

CHAPTER V CONCLUSION, IMPLICATION, RECOMMENDATION

5.1. CONCLUSION

The findings of the study indicate that the implementation of STEAM Learning has proven to be immensely successful, with each meeting yielding a 100% success rate. Notably, Table 4.2 show Students' average improvement gain score in conceptual understanding was 19.60, increasing from 57.04 to 76.64. Based on the calculation the N-Gain is 0.43 which is categorized as medium (Meltzer, 2002). The score of sig. in pretest and posttest is not normal (sig.<0.05) then, the data analysis is continued to the nonparametric test. The nonparametric test was tested using the Willcoxon test, the results from the Willcoxon is.000. which the results show sig. <0.05, which means there is a significant difference between the pre-test and post-test result. This result suggests indicating that the STEAM Learning treatment is crucial in enhancing students' understanding of electricity.

For creativity, there was also an increase from each dimension of creativity. Table 4.7 shows project 1 getting an average of 73.71% which is categorized as enough, then in Table 4.10 project 2 gets an average of 83.13%. which is categorized as good. This shows an increase of 9.42%. It can be concluded Paper Circuit Project-based STEAM Learning can Enhance Student Understanding and Creativity in Electricity.

Same as Hypothesis Ha. there is significant difference of student's understanding and creativity between before implementation and after implementation electricity material and made paper circuit project in STEAM learning. Overall, the study's outcomes demonstrate the effectiveness of STEAM Learning in improving students' comprehension and support its integration into the educational curriculum

5.2. IMPLICATION

According to the results of the research, it can be inferred that paper circuits serve as an effective tool to generate interest among students in the field of physics, specifically with regards to electricity. The study has discovered that when students

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come across a problem where the LED does not light up, they become more engaged and motivated to find solutions. Furthermore, when students work together in the process of drawing, the end product can be both aesthetically pleasing and innovative. Regrettably, the study also identified certain factors that impeded progress, particularly in groups consisting primarily of male students. Despite these challenges, three individuals demonstrated unwavering commitment and actively worked towards the project's success.

Students also experience some difficulties in turning on the LED, because the copper tape is not attached to the LED so the current from the battery is difficult to flow, the student must press the area close to the LED head. However, this difficulty is not a major difficulty, according to the researcher, this is the weakness of using paper as a media in the project and the low coin battery power is only 3V.

For the level of understanding, it is very visible that there has been an increase, apart from the implementation of the project students are also given material by the examiner (teacher) this is also important for increasing student understanding. How can a teacher provide material so that students can easily understand and understand what they are learning at that time.

The paper circuit project as a base learning project to enhance students' understanding and creativity needs to be applied continuously in science learning. This is because the paper circuit project can help students in understanding electricity lessons and can create an enthusiastic and interesting learning process so that competence in the learning process can be achieved for teachers and students.

5.3. RECOMMENDATION

After conducting an in-depth study, the researchers have reached a conclusion and have compiled a list of recommendations that need to be communicated. These recommendations include suggestions for improvement and areas of focus that require attention. It is imperative to take heed of these suggestions in order to achieve desired outcomes.:

1. For researchers who want to research paper circuits as science learning media, they should be able to modify it by adding resistor to the project

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elements, to find out the impact that will occur on the LED / project that is designed

2. For teachers who want to practice it in learning class, make sure that after students design a paper circuit project, students can measure electric current using an ammeter or multimeter, so students can also find out how much current can turn on the LED in the experiment.
3. For teachers who want to implement a paper circuit as a science learning, before applying it to students, a teacher must make it first and try it until the paper circuit can be measured in ammeters or ohmmeters (if using resistors) so that if students get problems, the teacher has answers and the solution
4. For researchers who also have the same interest in implementing paper circuits as a project-based learning model, it is advisable to choose the right media, such as, don't use HVS paper, it's better to use origami paper because it's more effective for children to design projects and not waste copper tape, because this project cannot be made on a large scale, those with LEDs are difficult to light up.

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