Systematic literature review: implementation of savi learning model (somatic, auditory, visual, and intellectual) to improve students' ability to understand concepts and actively learn mathematics

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Abstrak

Pemahaman konsep dan partisipasi aktif dalam belajar adalah dua elemen penting dalam menciptakan proses pembelajaran matematika yang berkualitas. Sayangnya, metode pembelajaran konvensional yang tidak mempertimbangkan variasi gaya belajar seringkali menjadi kendala dalam mencapai kedua aspek tersebut. Penelitian ini bertujuan untuk mengevaluasi efektivitas model pembelajaran SAVI (Somatic, Auditory, Visual, and Intellectual) melalui pendekatan Systematic Literature Review (SLR) dalam meningkatkan pemahaman konsep dan keterlibatan siswa. Analisis terhadap lima belas artikel ilmiah menunjukkan bahwa penerapan model SAVI secara konsisten memberikan dampak positif terhadap pencapaian tujuan pembelajaran, baik di ranah kognitif maupun afektif. Model ini terbukti dapat mengakomodasi beragam gaya belajar siswa, meningkatkan interaksi di kelas, serta memperdalam penguasaan konsep-konsep matematika secara bermakna. Oleh karena itu, model pembelajaran SAVI layak direkomendasikan sebagai strategi alternatif dalam merancang pembelajaran yang lebih efektif dan relevan.
Kata kunci: model pembelajaran SAVI, pemahaman konsep, keaktifan belajar, matematika

Abstract

Conceptual understanding and active participation are two essential elements in establishing a high-quality mathematics learning process. Unfortunately, conventional teaching methods that do not accommodate diverse learning styles often hinder the achievement of both aspects. This study aims to evaluate the effectiveness of the SAVI (Somatic, Auditory, Visual, and Intellectual) learning model through a Systematic Literature Review (SLR) approach in enhancing students' conceptual understanding and engagement. Analysis of fifteen scientific articles reveals that the implementation of the SAVI model consistently produces positive outcomes in achieving learning objectives, both in the cognitive and affective domains. This model has been proven to accommodate various student learning styles, improve classroom interaction, and deepen students' meaningful understanding of mathematical concepts. Therefore, the SAVI learning model is recommended as an alternative strategy for designing more effective and relevant mathematics instruction.
Keywords: SAVI learning model, conceptual understanding, active learning, mathematics.

INTRODUCTION

Mathematics is one of the main pillars in education that plays an important role in shaping critical, creative, logical, analytical, and systematic thinking skills in students (Howe, 2014; Novotna et al., 2021; Ahn & Edwin, 2018). But in reality, learning mathematics in school is still often perceived as a stressful and uninteresting activity. This perception has an impact on students' low understanding of concepts and lack of active participation during the learning process. Many students have difficulty understanding mathematical concepts due to monotonous teaching approaches and lack of attention to diversity of learning styles (Tambychik & Meerah, 2010; Fritz et al., 2013; Sarwadi & Shahrill, 2014).

This problem is reinforced by data from the Programme for International Student Assessment (PISA) in 2018, which shows that the mathematics literacy score of Indonesian students only reaches 379, far behind the OECD average of 489. Moreover, only about 14% of Indonesian students are able to achieve the basic level of mathematical literacy, which indicates a weak ability to understand and apply mathematical concepts in a real-life context. In addition, the level of student activity in learning is also relatively low. Nurmalita and Fadillah's (2021) study noted that only 24% of students were active in the learning process, 15% dared to ask questions, and only 6% were able to conclude the material independently.

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The data indicate a gap between the expectation of active and meaningful mathematics learning and the reality in the field, which is still dominated by conventional and teacher-centered methods. In the context of 21st century education, students are required to not only understand concepts, but also to be able to think critically, collaborate, and solve problems. The mismatch between the learning approach and the needs of students has implications for the low effectiveness of the teaching and learning process. In addition, the lack of an adaptive approach to a variety of learning styles hinders the creation of inclusive and contextual learning.

Therefore, this study aims to conduct a study through *the Systematic Literature Review* (SLR) method on various studies related to the application of learning models that are more responsive to the needs of students. One of the approaches that is considered effective is the SAVI (Somatic, Auditory, Visual, and Intellectual) learning model, which integrates various learning modalities to create a well-rounded learning experience. This model not only improves understanding of concepts, but also encourages students' active involvement physically, sensorily, and intellectually in the learning process. Thus, the SAVI model is in line with the demands of active and differentiated learning in modern competency-based education.

