



What the high school students say about mathematics homework

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ABSTRACT

Homework had become a tradition in teaching and learning mathematics in school. Even so, in Indonesia, there is not enough research on homework. Our research is conducted to investigate high school students' views on homework and to provide the basis for further research on homework in Indonesia. In this research, we use exploratory-descriptive qualitative to explore and describe the students' view of homework. We collected the data from 124 high school students by using the structured interview conducted via online form. The data were analyzed by using the thematic analysis. Based on our results, we found that (1) students know that mathematics homework can help them with their academic achievement and their attitudes toward their studies, (2) mathematics homework is not high on their priority, (3) it makes them tired physically and mentally, and (4) students argue that mathematics problems are better to be solved in the class where they can ask the teacher. We also found their difficulties in doing their homework, such as (1) lack of knowledge (2) their teachers do not give them the necessary 'tools' to solve the problems, (3) they can't ask for helping hands if they can't solve the problems (4) some emotional problems such as motivation, and (5) other priorities are higher on their list.

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INTRODUCTION

Homework is a part of the teaching and learning process everywhere, and Indonesia is not an exception. It is only natural because, for many teachers, homework is an important supplement to in-school learning (Khan et al., 2015; Zhang, 2019). Not only the teachers, but parents also perceive homework as an important thing to do, to the point that some even assign extra homework to their children (Davidovitch & Yavich, 2017; Li, 2006; Wiesensthal et al., 1997; Xu & Yuan, 2003).

Even though it has become a culture in education already, there is still no consensus on the effectiveness of homework (Cooper et al., 1998, 2006; Trautwein & Köller, 2003). Research shows that compared to the students who rarely do their homework, students who often do their homework generally have higher grades. But at the same time, huge amounts of homework cause their achievement to worsen (Cooper et al., 2006). According to Susan Hallam from the Institute of Education, there is a dilemma in giving students the homework; while the benefits of homework are more doubtful in primary school than in secondary, there is also no evidence that homework can be actively counter-productive to learning (Coughlan, 2016).

Another problematic thing is that even though students with low achievement are the ones who need the highest amount of homework (Coughlan, 2016), in Indonesia, the teachers often give all

students the same amount of homework. The teachers do not have any choice because if there are students who get less amount of homework, other students will feel that it is not fair. The teachers, of course, can't be expected to explain that their peers who have less amount of homework are "smarter" than them. Hence the homework can't be utilized to its maximum potential.

In the non-academic area, research suggests that even though students who spend more hours in homework experienced greater behavioral engagement in school, they also feel more academic stress, having problems with physical health, and having unbalanced lives (Galloway et al., 2013). But at the same time, research shows that there are positive relationships between homework activities and self-efficacy, self-reflection, responsibility for learning, maintaining focus, managing the environment, inhibiting distractions, delaying gratification, and managing time (Ramdass & Zimmerman, 2011). Because there are as many downsides of homework to its upsides, it is no wonder people still debate about whether homework is a good or bad practice. For that very reason, research about homework should be continuously done so we can reach a conclusion.

Specifically, in mathematics, research shows that homework and mathematics achievement have a positive relationship (Fan et al., 2017; Güven & Akçay, 2019; Rajoo & Veloo, 2015; Roschelle et al., 2016). It is understandable because mathematics in primary and secondary schools are mainly algorithmic. If students do not master the basics, they can barely do anything when learning mathematics. For example, the students' inability to do basic calculations and use the right formula is the cause of errors in solving higher-order thinking skills mathematics problems (Hadi et al., 2018). Creativity alone will not help the students to solve mathematics problems; hence there is a need for repeated practices (Tias & Wutsqa, 2015).

It is a common knowledge that practicing solving mathematics problems in the class only will not be enough. There is simply not enough time; the teachers cannot be expected to cut the time short for the explanation to give students time to solve more problems. Extra assignments outside of the class are needed, even more so with the growing need for improving the students' higher-order thinking skills. There is the urgency of putting HOTS content in the textbook so that the possibility of HOTS to be trained and taught to the students becomes greater (Pratama & Retnawati, 2018).

But on the other hand, mathematics is perceived as one of the hardest subjects in the school. Adding extra assignments outside the classroom will burden the students. Research shows that mathematics homework can be an unpleasant experience for the students (Dettmers et al., 2011). If the support from the parents is bad, mathematics homework also can be the cause of emotional and mathematical trauma (Lange & Meaney, 2011).

Then what should we do? In our opinion, we have to listen to the students first. We need to know how they perceive the homework. But even though this is an important thing to do, the amount of research about homework is way too little in Indonesia. Based on our search in Google Scholar, Scopus, Web of Science, and Research Gate, we did not find any research on how mathematics homework is perceived. We used the key terms '*pendapat siswa mengenai PR matematika*' or 'Indonesian students view on mathematics homework'. This is not only the case with Indonesia but other countries as well (Warton, 2001).

