

MATHEMATICS HOMEWORK: MATHEMATICS TEACHERS FEEDBACKS AND COMMENTS

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ABSTRACT: *Mathematics homework plays a crucial role in determining students' performance in mathematics. Teachers play a major role in ensuring students complete their homework. In the process of evaluating mathematics homework, teachers mark the homework and give feedback on students' homework. Specifically, the researcher in this study focused on the type of comments given by the mathematics teacher on mathematics homework. Students' mathematics homework was marked, collected, and analyzed. Besides, five mathematics teachers were interviewed. The findings revealed that teachers gave constructive and positive comments on students' mathematics homework. Teachers should practice giving comments and feedback on students' mathematics homework to enable students to identify their faults and carelessness. In conclusion, feedback and comments on mathematics homework are essential, and circulars need to highlight the importance of marking and commenting on mathematics homework.*

INTRODUCTION

The education system is going through a crucial phase currently. Amongst the changes, 21st-century learning has caught everyone's attention. Even though the education system is changing from time to time, the primary platform of reinforcement of any lesson is homework. Mathematics homework is a form of assessment that has often been carried out to determine the comprehension of the students [1]. Bembenutty [2] claimed that homework is a task provided by school teachers to students that are expected to be completed during non-instructional time. In Malaysia, the Ministry of Education reinforces that the subject teachers should provide homework. This is because the total allocation time for mathematics lessons is not sufficient in order to make students learn everything in school. A total of 112 hours is allocated for the teaching and learning of mathematics yearly (Pelan Pembangunan Pendidikan Malaysia, PPPM, 2016)]. In the process of employing mathematics homework, monitoring homework is an important phase. Monitoring homework is the final stage in the process of giving mathematics homework to the students. The examining process includes recording homework submitted through having a students' name list, which helps the teachers to regularly and efficiently track the students who have submitted their homework. In particular, the school's administration is able to ensure that the teachers are able to mark homework given to students [3].

Objectives

1. To determine the type of comments given by teachers for mathematics homework.
2. Explore teachers view on commenting mathematics homework

Review

Homework is an important method used by teachers of mathematics. It is defined as any homework assignments undertaken during the non-instructional hours. Therefore, it should be well-structured to increase students' engagement. Mathematics is a process of analysis rather than a memorization process [4]. Non-numerated students are likely to regards homework as a burden activity [5].

Furthermore, the researchers discovered that it has a significant positive impact on performance when teachers take the effort to compose remarks that are motivating and

draw upon completed homework [6, 7, 8]. Through facilitating students with essential feedback on good educational success, such as awarding them some credit and offering extra input on the right or correct homework, this approach means that the assessments will act as a potentially useful safeguard for teachers to interact with the teacher's expectations towards students directly. According to Hall *et al.* [7], feedback can also be a source for students to build their perceptions about their capabilities and to comprehend whether the students have comprehended the task positively.

A review of 15 observational findings on the impact of homework on students' achievement was researched by Walberg, Paschal, and Weinstein [9]. Their work pointed out that when homework was provided without any form of direction, a regular student's performance tended to increase from the 50th percentile to the 60th percentile. Interestingly, the homework tended to boost performance from the 50th percentile to the 79th percentile when graded or included teacher feedback. Walberg, Paschal, and Weinstein found that homework provided a significant impact on the academic performance of the students. Using results from the 1988 National Longitudinal Study on Learning, Bruce and Singh [10] found that homework not only enhanced the marks for students but also boosted their grades on standardized examinations. There is relatively strong evidence that written comments as the feedback by teachers on homework papers may have a positive influence on the academic achievement of students [11] carried out experimental research and found that majority of the teachers (about 75 percent of them) provide homework and grades. Even though the effect of such feedback on student performance was not explored in this review, the findings may show the level of emphasis that teachers impose on homework, which could potentially affect the level at which students accomplish it.

Other researches that investigated teachers' feedback reflected on the influences on student achievement. Cooper's analysis of research that used teacher input indicators showed no major effect from the form of reviews provided by the teachers on students' achievement [12].

Methodology

For this study, a sample of 60 secondary school students from Sipitang District, Sabah, was chosen. All students took a pre-

test, and marks were recorded. These students were divided into two groups. One group of students' homework was marked without any feedback or comments, while another group of students' homework was marked and given feedback. Five mathematics teachers from Sabah secondary schools were also selected as sample for this study. All the teachers were interviewed. Besides, students' homework of these five teachers were collected and analyzed on the type of comments given.

