

DOING MATHEMATICS INTELLIGENTLY AND HAVING GOOD CHARACTER THROUGH SIMPATIK LEARNING

Euis Eti Rohaeti^{1*}, Heris Hendriana¹, Muhammad Irfan²

¹Institut Keguruan dan Ilmu Pendidikan Siliwangi, Indonesia

²Universitas Sarjanawiyata Tamansiswa Yogyakarta, Indonesia

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ABSTRACT

Society's openness to science, technology, and information development cannot be stopped. To face the development of technology and information, we must be intelligent in assessing, accommodating, and filtering the development of technology and information so that we can survive in constantly changing, uncertain, and competitive conditions. Besides intelligence, the character is also important to face the development of science, technology, and information. Individuals who have good character will be wiser in utilizing the development of science, technology, and information. Therefore, in this analytical research paper, we introduce SIMPATIK learning to increase the effectiveness of learning mathematics at school. Through SIMPATIK learning, students can do mathematics intelligently and have good character. SIMPATIK learning can be defined as learning that can develop sociocultural, innovative, independent, caring, creative, and active abilities in mathematics learning based on information, communication, and technology. We believe that SIMPATIK Learning can increase the quality of mathematics learning and can be used by teachers to develop the intelligence and character of students. SIMPATIK Learning is also expected to contribute science to knowledge in mathematics education worldwide.

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Corresponding Author:

Euis Eti Rohaeti,
Department of Mathematics Education,
Institut Keguruan dan Ilmu Pendidikan Siliwangi
Jl. Terusan Jenderal Sudirman No. 3, Cimahi, West Java 40526, Indonesia
Email: e2rht@ikipsiliwangi.ac.id

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1. INTRODUCTION

Society's openness to the development of science, technology, and information cannot be stopped, which is in line with the swift currents of globalization sweeping human life today (Carnoy, 2016). For this reason, the academic world must take a role to anticipate the impact it causes. It means that education must prepare students for the constellation of a global society. To face the development of technology and information, we are required to be intelligent in assessing, accommodating, and filtering the development of technology and

information so that we can survive in conditions that are always changing, uncertain, and competitive.

The knowledge obtained from the results of human thinking, which is processed in the world of rations, is processed through analysis and synthesis with the reasoning in the cognitive structure. It is hoped that mathematics taught in schools can be tools for students to practice their thinking skills. As we know, "*mathematica*" comes from Latin. Mathematics was originally taken from the Yunani word "*mathematike*" which means science and knowledge. The word "*mathematike*" is also related to other words that are almost the same, such as "*mathein*" or "*mathenein*" which means learning or thinking. So, based on the word's origin, mathematics means knowledge obtained by thinking or reasoning. Mathematics emphasizes activities in the world rations or reasoning, not emphasizing the results of experiments or observations of mathematics formed because human thoughts are related to ideas, processes, and reasoning.

Because the mathematics can be a tool to train thinking skills, children who are good at mathematics are often branded as smart children in all knowledge fields, as if there is a correlation between mathematics and overall brain intelligence (Skemp, 2002). While children are good at other knowledge fields, for example, children who are good at drawing, some people say that children are just good at drawing but are not smart in all fields. This assumption is certainly wrong because many variables determine whether someone is smart or not. Human intelligence comes from the term "*intelligent*," which means intelligent and clever, responsive in facing the problem, and quick to understand when hearing information (Sternberg, 2018). Intelligence is the human ability to solve problems that are faced which requires the ability to think. In the Latin language, the term "*intelligent*" means to connect or unite one another (to organize, to relate, and to bind together).

Intelligence is a concept that can be observed, but it is the most difficult to define. This happens because intelligence depends on the context or environment. Stankov and Cregan (1993) explains that intelligence can be defined quantitatively and qualitatively. As quantitatively, intelligence defines a learning process to solve problems that can be measured by an intelligence test. While qualitatively, intelligence defines thinking skills to construct how to connect and manage the information from outside that is adapted to oneself. So, it can be concluded that intelligence is a human ability to solve problems that require thinking skills and can be measured quantitatively and qualitatively.

