Evaluation of Character Education Program in Mathematics Learning at Schools: Review of Evaluation Results

T W Anggraini1 and H Retnawati2

1Postgraduate Mathematics Education Program, Yogyakarta State University, Sleman, Indonesia

2Mathematics Education Study Program, Faculty of Mathematics and Natural Sciences, Yogyakarta State University, Sleman, Indonesia

E-mail: 1tiarawahyu.2019@student.uny.ac.id, 1tiarawahyuanggraini18@gmail.com, 2heri\_retnawati@uny.ac.id

**Abstract**. Character education is one of the important things in the formation of student character. With the existence of character education conducted, it is hoped that the creation of good student character in terms of attitudes, behaviors, ways, and qualities that can distinguish people from one another. Character education that is integrated with mathematics learning is contained in a learning device that is loaded with character values ​​on each subject of mathematics so that it becomes the teacher's guide when carrying out mathematics learning. This article is a review of three evaluation studies related to character education programs in schools conducted at Indonesian schools in 2014, 2017, and 2019, each of which was published in the Mathematics Education Research Journal, Education Management Journal, and Prima edukasia Journal. The results of the review indicate that the implementation of character education programs in learning mathematics at schools is considered sufficient. Various obstacles faced include teacher knowledge about implementing character education in mathematics learning, lack of use of conventional learning methods that do not facilitate students to be more active, attitude assessment which is still not well documented, limited infrastructure in supporting character education and lack of support parents in conducting character education at home.

1. Introduction

Along with the times, in this 21st-century technology and information, are developing so fast that information about events that occur at this time can be directly accessed and obtained one through in the smartphone. So it is not uncommon to find at least people who have smartphones that can be used to access any information without limits or the term "the world is in our grasp". They can access the internet whenever and wherever they want. When someone accesses sites on the internet, someone can not control them, only themselves can control it. Adults who can distinguish between good and bad can still do things that are despicable in accessing the internet, such as plagiarism, pornography, or fraud in the name of family or close friends. Especially children now that this is his day, which makes them able to learn to use the internet faster than parents. These things are feared.

The use of the internet is very beneficial especially for children, they are easier to access lessons and learn from it. However, the media that advertise or even make videos that contain these unnatural things that sometimes make parents uneasy. The result can affect the character of children, whose purpose was to access the internet to learn, but what happened instead was watching less useful videos. Worse yet if they are addicted to playing online games, which eventually becomes little or no learning time. Therefore, the role of parents and teachers is very important here, to pay more attention to what their children access when using the internet and how teachers make students more focused on accessing the internet for learning rather than using it for other things.

From this it can be seen, with habits carried out by students will shape its character. If he does his habit with good things, it will lead to good character. Conversely, if he does bad habits, of course, will harm his character as well. According to Rokhman et al. [1] A person's character when viewed from a psychological standpoint, includes aspects of behavior, attitudes, ways, and qualities that can distinguish one person from another person. If someone has a good character it will reflect their attitude, behavior, and way of thinking that is good too. However, if someone has a bad character, in the sense that people do not have manners, dishonesty, and others, it will reflect the attitude, behavior, and way of thinking that is bad too.

Therefore, parents and teachers have an important role in shaping the character of students both at home and at school. The parents can make character formation at home one way by getting children to kiss the hands of their parents when going to school and after school. While the teachers can form the character of students in school by accustoming students to wash their hands when they have finished their activities or community service to avoid the inherent viruses or bacteria. Especially as it is today, due to the coronavirus outbreak or COVID-19 which requires all of us to wash our hands when we come out of the house and after handling surrounding objects outside because we are afraid of having a virus attached so that it will move into our hands. With the supporting facilities and infrastructure as well as the people around students also direct and teach students good things, character education will certainly run well, so that what is desired can be realized.

Besides, İpşir [2] said the teacher must have good communication skills and the ability to create a positive environment so that these things can overcome the negative behavior of students. Furthermore, İpşir [2] added not only to communicate, but the teacher also had to listen to students effectively, use good body language, and also have good eye contact. That way students will feel comfortable and try to open themselves. For this reason, cooperation between teachers and parents is expected to be able to improve student behavior, so that if negative student behavior can be directed to better by finding out the reasons.

