Online scaffolding dictionary for children

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Abstract. In teaching vocabularies to Indonesian children, scaffolding has not been a preferred choice yet. Teachers tend to use a simple method, write down and remember yet junior high school students require more concrete, fun, and challenging ways of penetrating the idea of new words inflowing their brain. Online scaffolding dictionary for children is purposefully designed to meet that ends. This application is easy to operate, and noticeably even for parents. One click and the children will surf down below merely words, to net their points of understanding. This is a one-click-many-result-innovation. Questionnaire was distributed to the users to find out the responses having activated the application. Teachers and parents were also interviewed. Developmental research is applied to frame all the needs; this new innovation is about to develop further and more sophisticated along with the feedbacks from all users. After designing, developing and evaluating the dictionary through several stages, the application is ready to be downloaded. One important assessment suggested by users that this online dictionary teaches students the process; it strengthens the concept of soft skills to be developed by human—to fight for what is expected.

1. Introduction

In this research, the problems that existed in the path of teaching and learning English in elementary level in Sumedang district were found to be similar to what has been exposed earlier by the researchers in other parts of Indonesia. Students are shy, passive, largely dependent on teacher’s help, inactive, and low achievers [1]. Teachers were incapable, less creative, and having irrelevant educational background [2]. Teachers need to be enlightened by some breakthroughs especially in teaching vocabulary as it is crucial in elementary level. In Sumedang district, some efforts have been conducted ongoing in order to improve English teaching ability of the teachers. The establishment and activation of MGMP (Musyawarah Guru Mata Pelajaran—association of subject teachers) or BERMUTU (Better Education through Reformed Management Universal Teachers Upgrading) where teachers work together to discuss, analyze and develop teaching and learning materials, models and other related subject matters, as well as to develop professional development that have been nutritionally nourished. Yet, the results have not appeared a satisfaction. Teachers’ Competence Test (UKG) in 2015 of English Teachers in Sumedang showed that from 283 participants, the biggest score is 93.25 and the lowest is 25.79 and of it the average is 58.20. It showed that 114 teachers or 40% of all have not passed the test. This condition will affect students’ achievements in English. This condition needs further follow-up from the government. It left a huge homework to settle down. The scaffolding characteristics explored during
research by a number of experts are hoped to be the ammunition and power with which teachers should be equipped.

Teaching vocabulary is one of the mandatory skills for proficient English teachers. This has also become a major problem in teaching English to junior high school students. The gap between teacher’s competence and this urgency generates the idea of designing online dictionary for children learning vocabulary. The idea is not to tell directly the meaning of a word, as a common dictionary does. Furthermore, there will be several clues provided in order to map relevant thoughts about the word so that whenever the word is needed to be retrieved by the user, a dictionary will no longer be needed as it has been mapped in the brain. The activity creates wide opportunity for the user—a child—to learn while playing and play while learning. Some theorists outlined that fun learning can be very supportive for English learning especially vocabulary learning as Horwitz et.al [3], Lin [4], Nguyen et.al [5], and Uberman [6].

2. Method
The study applied Developmental Research as the design of the research with 4 stages (Defining, Designing, Developing, and Disseminating) with a qualitative approach. First, online scaffolding dictionary is elucidated. The steps are also demarcated in the way that it is illuminated by scaffolding concepts. This will be elaborated in the Defining stage. At the Designing stage, the explanation is delivered in such a way that readers notify the advantages of using this application. Putting aside the technological aspects, the explanations are about the clues provided as the compulsory data. In the Developing stage, the application is suggested and carried out through several teachers and students. Four teachers represent four MGMP districts were selected and interviewed having applied the application. The teachers along with their students were objectified by this dictionary and their thoughts were explored. Last but not least, the Disseminating stage is where the findings were compiled and informed to the targeted audience through seminars, conferences, focus group discussion and similar activities for the wider usage.

3. Result and discussion

3.1. Defining
Online scaffolding dictionary is a dictionary with comparable usage as the conventional one, but different process of yielding the result. This dictionary is constructed on scaffolding theories which confirms the ideas of providing the strongest help to make a strong stand. The term scaffolding was firstly introduced by Wood, Brunner, and Ross [7] in their examination of parent-child talk in the early years. This term is particularly understood as a structure that is often put up in the process of constructing a building. It is placed around the outside of new buildings to allow builders access to emerging structures being raised within. Once the scaffolded construction is firm and strong, the scaffold can be removed. This philosophy is also applied in the teaching context, once the students are considered to be able to do a new skill alone, the help can be removed. It is hoped that by doing this, the help of the teachers will serve as the construction of students’ understanding, and the removal will provide significant space for the reconstruction of the understanding with wider implementation.

In the context of vocabulary building, the construction is based on several clues provided as the user clicks the button. While conventional dictionary yields one-result click as user looks for the meaning of a word, scaffolding online dictionary (SOD) provides the clues in the clicks. The clues are designed contextually to make it easier for users to understand. At the first click, users find the first clue. They should directly type the meaning by guessing it based on the clue. If they happen to be wrong, they should continue to the next clicks. The clues are designed from different and various element of meaning: picture, sound etc. This procedure is relevant to the important aspect of effective scaffolding provided by Hammond [8], that is, a teacher should understand the need for, and the way to develop timely support. Teacher needs to plan and provide support at the point of need. There is no need to be excessive but it needs to be able to scaffold students in the knowledge and enable them to produce
something of their own. This strong point of scaffolding is relevant to the effort needed in the case of many Indonesian students who largely lack independence and initiative [2]. With teacher’s timely support, it is hoped that students are no longer shy, silent, and passive.