Psychologists map human intelligence into four parts: intellectual intelligence, emotional intelligence, and spiritual intelligence, and one type that has recently emerged is the adversity quotient which defines as human intelligence to overcome difficulties and to be able to survive, not easily give up facing every difficulty in life. These four kinds of intelligence are inherent in a person's personality. Many people think that smartness and intelligence are the same despite being different because smart people are clever and intelligent people are brainy and accurate in analyzing something. Furthermore, the difference between clever people and intelligent people is; *first*, smart people rely on knowledge, while intelligent people not only rely on knowledge but also rely on logic; *second*, smart people are more disciplined and organized, while intelligent people are more creative; *third*, Smart people can be hated if they cannot share their knowledge with their surroundings, while intelligent people can be loved because they can adapt and be more friendly with their surroundings; *fourth*, smart people always think long because they always think of the significant risks, so they do not take those risks, while intelligent people think short because they always think of the small risk and they try to make the risk can be small; *fifth*, smart people always think, while intelligent people always try. When failing, smart people think about how to rise from failure, while intelligent people always try to rise from failure. Therefore, intelligent people can rise faster from failure than smart people, because

trying is better than just thinking continuously, which will take much time, So, it is better not just to be smart or intelligent people, but to be smart and intelligent people. For example, the result of Schoenfeld's experiment on elementary school students in the United States is that many students are less able to do math intelligently. Then the students are given the task as follows:

If there are 26 sheep and 10 goats on a ship, how old is the captain?

The results were surprising because 76 out of 97 students solved this problem by adding, subtracting, multiplying, and dividing the numbers. They felt demanded to solve the problem as soon as possible and did not try to understand first the substance of the problem. Another case occurred with one of the IKIP Siliwangi lectures when his child, who was still in elementary school, was given the task by the teacher, as follows:

$$\dots + \dots = 10$$

The child thinks that the problem in the task does not exist, and the child's father thinks that the questions are too difficult to give to the child who is still in elementary school. The problem is not too difficult to give to children who are still in elementary school, the problem can trigger students' intelligence. Intelligent students will have creative answers and are not afraid to try to answer the question. In contrast, smart students usually will be stuck and afraid to answer the question, afraid if the answer is wrong, so they will choose not to answer the question or blame if it is too difficult. On the other hand, in the education world, which still adheres to an orthodox method that requires students only to accept what the teacher or parents say to them. In the education world today, which still adheres to an orthodox method is very difficult to expect individuals can be able to give their thoughts, especially if their thinking is unique and different from other people's.

Besides intelligence, the character is also important to face the development of science, technology, and information. Individuals who have good character will be wiser in utilizing the development of science, technology, and information. Etymologically, the character comes from Latin, which means behavior, psychological traits, personality, and morals. Ryan and Bohlin (1999) explain that the character is a pattern of behavior that is individual or represents the individual's moral condition. The individual character is related to the behavior around them. Lastly, Lickona (2009), Professor of Education at Cortland University, stated that the quality of the nation's character is closely related to the nation's development. He explains that ten signs must be attention related to the nation's character because if the ten signs are already happening in a country, the nation is heading for destruction. The ten signs are; *first*, increasing violent and destructive behavior among teenagers or students; *second*, the use of words or languages tends to get worse; *third*, stronger peer group influence from parents or teachers; *fourth*, increasing self-destructive behavior such as drug, alcohol, and free sex; *fifth*, declining moral behavior and increasing personal egoism or selfishness; *sixth*, decreased sense of pride, love of the nation, and love of the motherland or patriotism; *seventh*, lower respect for others, especially parents and teachers; *eighth*, increased behavior undermining the public interest; *ninth*, dishonesty occurs everywhere; and *tenth* there is mutual suspicion and hatred among each other.

