commerce. The results of this study are application attributes that can be applied by UNIPIN to increase their sale of mobile game vouchers which are context, content, communication, and commerce attributes. The results of this study are attributes that meet the need to develop UNIPIN's mobile application in order to increase sales in the mobile gaming market are the integrated level of the context attribute, the product-dominant level of the content attribute, the one-to-one non responding user level of the communication attribute, and high level of commerce.*

**Keywords:** Consumer Preference, 7C Framework, Mobile Application, Conjoint Analysis.

### INTRODUCTION

Indonesia has 56.7 million of online population in which online gaming industries contributes 704.4 million USD in 2016 (Newzoo, 2016). This means in average one person spends 12.42 USD on online game. This revenue has brought Indonesia to rank 17 out of 20 countries who produce biggest online games revenue in 2016. Based on survey in 2017, 49% of mobile gamers spend money on mobile games. They spend money mostly to play games with subscription-based model and buy

online game vouchers. This huge and potential market has triggered the rising of payment gateway companies for online games which act as intermediary of online games companies and users by providing online game vouchers. PT. Dua Puluh Empat Jam Online (UNIPIN) is one of the most popular payment gateway companies in Indonesia which already has more than 1.500.000 users throughout Indonesia. PT. Dua Puluh Empat Jam Online has a vision of being a paid electronic pin for a variety of digital content such as online games and mobile games. In 2017, PT. Dua Puluh Empat Jam Online has become one of the market leaders for online games voucher provider (similarweb.com, 2017). However, based on competitor analysis done by the company, its main competitors such as INDOMOG, MOL and Gudang Voucher have higher traffic share than to UNIPIN. One of the reasons is that these

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three competitors provide mobile applications for online gamers' access to alternative distribution channels to buy vouchers from their business. According to Suryanto (2016) Indonesia internet penetration is above 50% where 97% users prefer to use mobile applications than internet browser. Consequently, businesses are encouraged to develop mobile applications to reach consumers more effectively and efficiently.

In contrast, PT. Dua Puluh Empat Jam Online does not yet have a mobile application to keep up with market demand. The company plans to design an application by first find out the consumer preferences towards UNIPIN's mobile application user interface so that it can achieve the company's main vision, that is to be a market leader not only in the online games segment but also in the mobile games segment. The attributes used to design the UNIPIN's application is 7C Framework theory by Rayport and Jaworski (2004). Therefore, this research was conducted with the aim to know the preferences of UNIPIN consumer towards UNIPIN's mobile application design, so that the company can make the design of UNIPIN's mobile application according to consumer preference resulting from data processing with conjoint analysis. This research will be conducted on 100 UNIPIN consumers who actively play online games and bought online games vouchers frequently.

## LITERATURE REVIEW

### Designing the Customer experience

Customer experience is a perception and interpretation targeted towards consumers on all plans experienced when interacting with the company (Rafi, et al., 2003). Companies must understand the types of customer experiences that need to be generated to meet market opportunities. These experiences should be correlated with marketing strategies and corporate positioning. Customer Experience is defined as the interpretation of the complete meeting of the site users, from the initial view on the homepage to the purchasing

experience, including a decision as to whether to create a shopping cart.

### Crafting the Customer Interface

According to Rafi et al. (2003), the interface is a virtual representation of the value selection of a company's proposition. The Internet has transformed the Exchange place from the marketplace (such as face-to-face interactions) into a market space (like a screen-to-face interaction). The main difference exchange relations are now being addressed by technology interfaces. With the transfer of the interface relation of people mediated into technology, there are several interface design considerations encountered. In designing the customer interface, there are seven elements that should be noticed known as 7C framework.

### 7C Framework

7C Framework is a framework that is widely used as a guide for designing user interfaces in web marketing online (e-marketing). 7c Framework expanded into a reference to analyze the mobile interface which then generates the Mobile application user interface (Yang, 2016).

The following are the attributes contained in the 7c framework (Rayport & Jaworski, 2004).

