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Profile of the Implementation of the Meaning Model in Science Learning 2013-2022

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ABSTRACT

The meaning model is one of the models needed in the era of rapid globalization in building the character of students. This research was conducted to describe and analyze the implementation of the meaning learning model in Indonesia. The method applied in this research is a library study sourced from previous research that has been published in international and national journals. Based on an analysis of 20 learning articles using the meaning learning model in Indonesia, it can be seen that the meaning learning model has a positive impact on student responses, which can improve student learning outcomes, increase students' understanding of concepts and foster virtuous attitudes towards the surrounding environment. The application of the meaning learning model is able to transmit positive behavior and contains wisdom, this model requires structured planning to support the implementation of the meaning learning model.

INTRODUCTION

Advances in information technology and information sources require the world of education to innovate in human life. On the one hand, progress in the field of education to produce intelligent humans is indicated by the rapid development of science and technology itself. But on the other hand there is a shift in values, attitudes and morals as well as the character of the nation. Some of the negative phenomena that are expressed at this time include teenage fights, cheating in exams and various social upheavals. These symptoms are contrary to the ideals of national education in shaping Indonesian people with personality and character (Kemendikbud, 2013). Education of character or morals is very much needed to overcome this. Character education or moral education is a teaching program in schools that aims to develop the character or character of students. Natural Sciences is one of the subjects that has a variety of very interesting symptoms/phenomena and has the potential to be a model for moral attitudes. To teach moral attitudes requires exemplary examples, of how moral attitudes are carried out (Gonibali et al., 2019). The important goal of science education is to comprehensively empower students at all levels of education in building good character: such as moral, spiritual and social attitudes (Ibrahim & Abadi, 2018). One of the learning models applied by the 2013 curriculum in science learning is the meaning learning model (Markiah et al., 2017).

Science learning is a science that learns about natural phenomena through observation and analysis activities with a series of experiments in the laboratory to strengthen a comprehensive understanding. This science is definite or exact because the observed phenomena are relatively real and measurable. In addition, Science Learning seeks to preserve nature and use it for human welfare in improving living standards, efficiency, and work effectiveness. Nature is a source of knowledge that will never run out from

time to time (Nisyah et al., 2022). In the teaching and learning process, if we want students to maintain the behavior being trained, then give them reinforcement, on the other hand, if they want the behavior not to be carried out again, then give unpleasant consequences (Sumarni et al., 2017). Students are said to have a positive attitude that is grown through the model, creates feelings about it, will affect the orientation of students towards a positive attitude (Ibrahim & Abadi, 2018). The emergence of a person's attitude is when a person recognizes an object, both internally and externally, so that his life is influenced by his environment. Students who are categorized as sensitive are possible to think that being kind to the environment will give good feedback to themselves, so that students can broadly interpret a natural phenomenon in a positive attitude that students can do (Fauziah & Ambarwati, 2020).

Learning models through examples and examples of the linkage of events, symptoms or phenomena that have the potential to be used as models in learning that aim to teach positive attitudes, noble character, and character in addition to their academic aspects. In relation to this model, meaning is an example of how to show the consequences of the behavior performed. The meaning is carried out in various ways to touch the hearts of students that what is done by someone deserves to be imitated or otherwise should be avoided, then analogized to a negative phenomenon, and motivates students to avoid it. In other words, the phenomena in science can be interpreted to portray models of attitudes, characters and manners as visual analogies.

The meaning learning model is developed as a framework of thinking that can be used as a guide by teachers and learning designers to plan and implement learning that is able to explore, optimize, and empower all students' potential through heart, thought, taste and exercise. Meanwhile, the implementation of this model is expected to be able to develop life skills (communication, thinking, problem solving) and streamline students' academic achievement (cognitive, psychomotor, affective). This model emphasizes the students' affective achievement which is done intentionally. Therefore, this study aims to describe and analyze the application of the meaning learning model through the study of literature.

RESEARCH METHODS

This research is a literature study with the aim of being able to describe and analyze the application of the meaning model in learning activities, which can be accepted as new knowledge. This study was made based on research that has been done by several previous researchers. This literature study took sources from 20 articles or journals from Google Scholar and was published from 2013 to 2022 about the meaning learning model. The steps taken in the literature study on the implementation of the meaning learning model, as in Figure 1.

