The Effect of Socio-Emotional Learning on Students' Mathematics Competence

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ABSTRACT
This research is qualitative research that has aims to determine socio-emotional-based mathematics learning. Socio-emotional development is closely related to interaction, either with others or with other objects. Socio-emotional learning results in the creation of a harmonious learning climate or atmosphere and positive social relationships. The emotional atmosphere and positive social relations mean a good positive relationship between teachers and students or between students and students. Teachers' interpersonal behavior and social and emotional skills of students with emotional and behavioral difficulties showed that students' social and emotional skills were more determinants of their behavior than teachers' interpersonal behavior. Mathematics learning based on emotional social is classified into five parts: self-awareness, self-management, social-awareness, relationship skills, and responsible decision-making.

Keywords: Mathematics learning, Problem-solving, Socio-emotional.

1. INTRODUCTION

The issue of the industrial revolution 4.0 in the era of globalization as it is today needs serious attention to prepare itself to answer these challenges. Competent resources are one of the main factors determining the success of the 4.0 era transformation, therefore increasing human resources needs to be prioritized. Improving human resources is a prerequisite in following the development of an increasingly modern era. Another solution to answer education challenges in the industrial era 4.0 is students' abilities and character-building [1].

In facing the industrial revolution era 4, several things must be prepared, including a) preparation of a more innovative learning system to produce competitive and skilled graduates, especially in data literacy, technological literacy, and human literacy. b) Reconstruction of higher education institutional policies that are adaptive and responsive to the industrial revolution 4.0 in developing the required transdisciplinary sciences and study programs. c) Preparation of responsive, adaptive, and reliable human resources to face the industrial revolution. 4.

d) Rejuvenation of infrastructure and development of education, research, and innovation infrastructure also needs to be carried out to support the quality of education, research, and innovation [2].

Optimizing all students' abilities can be done with a variety of fun learning methods and in accordance with the stages of child development. In the industrial era 4, learning is expected to provide more opportunities for students to be creative, solve problems, optimize literacy and numeracy skills, collaborate, and think critically [3], [4].

Students' ability to develop affective skills is also low in interpersonal skills (emotional intelligence) and interpersonal (social intelligence), which underlie the formation of one's character. It is evident from the lack of students' ability to deal with conflict, low student empathy, low tolerance, etc.

Teenagers are synonymous with explosive emotions and are less controllable. The heightened emotions in adolescence are caused by physical and glandular changes and social factors, namely from the social conditions that surround adolescents so that adolescents are under social pressure and are faced with new conditions [5].

Adolescents are required to control, manage, and express their emotions in the right way so that they can adapt to their social environment. Emotionally mature adolescents will be able to adapt effectively to the atmosphere of others and seek harmony in relationships with others [6].

Research results [7] show that 70% of people are successful not because of intellectual and vocational intelligence but precisely because of generic intelligence. These generic abilities are demonstrated through (1) personal abilities (the ability to make rational decisions, the ability to design the future, etc.), and (2) social abilities (the ability to cooperate, the ability to understand others, etc.). Therefore, it is necessary to have character education for the solution, but first, we must further examine what character education is and its importance in Indonesia.

The implementation of this character education requires an innovative technique. One of the learning models that can be used is socio-emotional based on the learning. According to [8], [9] is a process where students learn to recognize and manage emotions, care for others, make good decisions, behave ethically and responsibly, develop positive relationships and avoid negative behavior.

One of the prominent characteristics of adolescence is emotional instability. Emotion is an impulse that motivates human life, and this emotion affects a person's aspirations, actions (actions), and thoughts [10].

These biological changes include changes in the individual's physical nature; cognitive changes include thoughts and intelligence; and socio-emotional changes, which include changes in the individual's relationship with others, emotions, personality, and the role of social context in development [11]. Various changes experienced by adolescents make them have to be able to adjust appropriately.