By analyzing these ten signs, it's appropriate that the Indonesian government hastened to adopt a policy that integrates character into education learning at schools. The Indonesia Ministry of Education and Culture has proclaimed four main character values that spearhead the implementation of character among students in schools. The four main characters are honest (from the heart), intelligent (from thought), tough (from sports), and

caring (from feeling and intention). For example, the character, which is integrated into the mathematics question, is as follows.

Mr. Syahid needs money Rp. 450.000 to pay off his debt. He has strong-willed to pay off his debts by selling clean water in a residential area where clean water is difficult to get. The profit from selling clean water is used to pay off the debt. If Mr. Syahid makes a profit of Rp. 2500 per drum, how many drums of water must he sell?

From the questions above, the integrated character values are the values “though” in facing difficulties, “honest” paying off the debts by working hard using his effort, “intelligent” seeing opportunities for clean water business in an environment that needs it, and “caring” for the giver dept that has been kind to lend money.

Several studies have reviewed and analyzed intelligence in mathematics education and the integration of character into mathematics education in Indonesia (Mahfudy et al., 2019; Nur et al., 2018; Sukestiyarno et al., 2019). However, the results show that intelligence has not been optimally developed in mathematics education in Indonesia. These studies also have shown that the integration of character into mathematics education in Indonesia is still unsatisfactory. This is evidenced by the fact that many students depend on teachers and parents, which impacts their independence, discipline, sense of responsibility, curiosity, and critical and creative thinking skills, which are difficult to increase.

Based on the description above, we introduce SIMPATIK learning to increase the effectiveness of learning mathematics at school. Through SIMPATIK learning, students can do mathematics intelligently and have good character. SIMPATIK learning is a term from the initial of some Indonesian words, such as “S” from the word “*Sosiokultural*” (sociocultural), “I” from the term “*Inovatif*” (innovative), “M” from the word “*Mandiri*” (independent), “P” from the word “*Peduli*” (caring), “A” from the word “*Aktif*” (active), “T” from the word “*Teknologi*” (technology), “I” from the word “*Informasi*” (information), and “K” from the word “*Komunikasi*” (communication).

2. METHOD

This qualitative research uses descriptive analysis techniques with a literature review in which this research attempts to describe existing phenomena that are taking place now or in the past. This research highlights students' intelligence and character and the effectiveness of mathematics in schools in terms of socio-cultural, innovative, independent, caring, active, and creative elements in technology-based learning, information, and communication.

3. RESULT AND DISCUSSION

SIMPATIK learning can be defined as learning that can develop sociocultural, innovative, independent, caring, creative, and active abilities in mathematics learning based on information, communication, and technology.

3.1. Sociocultural

The sociocultural or social cognitive theory emphasizes how a child or learner includes culture in their reasoning, social interaction, and self-understanding. The teachers can teach mathematics while introducing Indonesian culture. For example, as follows:

Indonesia has about 300 types of traditional dance. But among all the traditional dances, only 10 are the most popular in society. If $A =$ the set of 10 most popular traditional dances in Indonesia = {Kecak, Jaipong, Pendet, Zapin, Gambyong, Yapong, Leleng,

Piring, Tor-Tor, Ratoh-Jaroe} and $B =$ the set of regional names = {Jakarta, Jawa Barat, Jawa Tengah, Jawa Timur, Aceh, Sumatera Utara, Sumatera Barat, Kalimantan Timur, Riau, Bali}. Please, make an arrow diagram that pairs member A with member B. Is the relation a function? Please, explain!

Two experts who created an idea about sociocultural theory are Piaget and Vygotsky. Piaget reveals that learning is determined by individual initiative, meaning that knowledge comes from individuals (Inagaki, 1992; Piaget, 1976). Students interact more with their peers than with people who are more adults in their social environment (Tudge & Rogoff, 1989). The primary determinant of learning is the individual concerned, while the social environment is a secondary factor. According to Piaget, students' activity is the primary determinant and guarantee of learning success, while the arrangement of conditions only facilitates learning. Cognitive development is a genetic process followed by biological adaptation to the environment so that equilibrium occurs (Piaget, 2013). To achieve equilibrium, adaptation processes (assimilation and accommodation) are needed (Bormanaki & Khoshhal, 2017).