When we changed the key terms to '*pekerjaan rumah matematika di Indonesia*', '*PR matematika di Indonesia*', and 'mathematics homework in Indonesia' only, we got some results but none of them were about views or opinions about homework (PR is the abbreviation of *pekerjaan rumah*, which is the Bahasa Indonesia of homework). For example, Rahmawati (2008) studied how to improve students' mathematics achievement by giving them mathematics homework, Wuriyanti (2012) focused on parents role, and Saragih, Palobo, and Sianturi (2019) studied about the factors that affect students in doing mathematics homework. None of their research is about the views or opinions on mathematics homework. Because of that, we decided to research students' views on mathematical homework.

Despite there is too little research on homework, there is a growing perception in the society that homework, in general, has no positive effect. One of the effects of this perception is in 2018, the education office of Blitar, Indonesia, issued a verbal appeal to the headmasters in Blitar to ban teachers from giving their student homework (Damanik, 2018). We do not agree nor disagree with the instruction. Still, we think there is a need to do more research on students' views on homework, especially on mathematics homework, before people--parents, teachers, and stakeholders--judge whether homework is good or not for the students. We decided to do exploratory-descriptive qualitative research on homework in the hope of providing the basis for other research. Exploring the students' opinions on

homework will give some hypotheses, questions, or topics to work with. We only took a small amount of sample, and we focus on explaining their opinions about mathematics homework. For the writing and reading convenience, we will refer to *mathematics homework* as *the homework* only from now on.

METHOD

The type of this research is an Exploratory-Descriptive Qualitative. By doing the two types of research together (i.e. exploratory-descriptive qualitative research), we explore something new and provide the basis for further research, and to do so we use a descriptive-qualitative method to analyze or interpret the data (Hunter et al., 2018; Reid-Searl & Happell, 2012; Sandelowski, 2000, 2010; Stebbins, 2001).

We followed the framework made by Hunter et al. (2018) in doing this research. *First*, we determined the aim of our research. In this research, we want to explore the view of students about homework. *Second*, we made sure that our topic is rarely explored or researched before. *Third*, we made our research questions: (1) do the students agree if their teachers give them mathematics homework? (2) what are their difficulties in doing their mathematics homework? (3) What are the positive and negative effects of mathematics homework?

Fourth, we choose the sample or participants. There are no rules about how many samples needed (Hardon et al., 2004), so we were collecting the data until it reached data saturation. We also need to ensure that the sample size enables the quality of information sought to be gained and allow important categories and sub-categories to emerge (Sandelowski, 1995; Stebbins, 2001). To achieve that goal, in this research, we have 124 high school students across all grades as the sample. This size is normal for recent qualitative research (Kindsiko & Poltimäe, 2019). Out of 124 students, 70 are females and 54 are males, 40 are from tenth-grade, 55 are from eleventh-grade, and 29 are from twelfth-grade. All the students are between 15-18 years old.

Fifth, we collected the data by doing the structured interview conducted via online form. We decided to do structured interviews because it was adequate to collect the data we need. We collected the data from October 2019 until December 2019. Our interview sheet consists of 25 questions which asked the students about (1) their profile and activities inside and outside the school, (2) their study habit, (3) how usually their homework is given, (4) their strategies in doing their homework, (5) difficulties in doing their homework, (6) do they agree with homework or not, (7) the negative and positive effects of the homework, (8) 'what if' questions regarding the ban of homework.

Sixth, we analyze the data. We use six steps provided by Braun and Clarke (2006), that is (1) familiarize yourself with your data, (2) assign preliminary codes to your data to describe the content, (3) search for patterns or themes in your codes across the different interviews, (4) review themes, (5) define and name themes, and (6) produce your report. In the last steps, we use a descriptive qualitative method to explain our findings. *Seventh*, we conclude our findings.

RESULTS AND DISCUSSION

We construct our questions so that we get three big themes, with each theme corresponding to our research questions. Based on the data we collected from 124 students, we conclude that we have enough data to elaborate on all the three themes. On each theme, we searched the sub-themes and the relationships between the sub-themes.

Do the students agree if their teachers give them mathematics homework?

Out of 124 students, exactly half of them agree if their teachers give homework, and half of them disagree. First, we have the reasons why the students accept the homework in Table 1. It is interesting to see that the students are aware that more practicing can help them to understand mathematics better. As explained in the introduction, research supported the notion that homework has a positive effect on students' mathematics achievement. This result is a strong indication that in mathematics, indeed, more practice means better understanding. The following are some examples of their answers.

