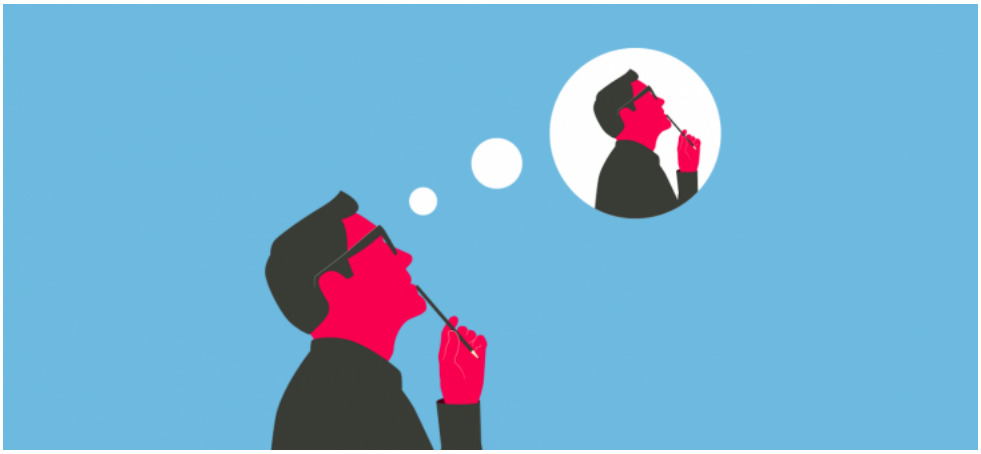
Research 2

How to help students become self-regulated learners?



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Summary

At the beginning of middle school, it becomes increasingly important that students take responsibility for their learning. However, high-school students typically lack the motivation and the training to succeed in this. Problems in this area are amplified when it comes to homework as students seem to be completely on their own. The present study was designed to examine what the contributing problems are and to find solutions to help students become self-regulated learners.

Results of the research revealed that teachers can help students become self-regulated learners when it comes to homework by helping them organize and manage their tasks. This means drawing awareness to the usefulness of setting goals, making a study plan and time management. Students reported that summarizing the lesson material also helps with homework completion. Literature suggests that teachers sharing studying strategies how to tackle homework is helpful for students. According to literature, motivation and feelings of self-efficacy play a major role in successful homework completion. These were less of a factor due to the high academic level of the surveyed students, however, there are always less motivated students. Therefore, teachers should use their influence and skills to ensure high levels in these areas. Self-regulation assumes and uses a cyclical method that involves planning, monitoring and reflection phases. Teaching this cycle can be delegated as part of the homework by the use of a log.

The products to be presented were created by the criteria that were formulated based on the above findings. The aim was to help students become self-regulated learners as well as to support teachers in their efforts to teach strategies and elicit metacognition during this process.

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Introduction

1.1 Assignment

Teachers report that students have problems with planning and managing workload at the Christelijk Lyceum Zeist. (CLZ)
This assignment was received from the mentor, who agrees that teaching self-management skills to students is absent from the current curriculum but is needed in order to develop the self-regulated students that the school envisions to participate in their own learning. The assignment is of interest for both the writer and the internship school because teachers struggle with students' homework completion. It has become a uphill battle to stimulate students to do their homework and training them to be self-regulated is not part of the curriculum. Students not being able to manage their time and their workload becomes even more evident and pressing in year 2, when they are expected not only to follow instructions but plan how and when they will complete their school tasks. It is an issue for the educators because lesson time is limited, the curriculum is hectic, and students must do their homework to keep up with the material and review. The goal of this research is to find out the reasons why students have problems with self-management and doing homework as well as to discover methods that help them keep on track. The paper will provide a product that will help students with self-management, in regard to completing their homework.

1.2 School context in relation to the issue

The Christelijk Lyceum Zeist's vision states that students are expected to take responsibility for their own development but in practice they need support and help with forming good study habits, especially in the lower years. The school has few VMBO groups and more HAVO, Atheneum and TTO classes where students have to cope with high academic demands. The curriculum is hectic already, teachers complain of not being able to fit all projects and lesson materials into the syllabus and feel that students' unwillingness to do homework further aggravates the problem. First-year students need more guidance and support to integrate well into secondary education, but from second year on students should develop self-managing study skills. Some success is achieved in motivating students and teaching self-management with the hard work of colleagues, but homework completion still seems to be a problematic area. The mission statement also expresses that students are expected to make an effort to develop their own talents and often this means doing the extra work at home and being able to manage themselves when not under the supervision of a teacher. However, many teachers report frequent problems of failure with completing homework. These professionals report that students have a limited ability to manage their time and workload as well as problems with concentration but also with the management of homework assignments. As a result of not completed homework, the student can fall behind or become further unmotivated by consequences following. This research hopes to improve on this predicament by creating a product that supports teachers as well as helps students to develop skills necessary to manage themselves and become self-regulated learners. This will then fulfill the vision of the school where every student is equipped with the knowledge, tools and resources to take responsibility for their own learning.

