Using The "OUA Formula" To Determine the Over or Under-Absorbed Overhead

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Abstract: This study was carried out to investigate students' understanding of the Over and Under Absorbed Overhead for the topic of Overhead in the DPA30073 Cost and Management Accounting 1 course by using the "OUA Formula". Prior to the survey held with the students found that students did not understand the learning content of the topic because the formulas in the form of text were too long to remember. The OUA Formula can help students learn the topic and provide positive feedback on their understanding performance. With the use of the "OUA Formula," students can determine whether the overhead absorbed can be categorized as over or under-absorbed more efficiently. The study was carried out for four weeks for data collection and analysis involving 20 accounting students. The action research model used is the Kemmis & McTaggart Model. The assessment instruments used are Pre and post-tests and a questionnaire in Google form. The findings show that using the OUA Formula can increase students' understanding of the topics taught. All students gave positive feedback on the use of the "OUA Formula."

Keywords: *OUA Formula, overhead absorbed, teaching and learning methods*

1.0 Introduction

Education is one of the important aspects of human life whose role is vital. As a living being with reason, custom, logic, and noble ethics, everyone has the right to receive an education (Ulimaz, 2019). Education itself is an activity that involves many components or figures, ranging from students (students and students), teachers and educators (teachers and lecturers), the community, administrators, and even the government (Nefianthi & Ulimaz, 2017). The educational process can only occur optimally if the existing educational components are interconnected functionally in an integrated unity (Ni'mah et al., 2018).

The curriculum at the Malaysian Polytechnic Diploma level has outlined that the DPA30073 (Cost & Management Accounting 1) course as a core course for all students of the Diploma in Accountancy (DAT) program. This course covers various topics relevant to cost accounting. One of the challenging topics for students is Topic 2 which involves Overhead Absorbed. For this topic, students are required to determine overhead absorbed whether it is Over or Under Absorbed. To determine this, students must remember a certain text formula. Students' difficulty in mastering the long text formula can affect their overall achievement in the overhead absorbed topic as well as in the subtopic Absorption Costing. Therefore, it is very important to overcome this issue with the right approach to improve the understanding and achievement of students on the topic.

The lecture method can still be done at the beginning of the lecture, but it is necessary to provide innovative models or learning methods that focus more on students (Ulimaz, 2021). This is because students at the college level, in this case, are different from those at the primary and secondary

education levels, such as elementary and junior high schools / high schools. A slightly different approach is needed for learners studying at the college level (Wicaksono et al., 2021). This has encouraged the researcher to use a new learning strategy that is called Formula-Work-Answer-Explanation (FWAE). The FWAE learning strategy was developed by Evans, R. (2022) to solve word problems using a short and simple formula. Thus, creating a formula called the Over Under Absorbed (OUA) Formula.

This study aims to evaluate the effectiveness of the OUA Formula approach in improving student achievement in Topics involving Overhead Absorbed in the DPA30073 course. This study will examine students' perception of the OUA Formula approach that can help students to understand better the concepts related to Overhead Absorbed and improve their performance in related assessments. In addition, this study is also expected to provide guidance and recommendations for more effective teaching and learning in the DPA30073 course as well as help students prepare for the exam, especially in overcoming student difficulties in both topics.

1.1 Research Objectives

The objectives of this research are to:

i. Evaluate the effectiveness of the OUA Formula approach in improving student achievement in Topics involving Overhead Absorbed in the DPA30073 course.
ii. Examine students' perception of the OUA Formula approach in improving student achievement in Topics involving Overhead Absorbed in the DPA30073 course.

2.0 Methodology

This study used the Kemmis & Mc Taggart Model (1988). Kemmis and McTaggart's research model has two circles or cycles. If the first circle shows insignificant results, then the researcher can make a second circle.

2.1 Data collection:

The study uses a mixed method analysis by using both quantitative and qualitative. Data were collected from 20 Diploma Accountancy (DAT) students from Politeknik Sultan Abdul Halim

Mu'adzam Shah (POLIMAS). Pre and Post-tests were conducted in order to analyze students' performance when using The OUA Formula. An online survey using Google Forms was also used to analyze the understanding when using the OUA Formula.

