Analysis of KRS Mobile Prototype using Emotion Sampling Device (ESD)

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Abstract

Emotion Sampling Device (ESD) is a method used to evaluate the effects of a digital product such as an existing system on a smartphone against the user's emotions. Sometimes when we use a system we unconsciously give an emotion to it. The emotions of each user are divided into some common emotions such as happy, sad, shocked, scared, angry and uninterested. Using this method, the researcher aims to analyze the user's emotion against prototype or KRS Mobile design with KRS case study that exist in University of Muhammadiyah Malang. With a new and different look from KRS that existed previously at the University of Muhammadiyah Malang allows its users to give their own emotions to the prototype. In analyzing emotions, researchers adapted a toeri from the psychological side of Appraisal Theory to obtain data from questionnaires on respondents. The result of this research is the percentage of emotion from each respondent that will be made proving that the prototype is feasible or not to be applied.

Keywords: Emotion Sampling Device, KRS Mobile, Prototype, Appraisal Theory

1. Introduction

The development of technology and communication in the present time makes us an active human being can not be separated from mobile devices. Mobile device itself is one of the communication media and is also a requirement of the community even mobile devices become a common thing to be used various circles today, ranging from children, adults, even elderly people though. This is because mobile devices are widely circulated and easy to use.

The advancement of current mobile device technology allows more utilization of the capabilities of the device itself. This has sparked enthusiasm from some circles to develop software that has high mobility. [1] But at this time want a product or an application not only seen from the side of the function and things like have high mobility only. The beauty, fun, comfort and attractive designs are also an important aspect nowadays, [2] given that it greatly affects the emotions of users when using an app.

The Study Plan Card (KRS) is a very important part of the academic system at the University of Muhammadiyah Malang. Each student must complete the KRS to determine the course and also the class that will be selected in the next semester. This is what makes KRS important for the smooth lecture of students because if students do not fill KRS then the student is declared college leave

Basically the existing KRS system at the University of Muhammadiyah Malang has helped students and admin in the course record by every student. But in the process there are still obstacles, such as lecture schedules are present separate from the KRS, usually scheduled lectures are provided on the website of each department. Obviously this is inconvenient when the student must look at two different views and can cause the risk of mistakes in determining the course and class, so it can cause a crash in the student's college schedule.

Not only that, KHS info that is not directly integrated in KRS can be inconvenient for students to have to open KHS Info first. Whereas in programming KRS we should know what courses will be selected and also can see other courses that need to be repeated.

With the development of the KRS system in the form of mobile applications will provide an alternative for students because in this KRS mobile prototype included additional features that previously did not exist. As the lecture schedule features are tailored to the semester

curriculum undertaken by the students, the lecture schedule feature can be downloaded immediately after programming the KRS so that the schedule corresponds to the course and class that has been chosen. And features KHS that can be directly integrated with Info KHS which allows students if you want to see the elective courses and determine the courses that must be repeated.

In this research, testing is done on the prototype that has been made using Emotion Sampling Device (ESD) method. Emotion Sampling Device method is used because by measuring the emotion of the user is an experience of the user itself in using a product so as to assist in product development [3] . Likewise with this prototype, by measuring one's emotions against the KRS Mobile prototype it can determine whether this prototype matches what is needed by the user who is presented through the emotions of someone against this prototype. Emotion Sampling Device Method applies Appraisal theory which is a psychological theory in assessing one's emotions in terms of one's speech and also from subject expressions towards KRS Mobile UMM prototype.

Apparaisal theory that is used as a concept of Emotion Sampling Device method will later assess the expression of the subject when interviewed regarding his response to the prototype KRS Mobile UMM. The interview is recorded using Affdexme apps where the app will identify a person's expression based on the six basic expressions of Appraisal theory: happy, sad, shocked, disgusted or uninterested, angry and scared.

Appraisal Theory provides several questions related to the features that exist in the prototype and is able to present the emotions of the user. [4] That's where a percentage of each emotion will show that prototype is worth using or not.