S11: *Saya setuju. PR dapat membantu saya berlatih mengerjakan soal matematika.* [I agree (with the homework). It can help me practicing mathematics problems]

S50: *Saya setuju. PR dapat membantu saya memahami materi yang diberikan.* [I agree (with the homework). It can help me understand the topic given (by the teacher).]

S71: *Saya setuju. PR dapat membantu saya mengukur tingkat kemampuan saya dalam menyelesaikan soal matematika.* [I agree (with the homework). It can help me to gauge my ability in (solving) mathematics problems.]

Table 1. The reasons why students agree with homework

Sub-themes	Relationship between sub-themes
Homework can make the students used to solve mathematics problems. The students get more mathematics problems for practicing. The homework can help them to revisit the topic that has been covered in the class. The homework can help them to understand the topic. The homework can help them to remember the formula dan the topic itself. The homework can give them extra points (scores). The homework can help them understand how well their understanding of the topic.	The homework can help students with their studies and academic performances.
The homework can 'force' them to study. The homework can help the students to improve their self-regulated learning. The homework can help the students to improve their diligence.	The homework can help students to improve their attitudes toward their studies.

Another interesting result is how homework can become the 'external force' that pushes students to study. By giving them homework, they may feel 'forced' to finish it to get the extra points or scores. To solve the homework, they often need to revisit the topic that has been covered in the class or study something new. We give some examples of their responses.

S68: *Saya setuju karena dengan adanya PR saya jadi belajar.* [I agree (with the homework) because if there is homework, I will study.]

S76: *Saya setuju, karena kadang saya tidak belajar kalau tidak ada PR.* [I agree (with the homework) because sometimes if there is no homework, sometimes I will not study.]

Table 2. The reasons why students disagree with homework

Sub-themes	Relationship between sub-themes
The students have other priorities. The students have other activities. The students have homework from other subjects. The homework cut their family time short.	The (mathematics) homework is not high on the students' priorities.
The homework worsens their mood. The homework makes them mentally exhausted. The homework makes the students do not have enough time to rest. The students are physically exhausted because of their activities in school.	The homework makes the students physically and mentally exhausted.
For the students, studying in the school is more than enough; no need for extra assignments. The students cannot ask anyone if they have difficulties in solving the homework. The homework makes them get used to cheating in order to finish it.	Mathematics problems are better to be solved in school when they have the teacher to consult on and friends to discuss.

It is important to remember that not all students need to be 'forced' to do something. Some do not even like it. Before giving them the 'force' or the 'push', it is important to know a student's characteristics. Some students also feel that homework can improve their self-regulated learning and diligence. By always doing the homework, the students can learn to build a good habit and learn to instruct themselves to do something.

S44: *Iya, karena supaya rajin.* [Yes (I agree with the homework), so that (I) become diligent.]

It is important to mention that although half of the sample said they agree with homework, many of them are asking for fewer problems in their homework. In the case of the students who disagree with their homework, it is because their homework consists of too many problems that they do not want to do it.

S46: *Saya setuju, tetapi sebaiknya soal PR yang diberikan jangan banyak-banyak.* [I agree (with the homework), but it's better if there are not too many problems/questions.]

S121: *Saya tidak setuju, karena soal PR yang banyak mengganggu kegiatan lain.* [I don't agree (with the homework) because too many problems in a homework can disturb my other activities.]

Table 2 shows the reasons why students do not accept the homework. They mainly reject the homework because, first, they have other things to do.

S30: *Saya tidak setuju, karena pulang sekolah itu sore hari dan dari sekolah saya langsung latihan taekwondo. PR itu membebani murid.* [I don't agree (with the homework), because I'm back from school in the afternoon and after that, I immediately go practice (taekwondo). Homework burden the students.]

S42: *Saya tidak setuju, PR itu menyusahkan karena mengurangi waktu istirahat dan mengganggu kegiatan lain.* [I don't agree (with the homework). Homework is a hassle because it cut my time for rest short and disturbs other activities.]

Both of S30 and S42 are athletes. S42 even has some other activities besides doing practice as an athlete. It is understandable if they feel that extra assignment outside the school is a burden because even without it, they are busy already.

In line with the explanation in the introduction, homework also can harm the students mentally. Some mentioned that homework makes them do not want to go to school. Also, not only mentally, the extra assignment can affect students' health.

S4: *Saya tidak setuju. Saya diberi soal matematika di sekolah dan di rumah, saya merasa terganggu dan menjadi tidak ingin ke sekolah.* [I don't agree (with the homeworks). I get math problems both at home and at schools, it annoys me and makes me don't want to go to school]

S119: *Saya tidak setuju, karena pulang sekolah sudah sore dan saya butuh istirahat.* [I don't agree (with the homeworks), because I arrive at home at the afternoon and I need to rest.]

