

# The Effect of using Learning Kit Material among Students

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**Abstract:** *This study was conducted to examine the effectiveness of the use of learning kits among students to improve student performance on the topic of Mechanical Design. This study was conducted based on the type of quasi experimental research approach. The population of the study was Sekolah Menengah Kebangsaan Agama (SMKA) Falahiah in Kelantan. The sample consists of 52 students selected from 4 classes. The researchers divided the samples into two groups namely the control group and the treatment group. The treatment group is taught using a learning kit while the control group is taught using conventional methods. The instrument used by the researcher in this study is a set of pre and post test questions. When data is obtained, the researchers process the data using SPSS software (Statistical Package for Social Science). T-test analysis is used to compare the difference in pre-test performance and post-test between treatment group and control group. The significance level of the study was determined at  $p < 0.05$  level. The result of the data analysis shows that there were positive and significant differences ie 0.024 ( $p < 0.05$ ). Therefore, from the findings, it can be concluded that teaching and learning using kits to students can help to improve student performance especially in technical subjects.*

**Keywords:** *learning kit, quasi experiment, performance, Mechanical Design, learning aid*

## I. INTRODUCTION

Learning kit is very important in teaching and learning process. The use of learning kits can facilitate the process of information sharing among students with respect to subjects taught more clearly (Abdul Samad et al., 2016). The learning kit aims to help students understand the subject more easily and systematically (Nur Elyani Musa et al., 2014). In fact it also serves as a tool that can increase the student's interest in learning the Mechanical Design topics and helping them learn Mechanical Design through a misleading experience.

The topics of Mechanical Design are one of the topics that are learned by students in Secondary Schools.

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The teaching and learning process, especially for the Mechanical Design topics, focuses on two parts namely theoretical and practical. According to the syllabus requirement set by the Ministry of Education, these two divisions play an important role in ensuring that students are able to master the topic in accordance with the stated objectives. In this Mechanical Design topic emphasize the application in the form of hands on work.

The quality of student-centered learning depends largely on the effectiveness of how teachers choose and use the appropriate learning kits (Mohamad Jackie et al., 2016). Teachers need to provide an explanation for each sub topic that is taught more precisely in terms of concepts and situations so that students can understand the content more deeply (Saturday, 2014). Usually teachers still teach while writing on the whiteboard (Reighluth, 2012) and not using the learning kit (Abdullah, Zainal Abidin & Mohamad, 2012). Even according to Hashim & Bunyamin (2011) states that most teachers also use self-contained books or modules to deliver the contents of the lesson. This causes the student failure. The failures in delivering the content of the lesson, especially the Mechanical Design will obviously cause students to be easily bored, less enthusiastic and consider the topic to be difficult (Hassan & Ab Aziz, 2011).

In addition, this Mechanical Design topics not only involve theoretical knowledge, but also technical knowledge. Most students are very weak with this technical because they are more easily aware of a lesson through hands on than theoretical understanding only (Nurhanim Saadah et al., 2013). Therefore, teachers need to use appropriate learning kits for students to enhance their understanding of a topic as well as save time and interest of students (Ahmad & Jingga, 2015). With the appropriate selection of learning kit to the topic, making teaching and learning easier and more accurate than verbal explanations (Azman et al., 2014). Then, the objectives set in the Daily Teaching Plan are achieved.

In this study, the learning kit developed is fundamental and focuses on mechanical skills. This developed kit contains teaching aids in the form of models and modules. This designed kit is themed windmills customizable and adapted to the syllabus of the High School Standard Curriculum. The syllabus provided by the Ministry of Education (MOE) is still in use so that learning is not deflected from the syllabus of learning.

## II. LITERATURE REVIEW

Learning Kit is defined as a complete teaching material for learning topics and materials are concrete material (Dewan Bahasa & Pustaka 2007, p.48). Teaching kit is also one example of Teaching Aids (ABM).

Various teaching aids can be built and prepared for a subject. Instructional tools stored in a container (plastic, boxes, wood, etc.) are named as teaching and learning kits (Norzainariah Abu Hassan, 2004). This storage is intended to facilitate management, and more systematic storage. Usually learning kits contain non-electronic visual tools and materials such as alphabet cards, storyboards, pictures, plastic blocks, story cassettes (Norzainariah, 2004) and boxes containing tools used in practical training or other activities throughout the learning process (Prihatiningtyas et.al, 2012).

The learning kit is aims to make it easier for students to learn and understand the subject matter. The approach of using the learning kit is a learning strategy that can be applied by teachers to help improve student performance. The achievement of the students will be more effective through the use of learning kits. This is because students can understand and master a concept as well as improve the results of the test in the classroom. Teachers can also fulfill the expected learning objectives in each subject matter at the end of the teaching and learning process. In the study of Jasmi et al. (2011) states that kit aid serves as a facilitator for teachers to improve the effectiveness of student-centered learning. In their study also stated that teachers involvement in the classroom was 25 percent only.

In addition, using the learning kit the abstract content can be explained. This makes it easier for students to understand the subject matter (Mohsin & Hassan, 2011). Indirectly the use of correct and multifaceted learning kits can overcome passive behavior among students as it can raise the interest of the students to continuously participate in the learning session and to stimulate the students motivation and desire to learn more about teaching (Nurhanim Saadah et al., 2013). Therefore, learning is no longer dependent on traditional equipment such as chalk, blackboard, and textbooks as a teaching medium (Ahmad Zanzali & Daud, 2010; Haizum Hanim Ab. Halim & Lai, 2011).