1.3 Research question

Based on the aforementioned circumstances, the vision of CLZ and the practical issues that are present about the lack of self-management on the part of the students, the research questions that this paper investigates is as follows:

- *How can the teacher help students to become self-regulated learners in terms of completing homework?*

To be able to answer this comprehensive question, it needs to be broken down. This research will attempt to identify what a self-regulated learner means, to survey students' opinions about homework and to find out how teachers can stimulate pupils to take responsibility for their learning. The following sub-questions were formulated to find solutions:

- *What does it mean to be a 'self-regulated learner?*
- *What is the attitude of students towards homework?*
- *How and what to teach to help develop self-regulated learners in terms of completing homework?*

Research

2.1 Introduction

The purpose of this research paper is to analyze the students' attitude towards homework in an effort to find out why they so often fail to complete it and to find solutions how to ensure pupils become self-regulated learners who take responsibility for their learning in- and outside of school. This paper focuses on 2nd year students because developing self-management skills becomes even more pressing in this grade due to high academic demands, school and teacher expectations and lack of time in the classroom. The focus is placed on finding out the student's attitudes and their ideas regarding what are or would be successful methods to manage themselves better. In relation to the educators, their opinions and solutions to answer the sub-questions were collected and analyzed as well.

Data collection and analysis

2.2.1 Introduction

The data collection was completed at Christelijk Lyceum Zeist, which is a prestigious school with a catholic legacy but accepts students from any religious background. The school has 1360 students with 2 VMBO classes and most classes in higher academic streams such as Havo, Atheneum and there is a special focus on bilingual education. The data necessary to

answer the sub-questions was collected through various methods. These included Google forms and interviews with teachers regarding students' attitudes towards homework and reported issues why it might be a struggle for pupils. Teachers were also asked to reflect on what might be reasons not to complete homework and about possible solutions. A survey was also administered to the pupils and analyzed regarding the motivation, planning, feelings of self-efficacy and helpful methods that facilitate self-regulation.

2.2.2 Approach and methods

All data was collected at the Christelijk Lyceum Zeist for this research, in second year atheneum and bilingual classes, in the fall term of school year 2019/2020.
One form of data collection was sending out Google forms to teachers with questions to explore to what extent homework completion is an issue, why the issue exist and what solutions have they found so far. These teachers are instructors of different subjects. This choice was made to find out if they treat the homework issue differently. Google form was chosen to get an initial data source without overburdening the teachers. An additional interview was conducted with 2 of the teachers to further explore what their perception of a self-regulated learner is and how it can be taught to adolescents. Interview format was chosen because of the limited number of respondents and the expected extensive nature of the replies. These results were then compared to literature which elevates the reliability of the research. The data was used for qualitative analysis. Each respondent answered the same questions in the interview, which contributes to the reliability of the research.
Another method the research used was a survey for the students. Survey format was chosen because of the high number of respondents. 38 students were invited to take the survey and participation was 100%. All pupils attend 2nd year classes, 10 in an atheneum stream and the rest in a bilingual gymnasium class. 3 questionnaires were disposed of because of incomplete answers.
The survey was administered on paper and in English, as the students surveyed are perfectly capable of understanding the questions, which were A2-B1 level, the highest. The pupils were also explained the questions and invited to ask questions. This increased the reliability of the results.
The questionnaire makes use of the 5-point Likert-scale which ranges from "not at all true" through "sometimes true" to "always true". Four questions out of the 19 were reverse in terms of the Likert-scale. The value of these questions were reversed to give a true value in the category of which they were a component. The questions were grouped by different aspects of homework such as: attitude, motivation, self-efficacy, planning and helpful methods. This was done in an effort to be able to discover a possible correlation between these factors and increase the internal validity of the survey. This data was then used for quantitative analysis. The average (*M*) was calculated per question or subscale. For this purpose, the program MS Excel was used. For the category of attitude and each question thereafter, all the numbers of the 35 students were averaged with the statistical formula AVERAGE to get the mean average values of the group and the average figures per question. With the values for each question separately, a graph was generated to have a visual of the results.
The data collected with these methods is reliable because it can be reproduced at any school, using the same collection tools. The survey included two open questions to gather

student's ideas that the research might have not suggested before, therefore elevating the validity of the questionnaire. Distortions such as social desirability bias is possible, especially on questions involving motivation and current habits of homework completion. Students might have overreported on these areas in an effort to appeal to their teacher/researcher. This would affect the reliability of the results.

