Student learning motivation on Actionbound application implementation in construction and building utilities subject

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Abstract. The research aimed to determine the students’ learning motivations on Actionbound application implementation as learning media in construction and building utilities subject. This research was grounded by monotonous and boring learning media, so the researcher tried to innovate the learning media used Actionbound application to make students more interested to take class. This research was conducted by 30 second grade students of modelling design and building information program in SMKN 2 Garut, with Research and Development as research method. The data collection was carried out by media assessment sheets, learning motivations questionnaires, and student response questionnaires. Media assessed by expert judgement was considered very suitable to use. The students’ media responses considered by media content, media language, strategy effect, and media visual had very good responses. The self-efficacy, active learning strategies, learning value, performance goal, achievement goal, learning environment stimulation, as learning motivation aspects showed a “high” category value. Therefore, the developed Actionbound application is suitable for use as learning media in construction and building utilities subject in SMKN 2 Garut.

1. Introduction

Media literally means a tool / means to convey a message [1]. Learning media is a combination or a combination of materials and tools or a combination of software and hardware [2]. Learning media can be understood as media used in the process and learning objectives. In essence the learning process is also communication, then learning media can be understood as communication media used in the communication process, learning media have an important role as a means to channel learning messages. The media has the benefit of clarifying information in order to achieve learning objectives, increasing learning motivation, overcoming limitations and enriching teaching methods, and providing a more meaningful learning experience.

Revealed that, Motivation is a change in a person marked by the appearance of "feeling" and preceded by a ladder towards the existence of goals [3]. Furthermore, motivation is the following “Powering people to achieve high levels of performance and overcoming barriers in order to change” [4]. motivation plays a role to encourage, give attention, strengthen learning, clarify learning goals, and determine the perseverance of learning to meet the needs of the results.

SMKN 2 Garut is one of the vocational schools that has a Model Building Design and Information Study program. One of the lessons in this program is construction and building utilities. Building construction and utilities lessons are held for 6 lessons a week. The learning process is held in a studio...
room. Activities carried out in the studio include listening to the material and drawing. In the learning process there are always many students who oversleep, do not use practice clothes and, forget to bring a drawing tool. In the learning process students look uninspired, do not pay attention to the teacher well, play a lot, and go in and out of the classroom.

Based on these data it can be seen that students need motivation in learning. This can be caused by several factors such as long learning hours, monotonous learning methods, and less varied learning media. So it takes a solution that can make the learning process that is able to increase student motivation. Based on this the researcher tried to do research on the use of Actionbound applications to increase student motivation.

Actionbound is a pedagogical media for digital multimedia-based "treasure" search games [5]. This program can function in making quizzes, direct feedback, multimedia content and photo, audio or video assignments. Participants are guided through the Global Positioning System (GPS) or satellite-based navigation system and the Quick Response (QR) code or a special tracking system that can connect students with the teacher, so that there is a low risk of cheating. All results can be accessed afterwards and the media used by the participants can be downloaded and displayed in class.

2. Research methods
The research design used in the implementation of instructional media using the Actionbound application is a research and development method. R&D methods are research methods used to produce certain products, and test the effectiveness of those products [6].

![Figure 1. R&D methods.](image)

The research implementation is limited only on the use trail in big scale (Trial of use) because this research aims only to see the response and students learning overcome. The sample used was 30 students of class XI DPIB 3 SMKN 2 Garut. Data collection techniques used were expert validation sheets, learning motivation questionnaires, and student responses. And Expert validation data, student responses and learning motivation were analyzed based on the percentage of eligibility.

2.1. Media validation sheet
Instrument of the feasibility of learning media using the Actionbound application contains questions that are expected by respondents to choose one of the answers in terms of these questions. The answer form of the questionnaire answers is in the form of rating scale 1-5 by Sugiyono [7]. Measurement scale with rating scale of raw data obtained in the form of numbers is then interpreted in a qualitative sense.

| Rating Scale | Category                      |
|--------------|-------------------------------|
| 1            | 80-90% criteria fulfilled     |
| 2            | 60-79% criteria fulfilled     |
| 3            | 40-59% criteria fulfilled     |
| 4            | 20-39% criteria fulfilled     |
| 5            | criteria fulfilled < 20%      |
2.2. Student response questionnaire sheet
Student questionnaire is an instrument given to students at the trial stage of small and large scale products. The choice of questionnaire answers for respondents' assessment is a Likert scale of 1-5.