2.2 Action Research Design:

Based on the Kemmis & Mc Taggart Action Research Model Framework, we designed a specific study model for the DPA30073 course as shown in Figure 1.0.

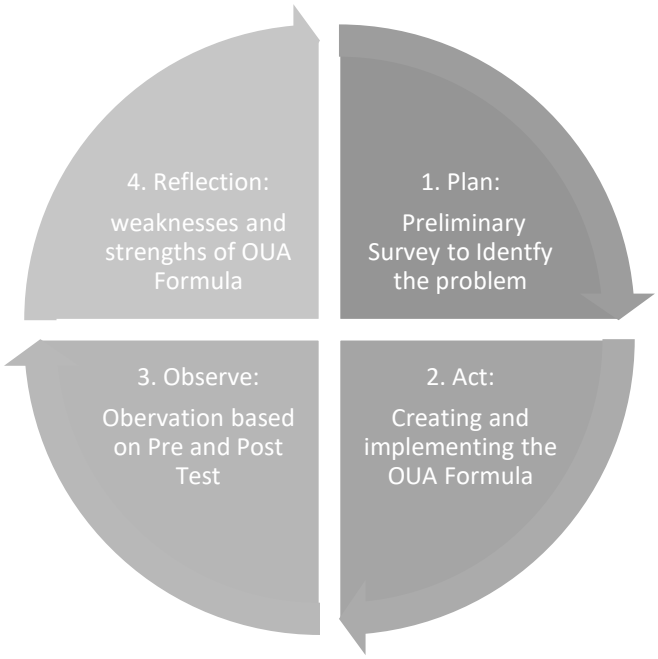


Figure 1.0: DPA30073 Course Action Research Model

3.0 Analysis and Findings

Phase 1: Preliminary Survey to Identify the Problem.

The researcher conducted a pre-test where students had to determine whether the overhead was over or under-absorbed using the text formulas text formula is as below:

Over-absorption (over-recovery) = Overheads absorbed is MORE than Actually Incurred

Under-absorption (under-recovery) = Overheads absorbed is LESS than Actually Incurred

According to the researcher's preliminary survey, when using the text formulas below students seem to have difficulty remembering the long text formula to determine the Over or Under Absorbed Overhead. Often, they tend to misdetermine the exact absorption making them fail to answer correctly.

Phase 2: Creating and implementing the OUA Formula

The OUA Formula was created as shown in Figure 2 in order to overcome the students' difficulty in solving the overhead absorption problem using the FWAE teaching strategy. According to Evans, R. (2022), the FWAE strategy helps students who had difficulty to follow word problems. There are four (4) steps involved in creating the OUA Formula following the FWAE approach:

Step 1 Formula:

Over-absorption (over-recovery) = Overheads absorbed is MORE than Actually Incurred

Under-absorption (under-recovery) = Overheads absorbed is LESS than Actually incurred

Step 2 Work:

OVER ABSORBED	UNDER ABSORBED
• ABSORBED OH > ACTUAL OH • BUDGET OH > ACTUAL OH • B > A = O	• ACTUAL OH > ABSORBED OH • ACTUAL OH > BUDGET OH • A > B = U

Step 3 Answer:

OVER ABSORBED	UNDER ABSORBED
• B > A = O • O = Over	• A > B = U • U = Under

Step 4 Explanation:

OVER ABSORBED
• B > A = O • O = Over • INCREASE PROFIT

UNDER ABSORBED
• A > B = U • U = Under • WRITTEN OFF IN INCOME STATEMENT

Phase 3: Observation based on Pre and Post Test

The following Table 1 shows the analysis of the percentage of student achievement for the Pre and Post Test:

Table 1: Analysis of the percentage of student achievement for the Pre and Post Test

Type of Test	Method	Percentage of Students Passing the Test	Percentage of Students Failing the Test
Pre-Test	Text Formula	42	58
Post Test	OUA Formula	82	18

Based on the data comparing the percentage of student achievement in Pre and Post Test, there are several things that can be analyzed to show the need for the implementation of the OUA Formula. The results from Table 1 show that there is an increase in the percentage of students passing the Post-test when the OUA Formula is applied. This shows the potential effectiveness of using the OUA Formula in improving student achievement. However, the percentage of students who fail the test is still there, this shows the need to improve the learning strategies involved.