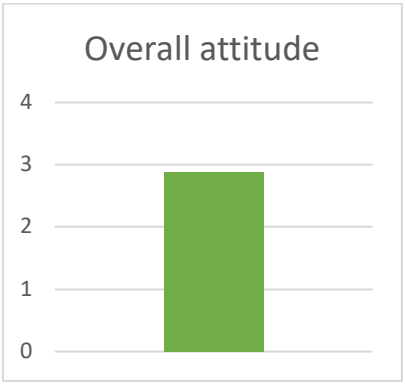
2.2.3 Results and conclusions

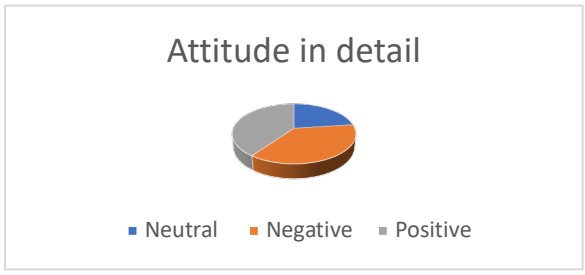
Teacher survey and interview

In terms of attitude, teachers report that most students have a negative disposition about homework. They also state that willingness depends on academic level, with a more positive attitude in higher streams than VMBO.
When it comes to reasons for not completing homework, students express that they find it difficult to get to work and mention too much other work and extracurricular activities.
The teachers think that pupils are over-stimulated, and distractions draw their attention away from homework. Too much homework is a problem as well. Educators also report a lack of planning, pupils not using their time effectively and not seeing the value of homework. Lack of self-management is also mentioned, namely that students do not start homework until the parents get home.
Several teachers have tried a number of methods to solve issues about homework, ranging from no homework to giving time to start doing homework in class. 1 instructor have mentioned helping students to plan their work and set priorities as well as explaining the value of it as a method that seemed to work.

Student Survey

Question(Q) 1 shows that the attitude of the pupils about homework is divided. It is important here to look at the individual results to understand that about 20% of the students have a neutral attitude while the rest is halved and feels strongly against it or does not mind too much. (just 1 person felt strongly positive about homework)

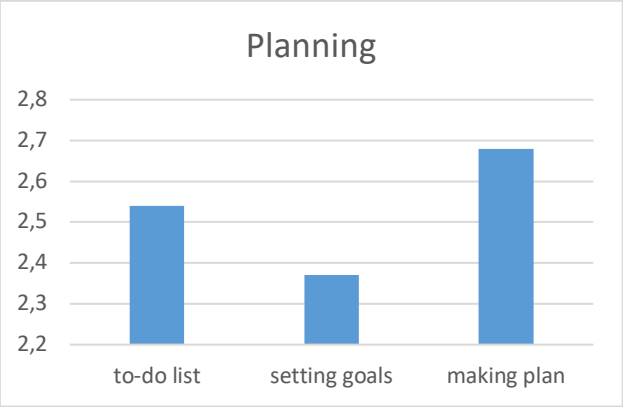




Question 3, 6, 7 and 10 and the resulting values depict a high motivation level in the 3.5-4.0 area. The category of motivation involves questions concerning following a timetable (Q3 &7) as well as time management in general.

Q4 and 8 reflects that self-efficacy levels with values over 4,0 and 4,5 are very high in the group of surveyed students, which was VWO level with bilingual students being the majority.

Question 5, 9 and 17- in terms of planning - show lower numbers in the 2,-2,5 interval. The lowest value is for Q9, which asked about setting goals when doing homework. Students seem to do better in regard to drawing up a plan about what needs to be done, as Q5 and 17 reveal.