2. Research Method

The method used in this research is the Emotion Sampling Device (ESD) where the method plays a role to evaluate the effect of this KRS Mobile prototype to the emotions of the respondents. This study has a series of stages in examining the emotions of some samples from a population. The population used as the subject in this study is the population of Ungu BCT Costume which consists of several samples that are students from the University of Muhammadiyah Malang. This research method showed in figure 1.

Of course, before researching the emotions of some of these samples, first a study of several lietratur identification and problem formulation, as well as determining the objectives in the research, then create a prototype design KRS development, after that test or evaluation of the prototype using the method of Emotion Sampling Device (ESD) to some respondents then analyze the results. Here is the flow of the research stages:

Identification and formulation of the problem in this research is done by noting some of the complaints made by students of University of Muhammadiyah Malang to existing KRS system. Examples of complaints we have successfully documented are:
1. I have to change the day because it turns out A's course clashed with course B. I was dizzy seeing colorful lecture schedules and seeing in two different look.
2. I have to open the khs info first, very inconvenient. And I just want to see what courses I need to repeat.

After identifying and formulating the problem, then the researcher determines the objectives of:
1. Add a lecture schedule feature that is customized with their respective majors (prototype). So that students are not confused when viewing schedule lectures.
2. Added the download schedule feature that has been adjusted with the results of the student's KRS program (prototype). So with the schedule that can be directly downloaded students can see directly their schedule to reduce the risk of crash in determining the course.
3. Integrate KRS with KHS Info so that when students choose KHS menu it will be directly displayed menu available on KHS info website (prototype). In order to facilitate students when they want to see the elective courses and courses they need to repeat.
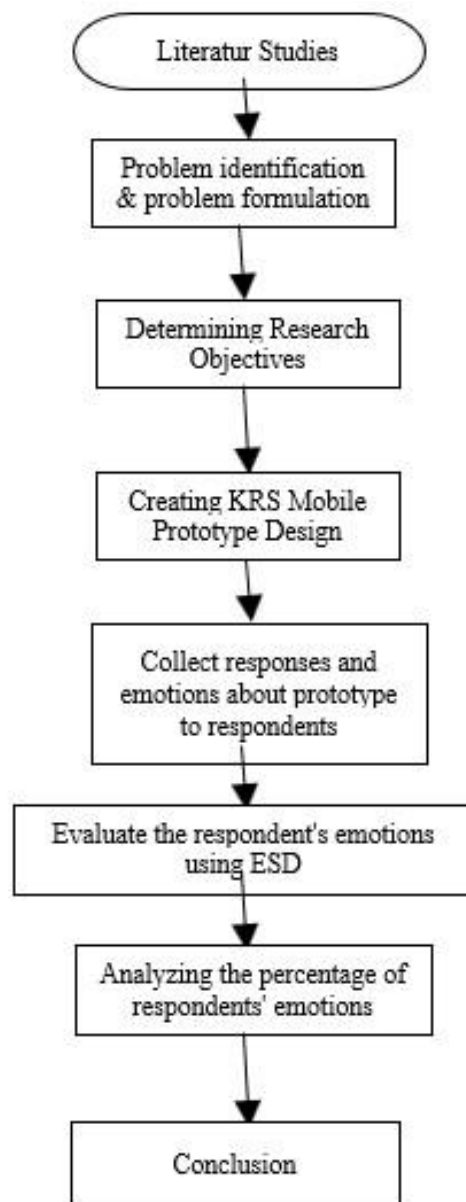
Figure1. Flowchart of Evalution KRS Mobile Prototype

