

A Semiotic Analysis on User Interface (UI) in Digital Wallet DANA based on Peirce's Model



THESIS

Submitted as a Partial Fulfilment of the Requirement
for Getting Bachelor Degree of Literature
in English Department

By :

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LEGITIMATION

THESIS

**A SEMIOTIC ANALYSIS ON USER INTERFACE (UI) IN DIGITAL WALLET
DANA BASED ON PEIRCE'S MODEL**

BY

TAUFIK HIDAYAT

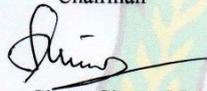
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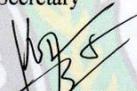
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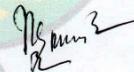
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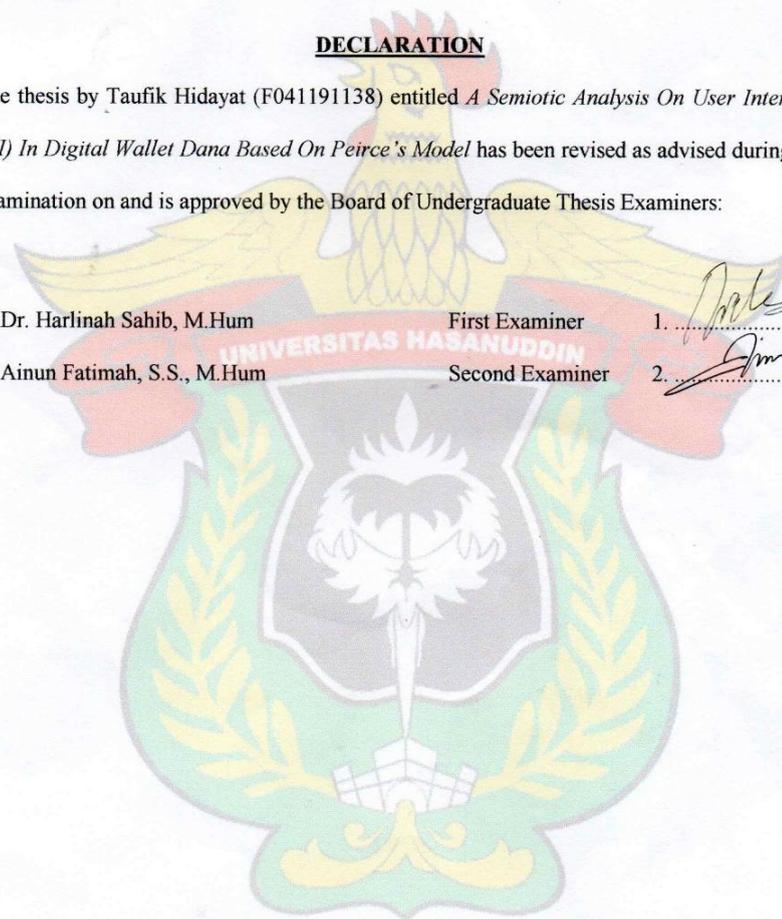
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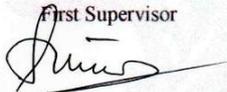
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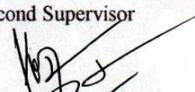
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Hereby, the writer declares that this thesis entitled:

A Semiotic Analysis On User Interface (UI) In Digital Wallet Dana Based On Peirce's Model is written by himself. This thesis does not contain any materials which have been published by other people, and it does not cite other people's ideas except the quotations and references.

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The writer is aware that this writing cannot be finished without assistance, both material and moral, from various parties. As a result, the write would like to deeply express gratitude to those who contributed to the creation of this thesis, especially:

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The Writer,

Taufik Hidayat

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ABSTRACT

TAUFIK HIDAYAT. *A Semiotic Analysis on User Interface (UI) on Digital Wallet DANA Based on Peirce's Model* (supervised by Simon Sitoto and Karmila Mokoginta).