#### 1. Context

Some web designers believe that most websites may be classified as follows.

##### a) Aesthetically Dominant

The dominant Website is aesthetic very concerned about the form or aesthetically, but it has less functionality. This Website is centered on look-and-feel, sometimes using a lot of multimedia or other visual elements, although it can be a performance-based. The purpose of this Website is to use various forms of art to create pleasure to the user.

##### b) Functionally Dominant

Websites whose domains are functional are assuming that users are concerned with information

rather than visual elements. This website focuses on displaying information such as text and limited visual design in the operation of the site.

c) Integrated

This attribute serves to balance the form and function of the Website, resulting in an attractive and easy to use interface. The site provides navigational tools and visual cues to users and clear features as well as interesting themes that support graphics or color scheme.

2. Content

The content includes all the digital information on the website, including audio, video, images, and text. The content has three classifications determined by the offering mix as follows.

a) Product-Dominant

The website whose main purpose is to sell physical goods is classified as the dominant product website.

b) Information-Dominant

Websites with this classification provide information as well as tools to search for specific topics.

c) Service-Dominant

The dominant Website services provide services for users to get paid. Users visit this site to complete their duties for example buying flights or selling stocks. The Website which is the place of transaction between the seller and the buyer also includes this classification.

3. Community

Community is an interaction between users, either one-on-one interactions or someone with many people. There are three community classifications defined by the type and number of interactions between members.

a) Path

Sites that don't have a community cause user to be unable to interact with each other, either by one-on-one or someone with a lot of people.

b) Limited

Sites that offer reading and posting information, stories, or opinions including limited community sites (limited). These sites typically provide non-interactive community features.

c) Strong

Sites that have a strong community offer interactive community functions such as chat rooms and message boards. Visitors visit this site because they want to interact with other members or search for certain information.

4. Customization

Customization is the ability of the Website to display individual content for each user. Some websites allow users to specify their preferences in various areas. Once the preference is saved, the site utilizes log-in registration and or cookies to match returning users to their personal settings. Website classification depends on the intensity of individual user customization. Classification is not influenced by customization style (personalization and tailoring). There are three classification, namely:

a) Generic

Most of the Website whose dominating information has the same view for each user a.k.a. low-level customizations.

b) Moderately Customized

Classification is often found on e-commerce websites. Customizations serve to make it easier for customers to shop, such as cookies, information such as customer's favorite products will be

automatically saved and will appear when the customer visits again.

c) Highly Customized

This Website strives to provide an individualized experience for each user. This classification allows the user to select the desired look and content.

5. Communication

Communication is a dialogue between the organization and the user. Dialogs can occur unidirectional (from organization to user) or interactively. Websites can be classified through the type of communication between sites to users and how users respond as well as in how.

a) One-To-Many, Non-responding User

This Website sends you a broadcast communication to determine the audience, usually via email newsletter or webcast events. These messages usually contain information that doesn't need to be responded to customers.

b) One-To-Many, Responding User

This Website sends messages to registered users and invites them to upload comments and responses.

c) One-to-One, Non-responding User

This site sends personal messages to intended users based on specific interests or needs. This information can form real-time updates or reminders, and customers don't have to respond to it.

d) One-to-One, Responding User

The site also sends a personal message such as reminders, but in this case the user can respond, either by uploading the information via email or through live interaction.

6. Connection

Connection is the level of Website relations with other sites. This happens through the pasted hyperlinks in the webpage, usually displayed with underscores or colored writings, images, or graphics. The following

classification Website based on the type of connection used and whether the connection path takes the user out of the Website or remains on the original site.

a) The Destination sites

The destination delivers its own generated content exclusively with little links to other sites. This site is rated to have integrity and trust and broadens information about content from other providers.

b) Hub Site

The Hub combines its own generated content and certain links to related websites. The user visits the hub site because it acts as a gateway to certain industry or topic information.

c) Portal site

Portals consist of most outsourced information and links to other sites, with very little or no content produced at all.