Table 2. Likert scale.

| Likert scale | Interpretation Criteria |
|--------------|-------------------------|
| 1            | Strongly agree          |
| 2            | agree                   |
| 3            | Neutral                 |
| 4            | Disagree                |
| 5            | Strongly Disagree       |

2.3. Learning motivation instruments
Learning motivation instrument in the form of Questionnaire. The questionnaire given was a closed questionnaire with a scale of scoring with criteria. The questionnaire used is an adaptation of the questionnaire developed by Tuan et al. [8].

Table 3. Learning motivation questionnaire.

| No | Motivation Aspects                  | No question |
|----|-------------------------------------|-------------|
| 1  | self efficacy                       | 1,2,3,4     |
| 2  | active learning strategies          | 5,6,7,8,9,10,11,12 |
| 3  | learning value                      | 13,14,15,16,17 |
| 4  | achievement goals                   | 18,19,20,21 |
| 5  | performance goals                   | 22,23,24    |
| 6  | learning environment stimulation    | 25,26,27,28,29,30 |

3. Results and discussion
3.1. Expert validation
Assessments by experts are carried out by media experts, material experts, and subject teachers. The results obtained as follows:

3.1.1. Assessment by media experts

Figure 2. Assessment by media experts.
Assessment by media experts has a value of 88.57% in linguistic aspects, 90% presentation aspects, 88% effect aspect and overall view ability 82.50% with an average of 87.27%. Therefore, media experts claim that instructional media use Actionbound applications are very feasible testing.
3.1.2. Assessment by material expert

![Assessment by material expert](image)

Figure 3. Assessment by material expert.

The assessment by the material expert has a value in the material aspect 100%, linguistic 96.67%, the presentation aspect is 100%, the aspect of the effect on the strategy is 96% and the overall appearance is 90% with an average of 98.53%. Therefore, the material expert states that the media learning using the Actionbound application is feasible testing.

3.1.3. Assessment by subject teachers

![Assessment by subject teachers](image)

Figure 4. Assessment by subject teachers.

The assessment by the material expert has a value in the material aspect of 97.50%, the language 100%, the presentation aspect is 95%, the aspect of the effect on the strategy is 100% and the overall appearance is 93.33% with an average 97.17%. Therefore, the material expert states that learning media using the Actionbound application is very feasible to be used in construction subjects and building utilities.

3.2. Student responses

3.2.1. Small scale trials. product trials of 6 students with varied responses have an average value of 90.00% which is included in the 80% -100% eligibility value which can be interpreted as "Very Eligible". In small-scale trials the researcher gets advice on language, content and time that are used as a reference as an improvement for large-scale trials.

3.2.2. Large scale trial. Based on the product trial of 30 students with varied responses having an average value of 84.84% which is included in the 80% -100% eligibility value which can be interpreted as "Very Eligible". In general, the implementation of the Actionbound application as a learning medium has a positive appeal for students. This Actionbound application is a new innovation in learning media so as to make students not bored and bored when the learning process is taking place. Therefore, learning media using the Actionbound application is the right thing to make it easier for students to obtain effective and interesting information for students to learn certain subjects in this case construction and building utilities. This is in line with research conducted by Al-Hunaiyyan, Ahmed, et al. in Kuwait showing that students and instructors' perceptions of mobile learning are positive [10].
3.3. Learning motivation

Learning motivation is assessed from the results of the post-test which can be seen as follows: From the data of the post-test results it can be seen that the average post-test result is feasible 78.42% with the category of "High Motivation", the highest value acquisition is 93.33% with the category of "High Motivation" and the acquisition of the lowest value is 66.67% with the category "Medium Motivation". The number of students who have motivation is 1 person and the number of students who have high motivation there are 29 people. The results of motivation seen from the indicator values can be seen as follows:

| No | Indicator                          | Percentage | Categories |
|----|-----------------------------------|------------|------------|
| 1  | Self-Efficacy                     | 80.33%     | High       |
| 2  | Active Learning Strategies        | 77.67%     | High       |
| 3  | Learning Value                    | 83.73%     | High       |
| 4  | Performance Goal                  | 71.00%     | High       |
| 5  | Achievement Goal                  | 78.44%     | High       |
| 6  | Learning Environment Stimulation  | 76.13%     | High       |
|    | Average                           | 77.88%     | High       |

From these data it can be seen that the indicators of confidence in self-ability, learning strategies that activate students, learning values, performance goals, and stimulation of the learning environment have a value with the category "high motivation".