1. What is Character Education?

Character is the culmination of individual habits generated by ethical choices, behaviors, and attitudes, and is the "moral superiority" shown by an individual when no one sees it [3]. This means that a person's character will be formed from the habits that he does every day. Good habits that he does will reflect the good character as well. Conversely, bad habits must also reflect a bad character.

Also according to Rokhman et al [1] character is an aspect of behavior, beliefs, feelings, and actions that are interrelated with one another so that if someone wants to change certain characters, then they need to rearrange the elements of their basic characters. This indicates that a person's character can be changed. Such as someone who promised but then he did not keep his promise, as a result, he was no longer trusted. To fix it, he must show again that he will keep his promise, by not repeating to not keep promises, and every promise he conveys he must keep.

Character education is very important to do at school and home because character education is seen as an effort made by educational institutions in forming positive character values ​​for students [4]. As we know from the mass media, that the behavior of students today is very scary. Starting from cases of weak student bullying, lack of courtesy to teachers, and beating of fellow friends, theft, and others. It is these things that we must correct and eliminate such student characters so that these cases can be reduced or may disappear. Character education teaches how to think and behave in habits that help a person to live and work together as a family, community, and country and help them to make responsible decisions later [5].

Siswono [6] said to develop academic abilities and build student character in the classroom, character education can be included in the design and implementation of strategies or learning models that have been designed. With this character education, it is expected that the teacher can associate the characteristics of the values ​​in existing subjects, such as in mathematics learning the teacher teaches values ​​related to student reasoning, by giving questions that require reasoning when completing them. Based on some of the definitions above, the writer can conclude that character education is a process of developing one's ability to think, behave, and act in solving a problem.

1. Implementation of Character Education in Learning Mathematics at Schools

Mathematics learning is a difficult subject according to students. So it is not surprising that most students do not like math, which makes their learning interest less even they prefer to sleep in class or skip class for math. This raises the lack of students who are able and willing to learn mathematics. For this reason, teachers are required when learning mathematics not only to teach mathematical material but also how teachers educate students to build and sculpt characters. How the teacher makes learning mathematics as a vehicle and media in the formation of student character, thus learning mathematics is not only focused on cognitive assessment but also develops students' psychomotor and affective assessment [7].

Besides, educational philosophers also think that character education is an important component of mathematics education, one of which according to Pestalozzi (quoted from the book Humanism and science, 1996), which states the purpose of mathematics education is important to grow the character so that it develops cognition and power of thinking individual [8]. With the existence of character education in schools can develop ways of thinking and behaving students well. It also trains students on how to behave when facing a problem.

1. Constraints Faced in Implementing Character Education at Schools

**Character education is an important thing to do at school and at home. Because that way can train students to develop character both in terms of thinking and attitude. However, with the holding of this character education program, it certainly has obstacles in implementing it. It is hoped that these obstacles can be overcome so that character education can run smoothly.**

Lee [9] identified several main problems in carrying out character education in schools as follows: (1) Only a few teachers have the professional capacity in the realm of morals and character education, (2) some parents object to the education process character, (3) students are more stressed in academics, and in the end, they must focus on achieving cognitive learning achievements, and (4) there are difficulties in maintaining character education continuously [9, 10].

As mentioned above, the first problem in implementing character education at schools is that there are only a few teachers who have the professional capacity in the realm of morals and character education. This means the teachers are limited in the field, while the students who will be handled maybe hundreds or even thousands which will later make the teachers overwhelmed in guiding. Then the second is that many parents object to the character education process, this may be caused by the busy parents with their respective jobs so that no time is spent on participating in the character education process. Also, parents have entrusted their children to be educated in school both in terms of cognitive and affective, so they do not want to take care of the character education process and leave everything to the school.