7. Commerce

The Commerce feature in the customer interface supports the Website to conduct financial transactions. This feature is very important for Website dominant products, which are intended to sell products, but this feature is also found on the Website that is dominant information and dominant services. After evaluating the commerce features a Website has chosen to implement, it is the next to classify the capabilities of commerce consisting of:

a) Low

This Website can process transactions, but with little commerce features. It is usually owned by a small business or webpage representing a slight percentage of sales. Buyers who cannot find a specific brand product in the store can visit the company's official website, then fill the Web form such as name, e-mail address, and the number of products

desired. The company will contact the buyer for payment and delivery. This Website does not have a shopping cart, does not accept credit cards, or other commerce features.

b) Medium

Some websites do not require all the features of commerce because financial transactions are a necessary feature but not the primary purpose. This Website usually presents information, but also can be in the form of an e-newspaper where readers must buy the E-newspaper to read all the information. Transactions can be made via credit card, financial security system, and membership registration. However, this website does not have any shopping cart or other order feature.

c) High

This Website is equipped with all or almost all features of functional equipment. Usually owned by a large offline company or an online company that has a high sales amount. Buyers can register and use shopping cart. Buyers can also choose the color and size of the goods sold on the website. Your shipping address and credit card number can be automatically saved, and buyers can change their account information at any time or view previous purchases and current purchases.

The 7C framework is intended to provide a comprehensive road map for the management team to translate its business model into an actionable concrete site. Here's a summary of the options that the company can follow from all the 7C attributes.

Table 1. *Table Mapping 7C Framework*

Context	Aesthetically dominant	Functionally dominant	Integrated	
Content	Product-Dominant	Information-Dominant	Service-Dominant	
Community	Path	Limited	Strong	
Customization	Generic	Moderately Customized	Highly Customized	
Communication	One-to-many, nonresponding user	One-to-many, responding user	One-to-one, nonresponding user	One-to-one, responding user
Connection	Destination	Hub	Portal	
Commerce	Low	Medium	High	

Source: Rayport & Jaworski (2004)

**MATERIALS AND METHODS**

This research aims to determine what attributes are preferred by consumers to design UNIPIN mobile applications. The type of this research is descriptive research, with two stages of data processing there are Cochran Q-test and conjoint analysis. The sampling technique used is simple random sampling, because the number of UNIPIN consumers across Indonesia is more than 1,500,000 users so it is not possible to conduct research on all

population's members, for that used Slovin's formula to produce 100 respondents as sample to represent all UNIPIN consumers.

**Cochran Q Test**

The Cochran Q Test method of analysis is used to determine what attributes the user is in consideration of using the mobile applications. According to Santoso (2009), Cochran test has a special feature that is tested with nominal type (categorical). Through this method then the attributes of the assessed are

not valid based on criteria, the statistical criteria used will be issued. This is done to reduce the element of the subjectivity of the researcher, and the attributes that are considered valid with this method become the next research attribute.

### Conjoint Analysis

A conjoint analysis (*conjoint analysis*) is a method of analysis in a multivariate analysis Used to help obtain a combination or composition of the attributes of a product or service whether New and old consumers most liked (Malhotra, 2010). In the process of the Conjoint analysis will provide a quantitative measure of utility level and relative interest an attribute compares to another attribute. It is done through psychological considerations or consumer preferences. Furthermore, these values can be used to assist selection of attributes of a product that will be offered.