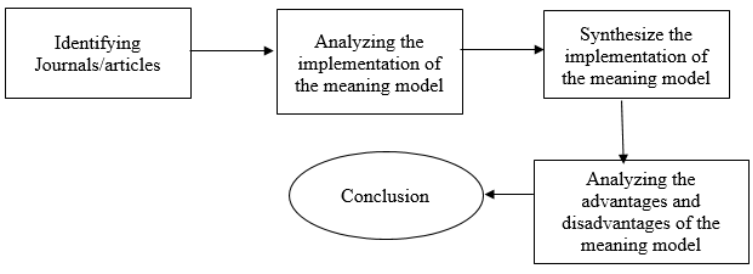

Figure 1. Flowchart of profile implementation of the meaning learning model in science subjects at school

RESULTS AND DISCUSSION
Results

Table 1. Profile of the implementation of the meaning model in science learning (2013-2022).

Author and Year	Sample Characteristics	Research methods	Research Results/Findings
(Durorin, 2018)	Research subjects 15 students of grade VIII C 28th Junior High School of Surabaya	Using 4-D development research, the type of research is one group pretest post test, without a comparison group	The set of learning models for the meaning of the digestive system material Effectiveness is obtained from learning outcomes and student responses, including: • Aspects of mutual cooperation and responsibility, • The knowledge aspect obtained an average value of 0.40 with moderate criteria • The skill is 81.37 with very good criteria. • The learning outcomes obtained are positive responses of 89.33%
(Gonibali, 2019)	The subjects of this study were 22 students of class X Science 2 at Senior High School Terpadu Wira Bhakti	Using the development model by Thiangarajan 4-D test instrument	Chemistry learning tools and chemistry learning tools are the first to use a meaning model to train moral sensitivity
(Habibi, 2021)	The research subjects were 33 students of 3rd Senior High School Pamekasan grade XII, scientific and students' moral sensitivity	Using the development model by Thiangarajan 4-D using one group-posttest design	Learning tools that have been developed can teach basic cognitive abilities, thinking skills, scientific skills, and moral sensitivity
(Ibrahim & Abadi, 2018)	The research subjects were 24 fourth grade students of elementary school Sanggatta, East Kalimantan, Indonesia	Time series design research (Frankael, 2012)	Internalization strategy can cultivate character: especially caring and tolerance
(Nisyah et al., 2022)	The research subjects were 5 students for small group trials and 30 students for large group trials for grade VII B junior high schoo;. ASHRH Jember	Using the ADDIE research method	The development of meaning-based module teaching materials has • Produce teaching modules based on meaning learning models on temperature and heat material • the validity test with the results of 82.79% with a very valid category / can be used without revision, then on a positive response from students through a small group test 76.8% with an interesting category and a large group test 77.84% with an interesting category. • The results of this study have an interesting category in increasing positive responses from students and can be used

Author and Year	Sample Characteristics	Research methods	Research Results/Findings
			as independent learning materials.
(Rizki, 2018)	The research subjects were 12 students of the madrasah ibtidaiyah teacher education program.	This type of research is classroom action research by using one group pretest and post-test type of thinking skills test	The application of the meaning model can improve the thinking skills of PGMI STIT students
(Sumarni et al., 2017)	The research subjects were students of grade XI science 1st senior high school Krian in 3 classes (R1, R2, R3)	The research method used is Pre-experimental replication (R) three times through One Group Pretest and Posttest Design	• Lesson plans Implementation of a well-implemented meaning learning model. • Positive responses from learning characters on average get very good scores
(Syamsudin, 2019)	The research subjects were 35 students of grade VII Formal Diniyyah education Wustha Al Fitrah Surabaya,	By using research and development (Reseach and Development) Method One-group Pre-test and Post Test Design a	Science learning tools oriented to the meaning learning model developed are valid, practical, and effective to improve students' motivation and learning outcomes Formal Diniyyah education Wustha
(Novilia et al., 2019)	Research subjects 30 students 15 people came from elementary school Darel Hikmah and 15 people from senior high school 4 Pekanbaru,	with development research using 4D models (Define, Design, Development, Desseminate)	Meaning-based learning modulethe atomic structure material developed meets the valid criteria based on aspects of: Content eligibility, language Presentation, graphics meaning With consecutive percentage 90.28%, 86.67%, 95%, 91.67%, and 91.67%. Teacher and student response test resultsto the module respectively are 85.90% and 97.58% with very good criteria.
(Sartika & Faizah, 2020)	Research subject 4th semester students of the 2018/2019 Academic Year a total of 18 students of the Science Education Study Program	Quantitative research design with experimental designTechnique analysis data percentage of agreement	Obtained as follows: • The application of the learning model for the meaning of the Fluids course in the classroom and in the laboratory was carried out well, namely linking the concept of fluid with Al-Islamic values; • Student learning outcomes at least category B; and 88% • Positive response to fluid lectures by integrating the values of Al-Islam through the model meaning learning
(Andhini et al., 2019)	Research subjects in grade X science senior high school/elementary school have an age range of 15-16- years,	method *Research & Development*(R&D) with a 4-D model (Define, Design, Development, *Desseminate*	• The module is based on a learning model for the meaning of the periodical system of elements. • Valid to meet the aspects of the feasibility of the content, aspects of linguistic feasibility, aspects of the feasibility of serving, aspects of feasibility graphics and aspects of meaning. Validation overall average score module is 90.22% with valid category. • The results of the teacher and student response test to the