The other reason why they do not want homework is they cannot ask anyone if they do not know how to solve the problems in the given homework.

S58: *Saya tidak setuju, karena kalau saya tidak mengerjakan saya tidak bisa bertanya kepada siapa-siapa. Menurut saya lebih baik diselesaikan bersama-sama di sekolah agar jawabannya langsung ketemu.* [I don't agree (with the homework) because if I cannot solve it, I cannot ask anyone. It's better if the problems are solved together in the school so I can immediately know the answer.]

Table 3. Students' habit of turning in the homework

Agree	Disagree
Sometimes = 31	Never = 1
Often = 18	Rarely = 8
Always = 13	Sometimes = 34
	Often = 11
	Always = 8

Based on **Table 3**, their approval (agreement) of homework seems to impact their habit of turning in the homework. For those in favor of homework, there are no students who never or rarely submit their homework. But for those in disagreement, eight students rarely submit their homework, and a student even never submits it. They do it despite knowing they will not get extra points/scores, or even have some points/scores deducted from them. What caught our eyes is not the difference of number, but instead the existence of students who never and rarely do their homework if they disagree with the administration of homework.

Another important result that we get is external disturbances from their environment don't affect students' views about homework. Out of 124 students who take the interviews, 74 students experience external disturbances, but none of them cited it as the source of their unwillingness to do the homework. Parents' and guardians' role in supervising their children's homework needs to be investigated further because we cannot say anything based only on our data. We have 44 students who have their homework supervised by their parents or guardians, ranging from simply asking about the homework to helping the students. Out of the 44 students, 25 students agree with homework, while 17 students disagree with homework. Out of 62 students who agree with homework, 37 students are not supervised by their parents or guardian, while out of 62 students who disagree with homework, 45 students are not supervised by their parents or guardian.

The effects of homework

The sub-themes and relationship between sub-themes for positive effects on homework are the same as [Table 1](#). The only important thing to note is out of 62 students who do not agree with homework, only 18 students answer that homework does not have any positive effects. It means that for the rest, they know that homework has positive effects on them, but the negative effects weigh more for them.

There are some new sub-themes and a new relationship between sub-themes regarding the negative effects of homework, as shown in [Table 4](#). The important thing to note here is only 21 students answer that homework does not have any negative effects. In specific, out of 62 students who agree with homework, only 16 students answer that homework does not have any negative effects. It means that those who in favor of homework, know that homework has negative effects on them. As opposed to their peers who disagree with homework, the positive effects weigh more for them.

Table 4. The negative effects of homework

Sub-themes	Relationship between sub-themes
The homework interferes with their other activities. The homework cut their family time short.	The (mathematics) homework interferes with the students' other activities.
The homework worsens their mood. The homework makes them mentally exhausted. The homework makes the students do not have enough time to rest. If the students cannot solve the problems, it will weigh their minds. If the students cannot finish the problems, it will make them lost focus on other things. The homework makes them tired and even sick. It makes them mad at their inability.	The homework makes the students physically and mentally exhausted.

Here are some examples of their responses regarding the new sub-themes.

S82: *Kalau jawabannya tidak ketemu, kadang saya menjadi jengkel.* [If I cannot find the answer, it annoys me.]

S92: *PR membuat saya stres dan sakit.* [It makes me stress and sick.]

Students' difficulties in doing their homework

All the students who participate in the interviews encountered some difficulties in doing their homework. The difficulties are listed in [Table 5](#).

It is clear enough that if the students do not have the necessary knowledge, they cannot finish their homework. For example, not knowing what formula should be used will make them unable to solve any problems ([Rumasoreng & Sugiman, 2014](#); [Wasida & Hartono, 2018](#)). The inability to understand the meaning of a problem will also hinder the students from solving the problem ([Azis & Sugiman, 2015](#)). Here are some statements from students who have difficulty doing homework.

S7: *Saya tidak tahu cara menyelesaikan soal-soalnya.* [I don't know how to solve the problems.]

S73: *Saya bingung harus menggunakan rumus yang mana.* [I'm confused what formula should be used.]

Table 5. Students' difficulties in doing the homework

Sub-themes	Relationship between sub-themes
The students do not understand the topic. The students cannot solve the problems. The students do not know and sometimes forget the right formula to be used. The students do not understand the meaning of the problems.	The students cannot do their homework because they do not have the knowledge needed.
The teachers have not explained how to solve the problems. The teachers' explanation is not clear. The problems in the homework are not related to the teachers' explanation in the class.	The students cannot do their homework because teachers do not provide them enough 'tools' to do the homework.
The students cannot (or are hesitant to) ask the teachers about the problems. There is no helper in doing the homework.	The students cannot do their homework because they cannot ask anyone if they have difficulties.
The students do not have the motivation to do the homework. The students cannot concentrate.	The students cannot do their homework because of personal/emotional factors.
The students do not have the time to do the homework. The students have other priorities other than doing homework.	The students cannot do their homework because, for them, homework is not their priority.