### RESULT AND DISCUSSION

Test Analysis of Cochran Q Test in this study using 95% confidence level, where  $df = n-1$ , with basic decision making as follows

- If  $Q \text{ formula} > Q \text{ table}$ , then the attribute tested is invalid
- If  $Q \text{ formula} < Q \text{ table}$ , then the attribute tested is valid

Testing the attribute validity by using Cochran Q Test method is done by distributing questionnaires to 100 respondents with the following process:

#### 1<sup>st</sup> Testing

Table 2. *The "Important" Proportion of 1<sup>st</sup> Testing*

Attributes	Respondent Choice	
	Not Important	Important
CONTEXT	29	71
CONTENT	39	61
COMMUNITY	58	42
CUSTOMIZATION	59	41
COMMUNICATION	33	67
CONNECTION	64	36
COMMERCE	32	68

Source: Data Processing Results (2017)

With  $\alpha = 0,05$ ,  $df = 7-1 = 6$ , obtained Q table  $(0,05; 6) = 12,59$  and Q formula = 54,058. 1st Testing decision is Reject  $H_0$  because Q formula  $>$  Q table. So, there has been no similarity of respondents' opinions about attributes. Thus, it is necessary to have 2<sup>nd</sup> test by removing the attribute which has least important proportion of respondent choice, that is 'Connection' attribute.

#### 2<sup>nd</sup> Testing

Table 3. *The "Important" Proportion of 2<sup>nd</sup> Testing*

Attributes	Respondent Choice	
	Not Important	Important
CONTEXT	29	71
CONTENT	39	61
COMMUNITY	58	42
CUSTOMIZATION	59	41
COMMUNICATION	33	67
COMMERCE	32	68

Source: Data Processing Results (2017)

With  $\alpha = 0.05$ ,  $df = 6-1 = 5$ , obtained Q table  $(0.05; 5) = 11.07$  and Q formula = 36.425. 2<sup>nd</sup> Testing decision is Reject  $H_0$  because Q formula  $>$  Q table. So, there has been no similarity of respondents' opinions about attributes. Thus, it is necessary to have 3<sup>rd</sup> test by removing the attribute which has least important proportion of respondent choice, that is 'Customization' attribute.

#### 3<sup>rd</sup> Testing

Table 4. *The "Important" Proportion of 3<sup>rd</sup> Testing*

Attributes	Respondent Choice	
	Not Important	Important
CONTEXT	29	71
CONTENT	39	61
COMMUNITY	58	42
COMMUNICATION	33	67
COMMERCE	32	68

Source: Data Processing Results (2017)

With  $\alpha = 0.05$ ,  $df = 5-1 = 4$ , obtained Q table  $(0,05; 4) = 9,49$  and Q test = 22,155. 3<sup>rd</sup> Testing decision is Rejects  $H_0$  because Q test  $>$  Q table. So, there has been no similarity of respondents' opinions about attributes. Thus, it is necessary to have 4<sup>th</sup> test by removing the attribute which has least important proportion

of respondent choice, that is the 'Community' attribute.

Table 5. The "Important" Proportion of 4<sup>th</sup> Testing

Attributes	Respondent Choice	
	Not Important	Important
CONTEXT	29	71
CONTENT	39	61
COMMUNICATION	33	67
COMMERCE	32	68

Source: Data Processing Results (2017)

With  $\alpha = 0.05$ ,  $df = 4-1 = 3$ , obtained Q table  $(0,05; 3) = 7,81$  and Q test = 2,482. 4<sup>th</sup> Testing decision is Accept Ho for Q test < Q table. This means there is evidence to suggest that these four attributes are likely to answer the same "Important" of the respondent choice for each attribute. In other words, the four attributes can be considered valid so it can be used in developing a UNIPIN application user interface.

Here are the results of the conjoint analysis.

Table 6. Aggregate Conjoint Analysis

Attributes	Level	Utility Estimate	Importance Values
CONTEXT	Aesthetics	-.447	22.275
	Functional	-.692	
	Integrated	1.138	
CONTENT	Product-dominant	.178	18.215
	Information-dominant	.037	
	Service-dominant	-.215	
COMMUNICATION	One-to-many, Non-Responding User	-2.705	40.553
	One-to-many, Responding User	.717	
	One-to-one, Non-Responding User	1.165	
	One-to-one, Responding User	.823	
	Low	-.602	
COMMERCE	Medium	.237	18.957
	High	.365	

