



Aesthetics UID of Discussion and Learning System Adopting Social Media

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Today, the discussion and learning activities students can not be separated from the role of social media. Besides being used as a medium of communication and friendship, social media is also used by the student to exchange information on the specific or whole areas of knowledge. From this circumstances, we conceive idea to develop prototyping of the discussion and learning systems used for students by adopting the interface of social media. Social media is chosen because it has proven can attract user's attention to use it interactively. Why interface? Because interface is crucial and always appeared at first time and affect user to whether continue use it or leave it. Moreover, social media has intuitive interaction that makes students addicted to always using it. Coming from those assumption, this research is conducted to answer those challenges with statistical approach. Statistics analysis are used to map the mental desire of users on the UID of social media. Techniques that is used in this research is Kansei Engineering (KE). Furthermore, the result of analysis will be described and then used as recommendation to develop prototyping of the discussion and learning systems. This research is conducted to measure user's desire about social media. The result of this research is systematics guidelines to develop the discussion and learning systems.

Keywords: Discussion and learning system, UID, Intuitive and attractive system, Kansei Engineering.

1. INTRODUCTION

Social media at the moment can not be separated from daily life of almost every Indonesian student. They use social media in many activities, such as looking for new friends and share information. According to the Ministry of Communications and Informatics (Kemkominfo) in 2014, people who used internet in Indonesia has reached 82 million people and 95 percent. Most of those people using internet to access Facebook, Instagram, and Twitter in their daily activities. Every sosial media application has its own characteristic. Facebook has unique characteristics in communication models, every informations has shared can be commented by users. Twitter has unique characteristic ability to share

information massively. The information shared on Twitter is not restricted to the same network of friends. Twitter restrict information shared by topics. While Instagram has more characteristics on the visual appearance, images and videos are used by the user to communicate information they share.

Student activities such as discussion and learning on particular topic is not only held in the classroom, but also outside the classroom. Today, students tend to actively and proactively seek for information in order to gain the additional knowledge aside from they already have in the classroom¹. To accommodate those activities, the majority of students use social media to discuss any topic with friends². Today, learning on demand becoming a type of lifestyle in modern society³. Learning on demand

means student will seek information to address their problems or complete their tasks. Social media can be used as alternative media to answer those challenges. Social media has proved able to attract students to discuss and learning interactively⁴.

Interactive in learning process means students always need support and guidance from other people (social media friends) in order to support their learning goal⁵. Facebook, Twitter, and Instagram are routinely used by students for various purposes. From those background, we can generate the idea to adopt social media user interface design (UID) into the development process of discussion and learning system for students. In this research, we restrict the problems only on interface. Why only interface? Because interface/visual appealing has great influence on user's judgment whether to use it or not⁶. In other study, state of user's feeling toward a system is crucial because interface is appeared at first sight and affect user to whether continue use it or leave it⁷. Aesthetics of the system are regard to UID. Aesthetically system may increase enjoyment for users to continue explore on the system⁶. Interface is a medium that interact directly with the human senses. So far, there is no existing method to measure aesthetic design accurately⁸. Aesthetic of UID can only be measured using human senses. Human senses closely related with desire or mental model. Measuring human senses potentially have subjective result, depends on user who measure the system⁹.

By adopting UID from social media, discussion and learning process is expected to be more attractive and interactive. When the user can feel comfortable using the system just like when using social media, better atmosphere can be created in learning process³. From this adoption, the UID of the discussion and learning system expected to be more intuitive just like social media. Intuitive means that students can experience the convenience and comfort while interacting with the system and they want to use it routinely. Kansei Engineering (KE) is techniques that can be used to measure desire of human senses into a collection of numerical data. KE has capability to interpret people's emotion and feeling become product design with more pleasure¹⁰. KE has advantages to identify problems, whether technical or non-technical¹¹. The goal of this research is to measure user's desire about social media in order to be used as the adopted object on the discussion and learning systems. Then, the result of this research is systematics methods using KE in order to develop the discussion and learning systems.

Further discussion in the rest of the paper divided into several section, user-centered design, why must choose social media, Kansei Engineering (KE), and the concepts offered. First chapters we discussed about user-centered design (UCD), we discussed about relationship between researches conducted with the development based on UCD. Next, we discussed about selected social media as the system adopted in this research. Next chapter,

we discussed about Kansei Engineering (KE) as a technique that can be used to map the user desires into the ideal system. Last chapter we discussed about the concept and methodology offered.