METHOD

This study applies the Systematic Literature Review (SLR) method, which is an approach carried out by identifying, analyzing, and systematically analyzing various relevant research from a discipline. The focus of this research is on the SAVI (Somatic, Auditory, Visual, and Intellectual) learning model which aims to improve students' understanding of concepts and activeness in learning mathematics. The SLR method was chosen because it is considered effective in building a solid conceptual foundation through an in-depth literature review. In this study, the researcher traced a number of scientific publications that discussed the application of the SAVI learning model, especially those related to increasing concept understanding and active participation of students in the mathematics learning process. A total of 15 scientific articles were selected as study materials, which were obtained from reliable databases such as Google Scholar, Garuda, and Semantic Scholar. The articles are selected based on the suitability of the topic and the year of publication, so that it can be ensured that the sources used are relevant and up-to-date. The results of this systematic study are expected to provide a comprehensive overview of the development of the implementation of the SAVI learning model, as well as its effectiveness in improving understanding of concepts and their influence on student learning activity. The findings of this study are expected to be the basis for the development of a more optimal and applicable SAVI learning model in the context of education, especially in mathematics learning.

RESULTS AND DISCUSSION

The results of the literature review conducted from 15 articles are divided into 3 parts, namely 6 articles discussing the research of the SAVI learning model on the ability to understand concepts, 6 articles discussing the research of the SAVI learning model on the Active Learning, and 3 articles discussing the research of the SAVI learning model on the ability to understand concepts and the activeness of learning mathematics. The explanation of the literature review is explained in the following section:

1. Research on SAVI on Concept Understanding Ability
   Students' understanding of concepts is influenced by the learning model. The SAVI model has proven to be effective because it involves a variety of learning styles. This study discusses the SAVI model to improve the ability to understand concepts. The following are some research articles on SAVI on the ability to understand concepts presented in Table 1.

Table 1. Review Journal about SAVI on Concept Understanding Ability

Journal	Author	Research Results
Jurnal MathEducation Nusantara, 1(2), 1-11	Maya Nurfitriyanti (2018)	The results of this study show a significant influence of the SAVI learning model on the understanding of mathematical concepts, with an error rate of 5%. This means that students can understand mathematical concepts faster using the SAVI learning model compared to the conventional learning model.

Prosiding Diskusi Panel Nasional Pendidikan Matematika Universitas Indraprasta PGRI bulan Juli	Nurma Tambunan, Anggi Via Kristin (2019)	The results of this study revealed that the understanding of mathematical concepts of students who followed the SAVI learning model was much better compared to students who learned using the AIR model.
PI-MATH: Pendidikan Matematika Sebelas April, 1(2), 1-10	Ajeng Linggasari, Ucu Koswara, dan Mardjohan (2023)	The results of this study indicate that the use of the Somatic Auditory Visual Intellectual (SAVI) learning model has a more positive impact on students' ability to understand mathematical concepts compared to conventional learning models. In addition, students show a more positive attitude towards mathematics learning when using the SAVI model.
Prosiding SEMNASTIKAUN IMED: Peran Alumni Matematika dalam Membangun Jejaring Kerja dan Peningkatan Kualitas Pendidikan, bulan Mei	Else Frine Tamba, Tetty Natalia Sinurat (2017)	The results of this study reveal that the application of the Somatic Auditory Visual Intellectual (SAVI) approach can improve students' understanding of mathematical concepts. This increase can be seen from the test results which showed an increase in students' understanding of concepts by 11.48, as well as observation results which recorded an increase of 0.9. In addition, classical completeness also experienced a significant increase of 23.68% in cycle II.
Jurnal Riset Pembelajaran Matematika Sekolah, 2(1), 11-16	Aris Hadiyan Wijaksana, Ayunabilla Suci Pratiwi, dan Fariani Hermin Indiyah (2018)	The results of this study indicate that the improvement in understanding of mathematical concepts of students who use the SAVI model is more significant than that of students who participate in learning with conventional methods.
MES: Journal of Mathematics Education and Science, 9(2), 267-273	Syakia Kirti Irawan, Evinna Cinda Hendriana, dan Dodik Kariadi (2024)	The results of this study show that the Somatic Auditory Visual Intelectual (SAVI) learning model has a great influence on the ability to understand mathematical concepts of students assisted by JACAMA compared to the direct learning model. In addition, the students' response to the SAVI learning model assisted by JACAMA is also a positive response.