3.3.1. Self-efficacy. The value of confidence in self ability has a value of 80.33% which is included in the high category. Confidence in yourself means that students believe in their own ability to complete tasks as well as learning problems in construction and building utilities. This can be seen from their focus on doing assignments with their respective groups without disturbing other groups. This confidence in one's abilities can arise through the learning media of Actionbound applications with problems in the form of questions that they must solve with their respective groups. This problem cannot be solved by working with other groups because each group has a different mission path. Thus students can freely express their abilities without relying on others. Evidenced by their seriousness in completing each mission and good results. Student learning goals, learning values, and belief in self-efficacy take an important role in influencing students in constructing and reconstructing their conceptions of knowledge. In other words, when students feel they are capable, and they think they have benefits when participating in learning, and their learning goals are for competence, then students will be willing to make ongoing efforts and engage in learning [8]

3.3.2. Active learning strategies. Learning strategies that activate students have a value of 77.67% which is included in the high category. This can be seen from the seriousness of each student to complete each mission. Analyze every detail of the mission and take lessons from what they find. This Actionbound application has a strategy of activating students by providing missions that require students to interact directly with the environment. Then analyzing the facts about the construction of the roof truss to help them understand the concept of their previous understanding.

3.3.3. Learning value. The learning value indicator has a value of 83.73% included in the high category. Can be seen from the awareness of the existence of types of species and other material about the framework of the roof in their environment and see details that previously they only knew from the theory. Actionbound application itself has support as a goal of learning value by providing problems that require students to carry out investigative activities, especially regarding the construction of roof truss in their environment that is already closely related to their daily lives.
3.3.4. **Achievement goal.** The value for the goal is 71.00% which is included in the High category. This achievement goal is marked by students feeling satisfaction because they improve their competence and achievement during the learning process. The goal of achievement in the implementation of the Actionbound application is stimulated through the presence of mission features and notifications when they answer incorrectly or correctly. Then at the end of the game they will see the results of what they have done. So students can see all their work as well as the shortcomings or mistakes they make that are expected to be input for them regarding the roof truss material. With this the students can improve their competence regarding roof truss construction.

3.3.5. **Performance goal.** The performance goal has a value of 78.44%. The purpose of student performance in learning is to compete with other students and get the attention of the teacher. In this case it can be seen from the competition between groups who are trying to complete the mission mission well. The performance objectives in the implementation of the Actionbound application are stimulated through the score feature each time they have completed a mission. And at the end of the game they will see the results of what they have done. And announced the group that has the highest score. who will definitely get a gift or more attention from the teacher Tuan [8].

3.3.6. **Learning environment stimulation.** Stimulation of the learning environment has a value of 76.13% which means it is included in the high category. In the classroom, learning environments that surround students, such as the curriculum, teacher teaching, and student interaction affect student motivation in the learning process. The learning environment consists of teacher teaching strategies, class activities, and student-teacher interactions and students that will influence individual motivation in learning. Then it was further explained that teacher teaching, and student-teacher relationships will influence student motivation.

This increase in learning motivation is the same as research conducted by Kissi, Lisa and Daniel Dreessmann that students are motivated to take part and express high enjoyment of learning [5]. Based on research conducted by Kim, Ju Hee the results of smartphone-based mobile learning are effective in improving student attitudes toward learning and have a positive impact on the sequence of knowledge, skills, and learning beliefs. It is the same with this study that only students have a high level of motivation after conducting the learning process using the Actionbound application [9].

4. **Conclusion**

the development and implementation of the Actionbound application as a learning media, there are several stages in accordance with the stages of the R&D method, while the level of feasibility of the media seen from the results of validation by media experts, materials, and class teachers is declared "Very Eligible" to be used in construction and utility subjects building.

Learning motivation in the implementation of Actionbound applications in construction subjects and building utilities in the aspect of confidence in self ability, learning strategies that enable students to have, learning value, achievement goals, performance goals and environmental stimulation have a value with the category "High". Then the respondent gave a "Very Good" assessment of the learning media using this Actionbound application. The assessment was obtained after several improvements to the product developed.

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