The success of a person's life is determined more by his emotional abilities than intellectual abilities. Socio-emotional abilities are the foundation for developing children's ability to interact with their environment more broadly. In interacting with other people, individuals are required to interact well with others and are also related to how they can control themselves well. The individual's inability to control himself can cause various socio-emotional problems with other people [12].

Socio-emotional development in children is important. Because first, there are more and more problems around children, for example, a bad environment or increasingly sophisticated technological developments such as television which will have a tremendous impact on children because inappropriate shows will affect children's emotional development.

The whole world also has the same tendency; namely, the current generation has more emotional difficulties, impacting their socialization skills. So, it is necessary to increase emotional intelligence with various efforts that lead to the development and improvement of the emotional quality of children so that children can recognize their feelings and the feelings of others, be able to motivate themselves, and manage their emotions and social behavior better.

The development of socio-emotional so that there is an awareness that children are successors, creators, evaluators, future investments that need to be prepared optimally, both aspects of emotional development and social skills, then emotional development needs to be developed from an early age because children have a golden period of socio-emotional development. Emotional according to their stage of development.

There is a similar trend throughout the world: the current generation has more emotional difficulties than the previous generation, impacting their socialization skills. Thus, there need to be efforts to increase emotional intelligence, namely efforts directed at developing and improving the emotional quality of children so that they can recognize their own feelings and the feelings of others, be able to motivate themselves, manage emotions and social behavior better.

Emotional intelligence is a determinant of a person's success. Teachers must train and develop emotional intelligence as best as possible in socio-emotional development from an early age. Make it a guide so that he does not just do development. He must also understand the signs and the peculiarities of emotional intelligence so that he does not slip into providing a learning environment that is less suitable or even wrong.

Socio-emotional development is closely related to interaction, either with others or with other

objects. If the interaction is not good, then the growth and development of children will not be optimal. But most parents pay less attention to this in children even though the socio-emotional development of each child is different. In this case, the role of educators is needed to understand the social-emotional development of children so that they can develop their abilities well.

In education, we recognize the existence of a learning model that can lead students to build their knowledge. So that things related to difficulties in the learning process can be handled by students properly. In practice, it is hoped that the problems presented in learning are contextual and are close to students' daily lives.

Based on the background of the problem above, it is necessary to develop a learning model to achieve the objectives of learning mathematics, especially in developing social-emotional students. Furthermore, this socio-emotional-based learning model as a foothold in learning allows students to be actively involved. Therefore, researchers are very interested in developing a social-emotional-based mathematics learning model.

2. RESULT

The socio-emotional approach in learning is the social-emotional climate approach in the classroom as a group of individuals tending to the view of Clinical Psychology and counseling. According to this opinion, the socio-emotional process creates a harmonious learning climate or atmosphere and positive social relationships. The emotional atmosphere and positive social relations mean a good positive relationship between teachers and students or between students and students. Here the teacher is the key to forming personal relationships, and his role is to create healthy personal relationships.

Socio-emotional learning through individuals getting to know others, managing their emotions, building positive relationships with others, making responsible decisions in difficult situations, and acting constructively and ethically. Social and emotional learning teaches children how to manage themselves, their relationships, studies, and behavior and focuses on developing and applying the competencies that form the foundation of life [13].

The socio-emotional approach assumes that effective and efficient learning activities require good socio-emotional relationships between teacher-students and between students. This assumption requires teachers to carry out classroom programs based on human relationships colored by mutual respect and respect between class personnel. Embracing students' opinions, relationships, emotions, and physical and ethical development integrated without

discriminating academic success is essential to ensure their happiness and efficient learning [14].