The SAVI (Somatic, Auditory, Visual, Intellectual) learning model has proven to be very effective in improving students' mathematical concepts. Research shows that this model is superior to understanding other learning methods in accelerating students' understanding of mathematical concepts. By combining elements such as physical (somatic), auditory (auditory), vision (visual), and thinking (intellectual), the SAVI model caters to a diverse range of student learning styles, which in turn contributes to a faster and deeper understanding of concepts.

The application of the SAVI model allows students to relate mathematical concepts to hands-on experience and process information in a more varied way. As a result, students' understanding of concepts becomes more solid and easier to understand compared to the use of other learning models. In addition, the SAVI model also has a positive impact on students' attitudes towards mathematics lessons, which indirectly supports the process of understanding the concept itself. Overall, the SAVI learning model is a very effective approach to improving students' understanding of mathematical concepts. Given the results of this

research, the application of the SAVI model at various levels of education can be an excellent solution in an effort to improve the quality of mathematics learning, especially in the aspect of better and faster concept understanding.

2. SAVI Research on Active Learning

The SAVI learning model provides opportunities for students to be actively involved in the learning process through the incorporation of somatic (body movement), auditory (hearing), visual (vision), and intellectual (thinking) elements. This approach not only makes students more focused and engaged, but also creates a more engaging and enjoyable learning atmosphere. This study discusses the SAVI model for active learning. The following are some research articles on SAVI on student learning activity presented in Table 2.

Table 2. Review Article about SAVI on Active Learning

Journal	Author	Research Results
JURNAL DIMENSI MATEMATIKA 2(2), 118 – 124	Tua Halomoan, Fadilah (2019)	The results of this study show that students' activeness has increased after applying the Somatic Auditory Visualization Intellectually model.
Prosiding Conference on Research and Community Services, STKIP PGRI Jombang bulan Oktober	Novi Nur Ikhfani, Jauhara Dian Nurul Iffah (2023)	The results of this study show that mathematics learning with the application of the SAVI learning model can increase student learning activity, this is shown by an increase in classical completeness in the first cycle of 71.87%, increased to 84.37% in the second cycle with an increase of 12.50%.
JURNAL PENDIDIKAN, 29(1), 67-76	Suratno (2020)	The results of this study show that the application of the SAVI approach in mathematics learning can increase student activities. This can be shown by the average number of students who get a good score from 1.86 (less) to 4.03 (good).
JURNAL PENDIDIKAN GURU SEKOLAH DASAR, 4(2), 102-111	Astrini Rahayu, Pupun Nuryani, dan Arie Rakhmat Riyadi (2019)	The results of this study show that there is an increase in student learning activities, with the application of the SAVI learning model in the learning process. This is evidenced by an increase in every indicator of student learning activities in each cycle.
Jurnal Penelitian Multidisiplin Ilmu, 1(5), 955-964	Ikhbariaty Kautsar Qadry, Syahriani (2023)	The results of this study show that from the observed components, the average percentage of student activity observation results in learning is 82.63%. Thus, it is concluded that students' activities in mathematics learning with the SAVI model are effective. In addition, the results of descriptive statistical analysis also showed the completeness of student learning, the positive response of students to the application of the SAVI learning model, and the average percentage of excellent learning implementation.
PENA: Jurnal Penelitian dan Penalaran, 4(1), 645-655	Dewi Heryanti Sulaiman (2017)	The results of this study show that the average percentage of student activity for each indicator has reached the active criteria. The results of the observation of student activities in learning through the SAVI Approach obtained a percentage of 77.08%. Success is achieved because students are actively involved so that

	students are very enthusiastic and motivated in the learning process.

The SAVI learning model has been proven to be effective in increasing student learning activity. Based on the results of the research conducted, the application of this model showed a significant increase in student involvement during the learning process. The increased activeness is not only seen in the physical and mental aspects of students, but is also reflected in the increase in classical learning completeness. Students who use the SAVI model show a higher level of engagement compared to other learning models. In addition, the SAVI model has succeeded in improving the quality of student learning activities, which can be seen from the improvement in the assessment of student activities that were previously in the poor category, now they are getting better. This model provides a more well-rounded and enjoyable learning experience for students. With SAVI, the learning atmosphere becomes more interactive and motivational, so that students feel more interested and motivated to be actively involved in the learning process.

Therefore, the application of the SAVI learning model is an effective solution to improve student learning activity and quality, especially in mathematics subjects. The implementation of this model can accelerate students' understanding of the material being taught and encourage them to participate more in each learning activity.