2. USER-CENTERED DESIGN (UCD)

UCD is the approach of developing the system which is user not only positioned as an object, but also a subject. System is not only developed focusing on the technology that is used. But also, how user's behavior when interacting with the system more comfortable¹². In order to develop a system that is intuitive and interactive, user interface (UI) is the first layer that interact directly to the user. In the UCD point of view, users are involved almost in the entire stages of development, from prototyping to testing. In those entire stages, users will always asked to test UI of the system that is represented by prototyping. The focus of development not only on functionality but also aesthetic of interface which is stressing on how user *look* and *feel* when interacting with the system. So, UCD can be summarized as the approach of developing and UI is one of several part of the system that is tested by the approach of developing.

The advantage of using UCD is its ability to identify problems quickly. The problems can be identified quickly because users are always involved in every stage of development. At each stage, user can provide rating of satisfaction or give feedback to designer to solve specific issues. In order to conduct UCD concept appropriately, there are two things to be considered, using personas and task scenario¹³. *Personas* is used to identify and describe character of users using fictional characters. *Task scenario* is series of tasks assigned to users to be completed using system.

Personas and task scenario completed by user in the prototyping stage. In these stage, roles of users are very crucial. Users is used to identify usability problems when interacting with the prototyping. Interactive and good communication between user and designer at these stages have several benefits, such as cost and time efficiency. After that, conducting the development phase, which are more cost and time consuming.

3. WHY SOCIAL MEDIA?

Nowadays, students not only using social media to make new relationship, but also to share and discuss about specific information. Social media is used by students to learn about particular knowledge which can empowering highly self-motivated on their self³. Social media has ability to add new value and improve learning process¹⁴. Moreover, social media has characteristics such as autonomous and informal that make students can feel more comfortable to use it as well as when they are living in college experience²¹.

Social media has UID which can attract users with different backgrounds and abilities⁴. Social media has proven can attracts user to use it routinely. From psychological standpoint, social media can lure users to continue to use and highly addictive to users¹⁴. In order to adopt the UID, social media has good characteristic to be adopted in learning process¹⁴. Several elements design that recommended to be adopted such as:

- a. How to devise the information architecture.
- b. How to design the minimalist design.
- c. How to pick color for each elements.
- d. How to create harmonious between background and foreground.
- e. How to choose typography.

This research aims to map user desire using social media UID. Social media UID then be adopted into the aesthetics design of discussion and learning system. By using Kansei Engineering (KE), users will be asked to actively measure the social media using several interfaces. Aesthetics is the degree of harmony on interface. Moreover, aesthetic is defined as capability to catch user's attention to use the system¹⁵. There are three social media are used as research object, Facebook, Twitter, and Instagram.

4. KANSEI ENGINEERING

Recent researches about adopting UID (user interface design) on e-learning has been conducted several times such as Valtolina et al.²², Hadiana et al.¹⁰. In other fields, several studies on e-commerce was conducted using KE, such as Mendoza and Marasinghe⁷, Lokman et al.²³. Summarized from previous researches, the difference between previous researches with the research conducted is on the object which are adopted. In the previous researches, the domain objects which are adopted is still in the same domain, for example, in e-learning system. Unlike the studies conducted, the object which are adopted are in different domain, social media is adopted on the discussion and learning systems.

There are two approach, qualitative and quantitative. Some result of conducted research associate aesthetics an immeasurable construct⁶. In other research, said that aesthetics measurement is subjective^{15,16}. The subjectivity has appeared because every person has difference taste of design. According to Tarasewich et al¹⁷ on Yusof et al⁶, there are evidences that UID goes well beyond the ease of use. Moreover, the interface is important to increase usability¹⁷. In this research, we prefer to use quantitative approach using Kansei Engineering (KE). Quantitative research is conducted because we focus on measuring the user's desire rather than expert analysis which is used in qualitative approach¹¹

KE can be defined as a technique to translate customer's kansei (psychological feeling) into the design element¹⁹. KE is ideal to create new product, especially KE type 1 (KEPack1)¹⁹. KE can be measured in numeric

data based on Kansei words (KW) elicited by different product design¹¹. KW is a pair of adjectives words used as a mental picture of the user to measure the system. KW collected based on statistical calculations and then used to guide to design some of the design elements. Set of KW is then processed and analyzed using statistical calculations and described. Set of design elements were used to develop a prototype of the new system adopted from several previous system. Stages of KE as follows²⁰.