The purpose of this study is to analyse the symbols included in the user interface of DANA, a popular digital wallet service in Indonesia. This is done by categorising the symbols and deciphering their meaning based on their denotative and connotative definition, as well as their visual cues.

This study used qualitative research design, particularly field research. The writer analysed the symbols in the User Interface of DANA Digital Wallet using symbols classification provided by Julian Kunstler. The symbols then were broken down to their denotative and connotative meaning in order to interpret what they symbolise.

The outcome indicates that among the 17 symbols analysed, five of them are icons and seven are ideograms (two of them can also be considered rebus), three are pictograms and only two are logos. In terms of meaning, the majority of the symbols can easily be understood by understanding the broad definitions provided in the label and the context.

Keyword : semiotic, symbols, user interface, DANA

ABSTRAK

TAUFIK HIDAYAT. *Analisis Semiotik dari Antarmuka Pengguna Digital Wallet DANA dengan menggunakan Model Peirce* (dibimbing oleh Simon Sitoto dan Karmila Mokoginta).

Tujuan penelitian ini adalah menganalisis simbol-simbol yang terdapat pada antarmuka pengguna dari DANA, yang merupakan layanan dompet digital populer di Indonesia. Hal ini dilakukan dengan mengkategorikan simbol dan menguraikan maknanya berdasarkan definisi denotatif dan konotatifnya, serta isyarat visualnya.

Penelitian ini menggunakan desain penelitian kualitatif, khususnya penelitian lapangan. Penulis menganalisis simbol-simbol pada antarmuka pengguna dari Dompet Digital DANA dengan menggunakan klasifikasi simbol yang dijelaskan oleh Julian Kunstler. Simbol-simbol tersebut kemudian diuraikan menjadi makna denotatif dan konotatifnya untuk menafsirkan apa yang mereka simbolkan.

Hasilnya menunjukkan bahwa di antara 17 simbol yang dianalisis, 5 diantaranya dianggap sebagai jenis *icons*, 7 dianggap sebagai *ideogram* (2 di antaranya juga dapat dianggap sebagai *rebus*), 3 dianggap sebagai *pictogram*, dan hanya dua yang dianggap sebagai logo. Dari segi makna, sebagian besar simbol dapat dengan mudah dipahami dengan memahami baik definisi luas yang diberikan dalam label maupun konteksnya.

Kata kunci: semiotik, simbol, antarmuka pengguna, DANA

CHAPTER I

INTRODUCTION

This chapter gives an introduction to this research by presenting the background of the study, identification of the problems, scope of the problem, research questions, objective of the study, and significance of the study.

A. Background

Signs are integral to language and communication. According to Charles Sanders Peirce, signs involve examining relationships between objects and interpretants to uncover meaning. For example, a stop sign's physical form is the representamen—a red octagon with "STOP" written in white. The object of the sign is the instruction to stop at intersections, while the interpretant is the recognition that drivers should halt for safety. Signs, including buttons in machines or applications, aid users in achieving various objectives.

The signs on the buttons mentioned above often take the form of symbols, which are marks or characters used to represent an object, function, or process. These symbols are often provided with little or no explanation of their meaning. This type of communication, which relies on the visual clarity of the sign, is referred to as visual communication. It is a form of language that is closely related to linguistics through the study of semiotics, one of its branches that focuses on the study of signs and their meanings.

An application or often called 'apps' is a program that performs a particular task or set of tasks using digital devices such as mobile phones or

computers. There are various kinds of apps with their own purposes, and one of those purposes is helping with transactions. With the help of an app, transactions can have a transition from cash to cashless with the help of smartphones. This form of storing money is often referred to as a digital wallet and one of the most popular apps designed with that purpose in mind is DANA.

DANA, which was founded in 2018, is an Indonesian digital wallet that takes cashless and card-less spending to the next level where they bring a faster, easier, and more secure way of paying for all online and offline transactions. As a platform that directly involves an individual's finance, it is crucial for a DANA to be easily understood and operated by the user.

