Perceptions and acceptance levels of a web-based nutrition educational application (Digipedia Edu_Makugiz) of West Java traditional food for teenagers in Bandung, Indonesia

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Abstract. Traditional cuisine is being forgotten particularly by young generation. One of the biggest triggers is the rapid distribution of information on modern food such as junk or fast food supported by the fast development of digital technology. In addition, low knowledge and awareness of traditional food, especially among teenagers, also contribute to this phenomenon. In Indonesia, one of the areas well known with its traditional cuisine in West Java province, which is dominated by Sundanese food. The purpose of this study was to find out the perception and acceptance level of teenagers towards a web-based application namely Digipedia Edu-Makugiz consisting of Sundanese traditional food and beverages as nutrition learning media for teenagers. There were 55 teenagers from Bandung, Indonesia, aged between 12 to 21 years old having smartphones and access to the internet selected to be the subjects of this study. The data comprised subject characteristics (age and gender), their perception, and their use of the application which had been published on the domain www.digipedia-edumakugiz.id. The data were analyzed using Microsoft Excel and SPSS 22 program and interpretation of the perception and acceptance level of the application. Based on the data analysis, this study found that most of the respondents found it quite easy to operate the application. This led to their interest to further use the application based on their specific needs. In relation to the development of the application, there was an additional feature of language (bilingual) as a strategy to attract more users. It was also proven that development on contents and attributes of the application made the application even more interesting for teenagers to find more information on West Java traditional food and beverages.

1. Introduction
Traditional cuisine is defined as a certain type of food with distinctive ingredients which can only be found in a certain area and with specific cooking techniques [1]. Some of the traditional food has been proven to be able to increase health [2–4]. However, not everybody is fond of it, especially teenagers; most of those who enjoy consuming traditional food are adults. In the meantime, teenagers prefer fast food with less balanced nutrition to traditional food with better nutrition [5].

It has been revealed that people have low awareness and knowledge of traditional food [5]. One of the biggest causes to this phenomenon is the lack of information distribution on traditional food [6]. In fact, there is a variety of methods to spread the information; one of the easiest is through family,
especially mothers [6]. However, in reality, some of the mothers have to go to work to provide for the family so that the knowledge transfer of traditional food is constrained.

One possible solution to deal with this fact is by giving nutrition education to teenagers through something familiar with them, smartphones and computers, for instance. Several web-based media have been developed and proven to give positive impacts towards the improvement of nutrition knowledge and healthy lifestyle so that there is an improvement of teenagers’ health degree [7–9].

Digipedia Edu-Makugiz is one of the online digital encyclopedia designed and developed to transfer knowledge and information to everyone, particularly teenagers. It is applicable for both computers and smartphones. The application consists of important information of traditional food such as where they come from and nutrition contained. It is expected that the application can help deal with the current issues of nutrition.

Based on the aforementioned reasons, this study aims to identify the perceptions and acceptance levels of teenagers towards Digipedia Edu_Makugiz as learning media on traditional food and beverages.

2. Method
This study employed a cross-sectional method using purposive sampling technique. There were 55 subjects selected as the samples of the study. The inclusive criteria of the subjects were male and female teenagers aged between 12 to 21 years old who had smartphones and lived in Bandung, West Java, Indonesia. The study was conducted in February 2019 and distributed an e-questionnaire (Google doc) spreader out through such social media as WhatsApp, Facebook, and Instagram.

The data collected in this study were respondents’ characteristics and their perceptions on 1) their experiences on using web-based applications; 2) their experiences on using Digipedia Edu-Makugiz application; 3) on the easiness of the use of Digipedia Edu-Makugiz; 4) on the benefits of Digipedia Edu-Makugiz; and 5) on their revision needed for Digipedia Edu-Makugiz.

The questionnaires distributed to the respondents took around two weeks to be completed. Even though they were sent via social media, some of the respondents replied late and some others did not send them back. Thus, only 55 out of 67 respondents sent back the questionnaires. The data on respondents’ characteristics were analysed descriptively, while those on perceptions of acceptance levels of the application were analysed using Likert scale. The data were also analysed using MS Excel and SPSS 22.

3. Results and discussion
3.1. Subject characteristics
The respondents’ characteristics of this study consist of gender and age. Based on age, Figure 1 shows that 90.7% of the respondents are between 15-18 years old. This age range seems to be dominating since it is believed that teenagers within the range is very familiar with technology.
In the meantime, it has been presented by Figure 2 that 79.6% (43 people) of the respondents are female and the rest (20.4%/ 11 people) are male.

Figure 1. Respondents’ characteristics based on age.

Figure 2. Respondents’ characteristics based on gender.