- a. Observation, prospective users is allowed to measuring system using KW. KW is used to represent the user's psychological point of view on system. At this stage, user is instructed to measure several interfaces of the system. Then, the measurement results is tabulated.
- b. Data tabulated, then analyzed using factor analysis (FA) or PCA.
- c. Analysis result then described and converted into a design elements.

5. DISCUSSION AND RESULT

Based on Lokman research, KE is ideal to be used as methods and tools in order to measure the relationship between user's desire on specific product and design elements²⁴. Moreover, Dabbagh and Kitsantas has conducted research about utilization of social media that has great impact in learning process⁴. So, in order to accommodate the topic of this research, in next sub section will be discussed about systematics methods of adopting social media UID using KE.

5.1 KE Used to Adopt the Social Media

Based on background, social media deserve to be used in this research. One model on KE suitable to adopt interface is KEPack 1. KEPack 1 is a Kansei Engineering (KE) package most widely used²⁰. KePack1 is suitable used for adoption of products based on the design of the interface. Stages of KePack1 according to Nagamachi et al as follows²⁰.

- a. Decision of strategy
- b. Collection of KW
- c. Setting SD scale
- d. Collection of specimens (product sample)
- e. Statistical analysis
- f. Interpretation of analysis
- g. Convert into design element

5.2 Data Collection

Data collected represented by Kansei words (KW), specimens (interface samples), and participants (prospective users).

- a. Nagamachi et al in 2008 recommend about 20 to 30 KW²⁰. Those KW are arranged and measured by participants using likert scale (5 to 7 point scale). In order to adopt social media UID to discussion and learning system UID, KW choosen should be relevant to the domain, such as *categorized*, *interactive*, and

communicative.

- b. Specimens is object (interface samples) that be prepared to be adopted to the new system, Facebook, Twitter, and Instagram.
- c. Participants is subject/users of the research who will asked to actively measure specimens based on their desire. Participant that is choosen should be relevant to the domain, such as active student, graduated students, lecture, etc.⁷

5.3 Statistical Analysis

a. Principal Component Analysis (PCA)

PCA was used to reduce data variables, they are KW and specimens. Data are reduced or removed based on similarity and redundancy between variables. Variables with positive value are used to be described and converted into the design elements. Those design elements are used as reference to develop learning system in the Web 2.0 era

b. Factor Analysis (FA)

FA is used to analyze the average data of variables. Results of the analysis using FA almost similar to PCA²⁰. Moreover, FA often used to strengthen previous analysis in PCA or vice versa.

5.4 Element Desing Analysis

a. Description of Data

Next, describe the result of analyzed data become design elements. Those design elements can be used to develop the discussion and learning system.

b. Designing Prototyping

Last, develop several UID prototyping as recommendation. Recommendation of several prototyping should be suitable with user-targeted desire. After that, measurement still needed to ensure UID was qualified the user desired.

6. CONCLUSIONS

This study aims to relate between social media and learning process. In the case, the discussion and learning systems is used as case study that adopt the social media's UID. The concept of the designing was conducted based on UCD concept, where the user positioned not only as an object, but also a subject. In UCD approach, users are directly involved in almost all phases of designing. The advantage of using UCD as an approach is the efficiently in identify problems, even before the development process is done. In order to develop the discussion and learning UID, social media is used to be adopted. The advantage of using it as object, is the ability of attracts user's attention. The adoption of UID is expected can duplicate the success of interaction between users in the social media into the discussion and learning systems. In this research, KE is used as recommended method. Hopefully, after the research, users can experience with the discussion and learning systems same feeling as when they are interacting with social media.

Some recommendations that can be done in future

work, including providing a case study in the discussion and learning systems using UCD's concept. Moreover, the results of this research can be used as a comparison with qualitative research that have been conducted in other researches. The comparison is expected can reinforce or disprove the results that have been obtained before.

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