Phase 4: Reflection on weaknesses and strengths of the OUA Formula

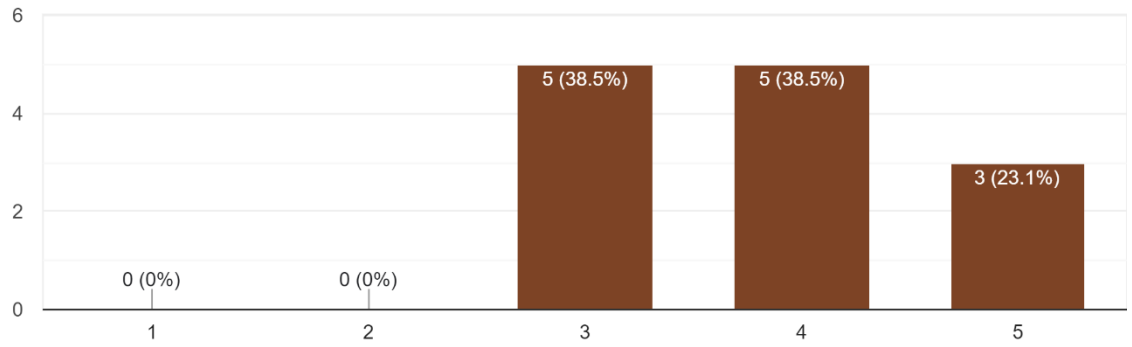
A questionnaire was given to the students using Google Forms to examine students' perception of the OUA Formula approach in improving student achievement in Topics involving Overhead Absorbed in the DPA30073 course. The 5-point Likert scale was used consists of

the below points – (1) Strongly Disagree; (2) Disagree; (3) Neither Agree nor Disagree; (4) Agree; (5) Strongly Agree.

Perception of The "OUA" Formula when determining the Absorbed Overhead Analysis.

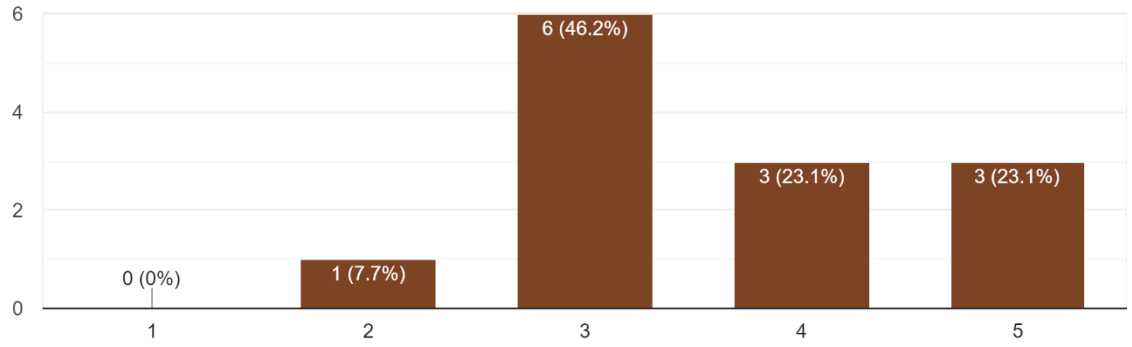
1. The "OUA" Formula is easy to understand.