Author and Year	Sample Characteristics	Research methods	Research Results/Findings
			module book in a row are 86.54% and 97.88% with very good criteria
(Ritonga & Hasibuan, 2019)	The research subjects were students of XI science 2nd state senior high school Bilah Hulu 30 students	The type of research used is qualitative research	Analogy learning gets a response in shaping attitudes and morals, namely discipline, responsibility, tolerance, self-confidence, without hesitation, not easily discouraged, and daring to argue, ask, or answer questions.
(Fauziah & Ambarwati, 2020)	The research subjects were 30 students in class X science 2 and class X science 4, science 1 Puri Mojokerto.	Methods of data collection using the method of tests, observations, and questionnaires. Data analysis was carried out by qualitative descriptive statistical tests, normalized gain score tests, Wilcoxon nonparametric statistical tests and Mann-Whitney nonparametric statistical tests.	• Teaching materials based on the meaning of the Invertebrate material • The meaning-based textbooks are implemented well. • Learning outcomes have increased. Attitude sensitivity shows that. Students give a positive response. Attitude sensitivity of students can be trained during learning by using textbooks based on the meaning of Invertebrate material and student learning outcomes have increased significantly
(Yuliana et al., 2017)	The research subjects were students of grade X 3rd State vocational school Buduran Sidoarjo,	Research Methods Pre Experiment one group pretest posttest 3x replication	The application of the meaning learning model can develop students' honest, disciplined and cooperative character
(Pertiwiningrum et al., 2017)	The research subjects were 36 students of science-1 grade at 19th senior high school Surabaya	Pre-experimental research method One Group Pretest-Postest Design	Learning tools can train moral sensitivity, students' character becomes more positive by practicing moral sensitivity using a meaning learning model
(Markiah et al., 2017)	Research Subjects are VII grade students of 2nd junior high school Tanah Grogot, East Kalimantan	Research method Pre-Experimental One-Group Pretest-Posttest Design.	The application of the meaning learning model can improve learning outcomes and cultivate the character of discipline and responsibility for grade VII Junior High School students
(Putra et al., 2017)	The research subjects were 10 students of class VIII 1st state junior high school Tarik.	Research Methods pretest-posttest design	Biology science learning devices based on heating models on the subject of the human respiratory system are effective in teaching science and fostering moral sensitivity for junior high school students
(Qari'ah et al., 2016)	Research Subjects 205 students of grade VIII junior high school Terate Pandian Sumenep	Research method posttest-only two-group randomized experimental design	Meaning learning was carried out very well, there were differences in the character of students between classes that used the existing meaning learning model in the control and experimental classes.

Discussion

Characteristics of the meaning learning model

The meaning learning model is a learning model through examples and examples of related events, symptoms or phenomena that can potentially be used as models in

learning that aims to teach positive attitudes, noble character, and character in addition to the academic aspects. In relation to this model, meaning is an example of how to show the consequences of the behavior performed. The meaning is carried out in various ways to touch the hearts of students that what is done by someone deserves to be imitated or otherwise should be avoided. If the meaning is analogized and then internalized so that lessons can be drawn in daily behavior, then this model is a good model. On the other hand, if the meaning analogizes a negative phenomenon, it motivates students to avoid it.

The meaning learning model has several principles, namely: (1) Student-centered, (2) Problem Based, (3) Integrated, (4) Community oriented, (5) Offering choices, (6) Meaning. Through the principles that have been described the characteristics of the meaning learning model, namely: (1) Orienting students to problems or questions, (2) Designing a problem solving process or answering questions, (3) guiding investigations, (4) communicating results, (5) Negotiating and Confirmation, (6) Meaning, (7) Evaluation and Reflection. Based on the syntax of the meaning learning model, the characteristic is in meaning, meaning that the meaning here relates and compares the knowledge possessed by students through the symptoms and events that are contained in the science learning material associated with aspects of character, norms that must be obeyed and so on. Positive attitudes are trained during learning to gain reinforcement in this syntax (Ibrahim, 2014).