Questions about what helps

Q16 with a value of 2,69 shows that students value it more than not when the teacher asks them to summarize the lesson and points out important parts, however, Q12 returned the result that teachers do it little. Q13 with the value of 2,62 is rather midrange about teaching strategies to students how to tackle their homework. Q 14 shows that students find it a bit more useful than not to make a plan before starting homework. Literature reports that teaching strategies are very helpful in becoming an independent learner as well as drawing up a plan (Zumbrunn, Tadlock & Roberts, 2011). Looking at the actual numbers per person, only about 20% was neutral on this question with the rest giving a definite yes or no. This reflects that about 40% of the pupils do it well and the other half does not. Q 11, 15, 18 and 19 reflect that students find taking notes very useful, they practice it and take quality notes for themselves. Looking at the individual numbers, it is clear that even the students with a negative attitude towards homework and no planning in place find notetaking helpful. Finally, Q2 with a returned value of 4,5 reveals that most pupils have a regular, secluded place available at home for studying.

Conclusions

It is safe to say based on this analysis, that students do not love homework. About 20% accepts it, while about 40% feel strongly against it with the rest not minding it most of the times. The high numbers for self-efficacy reflect the strong academic level of the students and also suggest that the problem with homework completion lies rather with attitude and organization than not feeling competent in executing homework duties.
Reading the tables horizontally - focusing on the individuals – it is concluded that students who report good time-management skills also make a plan or find it useful. The same pupils follow a study schedule most of the times, hence showing good practices for self-regulated learning.
In terms of what and how to teach, teachers should ask students to summarize the lesson content to help them with their homework. As discussed later in this paper, literature is clear about teaching *strategies* as a part of the self-regulating cycle (Zimmermann, Bonner & Kovach, 1996), therefore teachers should do this more. The fact that 40% of the pupils do not find planning useful while another 40% do might indicate that the latter part of the group needs help learning how to plan properly.
Setting goals showed the lowest number in terms of planning.
Luckily, a majority of the students have an undisturbed environment set up for studying, which means that only the self-imposed distractions could hinder them from completing their homework.
From the short answers that students gave for the last two questions and their ideas what would help them to complete their homework, two particular responses stood out: time management and making a study plan.

Distortions

It takes time to make a plan and prioritize and students already feel overburdened and often run out of time as found out from the short answers. This could have caused the negative answers about how helpful homework planning is.
There is a discrepancy between the answers given about what would help (time-management and planning) in the short answers and the answers given in the motivation category (high values), which were based on time managements and following a schedule.

This could be however, that exactly the 40 % of pupils find the idea of time planning useful who had returned low values on those questions.
The reliability of the student survey might be affected by instances when an individual scored very differently on similar questions. Occurrences of pupils reporting a negative attitude, but high motivation and self-regulating skills is also suspect for unreliable data.

2.3.Literature review

2.3.1 Introduction

The beginning of secondary education is the age when pupils start experiencing significant homework and studying responsibilities which require self-management skills. If these demands are not met, students' academic identities can suffer and even erode. Kistner, Rakoczy & Otto state that self-regulated learning (SRL) can make the difference between academic success and failure for many students (as cited in Zumbrunn, Tadlock & Roberts, 2011, p. 7). Due to the growing demands of school, it is increasingly important that educators include fostering self-regulatory skills in the curriculum, which in turn means that learners will take control of their learning process. This literature research is seeking the answers to the following sub-questions in order to answer the main research question of the paper:

- *What does it mean to be a 'self-regulated learner'?*
- *What is the attitude of students towards homework?*
- *How can learners be helped to become self-regulated in terms of completing homework?*

Several course books as well as extracurricular academic literature were consulted along with quantitative data from government sources and relevant online articles on the topic of self-regulation and homework completion.

2.3.2 Review

A 2014 publication by the Organization for Economic Co-operation and Development (OECD) provides valuable information on Dutch students' studying habits, including how much time they spend on homework. According to this report (2014, pg. 424), students in the Netherlands spend a weekly average of 5.8 hours on completing homework. This number is based on principals' and students' self-reports. It is higher than the OECD average of 4.9. These numbers reflect, however, only the time spent but not the quality of work or the effectiveness of using this time. Statistics Netherlands (2001), a Dutch governmental institution, reports that although one in five pupils think that homework takes up a lot of their time, most pupils consider they spend neither a large nor a small amount of time on schoolwork, therefore attitude towards workload seems to be neutral. In terms of time management, six out of ten pupils are reported to start their homework within an hour of coming home from school. At the weekend most homework is done in the afternoons. Sunday afternoon in particular is a popular time for homework. According to this source, parental involvement in the first years of secondary school is scarce beyond prompting