The space where interactions between the user and machines (or in this case app) is called user interface (UI). The ease of use of an app heavily relies on a User Interface (UI), as it is the primary means for the user to navigate them smoothly. The UI of an application can consist of two aspects: a label or a short text and a symbol. Both of these aspects are then utilised in the form of buttons to be used by the users. A button can consist of only a text, an icon or both; and they can be found throughout the application.

As of writing this thesis, the writer found that there is only a handful of research regarding DANA's User Interface and none of which use semiotic analysis. Hence, the purpose of this research is to analyse the symbols found in the User Interface of DANA using Charles Sanders Peirce's model of semiotic analysis. Furthermore, the writer aims to get a better understanding of the possible behind the symbols found throughout the User Interface of DANA. The writer

hoped that the outcome can give a clear explanation using Peirce's theory of semiotic.

B. Identification of the problem

1. Users find it difficult to distinguish icon, index and symbols found in the User Interface of DANA Digital Wallet.
2. Users lack the ability to understand the meaning behind icons, indexes and symbols found in the User Interface of DANA Digital Wallet.

C. Scope of the problems

Based on the above problems, the writers will limit the scope of the problems as follows;

1. The types of symbols found in the User Interface of DANA Digital Wallet.
2. The meaning behind symbols used in the User Interface of DANA Digital Wallet.

D. Research questions

1. What are the types of symbols found in the User Interface of DANA Digital Wallet?
2. What are the meanings behind the symbols used in the User Interface of DANA Digital Wallet?

E. Objectives of the study

1. To explain the types of symbols found in the User Interface of DANA Digital Wallet.
2. To reveal the meaning behind the symbols found in the User Interface of DANA Digital Wallet.

F. Significance of the study

1. Theoretical benefit

Peirce's triadic theory (1931-58) has been used on multiple occasions to analyse meaning verbally and visually. However this study provides an insight on how Peirce's theory is used to analyse the buttons forming DANA's User Interface. Therefore, this study hoped to further develop the usage of Pierce's theory in dissecting the meaning, particularly visual communication.

2. Practical benefit

This study can be utilised as a future reference for researchers, readers, or communities interested in evaluating visual communication aspects found in User Interface. Especially, in a valuable application such as DANA where the clarity of the User Interface is crucial.

CHAPTER II

LITERATURE REVIEW

A. Previous studies

Some studies related to the meaning of signs, particularly logos, have been conducted by several researchers. The studies are explained below.

In a study entitled “The Symbols of Nature in Beauty Product Logo : Semiotic Approach” Srikandi, (2020) provides a conclusion that the symbols of nature in the logo of a beauty product mostly represent the use of natural ingredients as its key component. In addition, the use of nature symbols also implies that the product is harmless for the consumers since the product consists of mostly natural ingredients.

In addition, Safitri et al., (2021) conducted a research entitled "The Meaning of Gojek Advertising in the Pandemic Era Using Charles Sander Peirce Semiotics Analysis” and she also used Pierce’s theory to analyse not only the dialogue but also visual cues on the video "Pesan dari Rumah Buat Kita yang di Jalan". She found out that the video contains signs which are meant to invite the public to continue to follow health and safety protocols during the Covid-19 Pandemic. In addition, the video also promotes Gojek as a safe community travel partner that follows all health protocol requirements during the Covid-19 outbreak.

Furthermore, Hoseani and Yohana (2020) in their research entitled “Analisis Sistem Tanda Di Pusat Perbelanjaan Berdasarkan Semiotika Sanders

Peirce” found that the use of visual sign “has a distinct characteristic that spark interest from the viewers”. The writer analysed 8 signs commonly found in the shopping center using the theoretical framework of Charles Sanders Peirce’s Semiotics where logic and reasoning plays a significant role in determining the message of the signs. The writer’s approach in analysing the sign is slightly different from this study despite deriving from Charles Sanders Peirce. Instead of analysing based on Peirce's Triadic Theory, the writer categorised the signs into 10 different types previously established by Peirce.