3. SAVI Research on Concept Understanding Ability and Active Learning

Improving students' ability to understand concepts and active learning are two important factors in an effective learning process. One model that can support this is the SAVI model which combines body movement, hearing, vision, and thinking. With this approach, students are not only more actively participating, but also more easily understand the concepts taught through the involvement of the various senses. The SAVI model focuses on creating an interactive and enjoyable learning experience, which ultimately improves the quality of student understanding and engagement in learning. This study discusses the SAVI model for concept comprehension ability and learning activity. The following are some research articles on SAVI on student learning activity presented in Table 3.

Table 3. Review Article about SAVI on Concept Understanding Ability and Active Learning

Journal	Author	Research Results
INDIKTIKA (Jurnal Inovasi Pendidikan Matematika), 2(1), 77-85	Tri Herliana, Drajat Friansah, dan Maria Luthfiana (2019)	The results of this study show that students' understanding of mathematical concepts after the implementation of the SAVI learning model is categorized as good. The average overall student activity was 80.00% including the very active criterion and the average student response was 71.97% including the good criterion. With the fulfillment of the criteria for the effectiveness of a learning model set, it can be concluded that the SAVI learning model is effective in understanding students' mathematical concepts.
Jurnal Pendidikan Matematika Indonesia, 4(2), 53 - 57	Khoerul Umam, Ervin Azhar (2019)	The results of this study show that the average score of students who study using the SAVI approach has shown a significant improvement. This significant increase cannot be separated from the way teachers encourage students to be more active in the learning process. The activeness of students has motivated students to study more passionately and actively in order to gain a better understanding of mathematical concepts.
DIAJAR: Jurnal Pendidikan dan	Syifa Kamilah Sophian, Rizka Rifaatul Hidayah,	The results of this study show that the application of this model is able to increase students' motivation to learn, encourage their

Pembelajaran, 4(1), 1-7	Alay Fia, Dini Safitri, dan Ade Suryanda (2025)	involvement in the classroom, and strengthen their understanding of the concepts learned. In addition, this model also plays an important role in honing critical thinking, communication, and collaboration skills, which are important competencies for student development in the modern era.

Based on the results of the research that has been conducted, it can be concluded that the SAVI learning model is very effective in improving the understanding of mathematical concepts and student learning activity. The application of this model has a significant positive impact on the learning process, where students who engage in learning with the SAVI method show a better understanding of concepts than before. The SAVI model integrates various aspects of students' senses, so they can connect learning materials with real experiences. This allows students to achieve a deeper understanding of concepts. Research also revealed that students who learn with this model are more active in classroom activities, with an activity rate of around 80%. This shows that students are more motivated and excited in following learning.

Furthermore, student activity turns out to have a direct impact on the quality of learning. In this study, students who used the SAVI model showed a significant increase in their activeness, which was reflected in the positive response and enthusiasm to the material taught. The application of the SAVI model not only improves concept understanding and learning activity, but also creates a more interactive and fun learning atmosphere. With the active involvement of students through various activities that involve the senses, the classroom atmosphere becomes more lively and interesting. This makes students enjoy the learning process more and feel more involved. Therefore, the SAVI model can be a very effective learning strategy to improve the quality of education, especially in math lessons that are often considered difficult by students.

Overall, the SAVI model is an excellent alternative to improve students' understanding of concepts and active learning. The application of this model not only helps students understand the material more deeply, but also encourages them to be more active, creative, and participate in the learning process.

CONCLUSION

Based on the study of fifteen scientific articles, it can be concluded that the SAVI (Somatic, Auditory, Visual, and Intellectual) learning model makes a positive contribution in improving students' ability to understand concepts and be active in learning mathematics. This model integrates various approaches that involve all students' potential, both physical, sensory, and intellectual, so that the learning process becomes more fun, meaningful, and effective. In terms of concept comprehension, the SAVI model has been proven to help students understand mathematical material more quickly and concretely through various visualization methods, movements, and active involvement in the thought process. On the other hand, related to active learning, students show a significant increase in participation during learning activities, either through discussions, hands-on practice, or collaborative activities. Overall, the application of the SAVI learning model can be an innovative and relevant strategy in improving the quality of mathematics learning at various levels of education. This approach not only focuses on cognitive learning outcomes, but also encourages the development of attitudes, motivations, and 21st-century skills that students desperately need in this modern era.

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