Social justice in mathematics education for sustainable development

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Abstract. This article aims to examine the importance of social justice in mathematics education for sustainable development. One of the seventeen targets in Sustainable Development Goals is justice, peace, and strong institution. Mathematics education is a vital element for realizing sustainable development. Mathematics is very powerful to create a world. Because of that, social justice in mathematics education plays an important role in realizing sustainable development. This article discuss about the importance of social justice in mathematics education and how to integrate social justice in mathematics education can support the realization of sustainable development. The method of this study was a study literature sources that relevant to social justice in mathematics education for sustainable development. After studying the literature, we recommend for teacher to integrate social justice in teaching mathematics.

1. Introduction

Justices a term that is familiar to us all. The word justice has been universally accepted and everyone has different perceptions about justice, this is because justice itself is relative. An American philosopher named John Rawls who is considered one of the leading political philosophers of the 20th century stated that justice is the first advantage of social institutions, as is the truth in the system of thought [1]. In general, justice is defined as a condition of morally ideal truth about a matter.

Social justice is a form of togetherness in a society where each member is equal to each other in the acquisition of resources, even though they carry out different roles. The main purpose of social justice is to foster togetherness between citizens. Togetherness is needed to bear a heavy burden amid the rapid development of the times. There is a wheel of life that must be moved together so that each person in it is able to enjoy the available resources. Social justice is able to create a strong society, not only from the physical but also from each person's heart.

There are 17 Sustainable Development Goals (SDGs), namely (1) no poverty; (2) zero hunger; (3) good health and well-being; (4) quality education; (5) gender equality; (6) clear water and sanitation; (7) affordable and clean energy; (8) decent work and economic growth; (9) industry, innovation, and infrastructure; (10) reduced inequalities; (11) sustainable cities and communities; (12) responsible consumption and production; (13) climate action; (14) life below action; (15) life on land; (16) peace, justice, and strong institutions; and (17) partnership for the goals [2]. Based on this, one of the goals of sustainable development is peace, justice, and strong institutions. Thus, it can be said that social justice and Sustainable Development are two things that are inherent [3]. This means that if the community gets social justice then the ease of sustainable development will continue.
Education is one of the best tools that can be used to achieve the goals of Sustainable Development. Education plays a big role in changing the world. Mathematics is a global endeavor that has an impact for all of humanity. It is very powerful to create a world characterized by justice and peace. Therefore, this article discusses the importance of social justice in mathematics education for sustainable development and how to integrate social justice in mathematics education.

2. Methods
The method of this study was literature review method. By literature review method, the author collect relevant data or information about social justice in mathematics education for Sustainable Development. All relevant information or data were obtained from written documents in the form of books and journals.

3. Result and Discussion
3.1. Social Justice in Mathematics Education
Social justice in education does not care about background, family, race, class, language, culture ineducational conversations [4,5]. All students are entitled to the same assistance, entitled to education in accordance with the need to become agents of change, both for themselves or others. According to Jonathan O, social justice mathematics has at least two related components [6].

| Mathematics Literacy as a Civil Right or Social Justice Issue | Learning Issues of Social Justice in Mathematics Education |
|---------------------------------------------------------------|-----------------------------------------------------------|
| Lessons and activities that increase students’: mathematics literacy, problem solving, reasoning and critical thinking skills, ability to apply knowledge, sense of themselves as mathematicians, knowledge of the mathematics in their own culture, ownership of learning process, preparedness for mathematics based college majors and career | • Understanding issues of social justice through a mathematical framework |
|                                                              | • Developing realistic, justice, and mathematically sound solution to address these problem |

3.2. The Importance of Social Justice in Mathematics Education for Sustainable Development
Social justice and sustainable development are two things that cannot be separated [3]. They have a logical relationship. This means that a nation will not be able to achieve sustainable development if there is no social justice. Social justice is not sufficient for sustainable development, it is certainly necessary for it [7] Social justice as a base in both sustainable development and improved humanitarian welfare, with some reasons [8], are: (1) Social justice are ensuring justice and equality between societies and for all within; (2) Injustices power and access give impact for resources; (3) Social justice challenging racism and the other forms of injustice, discrimination, and inequality; and (4) Injustices affect contemporary local and global politics.

Figure 1 show that the application of social justice in mathematics education influences student attitude which can help the achievement of Sustainable Development. The following are the result of the application of social justice in mathematics education towards student attitude [9]. Student can acknowledge the power of mathematics as a basis analytical tool to change the world. (1) Student can deepen their understanding about local, national, and global issues; (2) Student can be mixed up in high level of thinking about mathematical ideas; (3) Student can be more motivated to learn mathematics (4) Student can participate in real community services projects and organizing campaigns; (5) Student can answer question “Why do I have to know this?” for themselves; (6) Student can develop problem solving and critical thinking skills; (7) Student can celebrate the rich diversity, view point and cultures of the world an explore the common humanity that underpins these [10].
How to Integrate Social Justice in Mathematics Education

3.3.1. Educators use a strong mathematical framework
The curriculum or textbook used has a good mathematical idea, because if it does it will have an impact on learning that will not be good either. Educators know clearly and well what will be discussed in the class. Education understands how to connect or adjust the problem of social justice with mathematics.

3.3.2. Educators and students discuss to determine the focus of the problem
Educators are tasked with changing the context of the curriculum into matters relating to the problem of social justice. Students will be more enthusiastic about learning problems that are in accordance with their interests and thoughts. Therefore, educators need to ask students what problems are of interest to them and what problems they are currently thinking about.

3.3.3. Educators prepare essential questions
The definition of essential questions here is a question that reflects the heart of the curriculum, something very important that must be explored and studied by students [11]. This question must have a component of social and mathematical justice for students. For example: "Does economic status determine who gets assistance from the Government?", "Does race affect who gets loans in cooperatives with low interest?"

3.3.4. Educators introduce the problem of social justice
The problem of social justice can be introduced through various ways, by showing videos, making field trips, through print media, and others. Educators help students to find out where lies injustice in the problem being studied. Give students the opportunity to engage in discussions.

3.3.5. Educators introduce mathematics
Educators convey how mathematics functions to solve big problems and understand social problems more deeply. The aim is to avoid questions from students about why we learn this.

3.3.6. Educators do not have to make social justice problems the focus of each lesson
Every learning does not have to be related to the problem of social justice. Students are also given the opportunity to do assignments or other activities that aim to deepen the mathematical concepts involved. Educators also give social justice problems regularly so that students have experience applying mathematics that has been learned in the real world.
3.3.7. Educators give great task at the end

Educators give students a great task that connects social justice problems with mathematical concepts. This task is the basis for assessing students' understanding of connecting social justice problems with mathematical concepts. Educators ask students to apply the mathematics they have learned to solve real problems.

4. Conclusion

Social justice in mathematics education is one of the important things needed to achieve Sustainable Development. The application of social justice in mathematics education influences student attitude which can help the achievement of Sustainable Development. There are several way to integrate social justice in mathematics education are educators use of strong mathematical frameworks, educators and students to prepare essential questions, educators introduce problems of social justice, educators to introduce mathematics, educators do don't have to make social justice problems, the focus of each lesson, and educators give great task at the end. The author advises educators to integrate social justice in mathematics education to help achieve Sustainable Development.

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Acknowledgments

I would like to express my thanks for lecturers of Departemen Pendidikan Matematika, Sekolah Pascasarjana, Universitas Pendidikan Indonesia who helped the author in completing this article.