The first relationship is closely related to the second relationship between sub-themes. Sometimes they do not know the formula or do not understand the topic because the teacher omits some part that they feel unimportant, even though for the students, it is important. This problem may happen because their teachers do not yet perform an in-depth diagnosis of students' difficulties. (Wijaya et al., 2019). It may also happen because only a few teachers apply authentic judgment in the evaluation of learning, especially in mathematics (Sabri et al., 2019). Some student statements related to this are as follows.

S19: *Guru belum menjelaskan materi atau soal yang dijadikan PR.* [The teacher has not explained the topic or the example problems for the homework.]

S32: *Kurangnya penjelasan yang rinci dari guru.* [The explanation from the teacher is not enough.]

The previous two relationship leads to the third relationship; that is, they cannot do their homework because they cannot ask anyone if they have difficulties. If they don't have enough knowledge, they need to ask someone. If the teacher's explanation is not clear, they need to confirm it to the teacher or another capable person. But by working on the problems at home, they cannot ask the teacher. If their parents or friends cannot help them, they do not have any choice but guess the answer. These things are reflected in the following statement.

S88: *Saat ada soal atau materi yang belum jelas, saya bingung harus bertanya ke siapa.* [If there's a problem or topic that I don't understand, I don't know who I can ask for help.]

S115: *Saya tidak bisa mengerjakan PR tanpa bantuan guru.* [I don't know how to solve the problems without the teacher.]

Some students cannot solve the problems because of other factors such as confidence and/or other activities, as illustrated in the following statement.

S9: *Saat membaca soal, saat saya tidak paham soalnya, saya (otomatis) berpikir bahwa soal itu sulit dan saya jadi tidak bisa mengerjakannya.* [When I read the problems and I don't understand it, I (automatically) think that it's a hard problem and it makes I unable to solve it.]

S93: *Tidak ada waktu.* [I have no time.]

Discussion

From the result, especially from the relationships between the sub-themes, there are some possible hypotheses/topics/research questions that we can make for further researches. *First*, homework can help students with their studies and academic performances. This hypothesis has already answered by some

research (Fan et al., 2017; Güven & Akçay, 2019; Rajoo & Veloo, 2015; Roschelle et al., 2016). We believe that these researches are sufficient.

Second, homework can help students to improve their attitudes toward their studies. Attitude is still too wide of a topic, so it must be narrowed down first. For example, self-efficacy in doing homework can be researched, as self-efficacy affects important abilities like problem-solving ability (Susilo & Retnawati, 2018). For motivation and self-regulation, Ramdass and Zimmerman (2011) had already shown that homework assignments that are adequately challenging and interesting help struggling and at-risk students develop motivation and self-regulation skills and achieve success.

Third, reducing the number of homework may change students' negative perceptions of homework. Out of 124 samples, 64 students often get more than 7 problems, 23 students get 5-7 problems, and 35 students get 3-5 problems as homework. As a result, 65 students say that their homework has too many problems (37 of those 65 students are contra to homework).

Some may argue that reducing the time spent on homework may also change students' negative perceptions of homework. While that may be a good argument, our data shows that, in doing their homework, 26 students spent less than an hour, 55 students spent 1-2 hours, 24 students 2-3 hours, and 11 students spent more than 3 hours. Fernández-Alonso et al. (2015) found that 60 minutes is the ideal time that should be spent on homework, while Mikk (2006) found that 60-90 minutes is ideal. Mathematics lessons usually only take three days at the maximum in a week, so even 3 hours for homework is still sensible if the students can organize their time. So, what can be researched from this is not about reducing the time spent on homework, but whether it's the homework that is too much or students do not have good time management.

Fourth, mathematics homework is not high on the students' priorities. We think there is a need to compare how high mathematics homework in students to other homework or other activities such as hobbies, works, or other extracurricular. *Fifth*, the homework makes the students physically and mentally exhausted. Our data and some research show that it's true (Detmers et al., 2011; Galloway et al., 2013; Lange & Meaney, 2011). Because it has already answered, we suggest further research to focus on how to reduce their exhaustion while doing their homework.