In addition, Payuk and Zakrimal (2020) found in their study, "Semiotic Analysis in Instagram Logo", that the logos used in Instagram have their own purpose and are suitable to help the users navigate the application smoothly. Although it is not explicitly mentioned, the logos in this study can be considered as a part of User Interface. Therefore, this study can be seen as a UI analysis of Instagram.

Finally, Pinandito, (2022) conducted a research involving both User Interface (UI) and User Experience (UX) of DANA Digital Wallet entitled “The Influence of User Interface (UI) – User Experience (UX) Design, Service Features, and Service Quality on Interest in Reusing the Digital Wallet Application with User Satisfaction as a Mediating Variable”. The result of his research shows that both UI and UX design of DANA barely have any effect on the interest of the users to reuse the application.

Unlike earlier research, this study focuses on the meaning of signs found in the buttons of UI in DANA and how effectively they communicate the intended

meaning of specific actions. This is done by using Pierce's theory of sign consisting of three main aspects; sign, object and representament. This study also aims to provide a better understanding of the possible reasons why certain signs are used to communicate certain functions to the users.

B. Theoretical framework

1. Semiotics

Srikandi (2020, p. 6) explains that “the term semiotics is derived from the Greek semesion, which means sign”. In general, semiotics can be defined as ‘the study of sign’ Chandler (2021). Furthermore, Nordquist (2020) describes that semiotics in particular studies signs and symbols as “elements of language or other systems of communication”. The signs can be found easily in our daily lives from the ones we typically see on the road, the icons in our smartphones, to metaphorical messages in movies or advertisements.

People have grown accustomed to using the various applications that smartphones provide as their use has increased, particularly in recent years as they are now more accessible than ever. According to Hoseani and Yohana (2020), visual communication has taken over as one of the main forms of communicating. This type of communication is frequently found when interacting with the applications in smartphones. Therefore, in order to effectively convey the message, visual communication designers are

required to have a clear understanding of both the message and the target audience (Hoseani and Yohana, 2020).

Charles Sander Peirce, a renowned American Philosopher, explains his theory regarding how a sign can be broken down into three aspects; representamen, objects, and interpretant (Chandler, 2007 cited in Peirce 1931-58). The representamen is the actual sign itself, an object is what representamen refers to, and lastly the interpretant is the meaning or idea of the concept when it is decoded (Ramadhan et al, 2018). With this concept in mind, the use of Semiotics “allows us to determine viewer’s perception” of a certain sign by highlighting its “structures and processes with respect to objects and observable details” (Cowin, 2011).

