IN HOUSE SOLUTION

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ABSTRACT

This study aims to identify students' feedback on solving simultaneous equation problems using proposed calculator activity In-House Solutions. In-House Solutions was proposed as some students were having difficulties in solving equations problems with using the existing calculators equipped with various formula facilities. Two aspects have been focused on, namely the processes and strategies used by students to solve simultaneous equation problems using calculators effectively. The study involved 27 Pre-Diploma students from UiTM Johor. In 2017, Abbas, Benchohra, Lazreg & Zhou conducted a data collection focusing on activities before using the calculator and after using the calculator. The data obtained were analyzed quantitatively using linear scores proposed by Matar (2018). The problem- solving process in this study includes four phases namely understanding the problem, planning solutions, implementing planning and reviewing. The study also showed that students used various problem-solving processes and strategies when using the calculator activity effectively compared to without using the calculator activity. Integral equations play an important role in mathematical analysis of natural and learning problems. Due to this importance, researchers have been devising new and improved ways to find accurate and efficient solutions to integral equations for decades. This study recorded positive feedback from students who used In-House Solutions in solving the equation problems.

Keywords: equations, problem solving, calculator, effective ways, strategies

1. INTRODUCTION

Mathematics is an important tool in human life (Nik Azis, 2008). This is because mathematics is used in various daily activities such as counting, measuring, comparing, evaluating, decision making, problem solving, explaining, representing and identifying and developing a model. According to Nik Azis again, from the point of view of learning, mathematics should involve the process of learning to know, to do, to be and learning to live as a responsible human being. Furthermore, mathematics must involve purposes that encompass domains namely knowledge for knowledge, knowledge for utility and knowledge for appreciation. Therefore, mathematics is a subject that needs to be mastered well and in the interest of every student.

In this situation, students are not encouraged to spend excessive time while solving more complex mathematical problems (Xie, 2021). There are also teachers who believe that the goal in solving a mathematical problem is only to get the right answer (Swati, Singh, Verma & Singh, 2020). The objective of this study is on the strategies and processes taken by UiTM Johor Pre Diploma students and problem solving methods that contain similarities. Yusufoglu & Erbas (2008) stated that problems involving simultaneous equations involve one linear equation and one non-linear equation before and after using the calculator. This study provides an indication that the use of technology needs to be expanded in teaching and learning. Instructors should also try to diversify strategies or methods in problem solving and this can only be helped by the use of technology. Every student has a variety of abilities that require different approaches of one or two methods in finding a solution to a problem. This variety of strategies or methods can open students' minds and change students' perceptions of mathematics as a subject that is rigid to flexible

2. MATERIAL AND METHOD

In-House Solution

The technique used In house Solution is to solve the equation problem using a calculator formula easily, specially to get the correct answer and to see how to press the calculator correctly. By using the correct formula, students may produce the most accurate answer and to make mathematics more fun. Besides that, using the correct technique also may solve complicated equation problems quickly and enhance the capabilities of students to use an effective calculator by the formula provided. Here is an example of a calculation using a calculator formula:

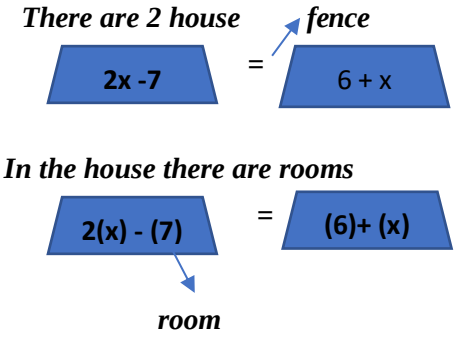
A. In House solution : Concpet

- *One house has two walls*
- *The house has a room*
- *Each room has @ walls*
- *Between house to house has a fence*
- ***The walls are brackets "( )", the fence are equal " ="***

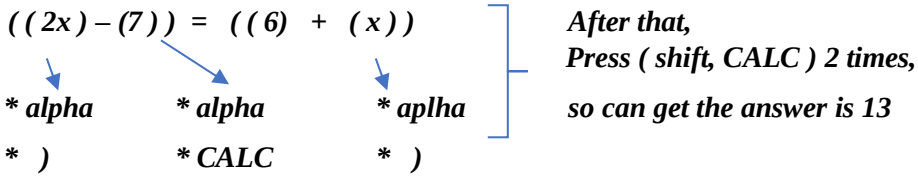
B. Example Question: 2x -7 =6 + x

- *Steps 1 : Have 2 house*
- *Steps 2: First house 2x-7*
- *Steps 3: First house have 2 room which is (2x) and (7)*
- *Steps 4: Second house is 6+ x*
- *Steps 5: Second house also have 2 room which is (6) and (x)*

C. Example Question:



D. How to press the calculator :



Data Collection

A survey questionnaire was distributed to Pre-Diploma students who experienced In-House Solution to get their feedback.