pupils to study for a lesson or test. These insights might be of help to discover what the reasons are behind teacher reported homework completion problems.
Self-regulation is a process that has many factors and motivation is an essential one (Zumbrunn, Tadlock & Roberts, 2011, p. 7). Geert & Kralingen (2018) state that it is important to appeal to the students' autonomous motivation because students then are better able to plan their workload and activities, are less likely distracted and able to obtain higher academic results. All these factors are in line with Zimmermann's (2002) and Zumbrunn, Tadlock & Roberts' (2011) work below, regarding learning strategies.
Woolfolk, Hughes & Walkup (2013, p. 521) add that self-regulation depends on motivation and instilling a sense of responsibility in the students. This last idea is crucial in order to achieve that students will self-manage. Self-management is important so that students can deal with complex learning structures and teachers can move away from demanding obedience and foster self-control in students. Through self-control, students demonstrate responsibility. The way to develop self-control is by making choices, dealing with consequences, setting goals and priorities as well as managing time, just as it was also ascertained from Geerts & Kralingen (2018) below. Zimmermann (1996) also says that to achieve self-regulation, motivation and a feeling of self-efficacy is needed as well.

In order to become a self-regulated learner, students need to take responsibility for their learning. According to Geert & Kralingen (2018, p. 170), student responsibility can be cultivated by delegating tasks, which means that the teacher transfers the task to the student but monitors the effect of agreements made between educator and students. This source also says that teachers should react responsively to students' problems with delegated tasks. This means that the teacher needs to help the pupils to discover what their obstacles are, let that be distractions or other factors. In turn, this creates ownership of the learning process by the students. Part of the teacher provided guidance falls in line with what Zimmermann, Bonner & Kovacs (1996, p. 8) mentions, whose second point about guidance is helping to set goals. The teacher's role is to help pupils draw up a plan in order to achieve a particular goal. This plan should include possible resources and a timeline (Geert & Kralingen, 2018, p. 168) as well.

Zimmermann (2002) outlines a learning process that encompasses many of the above points of how to help students become self-regulated learners. This learning process is comprised of phases such as the *forethought and planning phase* as the first step. This includes strategies such as analyzing the task and setting goals. Then comes the *performance monitoring phase* which includes strategies to monitor implementation and progress, effectiveness and motivation. The last one is the *reflection on performance phase* where students evaluate and manage emotional responses to the outcomes.

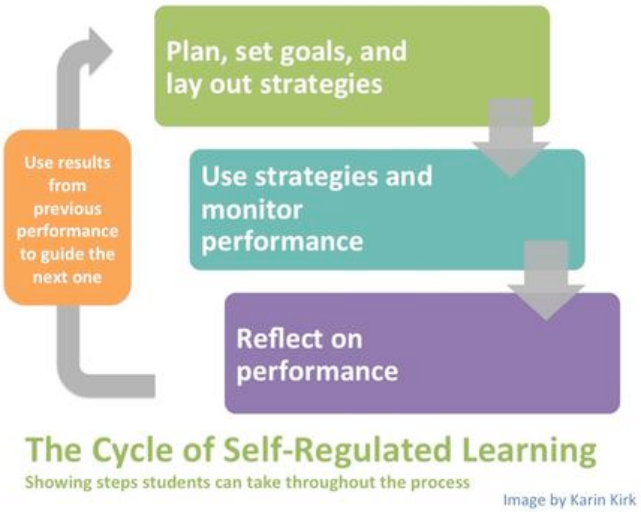


Image 1. The Cycle of Self-Regulated Learning taken from https://serc.carleton.edu/sage2yc/self_regulated/what.html

Zimmermann, Bonner & Kovach (1996, p. 9) claim that teachers can help students become self-regulated learners by making learning methods and techniques the primary focus of homework. Moreover, homework can be structured to increase the use of learning strategies and students' self-monitoring of attaining their goals. Therefore, homework exercises should include not only content but self-regulatory training as well.
Self-regulated learning strategies are as follows, according to Zumbrunn et al. (2011, p. 10):

- Goal setting. Goals are important because they determine the individual's actions. Setting effective long-term goals and breaking them down to short-term components.
- Planning. This is in support of goal setting to achieve the aim. It includes analysing the task, establishing strategies and determining how much time and resources will be needed to attain the goal. Zimmermann et al. (1996, p. 33) also mention that in terms of time planning, students should set regular study periods to create a habit – and reduce planning. Since students tend to underestimate the required study time to complete homework, they should overestimate until a good gauge is achieved.
- Self-motivation. This is when the learner independently chooses strategies to keep themselves on track and assumes responsibility for their own learning.
- Attention control. This requires significant self-monitoring and entails seeking out environments conducive to learning (i.e. own room) and consciously avoiding distractions. Zimmermann et al (1996, p. 33) agree that a regular study area that is well-lighted and free from distractions has proven effective for many in terms of self-management (e.g. library). Students should also be able to say no to social requests in their appointed study time.
- Self-monitoring. This belongs to the second step of the cyclic model of SRL. It means that the student is aware of the aforementioned strategies and metacognition is present. Pupils start implementing the strategies and make changes depending on peer and teacher feedback and self-monitoring.
- Help seeking. High-achieving students frequently ask for help in order to become more autonomous. Teachers can help with continuous progress feedback and letting students submit work after making changes.