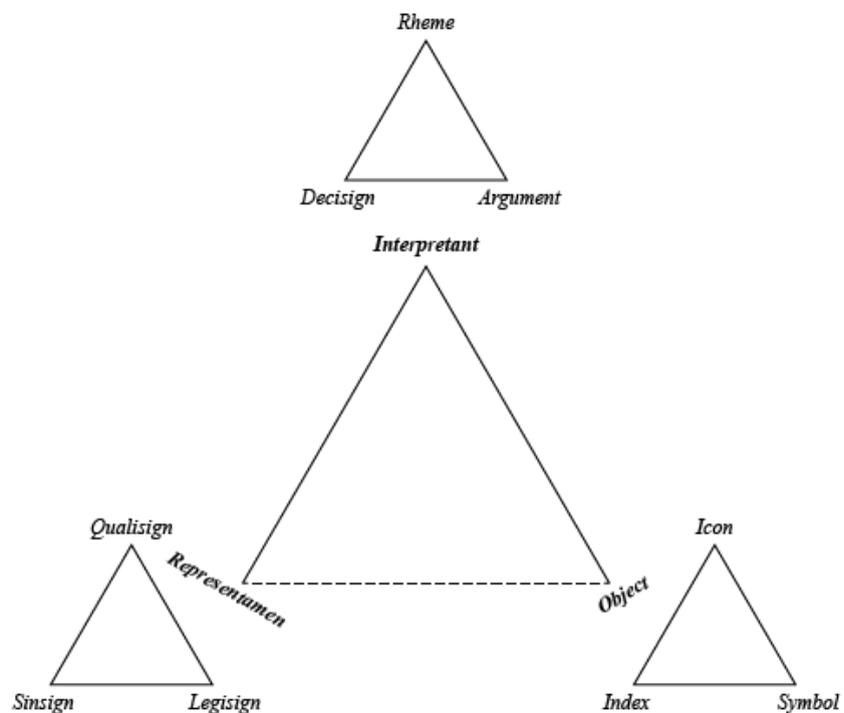


Image 1. Overview of Peirce's Triadic Theory

2. Representamen (sign)

Representamen or “the form which the sign takes” (Chandler, 2007, p. 29) is signifier. It is “something which stands to somebody for something in some respect or capacity” (Peirce, 1931-58, p. 2.228). An example of representamen would be smoke which acts as a “sign vehicle” representing the existence of fire as an object or something that the sign refers to. Representamen can be broken down into three categories, which are Qualisign, Sinsign and Legisign.

a. Qualisign

Sobur (2013) describes qualisign as the quality of the sign such as hard, soft, weak, and strong. In his research in 2021, Rachma Fira gave an example on how red colour is considered a qualisign based on its usage in many aspects such as expressing love in the form of roses, and prohibition in the traffic lights. This aspect is also used when designing logos or symbols. O'Connor (2019) explains that the most common shapes in logo design are squares and rectangles. She further mentions that its appeal can be attributed to the fact that it is a dependable, well-known shape that stands for integrity, solidity, and stability. This description of the shape rectangle can be classified as qualisign.

b. Sinsign

Sinsign can be described as “an actual existent thing or event which is a sign” (Pierce, 1903). In addition, according to Zoest

(1993) sinsign is a basic sign of how it looks in reality, meaning that all statements that are not established can be considered as a sinsign. For instance, one can notice that something is burning when smoke appears and one can identify someone based on their voice tones.

c. Legisign

Zoest (1993) described legislation as a type of sign that becomes a sign because of an agreement, it might be a rule, a code, or a legal requirement. Fira (2021) gives an example that a red light at a traffic light is a sign that people must stop (regulation). The red light does not mean 'stop' on its own but instead the traffic rules suggest that when the light turns red. Another example is someone's nodding is an agreement that the person understands as a basic gesture of communication as has been an unwritten code.

3. Interpretant

Interpretant can be defined as “the sense made of the sign” (Chandler, 2007, p. 29) or the mental image that the viewers received when looking at the sign (representamen). Taking from the previous example, viewers interpret the smoke as the result of a fire, hence the interpreter assumes the existence of fire. Interpretant can also be categorized into three; rheme, decisign, argument. Each of those aspects are explained below.

a. Rheme

Rheme is a sign related to the possible understanding of the object of the sign for the interpreter, a sign that allows people to interpret based on their choice. In other words, sign as a possibility (concept) (Zaldi, 2022). For example, red eyes can be an indication that someone has been crying, has just woken up, has something shining on them, or is experiencing eye pain.

b. Decisign

When a sign shows the actuality of its object, it is considered a decisign. Sign as a reality (descriptive statement). For example, Accident-prone roads should be installed with caution-prone accidents signs (Zaldi, 2022)

c. Argument

According to Zaldi (2022) arguments are signs that the end is not an object but rather a set of laws, and they are indications that something has direct justifications. Sign as a reason (proposition). For example, a no-smoking sign can be found in gas stations since the place is sensitive to flammable objects.