3.2. Respondents’ experiences on using web-based applications
As much as 77.8% of the respondents state that they have not used web-based applications on a compilation of traditional food and beverages and the rest (22.2%) have. Meanwhile, when asked about their experiences of using digital textbook applications, most of the respondents (88.9%) have not used any of them and 11.2% of them have. Their experiences of using such applications are presented in Table 1.

| Questions on experiences of using web-based information media applications | Yes n | %  | No n | %  |
|---------------------------------------------------------------------------|------|----|------|----|
| Have you ever used web-based media information applications containing a compilation of traditional food and beverages? | 12   | 22.2 | 42   | 77.8 |
| Have you ever used digital textbook applications? | 6    | 11.1 | 48   | 88.9 |
The use of web-based information media applications gives easy access to every user [10], since the applications are accessible through various devices and operating systems [11].

3.3. Respondents’ perceptions on using Digipedia Edu-Makugiz

In terms of the name of the application, which is Digipedia_Edumakugiz, more than half of the respondents (63%) agree that the name is easy quite to remember and is interesting. In the meantime, 18.5% state that the application is easy to remember, 3.7% state that it is very easy to remember, and 14.8% state that it is not easy to remember. The detailed information regarding this matter is described in Table 2.

Table 2. Respondents’ perception on the use of the application.

| Questions                                                                 | STM | TM | CM | M  | SM |
|---------------------------------------------------------------------------|-----|----|----|----|----|
| Do you think the application’s name is easy to remember and the application is interesting? | 0   | 8  | 34 | 10 | 2  |
| Is the display of the application simple?                                 | 1   | 2  | 27 | 19 | 5  |
| Please grade the application based on the user-friendliness               | 1   | 1  | 28 | 21 | 3  |

Remarks: STM: very not easy, TM: not easy. CM: quite easy, M: easy, SM: very easy

According to 63% of the respondents, the application’s display is quite simple. 18.2% state that it is simple, 3.7% say that it is very simple, 14.8% state that it is complicated, and none of them states that it is very complicated. Based on the use of Digipedia Edu-Makugiz, more than half of the respondents (51.9%) state that it is quite easy to operate, followed by 38.9% of them who state that it is easy to operate and 5.6% who state that it is very easy to operate. There are 1.9% of the respondents stating that it is very not easy to use.

In this category, it can be concluded that Digipedia Edu_Makugiz is user-friendly. This is in line with a study finding out that the use of web-based application is more effective and gives more experiences to the users/learners in comparison with that of textbooks [12]. Users tend to be more interested in web desk surfing rather than reading books [13]. Therefore, teenagers have quite high level of interest towards the application to have more knowledge on types of traditional Sundanese food.

3.4. Respondents’ perceptions of the access of Digipedia Edu_Makugiz

Table 3 shows that as much as 42.6% of the respondents share the same opinion that the application is quite easy to access and 35.2% agree that it is easy to access. Only 14.8% state that it is not easy to access, 9.3% of them say that it is very easy to access, and 1.9% state that it is unable to access at schools. Not only at schools, the respondents are also asked to access the application at homes and the percentage is shown in Table 3.

How the application works is also one point asked to the respondents. In terms of this, 48.1% state that it is quite easy and 42.6% state that it is easy. 1.9% state that it is not easy and 5.6% state that the application is very easy. In the meantime, from the perspective of the menu provided in the application, the results of the percentage are shown in Table 3 as well.
Table 3. Respondents’ perceptions on the access of Digipedia Edu_Makugiz.

| Questions                                                                 | STM  | TM   | CM   | M    | SM   |
|--------------------------------------------------------------------------|------|------|------|------|------|
| The application is easy to access at school                              | 1    | 1.9  | 8    | 14.8 | 23   |
| The application is easy to access at home                                | 1    | 1.9  | 1    | 1.9  | 27   |
| How the application works is easy to learn                               | 1    | 1.9  | 1    | 1.9  | 26   |
| The menu provided in the application is easy to understand               | 1    | 1.9  | 5    | 9.3  | 21   |
| Facilities and features of the application are easy to use               | 1    | 1.9  | 2    | 3.7  | 26   |

Remarks: STM: very not easy, TM: not easy, CM: quite easy, M: easy, SM: very easy

Every information technology usually has an interface functioning to bridge it with its users [14]. This makes one technology and other different in accordance with the functions and the needs of the users [15]. User interface plays an important role in the effectiveness of an information system [16] since it mainly aims to make information technology easy to use, or the so-called user-friendly [17]. User friendliness is an important factor of application utilization [18]. It is believed that one of the most important factors lies in its easiness to access. The application studied in this paper, Digipedia Edu-Makugiz is easily accessed using any devices because it is web-based. An information system is considered good and effective when it is accepted by users due to its easy access [19].

3.5. Respondents’ perceptions on the benefits of the application

The database of Digipedia Edu_Makugiz mainly contains information of Sundanese traditional food and beverages, including the nutrition contained. There is also information on the history of the food and beverages. Based on this category, as much as 51.9% of the respondents think that the application is quite beneficial in improving their understanding on West Java traditional cuisine. 14.8% of them state that it is very beneficial, and 1.9% agree that it is not beneficial. The complete information, including that of the information of West Java traditional cuisine, is presented in Table 4.