Second, knowledge is collaboratively constructed rather than simply passed on, or handed from a teacher to a learner. Knowledge is constructed in and through joint participation in activities where all participants are actively involved in negotiating meaning as it is stated by Hammond [8], Vygotsky [9]. The process of negotiating the understanding of subjects contributes to ongoing development of social and cultural understanding and ways of thinking about the world [10]. Scaffolding facilitates this as a concept since; students are firstly supported in a significant way and gradually become independent. This condition helps to create independent learners that are not motivated only by immediate needs [11].

Third, scaffolding refers to support that is designed to provide the assistance necessary to enable learners to accomplish tasks and develop understanding that they would not quite be able to manage on their own [8]. It can be argued that it is only when teacher support—or scaffolding—is present that learning will take place since learners accept things more easily with methods that they already know. This action will help teachers to cope with the problem in regard to the students who adopt memorization and where they tend to adopt what teachers note down in the blackboard.

3.2. Designing
At this stage, clues were submitted to the admin of this application making, we hired IT programmers from STMIK Sumedang for the realization of the mock up. First we consult the program we intend to develop, they grasp it in the technological language, we discuss the progress tens of times to make it appropriate. Each time we add the data, they put it into computer language, they translate them into two way interfaces between the program and the users. Following is Figure 1 as an example of the initial look.

Parents can easily check and monitor this activity as the result can be sent to parents’ email. Automatically they can also give supports and guidance. As the user clicks those, the journey begins. User will find that each clue build his understanding on the word. Each clue provides contexts for the word. The contexts will help user in retrieving the word without the dictionary once it is needed. The clues provided are also categorized based on the level of difficulties chosen. For the elementary level, pictures, sounds and simple description are the biggest helps. Here is the example if the user wants to look for the word “cabbage”.

First, click the category, vegetables. Second, look at the picture and read the description. Third, try to guess. If the answer is wrong, the click will be wrongly sounded. If right, it will also be sounded right. First clue: picture of “bala-bala” food (Indonesian traditional snack made from cabbage, carrot, flour and spices). The description is: the vegetable you look for is contained in this food. Second clue: another
clearer picture. Third clue: the similar sound of cabbage, for example: garbage, baggage, luggage (with the picture of each word).

Following is the process figures of the illustrated procedures.

![Image of process figures](image1)

**Figure 2.** Steps of the SOD clues.

### 3.3. Developing

At this stage, we test the program to several users. First, 7 years-old students, 1st grade of Ar-Rafi elementary school students. They felt a bit difficult to read the instruction yet easy to read the pictures. Second, 8-12 years-old students. They seemed easy to operate the application. Next, teachers were also investigated and interviewed. They were also tested to implement the phases in their real teaching in their instruction (dialogue), and are named dialogue scaffolding. In elaborating and developing students’ mastery of technical vocabulary, Sharpe [8] provides the scaffolding strategies as follows: repetition of student’s remarks, recasting—acknowledging the students’ remarks and then modifying them so that they are more technically appropriate and effective for transforming the information offered by the students. In the third action, the teacher takes up the idea behind the student’s remark, offering it back in a more technically appropriate way [8]. Here is the cycling process.

| TEACHER: |
|---|
| **REPHRASING** |
| • repeat students’ answer |
| • re-asking the correct answer |
| **RECASTING** |
| • give sufficient clues |
| • repeat the clues on and on |
| **APPROPRIATION** |
| • conclude the answer |
| • repeat the exact or targeted word |

![Image of dialogue scaffolding](image2)

**Figure 3.** Dialogue Scaffolding.

In this process, teacher collected the clues also provided by students while answering temporary. The process is interactive, communication is built by mutual understanding; teacher does not move forward in creating the next clue if student still thinks of the first one. Teacher does not conclude directly if the students have not figured out the answer yet. A prolonged time span may be needed. It may not be amusing but it is certainly worth-waiting. By this trajectory process, mapping contexts are configured and the configuration will serve as the best resource in student’s mind once the information is retrieved.
The data input of this dictionary were discussed ongoing from the results of the feedbacks from the users (parents, teachers, students). The consultation was made to the experts, two professors and one associate professor of English Language Teaching in the form of Focus Group Discussion regarding the scaffolding concept in this application. Having tried out the application, the results were consulted to the expert team and the model was re-designed. The process of redesigning was conducted twice.

3.4. Disseminating
At this stage, all the processes were recorded in a written form and displayed in power point presentation. This research has already been disseminated in 2 international conferences and 1 national seminar. In this dissemination stage, all the findings were communicated to find out the best way of carrying out the program. Shortcomings were discussed and suggestions were collected to overcome them. The system is constructed to be continuously repaired by inputting new data by the time. The application can be renewed as needed.

4. Conclusion
Based on the results of the study, it can be concluded that learning vocabulary through scaffolding clues and instruction create better learning environment. Students become very enthusiastic; teacher found out that teaching one word is not only introducing it and then let it fade out by the time. Yet, it creates ample contexts to scaffold the word in students’ mind. This teaching will give students opportunities to become independent learners by exploring the sufficient support, and leave a prolonged effect of remembering the words introduced.

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