- Self-evaluation is the last step in the instructional model. This means that pupils monitor their performance outcomes and learning strategies to determine effectiveness. Based on the results, the students alter their strategies if the desired outcome has not been achieved yet. Ur (2012, p. 169) agrees that self-assessment can be a valuable tool to instil the skills of reflection and taking responsibility in students.

Other self-regulating strategies mentioned by Zimmermann et al. (1996, p. 33) are prioritizing tasks and self-reward. The former is important when students have many homework assignments and need to decide which one needs to be completed first. In general, it is better to start with the difficult subjects as attention is stronger at the beginning of the study time. The latter one uses a reward as motivation, which is withheld until the task is completed. This can be food or watching television and gaming.

In DiBenedetto's (2018) compilation of the usage of SRL methods by subject, homework has its own chapter. In this chapter, Bembenutty & Hayes (cited in DiBenedetto, 2018) refer to Zimmermann's work and confirm its findings. The notion of breaking down self-regulation by subject is a new one and allows a better understanding of how homework can be guided by SRL. This source provides two forms. One is a lesson self-monitoring form that includes setting goals, choosing strategies and assessing pupils' self-efficacy throughout the process of completing a task. The other is a homework log that also includes setting goals, indicating self-efficacy beliefs and dealing with distractions. This form should be integrated with content homework and discussed in class as well, in order to show its value to students. Bembenutty & Hayes (2018) have the opinion that the self-monitoring form starts the motivation in class, which carries over to the completion of their homework. Filling in the homework keeps the motivation alive for class, therefore creating a perpetual cycle of stimulus. The same source mentions making homework meaningful, which in turn helps with self-motivation. This can mean personalized homework with opportunities for autonomy, providing a need to use strategies learned in class and keeping up to date with the curriculum. Good rapport with the students can help initial motivation to complete these logs as well.

2.3.3 Conclusion

Statistics show that the majority of students accept the amount of homework in the Netherlands and manage their time acceptably when completing it. The problem lies with the minority who are unmotivated or have belief or time-management issues regarding doing their homework. These students can easily fall behind, and it is then even more important for them to do work on their own.
There is general agreement in the literature about what self-regulation means and the findings are consistent about what helps to train pupils to become self-regulated. First of all, there is a strong relationship between SRL and motivation, and the teacher should ensure that students see the value of the learning activities. Feelings of self-efficacy, meaning how competent the learners feel about homework also play a large role in completing it successfully. These are important aspects that teachers have a lot of control over. However, this paper is more concerned with other factors of SRL that the students can cultivate

through instruction and modeling. For example, the teaching of students to take responsibility for their own learning by setting goals and priorities and managing their study time. Teachers can delegate tasks, such as in homework but need to make sure that they monitor the agreements between educator and pupils, as well as the outcome. Students also need help with becoming aware of obstacles and distractions and how to handle them, to create an environment conducive to learning. Making a plan listing resources and a timeline in the case of longer projects can prove to be invaluable for completion.
Self-regulated learners also adhere to a cyclical method of learning. Zimmermann's (2002) cycle is comprised of a planning, a monitoring and a reflection phase that can be applied to any learning task. Furthermore, literature reveals that teaching self-regulation can be part of homework. An example for this is DiBenedetto's (2018) self-monitoring form and homework log that use most strategies listed above. Self-motivation, help seeking, self-reward and self-evaluation are added to the above strategies as useful methods on the road to becoming self-regulated learners. As a last point, creating meaningful homework assignments certainly helps learners with motivation and self-management. This can be achieved by personalizing the material that is delineated with the curriculum and providing autonomy by giving choices.