4. Object

Within the Peirce's Triadic Theory, object means "something beyond the sign to which it refers" (Chandler, 2007, p. 29) or to simply put it is the referent or signified of a representamen (sign). It is something that the sign stands for. For instance, the smoke (representamen) indicates the

existence of fire (object). Object is divided into three categories, namely icon, index, and symbol.

a. Icon

Sakinah et al. (2020) says that Icon shows that representamen (sign) and object have a physical resemblance (similarity) to each other. The writer further explains that the icon is a visual representation of linguistics or an image that enables the viewers to identify that both the sign and the object have a significant resemblance. For example, the men's toilet icon resembles the silhouette of an adult male.

b. Index

Lastly, a representamen can be considered an index when it is directly linked to the object (Srikandi, 2020). The nature of this relationship is causal (cause-effect) since the index (sign) simply cannot exist without the object (Sakinah et al., 2020).

According to Bowcher (2018), context in semiotics relates to signs and how they transmit things said and done during a discussion or encounter that give the particular exchange that is taking place a meaningful and specific meaning. This makes it possible for the recipient of this conversation to properly understand the encounter and interpret its intended meaning.

In related manners, deixis is also closely tied to context. Levinson (1983, p. 54) explains that deixis is concerned with how

languages represent elements of the utterance or speech event, and it is also concerned with how the interpretation of utterances depends on the study of that utterance's context. Furthermore, according to Stapleton (2017), specific words and phrases in an utterance demand for contextual information, including details about the speaker, the addressee, the time, and the location. For instance, the sentence “I finished the task yesterday” requires the contextual information of the time it was said in order to fully grasp the meaning of “yesterday” in that sentence. Another example would be the sentence “He is one of the best in the sport”. Without contextual information of who the pronoun “he” refers to, the recipient could not understand what kind of sport is being talked about. However, if the person we are talking about is Lionel Messi for example, then we would know that the sport the sentence refers to is football since Messi is indeed one of the greatest of all time in that sport with countless trophies and achievements for both club and country.

c. Symbol

A symbol on the other hand is something that can symbolise and represent ideas, thoughts and objects but does not possess any visual resemblance between the representamen and the object, in other word it is arbitrary (Sakinah et al., 2020). Hence,

the connection between the sign and the symbol is not natural but rather conventional. For example, the symbol “+”, despite having no direct visual similarity to the hospital, is often used as a symbol to indicate that a hospital is nearby.

1). Summarizing Symbol and Elaborating Symbols

Ortner (1973, p. 1340) provided classification of symbols into two types; *summarizing symbols* and *elaborating symbols*. Summarizing symbols are those that are considered to sum up, express, or symbolize for the participants what the system means to them in a way that is emotionally potent and largely unexpressive. In other words, summarizing symbols means reducing complex and multifaceted concepts, such as ideas or characters, into a more straightforward form. On the other hand, elaborating symbols provides “vehicles for sorting out complex and undifferentiated feelings and ideas, making them comprehensible to oneself, communicable to others, and translatable into orderly action”. To put it simply, it is providing more details, interpretations, and connections between these concepts to enrich one's understanding.

These two concepts can be distinguished when looking at the “STOP SIGN” found on the street. When looking at the symbol through the perspective of

summarizing symbols, this symbol signals to drivers that they must come to a complete halt before proceeding further. However, when using an elaborating symbols approach, the STOP Sign is a hexagonal sign with the word "STOP" in white letters on a red background. The eight-sided shape and the color scheme are standard across the world. The purpose of this symbol is to enhance traffic safety by requiring drivers to come to a complete stop before proceeding.

2). Symbols in Visual Communication

Visual communication refers to the transmission of information and ideas through visual elements such as images, symbols, typography, colors, and layout. It is a means of conveying messages and concepts to an audience using visual forms, often in combination with written or verbal communication.

Julianna Kunstler (2018), an art teacher and experienced Web developer, divides symbols into 7 types based on their use in visual communication. Those 7 types are as follows;

(a). Pictograms are symbols that are frequently used in public to communicate information by closely resembling a real-world object or location.

(b). Ideograms are condensed images that have been chosen by agreement or tradition to serve as permanent visual representations of an object, an idea, or a concept.

(c). Icons are commonly used in digital devices to represent objects and their functions with a symbol that is recognizable and logical. This classification of icons is slightly different from “icon” (in icon, index, and symbol) that is based solely on visual similarity.