Source: Data Processing Results (2017)

Based on the results of aggregate analysis of the applications attributes in the table above, then obtained the following statement.

a. Context

For context attributes, look and feel of a user interface can be categorized into several criteria, including aesthetic, functional, and integrated. Aesthetics is an application that is oriented to the value of art that combines text, graphics and images with a high visual value. Functional attribute is a functionally oriented app focusing on offers like products, services or feature information contained therein. And integrated attribute is an application that combines aesthetics and functionality into the application, the application focuses on the main offering while focusing on combining text, graphics and images simultaneously.

b. Content

For content attributes emphasize the digital information contained in the application, including audio, video, images and text. Content attributes can be classified into three types, namely Product Dominant, Information Dominant, and Service Dominant. An application that prioritizes Product Dominant is an application whose main purpose is to provide information about the product. Systems that prioritize Information Dominant is an application that has dominant information such as magazine and newspaper applications. While applications that prioritize Service-Dominant is an application that provides the dominant service for users.

c. Communication

For communication attribute refers to the dialogue between the organization (company) and the user. Four classifications of communication include One-to-many, Non-Responding User; One-to-many, Responding User; One-to-one, Non-Responding User; And One-to-one, Responding User. One-to-many, Non-Responding Users are in-app communication where the company sends a message to many consumers, but consumers cannot or do not need to respond. One-to-many, Responding User is an interaction

whereby the company sends messages through applications to many consumers and each consumer can provide a response. One-to-one, Non-Responding Users are communications made by the company to each consumer directly, but consumers cannot respond. One-to-one, Responding User is a two-way communication between company parties and their customers personally.

#### d. Commerce

Commerce attributes are the most important in a more dominant application to product sales, but they are not uncommon in apps dominated by information or services. The commerce features of an interface application support consumers to perform financial transactions. Features that support e-commerce include registrations, shopping carts, security with authentic and encryption technology, credit card approval, affiliate ordering, configuration technology, order tracking, shipping options, and more. Commerce elements can be divided into three classifications based on features displayed or available in the application system. Three classifications include low, medium, and high. In the low classification, an application has few functional features or even none at all. Usually owned by organizations or companies that are not commercially oriented or have a small business. Applications with medium classification have some e-commerce features but are only used as a support feature. Usually this application has a commercial purpose but not complete as an application from a retail company. Highly classified apps have almost all e-commerce features because their main orientation is great sales. Companies that are product-dominant usually have highly commercial applications.

### CONCLUSIONS

From the results of the research described in previous chapter, the following conclusions can be drawn:

1. From the results of Cochran Q Test analysis there are 4 attributes that become consideration of respondents in choosing user interface UNIPIN application that is,

Context, Content, Communication, and Commerce. From the results of the aggregate conjoint analysis shows the importance of each of these attributes for respondents, namely:

- The importance values of context is 22.275%
- The importance values of content is 18.215%
- The importance values of communication is 40.553%
- The importance values of commerce is 18.957%

The attributes importance values indicate that communication is the most important, meaning that respondents expect a feature of communication in the application. According to the respondent, the context is the second most important attribute, meaning the application context also influences the respondents in choosing the user interface application UNIPIN. Content and commerce attributes have almost similar weightings, but respondents prefer commerce as the third most important attribute, meaning respondents want a feature of commerce and then comes with content features.

2. From the results of conjoint analysis obtained the conclusion that respondents want an

- Application that applies the integrated context (utility value 1.138) that combines functional features and aesthetic value that has an interesting visual form.
- Application must prioritize product dominant content (utility value 0.178) either about product data or information of latest product in company
- Applications that provide communication features that enable one-way interaction between the company and the consumer or called one-to-one, non-responding user (utility value 1,165) such as notification feature.



- Applications that have complete (high value) or high sales features primarily with shopping carts (utility 0.365).
- Applications that do not allow users to customize their own within the application.
- Respondents do not want any connection from outside or from within company to application.
- And respondents do not need an in-application community.