Sixth, do parents or guardians have a role in shaping students' views about homework? We think that this is an important topic to study because there is still no research about that. Even research about the link between the parents' or guardians' support and students' achievement shows a mixed result. Pratt et al. (1992) and Cancio et al. (2004) showed that there is a positive link, while Pezdek, Berry, and Renno (2002) showed no link. Wuriyanti (2012) investigated the parents' role in homework, but they did not link it to students' willingness to do homework or achievement. This shows the relationship between parents or guardians with mathematics homework is still not clear and needs to investigate further.

Seventh, we question if students' views about homework affect their willingness to submit their homework. Based on our results, there are no students who agree with homework that rarely or never submit their homework, but there are some students who disagree with homework that rarely and even never submit their homework

Eighth, mathematics problems are better to be solved in school when the students have the teacher to consult on and friends to discuss. Regarding this possible hypothesis, based on our data, it turned out that the lack of helper in doing the homework does not make the students immediately reject extra assignments. Indeed some students don't want homework because they cannot ask anyone, but some students who accept homework also do not have any helper. Out of 24 students who do not have any helper in doing their homework, 13 students do not want homework, while 11 students still want homework. We can see that even though they work on the homework alone, almost half of the 24 students still agree if their teacher gives them the homework. Based only on that, we suggest further exploration of this matter, but further study must take the students' mathematical ability into account. We surmise that the students with high mathematical ability do not need help, so they will do their homework despite not having any helper, but it is not the case with students with low mathematical ability.

CONCLUSION

Based on our results, we found that students know that mathematics homework can help them with their academic achievement and their attitudes toward their studies. Because of that reason, some

students agree with homework. But we also found that mathematics homework is not high on their priority, and it also makes them tired physically and mentally. For these reasons, students disagree with homework. They also argue that mathematics problems are better to be solved in the class when they can ask the teacher. Regarding the difficulties in doing their homework, students cited that lack of knowledge is one of their main problems. Related to it, they also said that their teachers do not give them the necessary 'tools' to solve the problems, and also they cannot ask for helping hands if they cannot solve the problems. Other difficulties include personal/motivation problems such as motivation and other priorities that are higher on their list.

Based on the discussion, some possible questions for further researches are arisen. We wonder if the ideal amount of mathematics homework can be found, whether students get too much homework or they just cannot manage their time, do their positive/negative views affect their willingness to submit the homework, and how students' exhaustion physically and mentally when doing homework can be reduced. We also have suggested some topics to be studied, such as how homework may affect students' attitudes toward their studies, how the existence of helper affect the high, average, and low achievement students' view on homework and the parents' role in homework. Last, we assumed that mathematics homework is not high on the students' priorities. We think this hypothesis needs to be tested.

REFERENCES

- Azis, A., & Sugiman, S. (2015). Analisis kesulitan kognitif dan masalah afektif siswa SMA dalam belajar matematika menghadapi ujian nasional. *Jurnal Riset Pendidikan Matematika*, 2(2), 162–174. <https://doi.org/10.21831/jrpm.v2i2.7331>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, 3(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>
- Cancio, E. J., West, R. P., & Young, K. R. (2004). Improving mathematics homework completion and accuracy of students with EBD through self-management and parent participation. *Journal of Emotional and Behavioral Disorders*, 12(1), 9–22. <https://doi.org/10.1177/10634266040120010201>
- Cooper, H., Lindsay, J. J., Nye, B., & Greathouse, S. (1998). Relationships among attitudes about homework, amount of homework assigned and completed, and student achievement. *Journal of Educational Psychology*, 90(1), 70–83. <https://doi.org/10.1037/0022-0663.90.1.70>
- Cooper, H., Robinson, J. C., & Patall, E. A. (2006). Does homework improve academic achievement? A synthesis of research, 1987–2003. *Review of Educational Research*, 76(1), 1–62. <https://doi.org/10.3102/00346543076001001>
- Coughlan, S. (2016). *Is homework worth the hassle?* - BBC News. BBC News.
- Damanik, C. (2018). Surat edaran diterbitkan, guru dilarang beri PR ke siswa halaman all - Kompas.com. Kompas.Com.
- Davidovitch, N., & Yavich, R. (2017). Views of students, parents, and teachers on homework in elementary school. *International Education Studies*, 10(10), 90–108. <https://doi.org/10.5539/ies.v10n10p90>
- Dettmers, S., Trautwein, U., Lüdtke, O., Goetz, T., Frenzel, A. C., & Pekrun, R. (2011). Students' emotions during homework in mathematics: Testing a theoretical model of antecedents and achievement outcomes. *Contemporary Educational Psychology*, 36(1), 25–35. <https://doi.org/10.1016/j.cedpsych.2010.10.001>
- Fan, H., Xu, J., Cai, Z., He, J., & Fan, X. (2017). Homework and students' achievement in math and science: A 30-year meta-analysis, 1986–2015. *Educational Research Review*, 20, 35–54. <https://doi.org/10.1016/j.edurev.2016.11.003>
- Fernández-Alonso, R., Suárez-Álvarez, J., & Muñiz, J. (2015). Adolescents' homework performance in mathematics and science: Personal factors and teaching practices. *Journal of Educational Psychology*, 107(4), 1075–1085. <https://doi.org/10.1037/edu0000032>
- Galloway, M., Conner, J., & Pope, D. (2013). Nonacademic effects of homework in privileged, high-performing high schools. *The Journal of Experimental Education*, 81(4), 490–510. <https://doi.org/10.1080/00220973.2012.745469>