3. RESULTS AND DISCUSSION

The feedbacks are shared in the following figures:

3.1 Students' Feedback on In House Solution

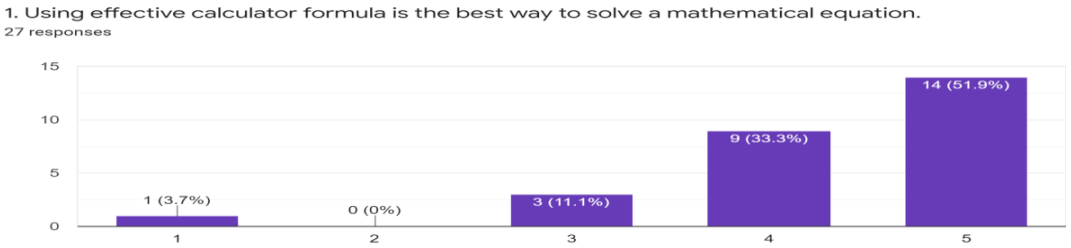


Figure 1: Students' Feedback on using an effective calculator formula is the best way to solve a mathematical equation.

Based on Figure 1, 50% of the students strongly agree that In House Solution is the best equation solved by effective calculator formula and they will enjoy using that calculator formula.

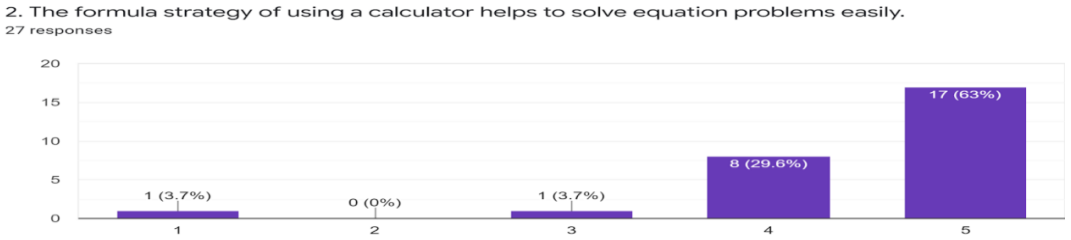


Figure 2: Students' Feedback on their formula strategy of using a calculator helps to solve equation problems easily.

Figure 2 shows that 63% of the respondents strongly agree that using a calculator helps to solve equation problems easily and make them more efficient.

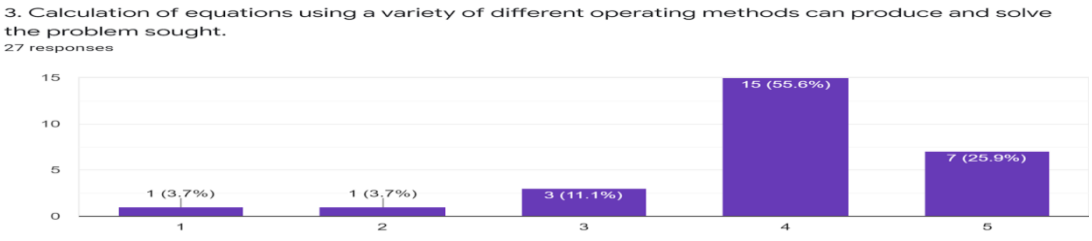


Figure 3: Students' Feedback on their calculation of equations using a variety of different operating methods can produce and solve the problem sought.

Figure 3, 55.6% of the respondents agree by using this formula and may solve the problem sought with a different ways.