Haim C. Ginnot suggests that in solving problems, the teacher tries to talk about the situation, not the offender's person, describes what he sees and feels, and explains what needs to be done as an alternative solution. Meanwhile, according to Carl A. Rogers, the smoothness of the important learning process depends on the quality of attitudes contained in the personal relationship between teachers and students. These attitudes include sincerity, compatibility, acceptance, paying attention, and trust. Meanwhile, W. Glasser suggested that it is necessary to foster a sense of social responsibility and self-esteem, assist students in analyzing and assessing the problem, and formulate a problem-solving plan. Finally, Rudolf Dreikurs stated that the teacher's efforts in applying the socio-emotional climate approach help each child to realize and accept himself; prepare each child to contribute (donation) to various activities in the classroom; realize students to get and understand individual differences (each student); make a work plan so that the abilities of each child in the class are helpful.

2.1. Understanding Socio-Emotional Approach

Socio-emotional is a process in which students work together to build skills, values , attitudes, and the ability to manage their emotions better to understand each other in groups. These developments allow students to adapt to the complex demands of school and learning and successfully manage their learning [15]

According to [16], the socio-emotional approach in learning is the mood and social atmosphere (social-emotional climate approach) in the classroom as a group of individuals tending to the view of Clinical Psychology and counseling.

According to this opinion, the socio-emotional approach creates a harmonious learning climate or atmosphere and positive social relationships. The emotional atmosphere and positive social relations mean a good positive relationship between teachers and students or between students and students. Here the teacher is the key to forming personal relationships, and his role is to create healthy personal relationships.

A good socio-emotional climate is in the sense that there is a harmonious interpersonal relationship between teacher and teacher, teacher and student, and student and student, which is a condition that allows an effective teaching and learning process to take place. This assumption requires a teacher to arrange a class program and its implementation based on human relations colored by mutual respect and mutual respect between individuals in the classroom. Each person can create a pleasant socio-emotional atmosphere for each person in carrying out their respective duties.

A good socio-emotional climate depends on the teacher to carry out teaching and learning activities, which are realized with effective human relationships. This assumption means that in a socio-emotional approach, a teacher must try to encourage students to be able and willing to create human relationships full of mutual understanding, respect, and mutual respect. Teachers must encourage to be executor who is initiative and creative and always open to criticism. Besides that, dancing also teachers must be able and willing to listen to the opinions, goals, ideas, and others from students so that there is a dynamic learning atmosphere.

The socio-emotional system approach assumes that effective and efficient learning activities require good socio-emotional relationships between teacher-students and between students. This assumption requires teachers to carry out classroom programs based on human relationships colored by mutual respect and respect between class personnel.

To create good relations with students, teachers need to apply effective attitudes, including: (1) being open, (2) accepting and respecting students, (3) empathy, and (4) being democratic. Characteristics of effective teachers in classroom management include encouraging and maintaining student interest in learning objectives and supporting student activities in the teaching and learning process using teaching skills [17].

Based on the description above, the attitudes displayed in fostering students' willingness and ability to ask questions are (1) open attitude, (2) accepting and appreciating students, (3) empathy, and (4) democracy.

2.2. The Importance of the Socio-Emotional Approach

A socio-emotional climate approach is an approach offered to foster students' willingness and ability to ask questions. This approach is carried out by providing opportunities for students to ask written questions, the chance to read the questions asked, group competitions, practice asking low/high-level questions, supported by a safe classroom atmosphere, mutual respect, and respect between class personnel.

To create a learning atmosphere that can allow students to feel safe in learning, namely, creating the right classroom climate through classroom management. Classroom management is one of the professional competencies that teachers must possess. This is in accordance with the opinion [18]

"The following are suggested as essential beginning competencies: to teach elementary social studies, the teacher needs to be able to: 1). Organizing and translating subject matter into usable, manageable, and understandable to pupils, 2). Use a variety of instructional resources wisely. 3). Prepare and implement long and short-range teaching plans. 4). Use curriculum materials

for planning and teaching. 5). Use a variety of large-group, small-group, and individual pupil teaching strategies. 6). Evaluate their own teaching.7). use skills in managing the classroom".