- Güven, U., & Akçay, A. O. (2019). Trends of homework in mathematics: Comparative research based on TIMSS study. *International Journal of Instruction*, 12(1), 1367–1382. <https://doi.org/10.29333/iji.2019.12187a>
- Hadi, S., Retnawati, H., Munadi, S., Apino, E., & Wulandari, N. F. (2018). The difficulties of high school students in solving higher-order thinking skills problems. *Problems of Education in the 21st Century*, 76(4), 520–532.
- Hardon, A., Hodgkin, C., & Fresle, D. (2004). *How to investigate the use of medicines by consumers*. World Health Organization and University of Amsterdam.
- Hunter, D. J., McCallum, J., & Howes, D. (2018). Defining exploratory-descriptive qualitative (EDQ) research and considering its application to healthcare. *Proceedings of Worldwide Nursing Conference 2018*.
- Khan, N., Ahmad, S. M., Khan, W., & Begum, N. (2015). Teachers' perceptions about homework: A survey of middle schools of Peshawar. *Putaj Humanities & Social Sciences*, 22(1), 227–234.
- Kindsiko, E., & Poltimäe, H. (2019). The poor and embarrassing cousin to the gentrified quantitative academics: What determines the sample size in qualitative interview-based organization studies? *Forum Qualitative Sozialforschung*, 20(3). <https://doi.org/10.17169/fqs-20.3.3200>
- Lange, T., & Meaney, T. (2011). I actually started to scream: emotional and mathematical trauma from doing school mathematics homework. *Educational Studies in Mathematics*, 77(1), 35–51. <https://doi.org/10.1007/s10649-011-9298-1>
- Li, G. (2006). What do parents think? Middle-class Chinese immigrant parents' perspectives on literacy learning, homework, and school-home communication. *School Community Journal*, 16(2), 27–46.
- Mikk, J. (2006). Students' homework and TIMSS 2003 mathematics results. *Online Submission*, 2005.
- Pezdek, K., Berry, T., & Renno, P. A. (2002). Children's mathematics achievement: The role of parents' perceptions and their involvement in homework. *Journal of Educational Psychology*, 94(4), 771–777. <https://doi.org/10.1037/0022-0663.94.4.771>
- Pratama, G. S., & Retnawati, H. (2018). Urgency of Higher Order Thinking Skills (HOTS) Content Analysis in Mathematics Textbook. *Journal of Physics: Conference Series*, 1097(2018), 012147. <https://doi.org/10.1088/1742-6596/1097/1/012147>
- Pratt, M. W., Green, D., MacVicar, J., & Bountrogianni, M. (1992). The mathematical parent: Parental scaffolding, parenting style, and learning outcomes in long-division mathematics homework. *Journal of Applied Developmental Psychology*, 13(1), 17–34. [https://doi.org/10.1016/0193-3973\(92\)90003-Z](https://doi.org/10.1016/0193-3973(92)90003-Z)
- Rahmawati, E. (2008). *Upaya peningkatan prestasi belajar matematika siswa melalui tugas pekerjaan rumah dan umpan balik pada sub pokok bahasan segi empat di SMP Negeri I Gondangrejo*. Universitas Muhammadiyah Surakarta.
- Rajoo, M., & Veloo, A. (2015). The relationship between mathematics homework engagement and mathematics achievement. *Australian Journal of Basic and Applied Sciences*, January, 136–144.
- Ramdass, D., & Zimmerman, B. J. (2011). Developing self-regulation skills: The important role of homework. *Journal of Advanced Academics*, 22(2), 194–218. <https://doi.org/10.1177/1932202X1102200202>
- Reid-Searl, K., & Happell, B. (2012). Supervising nursing students administering medication: a perspective from registered nurses. *Journal of Clinical Nursing*, 21(13–14), 1998–2005. <https://doi.org/10.1111/j.1365-2702.2011.03976.x>
- Roschelle, J., Feng, M., Murphy, R. F., & Mason, C. A. (2016). Online mathematics homework increases student achievement. *AERA Open*, 2(4), 1–12. <https://doi.org/10.1177/2332858416673968>
- Rumasoreng, M. I., & Sugiman, S. (2014). Analisis kesulitan matematika siswa SMA/MA dalam menyelesaikan soal setara UN di Kabupaten Maluku Tengah. *Jurnal Riset Pendidikan Matematika*, 1(1), 22–34. <https://doi.org/10.21831/jrpm.v1i1.2661>
- Sabri, M., Retnawati, H., & Fitriatunisyah. (2019). The implementation of authentic assessment in