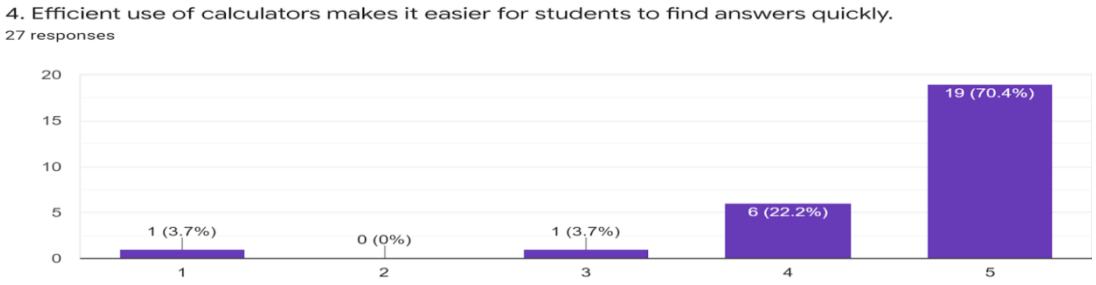


Figure 4: Students' Feedback on efficient use of calculators makes it easier for students to find answers quickly

Figure 4, 70.4% of the respondents strongly agree that by using the calculator, it makes it easier for students to find the answer quickly and faster.

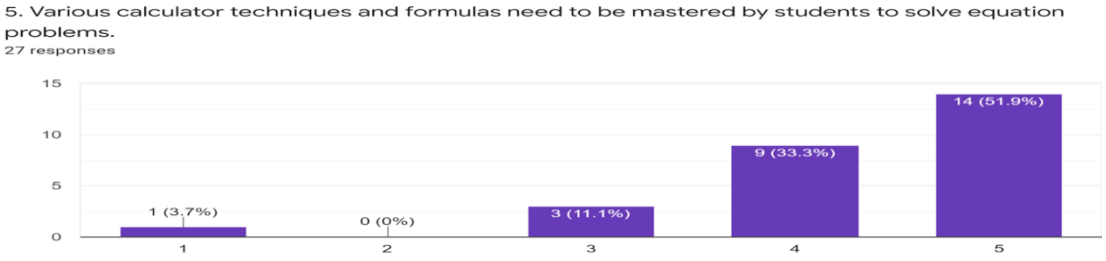


Figure 5: Students' Feedback on their various calculator techniques and formulas need to be mastered by students to solve equation problems.

Figure 5, 51.9% of the respondents strongly agree using various techniques and formulas to solve equation problems and they will try the various techniques.

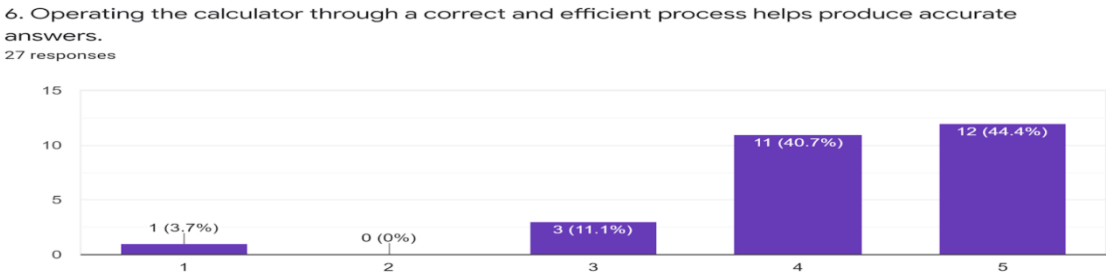


Figure 6: Students' Feedback on their operating the calculator through a correct and efficient process helps produce accurate answers

Figure 6, 44% of the respondents agree by efficient operating technique and help them to find the correct answers.

4. CONCLUSION

This study is a quantitative method that is limited to UITM Johor Pre -Diploma students. Through the activity using the calculator called In-House Solution,the researcher found that some students saw the problem-solving activity only focused on getting the final answer alone without finding the meaning in each answer by doing a review. Revisions are not only on the answers but can also be done on the algorithms run.

Traditional learning and teaching for this topic only emphasizes strategies using formulas to find solutions. Calculations are traditionally feasible because the calculations will take a long time and are able to distract the students from the essence of the question. Yet the use of a calculator is able to allow this strategy to be implemented without wasting a lot of students' time or distracting, in fact this strategy helps students see the problem solving for this topic from a different perspective, Therefore, this study is in line with the opinion of Zeng, Balenu, Bai & Wu (2020), who stated that using a calculator can solve complex calculations through numerical and graphical methods that are impossible to solve using written methods. This variety of strategies or methods can pen students `minds and change students` perceptions on mathematics as a subject that is rigid to flexible.

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