Vygotsky created the learning theory known as the constructivism approach. He stated that the cognitive development of individuals is determined by themselves actively. Besides that, also determined by an active social environment as well. The development of child cognition can occur through collaboration between members of one family generation with another. Child development occurs in culture and continues throughout life in collaboration with others (Hausfather, 1996). From this perspective, adherents of the sociocultural school argue that judging someone without considering the important people in their environment is impossible (Matusov & Hayes, 2000). There are three essential concepts in Vygotsky's theory of sociogenesis regarding cognitive development by the sociocultural revolution in learning and learning theory, as follows (Wertsch & Tulviste, 1992):

a. Genetic Law Development

The law of developmental genetics states that each person's abilities will grow and develop through two levels, which are inter-psychological or interment and intra-psychological.

b. Zone of Proximal Development

Vygotsky divided proximal development into two levels; first, the actual development level can be seen from a person's ability to complete tasks or solve various problems independently; second, the level of potential development can be seen from a person's ability to complete tasks and solve problems when under adult guidance or when collaborating with more competent peers (interment).

c. Psychological tools

Vygotsky explained that all psychological actions or processes that are uniquely human are mediated by psychological tools or psychological tools in the form of language, signs, symbols, or semiotics. There are two types of mediation; first, metacognitive mediation uses semiotic tools that aim to do self-regulation, which includes self-planning, self-monitoring, self-checking, and self-evaluating. This metacognitive mediation thrives in interpersonal communication; second, cognitive mediation uses cognitive tools to solve problems related to specific knowledge or subject-domain problems. Cognitive mediation

can be related to spontaneous concepts (which are fallible) and scientific concepts (which are more guaranteed to be confirmed).

3.2. Innovation

According to experts, innovation is an example where creativity, inventiveness, and strong initiative can produce something materially better than previous inventions. To develop students' spirit of innovation, Brown (2008) presented ten methods to increase innovation, which are likely to be adopted and adapted in the context of developing innovation in schools. The ten methods to improve students' innovation abilities are *first*, encourage students to know the goals to be achieved in the future, so they must have the vision to change; *second*, motivate students against the fear of change; *third*, teach students to think like an investor who dares to take risks; *fourth*, educate students to focus on plans to solve a problem or task, and believe that each plan is easy to implement, resources are available properly, responsive and open to all; *fifth*, to achieve radical innovation, students are taught to have the courage to challenge various assumptions that exist around the environment because innovation is like art, in which there are many opportunities to think laterally, to be able to create new methods.

Sixth, allow each student to work on at least two tasks or methods, which is solving and completing tasks or questions in the usual method, and at the same time, they are also asked to find new methods to solve and complete the tasks or questions; *seventh*, conditioning students to collaborate because collaboration is seen as the key to success in innovation; *eighth*, for the formation of innovative students, teachers must encourage the formation of an experimentation culture. Every student must be taught that every failure is the first step on a long journey to success; *ninth*, students must be taught to dare and try a new idea that costs and risks are relatively low in the real world, then see what the reaction is from people; and *tenth*, students must be educated to focus on everything they want to change. Ready and always passionate and enthusiastic in facing and overcoming various challenges.

3.3. Independent

Self-study does not mean self-study, often people misinterpret self-study as self-study. Independent learning means learning with initiative, with or without the other's help (Brookfield, 1981). One of the principles of independent learning is that students can know when they need help or support from other parties (Meyer et al., 2008). This understanding includes knowing when students need to meet with other students, study groups, teachers, or others. Help or support can be in the form of mutually motivating activities to learn, for example, chatting with neighbors who study at other universities, can often motivate students to study hard. Help or support can also mean dictionaries, books of supporting literature, cases from newspapers, news from radio or television, libraries, information about tutorial schedules, and other things that are not related to people.