- mathematics learning. *Journal of Physics: Conference Series*, 1200(1), 1–6. <https://doi.org/10.1088/1742-6596/1200/1/012006>
- Sandelowski, M. (1995). Sample size in qualitative research. *Research in Nursing & Health*, 18(2), 179–183. <https://doi.org/10.1002/nur.4770180211>
- Sandelowski, M. (2000). Whatever happened to qualitative description? *Research in Nursing & Health*, 23(4), 334–340. [https://doi.org/10.1002/1098-240X\(200008\)23:4<334::AID-NUR9>3.0.CO;2-G](https://doi.org/10.1002/1098-240X(200008)23:4<334::AID-NUR9>3.0.CO;2-G)
- Sandelowski, M. (2010). What's in a name? Qualitative description revisited. *Research in Nursing & Health*, 33(1), 77–84. <https://doi.org/10.1002/nur.20362>
- Saragih, G. B. A., Palobo, M., & Sianturi, M. (2019). Analisis faktor-faktor yang mempengaruhi siswa dalam mengerjakan pekerjaan rumah matematika siswa Madrasah Aliyah Al-Munawwaroh Merauke tahun akademik 2017/2018. *Musamus Journal of Mathematics Education*, 1(2), 62–73. <https://doi.org/10.35724/mjme.v1i2.1371>
- Stebbins, R. (2001). *Exploratory research in the social sciences*. SAGE Publications, Inc. <https://doi.org/10.4135/9781412984249>
- Susilo, M. B., & Retnawati, H. (2018). An analysis of metacognition and mathematical self-efficacy toward mathematical problem solving ability. *Journal of Physics: Conference Series*, 1097(1), 1–9. <https://doi.org/10.1088/1742-6596/1097/1/012140>
- Tias, A. A. W., & Wutsqa, D. U. (2015). Analisis kesulitan siswa SMA dalam pemecahan masalah matematika kelas XII IPA di Kota Yogyakarta. *Jurnal Riset Pendidikan Matematika*, 2(1), 28–39. <https://doi.org/10.21831/jrpm.v2i1.7148>
- Trautwein, U., & Köller, O. (2003). The relationship between homework and achievement - still much of a mystery. In *Educational Psychology Review* (Vol. 15, Issue 2, pp. 115–145). <https://doi.org/10.1023/A:1023460414243>
- Warton, P. M. (2001). The forgotten voices in homework: Views of students. *Educational Psychologist*, 36(3), 155–165. https://doi.org/10.1207/S15326985EP3603_2
- Wasida, M. R., & Hartono, H. (2018). Analisis kesulitan menyelesaikan soal model ujian nasional matematika dan self-efficacy siswa SMA. *Jurnal Riset Pendidikan Matematika*, 5(1), 82–95. <https://doi.org/10.21831/jrpm.v5i1.10060>
- Wiesenthal, R., Cooper, B. S., Greenblatt, R., & Marcus, S. (1997). Relating school policies and staff attitudes to the homework behaviours of teachers. *Journal of Educational Administration*, 35(4), 348–370. <https://doi.org/10.1108/09578239710171938>
- Wijaya, A., Retnawati, H., Setyaningrum, W., Aoyama, K., & Sugiman. (2019). Diagnosing students' learning difficulties in the eyes of Indonesian mathematics teachers. *Journal on Mathematics Education*, 10(3), 357–364. <https://doi.org/10.22342/jme.10.3.7798.357-364>
- Wuriyanti, N. (2012). *Optimalisasi peran orang tua dalam pengerjaan tugas rumah untuk meningkatkan hasil belajar matematika pada siswa kelas III SD Negeri 04 Kuto tahun pelajaran 2010/2011*. Universitas Muhammadiyah Surakarta.
- Xu, J., & Yuan, R. (2003). Doing homework: Listening to students,' parents,' and teachers' voices in one urban middle school community. *School Community Journal*, 13(2), 25–44.
- Zhang, J. (2019). Homework: An overload on Chinese school children. *International Journal of English Literature and Social Sciences*, 4(3), 821–824. <https://doi.org/10.22161/ijels.4.3.37>