Then the third is where students are more stressed in academics so that requires them to focus on the achievement of cognitive learning achievement. This is caused by two factors, namely parents and friends. Most parents would want their children to get good grades, so they often "force" their children to study harder. Even worse they will scold their children if the grades are bad even though the child has tried as much as possible. Meanwhile, in terms of peer factors, students who are dissatisfied with their grades and are jealous of seeing their peers who get good grades make themselves try hard to study harder so they can be like their friends and also want to get praise from their teachers and friends. It is these things that make students depressed that requires them to achieve good cognitive learning achievement.

The last, there are difficulties in maintaining continuous character education. Existing character education implemented in schools is sometimes difficult to maintain. Examples of cases such as the rules in UNY's food court. When these rules were made, most students obeyed the rules of returning the cutlery to their original ordering place. However, some individuals do not, even inviting and influencing other students to disobey the rules. So that more and more students do not follow these rules and activities begin to fade, consequently only a small proportion of students still obey these rules.

1. Solutions for Implementing Character Education at Schools

Solutions to deal with the obstacles that have been described above are first, for the problem of the lack of teachers who are professional in morals and character education, training can be done for other teachers in the character education process so that it is expected that not only professional teachers can implement the character education process but also other subject teachers as well. It also supports the implementation of the 2013 curriculum so that there are no more teachers who are confused about implementing character education in the classroom. The reason for doing so is to improve teacher work skills, expand teacher experience, develop professional knowledge and understanding of teachers, increase job satisfaction, and allow teachers to anticipate and prepare for change [11]. Besides, the completeness of infrastructure is also important when implementing character education at schools. As stated by Zurqoni et al [10] namely the consequences of schools when implementing character education at schools are to prepare some supporting facilities and also some activities that lead to character education so that patterns are formed as a catalyst in character development.

Regarding parental involvement in the character education process, teachers may be able to provide parents with an understanding that character education is not only at school, but the role at home is also very important. Syarbini [12] states that character education is effective and intact if it involves families, schools, and communities, if one is ignored then character education will not go well, especially those that are ignored are families. Forming characters in schools has a limited time, especially when students are more at home than school. The role of parents at home in guiding the process of character education will also affect the school, and vice versa. The process of character education at home is not difficult, parents can familiarize their children to kiss their hands when going to school and from school, get used to read prayers when eating or sleeping, teach children to always tell the truth, and so forth. Also, sometimes the behavior of children follows the behavior of parents, therefore as much as possible parents give examples of children behaving well starting from themselves.

Related to the problem of students who are stressed in academics that require them to excel in cognitive learning, parents should not force students to learn continuously. As you know, each student must have a different field of specialization. Indeed students are required to get good academic grades, but all of them need a process. If there are students who have low academic grades, students should be enrolled in tutoring or their parents who help them learn. But as much as possible the parents are patient in teaching it, because if with anger, believe the student can not understand well what is taught. When the student gets a bad grade, even though he tries as much as possible, parents must give a response that encourages them instead of scolding him, and invites the student to review the answers again so he can find out what makes the score low. As Harianti and Amin stated [13] that if parents are open and always providing time will help the child will increase their enthusiasm for learning so that children will optimize their thinking potential in school and always try to do their schoolwork properly.

To maintain the ongoing character education process, which is to foster student awareness of the importance of character education, such as frequent washing of hands when cleaning or when eating. Teachers can educate that if we don't wash our hands the germs in our hands can move into our bodies through the food we hold, as a result, we can get sick. If there are signs of fading from the activation process, the teacher can impose sanctions on students so they do not violate again.

1. Methods

This article is a review of three evaluation studies. The findings obtained based on the review process can be used as input which can later be useful for writers and readers. The three articles used by the author as the main source for review are as follows.

1. Pertiwi, I., & Marsigit, M. (2017). Character Education Implementation in Mathematics Teaching and Learning of Junior High School in Yogyakarta. *Jurnal Riset Pendidikan Matematika*, *4*(2), 153. [14]