The next stage is to design KRS Mobile prototype by adding features that do not yet exist. Figure 2 and 3 were some examples of the design features of the KRS mobile prototype.
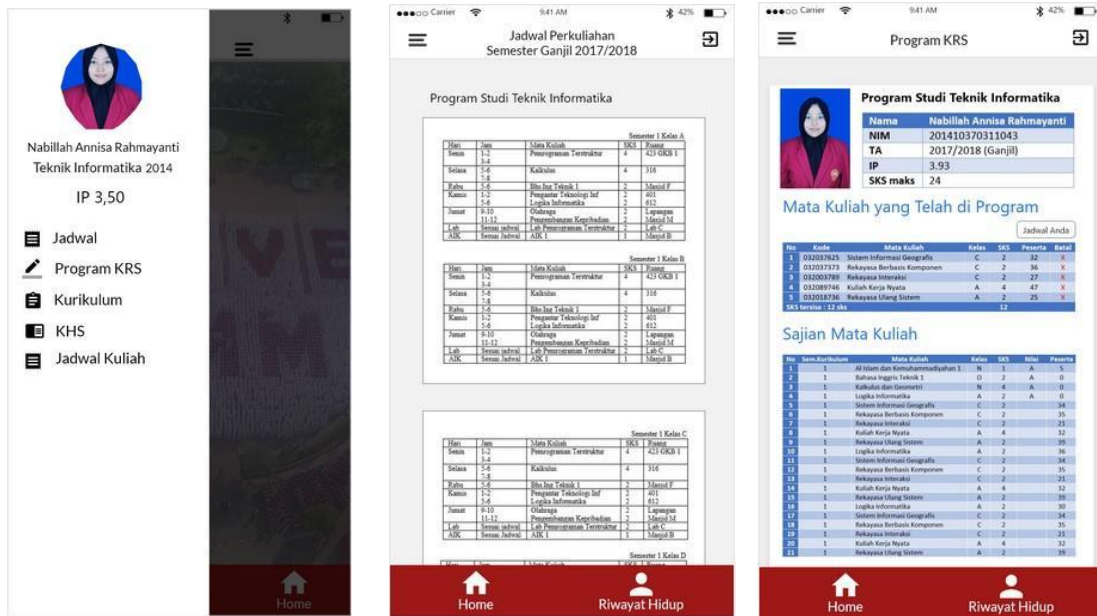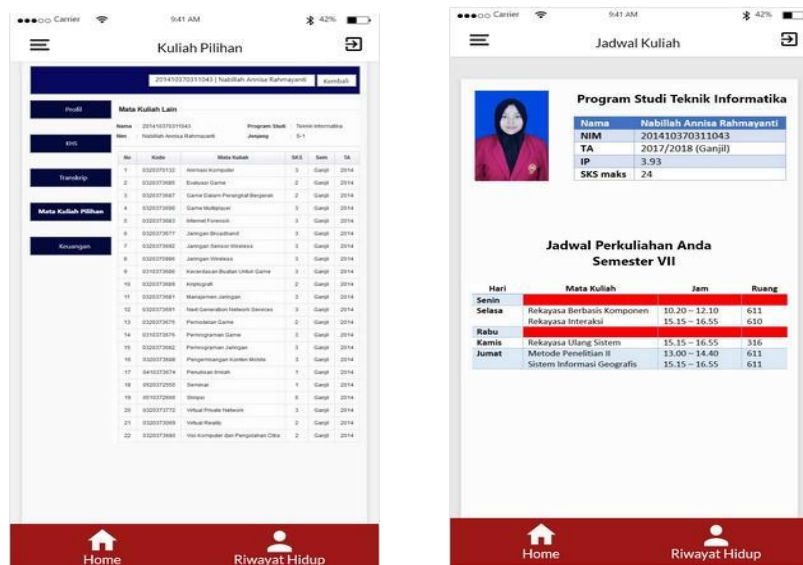
Figure 2. Desain of KRS Mobile Interface

Figure 3. Desain of KRS Mobile Interface

3. Results and Analysis

Emotion Sampling Device (ESD) is a method that evaluates the effects of digital devices on the emotions of users [4]. While the ESD method applies the Appraisal theory which provides a series of questions whose answers are different as defined in the Aprativeal Emotional Theory. According Hariwijaya and Triton, questionnaires is a collection of data in the form of a series of questionnaires to be answered by respondents [10].

Table 1 showed the list of questions asked to respond to the emotions to be shown when they provide answers.