This learning model requires a change in the learning paradigm from teaching to learning. In this case there is a shift in the roles of students and teachers. The implementation of this model makes the role of students as active learning subjects assembling experiences, imitating the model. Therefore, meaning learning is in line with national education which states that national education functions to develop capabilities and shape the character and civilization of a dignified nation in order to educate the nation's life. Aim to improve the quality of educational processes and outcomes, which leads to the formation of character and noble character of students as a whole, integrated and balanced, in accordance with the 2013 graduate competency standards which are competency-based as well as character-based, with thematic and contextual approaches, it is hoped that students will be able to independently able to improve and use their knowledge, study, internalize and personalize character values and noble character so that they are manifested in daily behavior. Therefore, the examples presented must be actual and exist in the student's life environment (Novilia et al., 2019).

Research Trends

The learning model is one of the learning models developed in elementary school to university level in science learning. Research conducted in elementary schools by Ibrahim & Abadi (2018), at Sanggatta Elementary School, East Kalimantan with the aim of to determine the effectiveness of using internalization strategies in the science class in fostering a positive attitude: Caring and tolerance for elementary school students. One of the studies conducted at the junior and senior high school levels was to produce science learning tools oriented to a meaning learning model to train students' motivation and learning outcomes (Syamsudin, 2012; Durorin, 2018; Habibi, 2021; Sumarni et al., 2017; Amanda, 2019; Rizki, 2019; Yuliana, 2017) and develop and determine the feasibility of learning tools, teaching materials, modules based on meaning learning models (Nisyah et al., 2022; Syamsudin, 2019; Novilia et al., 2019; Fauziyah & Sartika, 2020; Pertiwiningrum et al., 2017; Markiah et al., 2017; Putra et al., 2017: Qari'ah et al., 2016).

The Advantages of the Meaningful Learning Model

The meaning learning model aims to develop life skills and streamline students' academic achievement as well as improve character, morals, and morality (Ibrahim & Wahyusukritiningsih, 2014). Based on studies that have been carried out on several scientific articles, they found the advantages of this model are obtaining the effectiveness of the meaning learning model on student learning outcomes, increasing student learning motivation (Syamsuddin, 2019), can affect character student responses (Sumarni et al., 2017), and can enrich learning tools (Durorin, 2018). It was developed with the support of behavioristic learning theory, social learning theory, scaffolding theory that can be used as a teacher guide and learning design that is able to explore, optimize, and empower all students' potential through heart, thought, taste and exercise. Especially to teach academics as well as a positive attitude. Morals and character (Ibrahim & Wahyusukritiningsih, 2014).

Disadvantages of Meaningful Learning Model

Some of the limitations developed in the meaning learning model are: (1) The unavailability of attitude indicators will make it difficult for teachers to develop, (2) Attitude learning is carried out as a nurturing effect that adheres to the assumption that attitudes will be formed if students are skilled in knowledge. There is a lot of evidence that can refute this assumption, meaning that someone who is knowledgeable and skilled does not necessarily have a good attitude.

Suggestions for Implementing the Meaningful Learning Model

Based on the trend of research that has been done previously about the learning model of meaning that can help students in the learning process, namely motivation through learning tools and teaching materials that have been provided. The process of moral internalization, a person's sensitivity to moral values to the surrounding phenomena is actually the initial stage for moral cultivation in a person, the other stages are moral decisions, moral motives, and moral application. Suggestions given from the results of the literature review of the meaning learning model should be trained teachers to be able to analyze teacher books and student books in order to develop lesson plans. In developing teaching materials and learning tools, teachers are encouraged to creatively accommodate the context in which the learning to be carried out has actual examples in everyday life so that the knowledge gained by students becomes knowledge that is not easily lost in students' memories. Teachers must also position themselves as partners of students. In the implementation of this meaning learning model, it can be done by means of a learning environment that must be created, for example the arrangement of seating settings if there is interaction between students, so that this model can take place in informal/rigid classroom conditions (Ibrahim & Sukritiningsih, 2014). In-depth research on the model of meaning to teach other moral aspects such as good manners, positive attitudes, and morality.

CONCLUSION

Based on the literature review of the 2013-2022 implementation of the meaning learning model, it can be concluded that the meaning learning model has a positive influence on students. The application of this meaning learning model can improve student learning outcomes, motivate students, train science process skills, provide examples that can be

imitated by students and avoided by students by internalizing character values in science learning. Constraints found in the learning model of the meaning of the unavailability of attitude indicators. Therefore, the process of implementing the meaning learning model must be supported by an optimal learning environment. Further research is suggested to develop a model with a longer time and with new materials. The meaning learning model can provide innovative learning through examples and examples of the relevance of events, symptoms or phenomena that can potentially be used as models in learning to practice positive attitudes, morality, and character in academic aspects. This learning model can only be applied to material that is very relevant in everyday life, besides that this model can also be applied at every level.

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