The implication of Android-based mobile learning on housekeeping subject

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Abstract. The purpose of the study was to increase knowledge about the term housekeeping through Android-based learning media for vocational students in the Hospitality Accommodation Department. This type of research is quantitative with a true experiment approach and research design pre-test post-test control group design. This research uses an assessment of expert judgment and a sample size of 15 students for the experimental class and 15 students for the control class. The prerequisite test in this study uses the normality test and the homogeneity test. The calculation results show that the data are typically distributed, homogeneous. Hypothesis testing using the independent t-test, at a significance level of 5% obtained tcount > ttable of 3.759 > 1.699, shows that an increase in terms knowledge in the field of housekeeping before using mobile learning media and after using mobile learning media.

1. Introduction

Cellular technology - such as tablets, cellphones, and devices that can be used, has the potential to play a useful role in the academic learning process [1], and educational challenges [2]. The use of cellular technology in the form of mobile learning as a learning resource is an innovation to the learning media needed by students and teachers in education [3] cause of easy to use and familiar with them [2], can learn anytime and anywhere [4], increased knowledge [5,6], learning achievements [7–11], efficient use of time and flexibility [12].

Android application as a learning media innovation can significantly increase knowledge, stimulate learning to be more productive and exciting for various fields of scientific disciplines. Like, the use of this application can enhance the knowledge of pregnant women about fetal growth [13]; the use of an android application with App-Pie makes active child counseling learning with an average value of 84.07% with an excellent category [14]; promote English vocabulary development [15], and; the use of computers in Jawi Education is considered useful because it increases high interactivity between students [16]. That is, the android application on mobile learning aims to provide motivation to students and can stimulate learning for students. They will always remember what they have learned because it can be stored for a long time [17].

The hotel has several sections that have the duties and responsibilities of each department. The purpose of the division of several departments is to support the smooth operational process in the hotel, one of the departments in the hotel is the housekeeping department. Housekeeping Department is a part of the hotel that is responsible for cleanliness, neatness, completeness, and security both in the rooms and all areas of the hotel, with excellent quality service to guests who stay at the hotel [18].
Vocational High School (SMK) Hospitality Accommodation Department as a vocational education institution is a secondary education that prepares students primarily to work in the hospitality sector. The results of observations of students who are doing internships at Hotel X found a problem that students do not fully understand the terms used in the housekeeping department. This will have an impact on the learning process of students in the industry. To maximize these activities, it is needed student learning media in the form of android-based mobile learning as a support for them in conducting internships in the industry. Especially, the impact of mobile learning on a variety of cognitive variables of learners has not been deeply investigated [19].

2. Methods
The research method uses quantitative research with an actual experiment approach. The study design was a pre-test post-test control group design. The research product targets were vocational students with 15 students for the experimental class and 15 students for the control class. This study conducted a pre-test and post-test with one treatment, i.e., comparing the pre-test value before the procedure, and the post-test value after the treatment started in O (Observation) and X (Treatment). The first class is called the experimental class by giving special treatment in the form of learning media based on mobile learning, and the second class is the control class that is applied to conventional media.

The research instrument in the form of learning achievements in the form of tests based on the Blooom cognitive taxonomy domain at levels C1, C2, C3, C4, and C5 concerning the Indonesian National Work Competency Standards/SKKNI (Hotels & Restaurants) in the housekeeping subject. SKKNI is the formulation of work capabilities that cover aspects of knowledge, skills, and/or expertise as well as work attitudes that are relevant to the implementation of duties and job requirements set by the Minister of Manpower. The research instruments consist of 20 multiple choice questions with answer choices, namely a b c d e with one correct answer. Each answer was given a score of 1, and an incorrect answer was assigned a score of 0.

3. Results and discussion
Research data were collected before and after the learning process. The analysis prerequisite test results indicate that the data normality test results in both pre-test and post-test data indicate the data are generally distributed at a significance value of .05 (Table 1).

|                  | Pre-test |          | Post-test |          |
|------------------|----------|----------|-----------|----------|
|                  | Statistic| df       | Sig.      | Statistic| df       | Sig.      |
| Experiment Class | .891     | 15       | .069      | .911     | 15       | .142      |
| Control Class    | .936     | 15       | .331      | .954     | 15       | .592      |

Homogeneity test results show the significance value (Sig.) Based on the mean is .371, and the statistical Levene is .827 (Table 2). So it can be concluded that the variance of the post-test data of the experimental group and the post-test of the control group are the same or homogeneous following table homogeneity test results.
Table 2. Homogeneity test result.

| Learning Achievements | Levene Statistic | df1 | df2 | Sig. |
|------------------------|------------------|-----|-----|------|
| Based on Mean          | .827             | 1   | 28  | .371 |
| Based on Median        | .869             | 1   | 28  | .359 |
| Based on Median and with adjusted df | .869 | 1 | 27.575 | .359 |
| Based on trimmed mean  | .947             | 1   | 28  | .339 |

The result of the Independent Sample Test on Equal variance assumed that significance (2-tailed) was .001 < .05 that there was a significant difference between the average student learning achievements in the experimental class and the classroom control. These results indicate that there is an effect of the media on the learning achievements of students on housekeeping subjects. The value of Mean Difference was 12.0000 and the difference was 5.4610 until 18.5390 (Table 3). It can be concluded that there is a significant difference in the term knowledge scores in the housekeeping field after using the media learning between the experimental group and the control group. This is supported by a research of Liu, et al that increasing knowledge [11].

Table 3. Independent sample test.

| Levene's Test for Equality of Variances | t-test for Equality of Means |
|----------------------------------------|-----------------------------|
| F          | Sig. | t    | df | Sig. (2-tailed) | Mean Difference | Std. Error Difference | 95% Confidence Interval of the Difference |
|            |      |      |    |                |                 |                        | Lower | Upper |
| Learning Achievements                    | Equal variances assumed     | .827 | .371 | 3.759 | 28 | .001 | 12.0000 | 3.1923 | 5.4610 | 18.5390 |
| Equal variances not assumed              | 3.759 | 26.206 | .001 | 12.0000 | 3.1923 | 5.4407 | 18.5593 |

In the digital era as it is today, digital devices such as computers or mobile devices designed to support learning [20], are part of student lives [21], have a strong attitude towards using mobile technologies for learning [15,22], accommodate students’ learning needs and learning abilities [23], and has the potential to change how medicine is learned and practiced [24]. The use of instructional media for theoretical material such as terminology in housekeeping is minimal so that teachers need the development of more innovative media and exciting performance (Figure 1).

The existence of digital technology through Android-based mobile learning has a significant influence. At present, Android-mobile learning is very close to the lives of students [16], enhance and meet student learning needs [25], can learn anytime and anywhere [4].
4. Conclusion

The use of mobile learning is quite useful as a learning medium for knowledge of terms in housekeeping material. Mobile learning is suitable to be used as an alternative learning media as a companion module because the learning media can complement the information needed by students. This learning media is expected to be a solution to create innovation from the rapid development of smartphone use among school-age children and technological development that knows no age restrictions. Learning media can also be used by teachers or diploma level students who are just entering the hospitality field or anyone who wants to learn the term housekeeping.

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