2.3. Socio-Emotional in Mathematics Learning

Solving math problems requires high thinking activities and managing emotions in yourself to create self-awareness so that it creates enthusiasm in yourself to learn and solve existing problems. To learn mathematics requires a calm mind, relaxed but serious, and enthusiastic. One of them is that students must manage their emotions to be stable because the emotional factor is very influential in achieving good learning outcomes, both learning mathematics and in other subjects. Psychological factors that include honesty, self-confidence, self-control, emotional awareness, adaptation, innovation, optimism, initiative, and motivation can affect learning success.

According to [19], teachers' interpersonal behavior and social and emotional skills of students with emotional and behavioral difficulties showed that students' social and emotional skills were more determinants of their behavior than teachers' interpersonal behavior.

This is contrary to what was stated [15] in their research that they did not find a significant relationship between math performance and emotional intelligence. There was no significant correlation between math performance and social intelligence.

A Mathematics curriculum is enhanced when it is intentional about developing social and emotional learning (SEL) core competencies [20].

All education is based on the implicit assumption that students will have the self-awareness and self-management skills necessary to recognize their feelings, calm themselves, and focus their attention to participate in learning, including mathematics effectively. Further, all learning, including Mathematics, assumes that students will have basic goal-setting skills to complete academic assignments. In addition, effective participation in all educational activities, including Mathematics, depends on students' ability to understand and observe important social norms of the class, recognize there are diverse approaches to problem-solving, and know that the approaches of others can help us identify new, improved strategies ourselves. Further, empathy and perspective-taking are critical skills when applying mathematical reasoning to real-world problems.

Relationship Skills. Success in Mathematics and other academic subjects depends on effective communication skills, including listening well and asking questions, and broader social skills such as seeking help when one doesn't understand academic content effectively. Cooperative learning and group problem-solving are anchored in relationship skills.

-Responsible Decision-Making. Mathematics assumes that students will have the basic ability to evaluate options and make effective decisions to complete assignments.

3. DISCUSSION

Based on the problems mentioned above, it is necessary to develop learning models to achieve the objectives of learning mathematics, especially in developing socio-emotional students. Furthermore, this socio-emotional-based learning model as a foothold in learning allows students to be actively involved. So that the suggested model is in the form of a model syntax, namely the steps, phases, or sequence of learning activities as follows:

Table 1. Socio-Emotional-Based Mathematics Learning Syntax

Steps	Descriptions
1	Apperception as an introduction, conveying learning objectives, providing student motivation, reviewing previous learning concepts related to the material.
2	Representation to representation of learning model of socio-emotional and organizing students to the group discuss.
3	Present and develop the project.
4	Summaries and review of work results for the development of thinking skills.
5	Reflection on learning outcomes and rewards.

So far, the stages of the mathematics learning process are the teacher delivering the material, giving examples of questions and their solutions, and asking students to complete practice questions. So that the creativity of teachers in providing student-centered learning resources is not improved, by implementing the socio-emotional-based learning model of mathematics learning model, the creativity of teachers in providing student-centered learning resources can be increased because in the socio-emotional-based learning model of mathematics learning models' teachers are required to provide facilities (learning resources) that can make students build knowledge, not receive it. Teachers are also required to make story questions that encourage students to test conjectures and make conclusions. So, it is hoped that by applying a learning model based on socio-emotional syntax.

4. CONCLUSIONS

So far, the stages of the mathematics learning process are the teacher delivering the material, giving examples of questions and their solutions, and asking students to complete practice questions. So that the creativity of teachers in providing student-centered learning resources is not improved, by implementing the socio-emotional-based learning model of mathematics learning model, the creativity of teachers in providing student-centered learning resources can be increased because in the socio-emotional-based learning model of mathematics learning models' teachers are required to provide facilities (learning resources) that can make students build knowledge, not receive it. Teachers are also required to make story questions that encourage students to test conjectures and make conclusions. So, it is hoped that by applying a learning model based on socio-emotional syntax.

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