The product and manual

3.1. Conclusion of the research

According to the data analysis, teachers can help students become self-regulated learners when it comes to homework by helping them organize and manage their tasks. This means drawing awareness to the usefulness of setting goals, planning and time management. Students reported that summarizing the lesson material also helps with homework completion. Literature suggests that teachers sharing studying strategies how to tackle homework is beneficial for students. When asked in the survey, the majority of the students reported planning and time management as the top ideas for successful completion of homework. The fact that 40% of the pupils do not find planning useful while another 40% do might mean that the latter part of the group might need help learning how to plan properly. Since most students have an undisturbed area set up for studying, only self-imposed disruptions can mean a problem. Therefore, drawing awareness to this is desirable and teaching strategies to eliminate distractions would be very helpful, as literature suggests. According to literature, motivation and feelings of self-efficacy plays a major role in successful homework completion. These were less of a factor due to the high academic level of the surveyed students, however, there are always less motivated students. Therefore, the teacher should use their influence and skills to ensure high levels in these areas. Literature confirms that setting goals, making a study plan and managing time well are crucial skills to become self-regulated. Teachers can also help students by raising awareness of their obstacles and teaching strategies that are conducive to studying on one's own, such as self-motivation, self-reward, help seeking and self-evaluation. Self-regulation assumes and uses a cyclical method that involves planning, monitoring and reflection phases. Teaching this cycle can be delegated as part of the homework by the use of a log. Teachers can further increase

homework completion by assigning meaningful tasks and giving students some control over it, such as autonomy with how to achieve a task.

3.2. Design criteria

The literature is rich in research about self-regulated learning however, practice does not reflect much implementation of these findings and solutions. The Zimmermann process is very time-consuming, running for weeks and it is easy to conclude that teachers just do not have the time to teach strategies and set-up forms about setting goals and plans in a systematic way, which would again take away from class time. The curriculum is overloaded as it is, and teachers feel pressured to teach what the pupils will be tested on. All of the above suggests that optimally changes should be made on the institutional level - if not national - to allow teachers to allocate the time and resources for preparing students to be self-regulated learners (Zumbrunn et al. 2011, p. 17) For these reasons and to be practical, the product should be designed to be time-efficient and easy to implement and integrate without taking up much class time.
Based on the findings and the final conclusion, design criteria was formulated, the goal of which is to help students become self-regulated learners in terms of completing homework. According to this the product should: (short check list)

1. Help students with organization
2. Help students manage their time
3. Help students be aware of distractions and help manage them
4. Promote metacognition/self-monitoring
5. Promote strategies to tackle homework
6. Help teachers understand what is up to them (mot, personalization, etc)
7. Should not be time-consuming

Detailed check list:

1. The product should help students with organization such as setting goals, making a plan and prioritizing because pupils had low scores in these areas, as was clear from the data collection. Woolfolk, Hughes & Walkup (2013, p. 521) suggest the same.
2. It should help students manage their time by planning, setting time limits for each task and a finishing time. Geert & Kralingen (2018, p. 170) state similar findings. Data analysis suggested that the students who were good with time management created a study plan.
3. It should help students be aware of distractions and help manage them, based on what Geert & Kralingen (2018, p. 168) claim and because pupils reported problems in this area on the survey.
4. It should promote metacognition and self-monitoring based on Zimmermann, Bonner & Kovach's (1996, p. 9) findings, which claim to foster self-regulation. For example, to ask students to make a plan, follow their learning process and reflect on it.
5. It should promote strategies based on Zumbrunn, Tadlock & Roberts' (2011, p. 7) work, which reinforces the idea of making a plan, goal setting and adds other strategies such as self-reward, etc.

6. It should help teachers understand their responsibility in the process of learners becoming self-regulated, based on feedback from the student survey and the findings of Zumbrunn et al. (2011, p. 7) and Geert & Kralingen (2018). Examples are instilling self-efficacy, giving autonomy, etc.
7. Should not be time-consuming, for practical reasons mentioned above.

3.3. Description of the product

The goal of the product was,

- on one hand, to support the students in becoming self-regulated learners
- on the other hand, to raise teacher's awareness of strategies that help.

As an additional benefit, the student product can also be used to involve parents in the process.