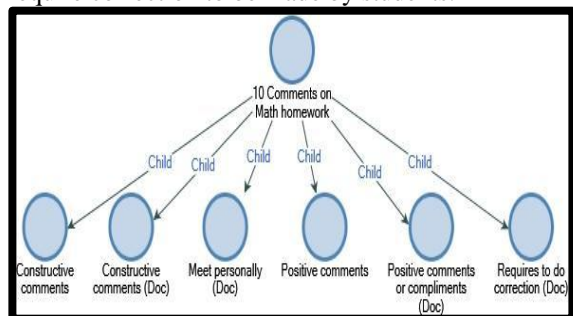
Document Analysis

Document analysis is a comprehensive method of analysing the data as either written or electronic materials [13]. Document analysis includes data (document-shaped) examined and reviewed for purpose, comprehension, and scientific field knowledge advancement [14]. In this study, ten students' homework books were collected and analyzed.

Findings.

Comments on Mathematics Homework

Well into the document analysis of the students' mathematics homework, it was noted that mathematics teachers wrote four groups of comments that were constructive comments, comment on to meet personally, positive comments, and require correction to be made by students.



Based on the interviews, finding with the teachers teaching mathematics, it was found that mathematics teachers are providing positive and meaningful feedback on mathematics homework to encourage the achievement of students in mathematics. Also, based on the mathematics homework of the students (document analysis), it has been discovered that there are some other comments provided by the mathematics teachers, such as "Meet personal" and "Requires to do correction" (Figure. Student 8). Besides, constructive comments are given to encourage the students to focus on mathematics homework.

Positive comments

Students would be more likely to complete their homework and progress their learning if their homework regularly generates positive comments. Students need to be enlightened about their achievements and what are the elements that the students need to develop, particularly in the sub-topic, where the student does not master a particular topic in mathematics. Effectively, the students are likely to digest the mathematics teacher's feedback. Based on the qualitative findings, it was found that mathematics teachers appear to make constructive feedback about the homework accomplished by the students. Types of positive comments offered include "Nice," "Keep up," "Great," "Congratulations," and "Well done." Teacher 1 mentioned that 'she was writing comments based on the errors of the

students' and claims that it is an effective way to encourage the students to engage in homework, particularly in mathematics subjects. Other mathematics teachers commonly have claimed that these type of positive comments tends to inspire the students to participate in mathematics homework (T1, T2, T3, & T5). The following are examples of the mathematics teachers' interview excerpts: "After that, I wrote a comment based on their mistakes. It is an encouraging and effective way to attract students to do mathematics homework. For example, 'Great,' 'Congratulations,' and so on"(T1).

"Comments like 'Great' and 'Keep up' encourage and make the students stay positive with their mathematics homework" (T2).

A review of the document (students' exercise books) showed that teachers gave positive comments that enhanced the trust of the students to engage in mathematics homework. For instance, "Perfect," "Congratulations," "Well done," "Keep going," "Good work," and "Very Good ." are the type of positive comments practiced by the mathematics teacher in school. The following is a sample of the document analysis that shows positive comments by mathematics teachers on students' mathematics homework.

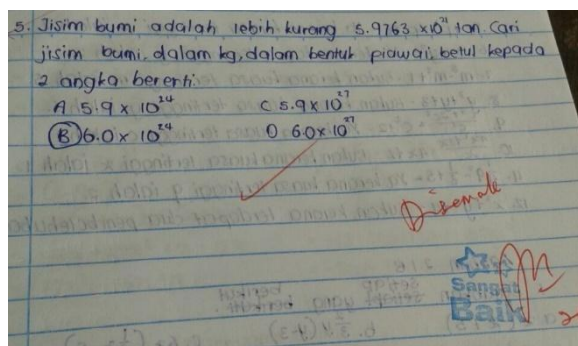


Figure. Student 7

Constructive Comments

As teachers, they need to provide advice or feedback on the marked mathematics homework because it is also a way of learning opportunities for the students. This aims to boost the success of the students in school, apart from encouraging engagement. The main aim of making positive comments is to remind the students that "you should do this."

There are mathematics teachers who commented constructively on mathematics homework, and these types of comments heavily influenced the students to engage in upcoming mathematics homework to minimize the same mistakes (T1, T2, T3, T4, & T5). The following are the mathematics teachers' interview transcript:

"Well, it works. Try to give constructive comments so that it can motivate students. An example is "You are almost right this way but need to improve." (T1).

"You have improved a lot. Do correction. Try to avoid careless mistakes—good luck" (T2).

Document review (the student's mathematics homework) often reveals that mathematics teachers made positive comments to encourage students to get engaged with mathematics homework. This would improve the students' performance in mathematics. The following is the evidence from one of the analyzed documents.