Hiemstra (1994) stated that student is considered independent learning if each individual tries to increase responsibility for making various decisions, independent learning is seen as a trait that already exists in everyone and learning situations, independent learning does not mean separating oneself from others, with independent learning, students can transfer their learning outcomes in the form of knowledge and skills to other situations, students who carry out independent learning can involve various resources and activities, such as reading alone, group study, exercises, electronic dialogue, and correspondence activities, the influential role of teachers in independent learning is still possible, such as

dialogue with students, finding resources, evaluating results, and providing creative ideas, several educational institutions are developing independent learning into more open programs (such as the Open University) as an alternative learning individual and other innovative programs.

3.4. Caring

Students can have the ability to empathize with others and live a life based on compassion, love, and compassion for those around them by building care (Cooper, 2004). Caring is not only emotional or motivation and a form of thinking but also the behavior or orientation of the entire internal life, such as emotional, rational, or intentional actions (Van Hooft, 1995). Building care can students do with taught to be willing to listen, understand that someone needs help, and provide support for others without expecting appreciation. To build greater student care, these are three methods that teachers can do in teaching as follow:

a. Method I

- 1) Develop a more empathetic perspective of students
- 2) Develop students' sensitivity to other people's feelings
- 3) Students to consider the impact of their actions on others
- 4) Students dare to determine attitudes
- 5) Students to respect others
- 6) Students learn to reduce selfishness
- 7) Students learn to pay attention to others

b. Method II

- 1) Students to be polite
- 2) Students to share affection
- 3) Students to learn to listen to others
- 4) Students to be more generous
- 5) Treat others as he would like to be treated
- 6) Students should always try to be kind to others

c. Method III

- 1) Students to help people who need help
- 2) Ask others about the difficulties they are experiencing
- 3) Apologize when you must
- 4) Students do good for others
- 5) Students to share
- 6) Students contact other people
- 7) Students remember in detail what other people tell
- 8) Students become volunteers

3.5. Active Learning

Active learning is usually fun, motivating, and effective in completing life tasks (Lombardi et al., 2021). Active learning tends to increase students' egos, whereas passive learning does little to help students Active learning usually stimulates pride, boosts self-confidence, and gives credibility in front of teachers, friends, and parents. Besides that, active learning can stimulate students' curiosity about a broader and deeper understanding of future academics and makes learning enjoyable and personally satisfying. Active learning

increases student activity in accessing various information sources to be discussed in the learning process to gain various experiences that increase knowledge and analytical and synthesis abilities.

There are seven dimensions of the learning process that result in active learning; *first*, student participation in setting the goals of learning activities; *second*, pressure on the affective aspect of learning; *third*, student participation in learning activities, especially in the form of interaction between students; *fourth*, teacher's acceptance of students' actions and contributions that are less relevant or even completely wrong; *fifth*, class cohesiveness as a group; *sixth*, freedom is given to students to make essential decisions in school life; *seventh*, the amount of time spent tackling student problems both related and unrelated to learning. Schools that do active learning must have characteristics, such as student-centered learning, teachers guide in the occurrence of learning experiences, the purpose of activities is not just pursuing academic standards, management of learning activities and assessment.

3.6. Information, Communication, and Technology (ICT)

Information, Communication, and Technology (ICT) combine tools and technology resources to manipulate and communicate information (Thomas & Knezek, 2008). Globalization makes the role of ICT important and growing rapidly in education. Nowadays, ICT has an essential role in integrating technology into learning activities. ICT Learning integrates ICT and learning, an ethical study and practice to facilitate learning and improve performance by creating, using, and managing appropriate technological processes and resources (Kaware & Sain, 2015). The importance of ICT is to develop student-centered learning, support the construction of knowledge, increase motivation to learn, develop the problem-solving ability, and create interest in learning.