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Results of evaluation research in this article: Character education implementation in mathematics teaching and learning of junior high school in Yogyakarta is categorized enough, with an average score of 62 out of a maximum score of 100; At the planning stage it is categorized as sufficient because most of the teachers have made syllabus and lesson plans but are still experiencing difficulties especially in identifying the character values ​​of existing basic competencies; At the implementation stage it is also categorized sufficiently because most teachers still use conventional learning so that it does not facilitate students to be active in learning and consequently the implementation is not optimal; At the assessment stage it was categorized as lacking because most of the teachers had not yet conducted an attitude assessment so there was no attitude assessment documentation. The supporting factors include: (1) the vision and mission of the school, (2) the existence of rules and regulations that have been arranged by the school, (3) there is good support and cooperation between the school environment and the school community, (4) the average students already have a good character base, and (5) the teacher gives examples of behavior positive that is to be an exemplary teacher; The inhibiting factors include: (1) lack of teacher understanding of the concept of character education in its implementation in learning mathematics, (2) teachers still have difficulties when identifying character values ​​that exist in the basic competencies of mathematics subjects, (3) teachers have not been able to implement character education which is well integrated with learning mathematics, (4) inadequate facilities and infrastructure, and (5) documentation of students' attitudes that are not optimal.

1. Taunu, E. S. H., & Iriani, A. (2019). Evaluation of Integrated Character Education Strengthening Program for Mathematics Subjects in State Junior High Schools. *Kelola: Jurnal Manajemen Pendidikan*, *6*(1), 64–73. [15]

DOI: https://doi.org/10.24246/j.jk.2019.v6.i1.p64-73

Results of evaluation research in this article: Implementation of integrated character education in mathematics in SMP Negeri 2 Waingapu is carried out starting from the planning, implementation, and evaluation stages. The role of the teacher in implementing character education at the three stages is not optimal so that the character education program runs as it is; The existence of positive influences and negative influences when conducting this program, the positive influence is the behavior and achievement of students for the better. While the negative effect is that the workload of teachers has increased, especially in attitude assessment; Factors that become obstacles in implementing character education are inadequate facilities and infrastructure, lack of professional educators, limited access to information and differences in student competencies so that there are still students who behave not as expected.

1. Darmayanti, S. E., & Wibowo, U. B. (2014). A Program Evaluation of Character Education in Elementary School of Kulon Progo Regency. *Jurnal Prima Edukasia*, *2*(2), 223. [16]

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Results of evaluation research in this article: Elementary school readiness in Kulon Progo Regency in implementing character education is assessed both seen from the curriculum that has integrated character education, but the infrastructure that supports character education is still lacking. Besides, the lack of knowledge and skills of teachers about character education; The implementation of character education in learning has not yet been seen; There is support from the government in socialization or training, but schools feel that socialization or training is still lacking; Monitoring and evaluation of character education are still limited to the curriculum and is only done through the guidance of supervisors in each school; Common obstacles faced by schools are the assessment of student attitudes that have not been documented, the understanding of teachers in implementing character education is still lacking, and there is no synergy between education at school and education at home.

1. Result and Discussion

Based on the three evaluation research articles above, it can be seen that the implementation of character education in schools is still quite well categorized in terms of planning, implementation, and assessment. In the planning stage, teachers have made learning tools, syllabi, and lesson plans, but they still have difficulty in identifying character values ​​with existing competencies so they need knowledge and skills about character education, especially in learning mathematics. At the implementation stage, most schools still use conventional learning methods in which learning is still centered on the teacher and the teacher will transfer his knowledge without involving student activism [17]. This certainly makes students passive in class, they only listen and record what is taught by the teacher or can be said one-way interaction, as a result, the implementation of character education is not optimal.

However, some schools have a positive influence on the implementation of character education in terms of achievement and behavior. With the integrated character education in mathematics learning, students' behavior changes, they are more responsible for completing the given tasks, maintaining cleanliness, tolerance, discipline, and their achievements are also slightly improved although not significant. But there is a negative effect, the teacher becomes more workload, namely in terms of assessing student attitudes. The many demands of the teacher's work can also be one of the factors that makes them ignore the attitude assessment, and because the assessment of knowledge is more prominent then this is preferred. At the assessment stage, where the teacher does not understand the implementation of character education that is integrated into mathematics learning and how to identify character values ​​plus attitude assessment documentation that does not exist.