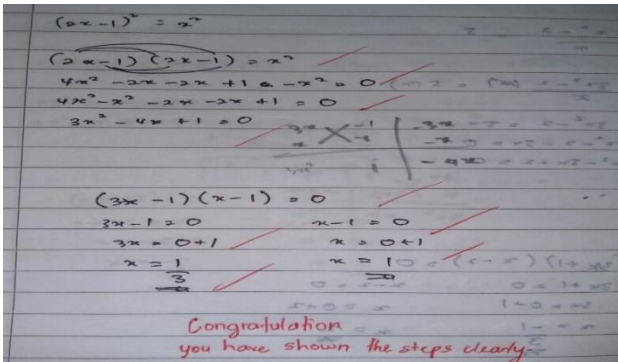


Figure. Student 6

Requiring to do correction

Mathematical reasoning is a technique, and 'if the students realize that it is not a difficult topic, they are likely to comprehend it. Hence, it is unavoidable for the mathematics teachers to cultivate the students to practice a good perception of mathematics. Illustratively, the students are likely to start with a single equation and arrive at the result by using a few numbers of equations taught by the mathematics teacher. The students need to understand the basics to be confident with the topic and the subject matter. So if the student unsuccessful in concluding the answer, then it is important to follow through with corrections. When corrections are ignored, the students do not master or even practice this method and ability.

Thus, teachers allow students to correct the answers that have been wrongly answered. It offers the students a chance to explain their problems or doubts and creates more opportunity future to do better with the guideline from the teacher. This notion is assisted by document analysis carried out during the students' mathematics homework. The foregoing is an example of an examination for the document analysis.

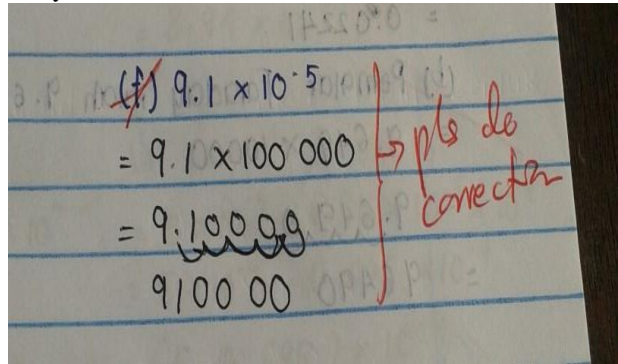


Figure. Student 8

Meet Personally

Our classrooms are consisting of multicultural learners. Some of the students need to be nudged to make them engage in mathematics homework, and some students in the classroom need to be closely treated so that they are do not feel discouraging and maintain reasonable confidence.

The review of the document analysis indicates that there are mathematics teachers who have been worried about the progress of their students in mathematics homework. Consequently, the students were called upon to meet one-on-one to discuss the incorrectly answered questions. The students will always look forward to personalized attention, and this type of personal-guidance session will provide the opportunity for the students to get answered for their doubts. This will lead to a more robust engagement in mathematics. The following is the document that was analyzed and revealed that the mathematics teachers wanted the students to see their teachers personally.

* pls discuss with teacher p 25

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5) Pengeluar getah asli di Malaysia pada tahun 2008 ialah 929 000 tan. meningkat sebanyak 9.6% berbanding dengan setahun sebelumnya. Hitung an getah asli pada tahun 2009. dalam kg. Bisi jawapan anda dalam bentuk piawai. betul ke 9 angka bererti.

$$\frac{96}{1000} \times 929\,000$$

$$= 90\,144$$

$$= 929\,000 - 90\,144$$

$$= 848\,856 \text{ tan (2009)}$$

$$= 848\,856\,000 \text{ kg}$$

$$= 8.48856 \times 10^8$$

$$= 8.489 \times 10^8$$

Figure. Student 10

Generally, mathematics teachers give mathematics homework as an exercise to facilitate deeper comprehension of the learned topic. In addition, the findings revealed that teachers were giving mathematics homework and viewing it from the perspective of procedural competency. This has meant that students have better procedural competence in the concept of mathematics.

DISCUSSION: COMMENTS ON MATHEMATICS HOMEWORK

The qualitative interview with the teachers declared that comments on mathematics homework impact students' excellence in mathematics. Examples of mathematics teachers' comments are "Negligent," "Good," "Well done," and "Making the corrections appropriately." Additionally, comments can help to encourage students to engage in mathematics homework. Positively, Students perceived teachers' comments on mathematics homework as inspiring and motivating to accomplish mathematics homework. This is following the researchers, Mutua and Sunal [15], who discovered that teachers could reinforce positively the students who have accomplished the mathematics homework in particular. Words such as "Good work" and "Well done" can also deepen their potential to practice this habit. Hong *et al.* [16] found that it is important to consider the students' attitude towards homework. The researchers proposed that the teacher would provide suggestions and evaluate the homework to minimize differences of opinion and raise understanding of behavioral homework. Likewise, the researchers also discovered that it has a greater positive impact on performance when teachers take the time to make comments that are encouraging [7; 8]. Students learn more from homework where teachers mark, comment, and analyze in class [12; 16, 17].

Conversely, Cooper [12] suggested that no major influence on student academic achievement from the types of feedback provided by teachers.

CONCLUSION

Teacher feedback on mathematics homework is significant to create the awareness of the students' process apart from a significant comprehension on a specific topic and a way to minimise the errors in mathematics homework. Concerning the benefits, Mathematics teachers should be giving comments on students' homework.

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