ICT acts as a tool, not the main subject in learning. ICT connects the medium to transfer knowledge from educators to students (Suryani, 2010). Two essential elements in the knowledge transfer process are media elements and messages conveyed through the media. The media element describes ICT as an infrastructure network that connects educators with students, while the message element describes digital learning content. ICT-based learning does not eliminate the initial context of face-to-face learning in the classroom but instead goes through several stages of evolution according to school conditions. ICT-based learning can be described at the following levels:

a. Level 1

In schools that have just pioneered ICT-based learning, learning is described as a face-to-face process in the classroom with digital content as a supplement. At this stage, the teacher is the deliverer of the material. The digital content submitted is only added, so it is not required to be submitted. The learning process is limited by space and time.

b. Level 2

This level is higher than level 1, where ICT-based learning is described as a face-to-face learning process in the classroom with digital content as a complement. In this condition, the teacher is still the conveyer of the material. Some digital content must be delivered because it is included in the curriculum structure, while the learning process is still limited by space and time.

c. Level 3

At this level, ICT-based learning is described as a learning process that has integrated ICT advances into the learning process. All learning content is digital and must be delivered because it is included in the curriculum structure. Students can access learning content without being limited by space and time, and the teacher acts as a tutor. Management of learning does not use ICT, so there is still interference in managing learning manually.

d. Level 4

This level is the highest level, where ICT-based learning is described as a learning process that has merged with ICT progress (unified like an infusion that cannot be distinguished between infusion fluids and blood). In this condition, students carry out independent and online learning that is not limited by space and time. Teachers at this level act as tutors.

There are several kinds of learning models based on Information and Communication Technology as follows.

a. Blended Learning

Singh and Reed (2001) define blended learning as learning with more than one model to optimize learning. In line with Graham (2013), blended learning combines a traditional learning system and a dissemination system, which emphasizes the role of computer-based technology centers. Blended learning combines classroom learning and online learning (Mosa, 2006). Blended learning effectively combines several learning techniques, technology, and methods of delivering material to student needs.

Blended learning can also be interpreted as an educational approach that combines various face-to-face models with distance education and uses various types of educational technology (Graham, 2006). Combination models and methods of learning in ICT learning have several advantages such as, *first*, can improve academic ability; *second*, can be applied to students with diverse and independent learning styles and enable cost savings and lower educational costs; *third*, using the variety of learning techniques also can attract the attention of students; and *fourth*, using a combination face-to-face education and other processes makes student can access knowledge every time and everywhere (Hoic-Bozic et al., 2008).

Blended learning can facilitate optimal learning by providing various learning media that attract student attention to learn and develop their knowledge. In blended learning, teachers are facilitators and media in the learning process (Graham, 2006). Teachers give instruction or learning materials and offer guidance to students in learning activities and utilizing technology used in learning. Blended learning has three characteristics; *first*, traditional learning can support a virtual learning environment; *second*, the learning process is supported by an in-depth explanation of the material; *third*, using all kinds of technologies to support its learning process.

b. Computer-Based Learning

Computer Based Learning is fully computerized learning for students face-to-face and interacting directly with the computer. This interaction between computers and students occurs individually and learns independently without the teacher's help. Computer-based learning is a learning program using computer software in the form of computer programs that contain learning content, including titles, objectives, learning materials, and learning evaluations. Ellington et al. (1993) refer to the triangle of technologies used in education:

hardware, software, and under ware which are pedagogy materials. It means that computer systems can convey learning individually and directly to students by interacting with subjects programmed into computer systems, this is what is called computer-based learning. Computer-based learning has the following principles *first*, oriented towards learning objective; *second*, oriented to individual learning; *third*, oriented towards independent learning; *fourth*, oriented towards complete learning.

c. Multimedia-Based Learning

Multimedia-Based Learning is considered necessary and will continue to be an essential learning platform soon, especially in skills-based learning programs (Nazir et al., 2012). One cognitive principle in Multimedia-Based Learning is to support the human brain in making reasonable mental representations of learning materials (Mayer & Mayer, 2005). The task of the human brain is to understand new material as an active participant and finally build new knowledge. Multimedia-Based Learning materials impact students' cognitive and active learning. Clark et al. (2003) reveal that multimedia can encourage learners to engage in active learning by mentally representing the material in words and images and then mentally making connections between images and verbal representations. Multimedia used in Multimedia-Based Learning can be in the form of television, radio, social media, computers, and others that can be medium of learning.

