Development of mobile web-based learning model

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Abstract. This study aims at developing mobile web-based learning model for elementary school students in Jakarta in Indonesia. The research method was Research and Development (R&D). This research product is mobile web using 8b with URL: https://webpanduan.8b.io. This mobile web containing some pages consisting of home, background, legal basis, objectives, and the guidance of character values integration. The result of expert validation achieved 3.88 from scores ranging 1 to 4 showing that this mobile web was already valid specifically for easiness of the terms used, application efficiency, navigation system, simplicity, clarity of navigation, consistency of navigation menu placement, attractiveness, compatibility support, and loading time. Revision based on expert validation was done to give a more detail explanation about the concrete ways in character values integration, photograph background, slideshow with pause, and relevant pictures displayed. Consequently, it can be concluded that this mobile web-based learning model has already been valid as a model in character values integration for elementary school students in Jakarta in Indonesia.

1. Introduction

One of the national education goals in Indonesia is to form Indonesian character to guide national existences [1]. Reinforcement of character building of the students is one of educational objectives and accountability established at elementary schools in Indonesia [2]. Schools as social organizations. However, character value integration at elementary schools in Jakarta, the capital city of Indonesia has not been optimal.

It is indicated that excellent accredited elementary schools often neglect the student character building learning [3]. It needs teacher creativity to have best learning design to improve the student positive character in class [4]. Responsibility as one of the student positive character can be treated using project method in class that the students being asked to finish the project asked by the teacher completely [5-10]. Elementary school ages are very essential to build the student positive attitude; therefore, character building for elementary school students has to be a primary attention [11]. Another study discovered that facilities and infrastructure supporting character building are needed to assist student
character building in order to be effective [12-17]. Contribution of the students to school and community can develop the student behavior. Another study stated that character value integration can be carried out through implementation of hidden curriculum involving social and cultural activities [18-20]. An instructional medium of mobile learning applications through Android is one type of mobile learning changing communication and interaction [21]. There is a high level of mobile web adoption in the world’s best universities despite the quality not reaching excellence level [22]. Another study found a simple interactive browser-based, mobile friendly web application developed using one of the latest web development frameworks [23]. WebPro depending on a network proxy provides delay reductions from 5 to 51 % for a variety of web sites [24]. User centered design for the mobile web to establish effective mobile web strategies reflects on discoverability and usefulness [25]. A set of fifteen navigation guidelines for mobile web sites are totally new due to not previously suggested by any standard or recommendation for mobile web [26]. However, most of the studies haven’t connected the character building learning with Information and Communication Technology (ICT), specifically on mobile web.

2. Method
The objective of this research is to develop mobile web-based learning model for elementary school students in Jakarta in Indonesia using 8b as a newly released website with the main advantage being used freely by website builders who wants to build a mobile web as a ‘home’ of useful content. There are several superior features of this 8b consisting of fast, easy, and no cost characteristics in launching a professional mobile web. This research applied Research and Development consisting of needs analyzing to gather some information associated with mobile web-based learning model for elementary school students in Jakarta in Indonesia, designing and developing, and expert validating of mobile web-based learning model for elementary school students in Jakarta in Indonesia. Data collection used consists of evaluation instrument for mobile web model-based learning for elementary school students in Jakarta in Indonesia. Data analysis used descriptive quantitative technique.

3. Results and discussion
The result of needs analysis at 63 public elementary schools in Jakarta, the capital city of Indonesia indicated that effectiveness of character value integration arrived at 63 %. Based on this survey result, this research designed and mobile web model-based learning for elementary school students in Jakarta in Indonesia using 8b. 8b has a large selection of templates used to add some contents on the mobile web to make it look like a professional web. Each section already has standards such as a real website. 8b is so responsive that the content on the mobile web looks perfect on a smart phone. Mobile web can also be made from our smartphones. 8b is as web-based on Google Accelerated Mobile Pages (AMP) as an open source HTML framework being able to load paged on mobile web faster when opened via smartphones. When ideas are unanimous for building mobile web, the URL of http://8b.com can be typed and it can be continued with pressing ‘enter’ leading to the page appears shown in Figure 1. Assisting to make mobile web faster, 8b.com has 18 design examples being able to be selected as templates for mobile web home page (seen in Figure 2). The designs involve categories agency, company, consulting, event, gaming, hotel, lawyer, medical, music, photographer, portfolio, real estate, restaurant, shop, sport, travel, wedding, and write. The available templates are fully customizable giving user freedom to control what the homepage and its edges are as desired. After template category is selected, the desired mobile web, Website Guide can be entered. The template at 8b.com has many modern forms and styles and is up-to-date according to current conditions. Many choices are available and are easy to be used. This mobile web used template categorized as ‘consulting’. The consulting box is clicked and the next page will appear. The desired mobile web name was entered and create site button was pressed taking to the next page where the main and other additional pages can be edited. Sections can be added for the entire mobile web page and a loading page will appear for a few seconds. After the desired domain name (https://webpanduan.8b.id), ‘OK button’ can be pressed. The editor page will appear and immediately show the templates chosen before. On the editor page, there are three main buttons that will assist to add, delete, edit sections, etc.
The main page display of this research product of mobile web with URL: https://webpanduan.8b.io using 8b seen in Figure 3 of mobile-web based learning in this research consists of title, welcome, initial content, creator, contact information. It can be seen in Figure 3 that there is a link in main page taking the user to open a new page displaying the full page of mobile web-based learning seen in Figure 4. The background, legal basis, and objective page can be seen in Figure 5. The background page gives reasoning the mobile-web base learning made.

![Figure 1. Main pages of 8b.](image1)

![Figure 2. Template choice of 8b.com.](image2)

![Figure 3. The main page display.](image3)
4. Conclusion
Based on the validation of expert reaching 3.88 from maximum score 4, it can be concluded that mobile web-based learning model has already been valid for being used for elementary school students in Jakarta in Indonesia.

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