13 responses



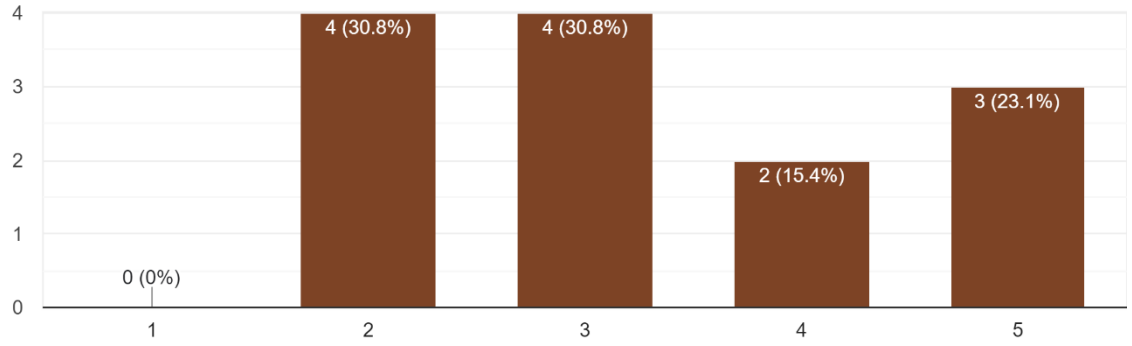
2. I can easily remember the summary to determine the difference between absorbed overheads and actual overheads when using the "OUA" formula.

13 responses



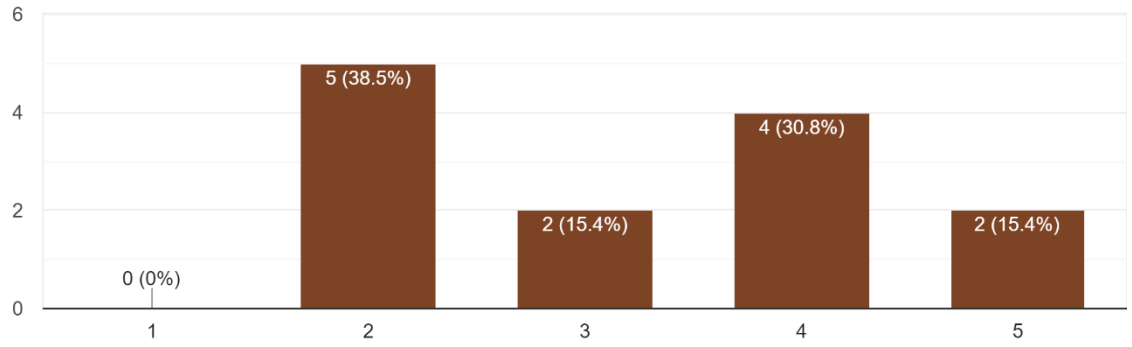
3. I feel that I can easily determine the difference between absorbed overheads and actual overheads when using the "OUA" formula.

13 responses



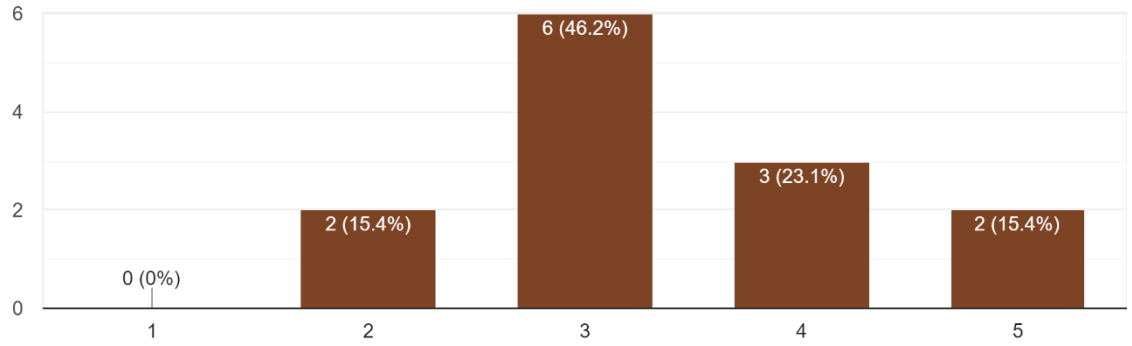
4. I feel confident to solve any questions concerning absorbed overheads using the "OUA" formula.