Therefore, learning kits play an important role not only to attract students, but also for students to easily understand a concept in their teaching and learning. The use of teaching kits in teaching and learning process is an alternative in the success of teaching and learning. The role of teachers is important to create creativity in the classroom.

## III. METHODOLOGY

This learning kit was developed based on ADDIE Model (E. Forest, 2014) adaptation. Based on the ADDIE model, the development of this learning kit contains five (5) phases namely the requirement analysis phase, the design phase, the development phase, the implementation phase and the evaluation phase. This learning kit method involves the mechanical component of the product. Learning kit is a windmill kit.

### 3.1 Windmills Education Kit

Windmills education kit is a learning kit that helps to understand the concept of renewable energy (green technology).

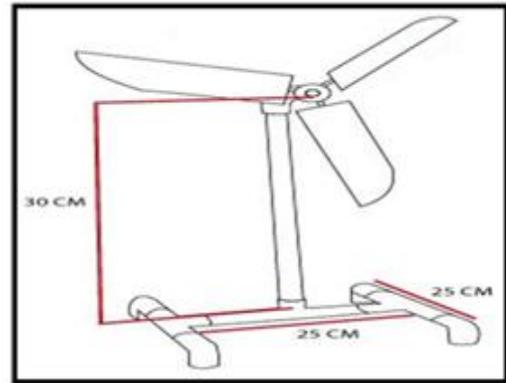


Fig. 1 Windmill Sketches

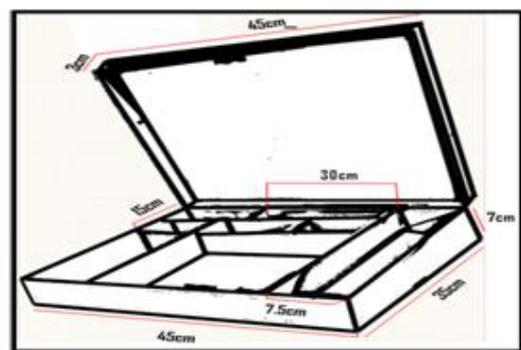


Fig. 2 Kit Box Sketch



Fig. 3 Windmill Education Kit

This study involved a school in the state of Kelantan. The class involved is a Design and Technology class for the Mechanical Design topics. Four (4) classes are involved and the class is a regular class without changing the number of students involved. Researchers determine that students have the same background. The Preliminary Exam Test was conducted to ascertain whether there was a similarity between the groups and was also used as an escort of equality. Pre-test is used to determine performance between groups using learning kits and control groups taught using conventional methods.

Table 1 describes 4 classes that are almost identical in terms of background, student achievement selected. Two (2) are groups of treatment groups and two (2) other control groups. Table 2 illustrates the number of students involved as treatment groups and class control by class. Treatment

groups are taught using learning kits and control groups are taught using conventional methods.

**Table. 1 Earlier Exam Results**

CLASS	Grade				TOTAL
	Grade A (85-100)	Grade B (70-84)	Grade C (60-69)	Grade D (50-59)	
	N	N	N	N	N
Ibnu Taimiah	7	3	2	1	13
Ibnu Qayyum	2	4	6	1	13
Ibnu Rush	4	4	3	2	13
Ibnu Hajar	4	7	1	1	13
<b>TOTAL</b>	<b>17</b>	<b>18</b>	<b>12</b>	<b>5</b>	<b>52</b>

**Table. 2 Class and number of students in each group**

Group	Class	Frequency (N)	Percentage (%)
Treatment	Ibnu Taimiah	13 (25.0)	50.0
	Ibnu Qayyum	13 (25.0)	
Control	Ibnu Rush	13 (25.0)	50.0
	Ibnu Hajar	13 (25.0)	
Total		52	100.0

Student scores are analyzed descriptively and inferentially. Descriptive statistics use percent, frequency, mean and standard deviation. While the inferential statistics used are t-tests. Data is recorded and processed by computer through SPSS program.

**IV. RESULT AND DISCUSSION**

T-test (Independent samples t-test) was conducted to determine whether there was a significant difference between the mean treatment postmark score min with the postmark control test min score. The findings in Table 3 and Table 4 shows the mean score of the post test score mean

min = 56.0 (SP = 10.84), while mean score of post control test score is min = 49.46 (SP = 9.33) where the difference between the two min is at 6.54. This results shows that the mean score of the post-test group score is higher than the post control group's mean score. The t-test analysis results also show that significant values (.024) do not exceed .025. This means there is a significant difference in post-test score between the treatment group and the control group. At the confidence level of .05 (5%), there was a significant difference between the mean of the post treatment test score and the postmark control test min score.

**Table. 3 T-Test (Independent Sampels T-Test) Regarding Testing Post-Treatment Testing And Post-Control Testing Group**

Group	Frequency (N)	Min	Standard Deviation	Sig.
Treatment	26	56.00	10.84	0.024
Control	26	49.46	9.33	

It can be concluded that the performance of the students in the treatment group is better than the control group's performance after the treatment of learning using the learning kits given to the treatment group. At the same time, the control group uses conventional learning methods for the Mechanical Design topics.

**V. RECOMMENDATIONS AND CONCLUSIONS**

Based on the results of the study, the objectives of the research have been answered which is to develop the learning kit. When there is learning kit, teachers have the opportunity to apply this learning kit during the teaching and learning process. Through this learning kit, it can encourage

teachers to carry out 21st century learning activities, namely student-centered learning and learning kits. The researcher hopes that through the findings and analysis of this study data will help the students to better understand their subjects and to improve their performance by using the teaching kit as a teaching tool. Overall, researchers are able to prove the effectiveness of using the windmill learning kits to improve the Design and technology subject student performance on Mechanical Design topics.



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