Multimedia has many benefits in learning using Multimedia-Based Learning; *first*, multimedia can be used as a learning presentation. Multimedia presentations are used to describe material that is theoretical and has the purpose of visualizing the material with a projector. Presentations with teaching materials presented with multimedia can be more complex because the content can be audio, visual, and text; *second*, multimedia is a simulation tool. Some learning requires real experience so that students can understand the material provided better. Some learning materials cannot be presented in real terms but can be simulated through multimedia. Multimedia can simulate some learning materials that are difficult or even impossible in conventional learning; *third*, multimedia can combine video and learning materials. Video content and learning materials can be made as interesting as possible and able to present new experiences that are relevant to the learning material in accordance with essential competencies; *fourth*, multimedia can present some information or cases that are up-to-date and relevant to the situation and environmental conditions of students, this can make students feel that they can connect the material learned at school with the situation around them.

SIMPATIK Learning is mathematics learning that can develop intelligent mathematics and students' good character, which emphasizes sociocultural, innovative, independent, caring, creative, and active abilities in information, communication, and technology-based learning. The term SIMPATIK is formed by some Indonesian words such as "S" from the word "*Sosiokultural*" (sociocultural), "I" from the term "*Inovatif*" (innovative), "M" from the word "*Mandiri*" (independent), "P" from the word "*Peduli*" (caring), "A" from the word "*Aktif*" (active), "T" from the word "*Teknologi*" (technology), "I" from the word "*Informasi*" (information) and "K" from the word "*Komunikasi*" (communication).

SIMPATIK Learning aims to invite students to be intelligent in mathematics and have good character. Students are not only smart in mathematics but intelligent. Students can learn math critically, creatively, and innovatively and have good character. To realize these aims, SIMPATIK Learning is implemented by emphasizing how students include their culture in their reasoning, social interaction, and self-understanding to develop their sociocultural ability. Teachers can apply SIMPATIK Learning with an indirect learning

model where students can build their knowledge based on their experiences, cultures, or ethnomathematics. Besides that, teachers can also organize learning into groups and use peer tutors in their groups, and this can encourage students' innovative, independent, caring, and active abilities. Teachers also can trigger students to increase student's innovation abilities by adopting the ten methods of Brown (2008) to increase students' innovation abilities.

4. CONCLUSION

Teachers can implement learning not only in the classroom but also outside the classroom, this is to trigger the independence, activeness, and caring of students not only to their peers or group friends but also to the surrounding environment in SIMPATIK Learning. Teachers can also set up learning that makes students more active, for example, by centering learning activities on students, so learning becomes more fun, motivating, and effective. Learning that is not only in the classroom and uses the context of things around students can foster student curiosity and develop students' critical, creative, and innovative thinking skills, so that students can be mathematics intelligent, not just smart.

With the rapid development of Information, Communication, and technology, the integration of learning with Information, Communication, and Technology becomes necessary. Therefore, SIMPATIK Learning must be integrated with ICT by applying it to learning using ICT-based methods. The learning models used can be various such as blended learning, computer-based learning, or media-based learning, adapted to the needs and conditions of students and schools.

The rapid development of globalization is also rapidly developing advances in science, information, communication, and technology. Therefore, there is a need for integration between education and ICT and for good character development in students to use science, information, communication, and technology wisely and intelligently. Through this paper, we propose SIMPATIK Learning that can trigger students to do mathematics intelligently and have a good character to use mathematics well and wisely. SIMPATIK Learning emphasizes sociocultural, innovative, independent, caring, creative, and active abilities in information, communication, and technology-based learning. SIMPATIK Learning in this paper is still an idea and needs further research regarding its implementation in school learning. It is hoped that SIMPATIK Learning can increase the quality of mathematics learning in Indonesia and can be used by teachers in Indonesia to develop the intelligence and character of students. This idea is also expected to contribute science to knowledge in mathematics education in Indonesia and the world.

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