Table 4. Respondents’ perceptions on the benefits of Digipedia Edu_Makugiz.

| Questions                                                                 | STB  | TB   | CB   | B    | SB   |
|--------------------------------------------------------------------------|------|------|------|------|------|
| The use of the application is effective in improving the understanding of West Java traditional cuisine | 1    | 1.9  | 0    | 0.0  | 28   |
| The use of the application is effective in improving the understanding of West Java traditional cuisine’s nutrition | 1    | 1.9  | 0    | 0.0  | 28   |
| The use of the application is effective in maintaining the information of West Java traditional cuisine | 2    | 3.7  | 1    | 1.9  | 25   |
| I got a lot of information from the application                           | 1    | 1.9  | 1    | 1.9  | 22   |
| I got a lot of information on the food I search on the application       | 1    | 1.9  | 2    | 3.7  | 23   |

Remarks: STB: very not beneficial, TB: not beneficial, CB: quite beneficial, B: beneficial, SB: very beneficial

On a certain type of Sundanese traditional food users click, they will acquire such information as where it comes from, what its status is, and when it is best served. Some other information as the history of the
food, the best portion of serving, and where to find is also available. Finally, there is also information of the recipe of the food provided in the application.

Easily accessible applications are one of the most interesting factors for users [20,21]. It has been revealed that web-based applications give easy access to their users to find specific information they try to find [22].

3.6. Respondents’ perceptions of revision of Digipedia Edu_Makugiz

The application is designed using Software Development Life Cycle (SDLC) method with waterfall model consisting of requirements, analysis, design, coding/implementation, testing, and maintenance. The application has been published at www.digipedia-edumakugiz.id. After testing, the application is evaluated by asking the respondents to about revisions needed related to the application.

According to 46.3% of the respondents, revision is quite necessary, particularly in providing bilingual (English and Indonesian) option. 35.2% of the respondents state that it is necessary to create that bilingual option and 18.5% agree that it is very necessary. In addition to having a bilingual option, the respondents also think that revision on having pictures of the food introduced in the application is also necessary. The percentage is presented in Table 5.

| Questions                                                                 | STP n | STP % | TP n | TP % | CP n | CP % | P n | P % | SP n | SP % |
|---------------------------------------------------------------------------|-------|-------|------|------|------|------|-----|-----|------|------|
| Do you think a revision on bilinguality (English and Indonesian) is necessary? | 0     | 0.0   | 0    | 0.0  | 25   | 46.3 | 19  | 35.2| 10   | 18.5 |
| Do you think the availability of pictures of the displayed food is necessary? | 0     | 0.0   | 0    | 0.0  | 12   | 22.2 | 19  | 35.2| 23   | 42.6 |
| Do you think the availability of the website creator’s profile is necessary? | 1     | 1.9   | 10   | 18.5 | 18   | 33.3 | 19  | 35.2| 6    | 11.1 |
| Do you think the presence of maps and location of where the food is necessary? | 2     | 3.7   | 3    | 5.6  | 14   | 25.9 | 20  | 37.0| 15   | 27.8 |
| Do you think the presence of general guidance related to Sundance traditional food is necessary? | 2     | 3.7   | 0    | 0.0  | 2    | 3.7  | 25  | 46.3| 7    | 13.0 |
| Do you think a comment and feedback box is necessary?                      | 2     | 3.7   | 0    | 0.0  | 8    | 14.8 | 34  | 63.0| 10   | 18.5 |
| Do you think articles on the available food are necessary?                 | 1     | 1.9   | 1    | 1.9  | 10   | 18.5 | 33  | 61.1| 9    | 16.7 |

Remarks: STP: very not necessary, TP: not necessary, CK: quite necessary, P: necessary, SP: very necessary.

In terms of the availability of the content creator’s profile, 35.2% state that it is necessary, 33.3% agree that it is quite necessary, 11.1% say that it is very necessary, and 18.5% say that it is not necessary. Only 1.9% share the same opinion that it is very not necessary. In the meantime, from the perspective of the presence of maps and location, 37% of the respondents agree that it is necessary, 27.8% say that it is very necessary, 25.9% state that it is quite necessary, 5.6% say that it is not necessary and 3.7% of the respondents agree that it is very not necessary. Additionally, the respondents are also asked about whether it is necessary to have general guidance and comment and feedback box in the application. As Table 5 shows, most of the respondents say that general guidance is necessary and that a comment box is necessary as well.

4. Conclusion

It has been revealed that Digipedia Edu_Makugiz gives contribution to the development of nutrition education learning media, particularly in preserving Sundanese traditional cuisine. The results of the data analysis show that most of the respondents agree that the application is easy to use through a variety
of devices. The easy access improves users’ interest to utilize the application. The application also gives the users an easy way to find specific information they search. In terms of the application revision, one of the most important points is adding bilingualism (English and Indonesian) to the application.

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