1. The homework log

It is a form adapted from Bembenutty & Hayes (cited in DiBenedetto, 2018), with the help of which students can learn the cycle of self-regulated learning. The log makes use of all 3 phases, such as planning, self-monitoring and reflecting, based on the theory presented by Zimmermann (2002). There are several questions within each phase that ensure that students use the strategies that promote self-regulation, such as goal setting, checking self-efficacy, getting rid of distractions, evaluating the outcome and more. The form was modified and extended with additional questions about time-management and strategies and age-appropriate emojis were added to engage the students. The form can be started in the last 5 minutes of the class and finished at home. According to Geert & Kralingen (2018, p. 168), delegating tasks creates ownership of the learning process and the pupils will be more motivated to apply themselves to their studies. The learners fill out the form as they complete their homework and bring it back to class where the teacher can get a few pieces of feedback in the first minutes of the class in an effort to enforce the metacognitive process that the students are learning with the help of the form. As mentioned in the manual, the vision is to create teacher groups (e.g. 3/week/class) to administer the logs at the beginning of an academic year, where the homework load is not too heavy yet. This way students won't have to complete the form for all the subjects at once, the teachers will only be busy with this for a week and nobody will be overwhelmed. Another teacher group could take over the process for the second week and so on. A 3-week period will be sufficient for testing the product, as 21 days are said to be habit forming. After that the form can be repeated occasionally during the year, as needed. Before handing this form out for the first time, there should be some discussion about strategies to use, such as demonstrated in the teacher's presentation and made visual on the student's poster. Mentors would definitely be involved in the process and asked to do the initial discussion about strategies in the mentor hours.

2. Student poster

This product is a colorful visual aid, which is meant to be a quickly accessible reminder of the strategies they can use and the cyclical self-regulation process. This can be sent out to the

students digitally, or - if the school is ready to invest – printed and a hard-copy sent home. I envision it being hung above the study desk.
The research showed that parents scarcely help students in secondary school with their homework, beyond nudging them to prepare for a test (Statistics Netherlands, 2001). The involvement and cooperation of the caregivers is imperative, but it seems that they also want to move away from supervising and helping their kids with homework. For this reason, the teacher should send the homework log digitally to the parents as well as the poster, so they will also be aware of the strategies and rather focus on how their children can become independent learners. Part of the plan is also to present the poster and the homework log to the parents during the information evening with the mentor at the beginning of the year. This would serve the purpose of explaining how the process works and involving the parents in the triangle of education. (student-teacher-parent)

3. The teacher 'training' PowerPoint

This element of the product is to present to teachers the findings of the research and what they can do to support students on the road to becoming self-regulated learners. Part of it is a reminder of what we, as teachers can do in terms of motivation, giving choices, etc. The other part is explaining the delegation of the homework log and discussing the strategies that the form promotes. The manual explains teachers the idea of forming teacher groups and the logistics of a possible implementation. The teachers receive an annotated homework log, where the phases and the strategies are identified, for clarity. This way they can see exactly how the research applies to the log. The vision is to hold a training for teachers with the help of this PowerPoint.

Handover and Evaluation

4.1. Handover

I asked my mentor and a number of other teachers, mostly who have answered my survey for the research, to participate in the presentation of the teacher PowerPoint and the products. The goal was to test the teacher PowerPoint and receive feedback on its clarity and effectiveness, as well as the other two products, namely the homework log and the poster for the students. I invited these teachers and e-mailed them the summary of my research so they could get acquainted with the findings and therefore better understand the products. I also printed copies of the manual for display, as well as the student homework log and the poster. The teachers received a 'teacher version' of the homework log, where I annotated the different steps and phases, according to the research findings for clarity. I also provided a feedback form based on the research evaluation form, so they can share how they would grade the products on a scale from 1-5 and take notes of the strong and weaker points as well as give recommendations and tips for adjustments and further research.

4.2. Evaluation

The teachers were very interested to hear my findings and to learn about the products. They especially liked the clarity of the teacher PowerPoint, the poster that is easy-to-use and the fun, engaging nature of the homework log with the smileys. They found the product a great quality, the manual helpful and my explanation of the aim of the products clear. A teacher expressed concerns about students actually having to do more as the homework log would add to their workload, which is something I have also thought about. The solution to that could be to start training students at the beginning of the year, when homework load is typically smaller. Also, to explain how learning this metacognitive process will create a habit and help with planning and time-management, which they pointed out as their biggest obstacles in homework completion. Unfortunately, the time has to come out from either the lesson time or the homework time, that's why I proposed to start the homework log at the end of the lesson and finish it at home, as a compromise. My colleagues also gave tips for adjustment and further research. It might help to get students cooperate if the form is only 1 page long and to test on students this year and revise the log accordingly. They loved the idea of making teacher teams to work with these products, so the workload is reduced for both teachers and students. I was encouraged to try it out this year and I was also asked if I would agree to giving the teacher training presentation next year as well as presenting to parents how they can get involved, during information evening at the beginning of next year. Naturally, I said yes as I'm also really curious to see the products tested in the classrooms.

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Image 1
The cycle of self-regulated learning Retrieved from https://serc.carleton.edu/sage2yc/self_regulated/what.html