Table 1. Question for Respondents

No	Questions
1	Does the Interface of KRS Mobile looks so difficult to use ?
2	How do you feel when you know about the schedule menu of your majors ?
3	What do you feel when you can see the schedule of your subjects after you program the KRS ?
4	How do you feel when you can directly see the subject of your choice without having to login to KHS info website?
5	Does every menu available on this mobile KRS work properly?

The next researcher's goal is to validate that participants are "expressing emotions" while viewing Apps on mobile devices, and Affdexme apps are able to capture facial expressions that represent emotions against the KRS mobile prototype that researchers previously pointed out to them. Affdex goes beyond the six facial expressions that deal with emotions that are most relevant to the faces of people in general.

For example, Affdex will disgust facial expressions. [5] But in addition to the results that can show the percentage of each significant emotion, there is little awkwardness that occurs, this is because emotion is a type of adaptation process that is very different from reflexes. [6]

Problems that occur in detecting the facial expression (face localization) is changing due to the position of the face is constantly moving and also the condition of lighting or lights. [7]

At the time of the interview session there are slight differences in the expression that occurs as suddenly become an emotion that shows no interest or disgust or even become angry. According to Smith and Ellsworth, expression of anger involves assessing the situation as unpleasant, the responsibilities of others, and requiring substantial effort. [8] The judgments involved in achieving emotions can take a number of forms. Such as happiness, sadness, shock, anger, disinterest and fear. [9] Figure 4 shows the various facial expressions of respondents in response to the KRS mobile prototype. From this result the researcher can draw each percentage of emotions that get into the form of the diagram that will be the researcher of the analysis.
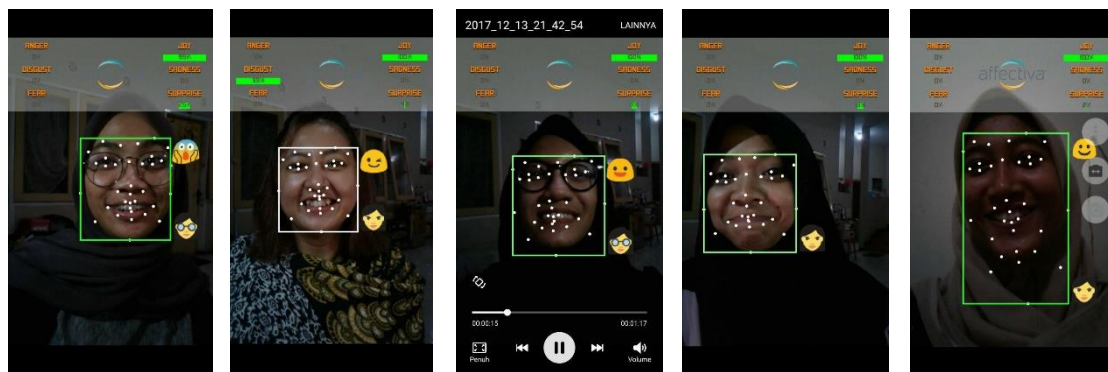

Figure 4. The Result from Affdexme Application for Analysis the Expression of Respondents

Facial expressions of respondents when interviewed determine the size of the percentage of each emotion. But the outline of the researchers get a happy facial expression when viewed from the percentage already in the analysis. Here is the percentage of each respondent's diagram:

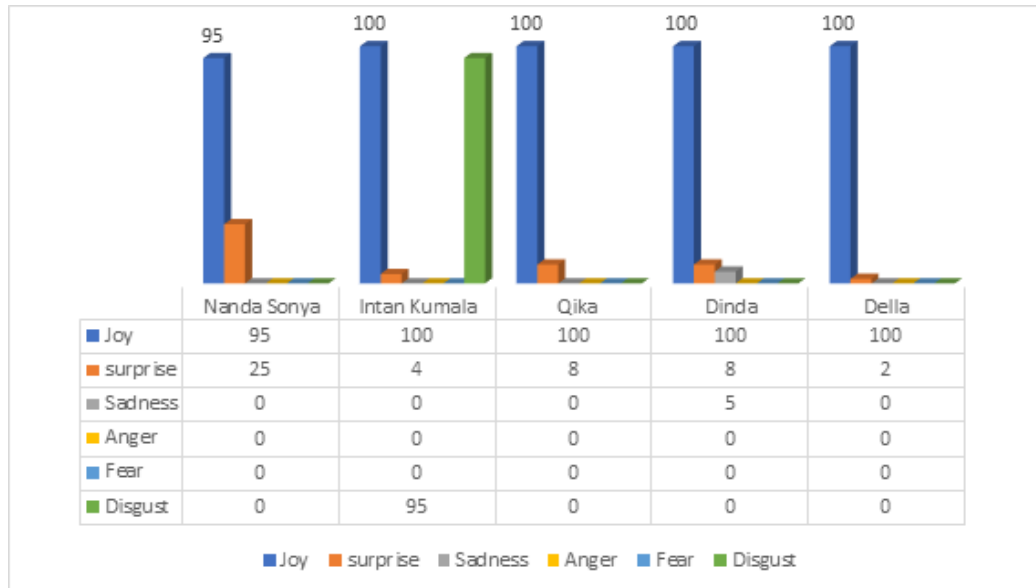**3.1 Diagram Result of Emotion Percentage From Respondent**

Figure 5. Percentage of Affdexme Application Percentage Diagram

4. Conclusion

Thus from the results of the discussion can be concluded with the new prototype KRS Mobile system: KRS Mobile Lecture Schedule menu is very helpful for students in viewing the schedule that they previously conventionally write on paper in order to reduce the risk of collision schedule and existing features can be used easily. With a simple look and easy-to-understand process, students can use the Mobile KRS application without finding any constraints. With the menu Schedule of Lectures that can be directly downloaded, respondents feel very helpful because with the schedule of lectures that can be directly downloaded in accordance with the KRS has been on the program is very helpful in reducing the risk of collision schedule of college. Also with KHS info menu that can be directly integrated without having to open KHS info website again, it is very easy for respondents because by not reopening different websites, students do not have to hassle anymore.

References

[1]   F. Purnomo, D. Hendrawan, F. Hendry, I. Pendahuluan, A. L. Belakang, and M. Jaringan, "ANALISIS DAN PERANCANGAN SISTEM MOBILE KRS BERBASIS J2ME MENGGUNAKAN JARINGAN GPRS," vol. 2010, no. Snati, pp. 19–23, 2010.

[2]   D. Norman, "Introduction to This Special Section on Beauty, Goodness, and Usability," *Human-Computer Interact.*, vol. 19, no. 4, pp. 311–318, 2004.

[3]   O. Williams and L. Hole, "Emotion sampling using appraisals," *3rd Int. Work. Emot. Human-Computer Interact.*, pp. 6–8, 2007.

[4]   L. Hole and O. M. Williams, "The Emotion Sampling Device (ESD)," *Proceedings of the 21st British HCI Group Annual Conference on People and Computers: HCI...But Not As We Know It.* pp. 177--178, 2007.

[5]   R. Swinton and R. El Kaliouby, "Measuring Emotions Through a Mobile Device Across Borders, Ages, Genders and More," *Esomar*, no. April, pp. 1–12, 2012.

[6]   R. S. Lazarus, "Progress on a cognitive-motivational-relational theory of emotion.," *Am. Psychol.*, vol. 46, no. 8, pp. 819–834, 1991.

[7]   M. Pantic, "Machine analysis of facial behaviour: naturalistic and dynamic behaviour," *Philos. Trans. R. Soc. B Biol. Sci.*, vol. 364, no. 1535, pp. 3505–3513, 2009.

[8]   C. A. Smith and P. C. Ellsworth, "Patterns of cognitive appraisal in emotion," *J. Personal. Soc. Psychol.*, vol. 48, no. 4, pp. 813–838, 1985.

[9]   I. J. Roseman, "Appraisal determinants of discrete emotions Appraisal Determinants of Discrete Emotions," no. February 2013, pp. 37–41, 2008.

[10]   M, Hariwijaya dan Triton, PB. 2011. Pedoman Penulisan Ilmiah Skripsi dan Tesis. Jakarta: ORYZA.