(d). Rebus is a symbol that stands in for a spoken sound, a word, or a word's component and it is mostly limited to one language.

(e). Phonogram is a symbol that represents a spoken sound.

(f). Typogram is a deliberate use of typography, a character-creation and character-arrangement technique, to visually express a concept.

(g). A logo is a specific kind of symbol that is used to represent a brand in order to quickly recognize and convey information about a business, a service, a product, an idea, or a specific person.

5. Denotation and Connotation

When discussing meaning, denotation and connotation play significant roles in semiotic as both of them are “terms describing relationship between signifier and signified” (Chandler, 2007, p. 137).

Denotation or denotative meaning is what we often refer to as the primary meaning people will look into when examining a language or a sign as it is listed in the dictionary. Chandler described this meaning as “the definitional, literal, obvious or common-sense meaning of a sign”. When it comes to visual language, art historian Erwin Panofsky (1970, p. 51-3) stated that denotative meaning can be seen as what the image is understood to represent by all viewers regardless of culture or period. In other words, it is an objective view of the meaning. Connotation on the other hand, depends on the background of the viewers, including cultures, age and gender, and social status. Chandler expressed that connotative meaning is “context-dependent” and it is open to interpretation, therefore it can be considered as a subjective view on the meaning.

The ideas of connotation and denotation can be used to examine the meanings of images. While connotation refers to the emotions or ideas connected to a picture, denotation refers to the literal or descriptive meaning of a symbol. A picture of a rose, for instance, denotatively represents a flower with crimson petals and green leaves. However, a rose's meaning can change based on the situation in which it is displayed. A rose may represent love and romance to some due to its bright red and sweet scent, or even peril to others when looking at its thorns in the stem. This view of the rose is considered a connotative approach as it is highly dependent on the context.

Another case would be how the sun may be seen setting below the horizon in a sunset picture. The interpretation of a sunset can vary depending on the colors used in the illustration. A warm orange and pink sunset can invoke feelings of contentment and serenity, whereas a gloomy and stormy sunset may conjure feelings of dread or uncertainty.

6. User Interface

A computer-mediated way of facilitating communication between human beings or between a human being and an item is known as a user interface (Marcus, 2014). User Interface (commonly abbreviated to UI) is “the point at which human users interact with a computer, website, or application in today's world” (Churchville, 2021). By integrating both input and output devices, UI is constructed in levels of interaction that appeal to the human senses. An input device is a physical piece of hardware that connects to a primary device in order to provide user input such as keyboard and mouse, touchscreen and microphones. On the other hand, output devices project the information received by the primary device through the aforementioned input device to the user. Devices such as monitor and speaker can be categorised as an output.

In the case of the target of this research, smartphone's touch screen as an input and displays act as output devices for the user since DANA is a mobile application. The user navigates through the app by touching the screen where virtual buttons are placed accordingly to serve certain functions. The result of the action can be seen in the smartphone display.

In order for the user to understand the way to navigate the app, it relies on visual communication in which the majority of the buttons are in the form of signs representing their intended function one way or another. These signs are often accompanied by a line of text briefly explaining the function of the said items.

7. DANA Digital Wallet

PT. Espay Debit Indonesia Koe is the owner of the digital wallet application DANA, which was first introduced in 2018 and has since expanded (Pinandito, 2022). Furthermore he explains that DANA is a digital wallet application that adheres to the principles of open source or open platform. As a result, it has the advantage of being compatible with a number of other platforms, both traditional and digital, with which it has partnered to facilitate user transactions at different merchants.

DANA offers a number of user-friendly services, such as credit purchases, electricity, water, e-commerce bill payments, and other services giving customers more flexibility when conducting transactions. Moreover, DANA offers services in the form of a reliable money transfer option to any bank as well as other DANA users. In addition, users merely need to scan the QR Code to complete transactions at different businesses connected to DANA. Users should be more efficient and adaptable in their transactions thanks to an easier approach to top-up balances and DANA-owned facilities.