### RECOMMENDATION

1. The company should be able to develop applications in accordance with what is needed by consumers because the main purpose of UNIPIN application development is to increase the market share of mobile games as well as increase the sales of mobile games vouchers.
2. Companies should pay attention to attributes that have the highest level of importance, so it can be applied to develop the application.
3. If in the enterprise application development is not possible to apply all the attributes that exist, then the company can apply the attribute that has the greatest importance level weight as applied to the following user interface application UNIPIN.

#### A. Homepage

The following user interface homepage UNIPIN application.



Figure 1. User Interface Homepage UNIPIN Application

Source: Author (2017)

This page applies the three attributes of the 7C Framework, among others:

- i. Context with an integrated level that can be seen from the visual display that combines icon images with text.
- ii. Content with a product-dominant level that can be viewed on the features of online games, mobile games, news and events, and other products.
- iii. Communication with a one-to-one, non-responding user level applied in the form of notification feature in the upper right corner of the page.

#### B. Navigation Drawer

Here user interface navigation drawer UNIPIN application.

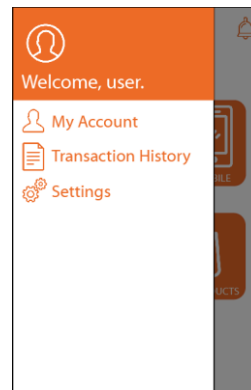


Figure 2. User Interface Navigation Drawer UNIPIN Application

Source: Author (2017)

This page applies the three attributes of the 7C Framework, among others:

- i. Context with an integrated level that can be seen from the visual display that combines icon images with text.
- ii. Content with the level of product-dominant that can be seen on my account features, transaction history, and settings.

Commerce with a high level that is applied in the form of my account features and transaction history.

#### C. Product List Page

Here the user interface product list page UNIPIN application.

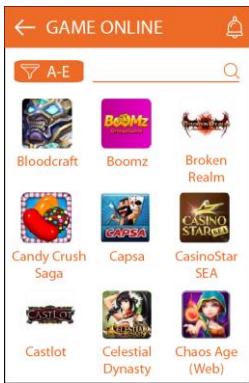


Figure 3. User Interface Product List Page Application UNIPIN

Source: Author (2017)

This page applies the three attributes of the 7C Framework, among others:

- i. Context with an integrated level that can be seen from the visual display that combines icon images with text.
- ii. Content with a product-dominant level that can be seen in filter, search, and games features.
- iii. Communication with a one-to-one, non-responding user level applied in the form of notification feature in the upper right corner of the page.

**D. Product Details Page**

Here the user interface product details page UNIPIN application.



Figure 4. User Interface Product Details Page Application UNIPIN

Source: Author (2017)

This page applies four attributes of the 7C Framework, including:

- i. Context with an integrated level that can be seen from the visual display that combines icon images with text.
- ii. Content with a product-dominant level that can be seen in game screenshots, game descriptions, nominal vouchers, voucher prices, buy features, and wish list.
- iii. Communication with a one-to-one, non-responding user level applied in the form of notification feature in the upper right corner of the page.
- iv. Commerce with high level applied in the form of buy and wish list features.

**E. Shopping Cart Page**

Here's the user interface shopping cart page UNIPIN application.



Figure 5. User Interface Shopping Cart Page Application UNIPIN

Source: Author (2017)

This page applies the three attributes of the 7C Framework, among others:

- i. Context with an integrated level that can be seen from the visual display that combines icon images with text.
- ii. Communication with a one-to-one, non-responding user level applied in the form of notification feature in the upper right corner of the page.
- iii. Commerce with a high level that is applied in the form of checkout features, shop more, and security transactions with credit cards.

PT. Twenty-Four Hours Online is expected to continue the information on the results of this research to be taken into consideration in creating a mobile application user interface that aims to increase market share in the mobile games segment and increase the sales of voucher games.

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