Every school that has been evaluated has implemented character education but the program has not run well due to several factors such as teacher knowledge in identifying character values ​​in mathematics subjects lacking, assessment of lacking even non-existent attitude documentation, and limited teacher training. This is supported by the opinion of Demirel et al [18] which states that the majority of teachers believe that character education programs in schools are efficient, but they think that programs in schools are inadequate for reasons of the situation namely the education system and shareholders in this system.

Besides, most of the schools that were evaluated had limited facilities and infrastructure, although several schools were quite complete in facilitating to support this character education program. This is very important to do because the facilities and infrastructure are supporting tools to train students in shaping their character. The statement was supported by Dudi and Hakim [19] who stated that facilities and infrastructure for students were important to pay attention to because this would support better implementation of character education in schools.

Then in the third article shows that the lack of the role of parents in conducting character education at home. Whereas character education at home is also important to support the formation of student character. The attitude of parents who are not uncommon is always busy making them no time to provide character education at home so they give everything to school. This is supported by research conducted by Sukestiyarno et al [20] who found a lack of character education learning in families, in which parents gave more confidence to school activities.

Based on some of the discussion above, it can be concluded that the application of character education programs in schools is still considered quite good. There needs to be improvements and improvements in implementing character education in schools. These things occur because of the lack of attention from the school about the importance of implementing character education in mathematics learning. Implementation of character education, especially in learning mathematics must continue to run and be further improved so that later the character of students can be formed properly. By running both character education at school and home it is hoped that it can shape the character of good students, so that the creation of someone who is responsible, disciplined, polite, and respectful respects both young and old. As a result, future leaders will be formed who can bring this country better than today.

1. Recommendation

The following are some recommendations given from the articles reviewed and collaborated with the opinions of the authors to be the solution in the future, as follows.

1. Schools need to invite supervisors or professional teachers from other schools to socialize in these schools about the planning and objectives of implementing character education. Do not forget also how to identify character values ​​in competencies, especially in mathematics. This socialization must be made to all school members so that a common understanding emerges that character education is very important in building the character of school residents. As for overcoming the problem of attitude assessment documentation by involving the role of the principal in checking and checking the document so that the teacher is more disciplined and responsible with his work. This is in line with the data obtained by Retnawati et al [21], which is a school that has an attentive principal who has good administration and a more professional teacher.
2. Schools must improve and carry out the management of facilities and infrastructure that support character education, such as places of prayer, places to wash hands, honesty canteen, toilets, libraries, cleaning equipment, school rules, attendance records, and so on. The things that already exist are to be utilized and maintained by all school members. As for the handwashing area and the honesty canteen, it needs to be held, because it is usually rarely found in schools. That way the school community will be better trained in implementing character education.
3. Teachers can use a variety of learning models or approaches that are certainly student-centered, such as contextual learning, cooperative learning, or problem-based learning. That way, students will be more active during learning.
4. No matter how busy the parents must take themselves to give some lessons that can shape the good character of students. Because it is right and the right of children to get it from their parents. Character education that parents can do at home is to get their children to do good things, like getting students to kiss their hands when going to school, inviting children to get accustomed to independently doing things that they can do, and good things others can form the good character of students.
5. Conclusion

The results of the review of the three articles found that there is still a lack of teacher understanding in identifying character values ​​that exist in competencies, especially in mathematics subjects. Professional teachers are also rare to give direction or socialization about character education in mathematics learning is also lacking. Also, most schools still use conventional learning when teaching to make students more passive in critical and creative thinking. Another important thing that is lacking attention from most schools is that they have limited infrastructure to support character education. Lack of the role of parents in character education at home is also one of the things that affect student character education. From this, it follows that the character education program implemented in schools has not been fully successful. Improvements and training are needed to improve the implementation of character education in schools.

For this reason, several recommendations can be given, namely (1) schools can invite supervisors or professional teachers from other schools to socialize in these schools about the planning and objectives of character education implementation and systematization in the assessment of character values ​​in mathematics learning, (2) there are improvements and procurement of facilities and infrastructure that support character education, (3) in the implementation of mathematics learning, teachers can use student-centered learning models or methods so that students are more active, and (4) character education at home is also important to do by students parents because character education at school is not enough.

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