13 responses



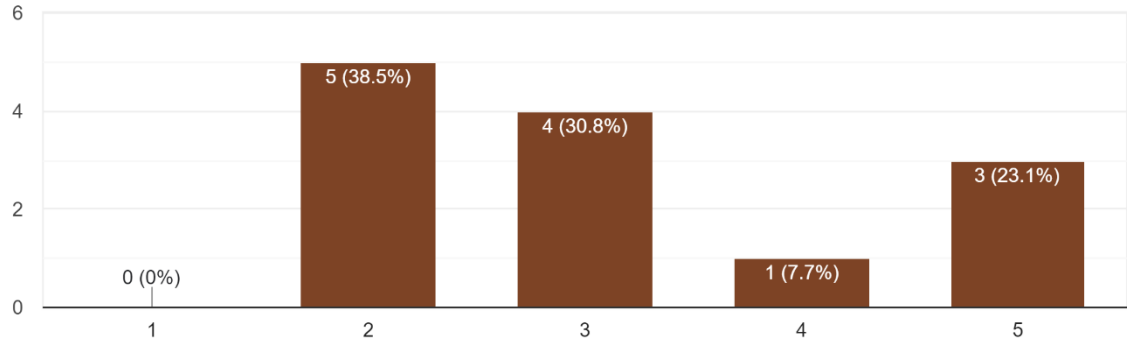
5. I enjoy using the "OUA" formula to solve any questions concerning absorbed overheads.

13 responses



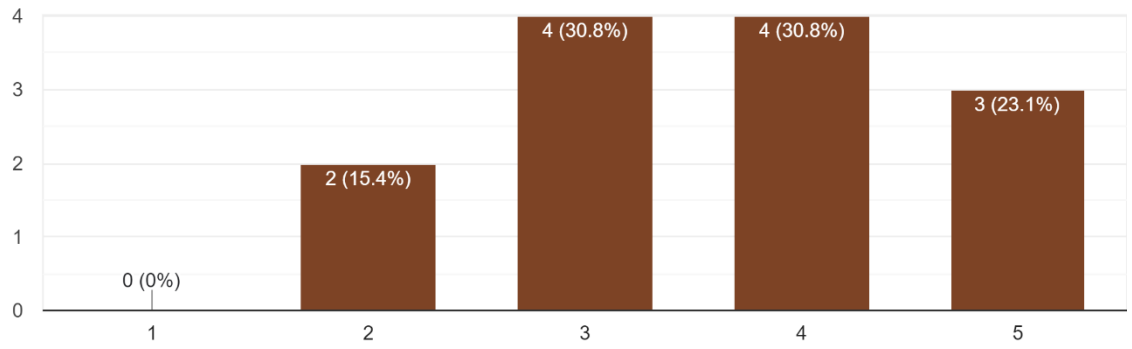
6. I feel that I can help my friends to solve any questions concerning absorbed overheads using the "OUA" formula.

13 responses



7. I would recommend others to use the "OUA" formula to solve any questions concerning absorbed overheads.

13 responses



Opinion For Improvement:

«This formula was very helpful to me..so my opinion is, that all costing lecturers need to use and teach this formula to their students through face-to-face and online classes.»

«When answering the question, I will not be confused with how to find the Over or Under OH Absorbed.»

4.0 Conclusion

Based on the study's findings, the OUA Formula shows high effectiveness in improving student achievement in tests involving the topic of Overhead Absorption. Switching from the long text formula to a more mathematical formula can enhance students' understanding when using the OUA formula to solve the Overhead Absorption problem. However, some students still have difficulty using the formula and findings show that there is less than 40 percent of the students disagree on easily remembering the formula, using and solving problems using the formula, and even disagree on recommending the formula to others.

Overall, the use of the OUA Formula can be an effective approach to improving student achievement. However, the parties concerned need to consider the available resources and the needs of the students to choose the most suitable training method in the learning context.

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