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Research article

Characteristics of the Religious Element in STREAM Learning in Elementary Schools

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Abstract.

One of the learning approaches that can help answer today's challenges of development is the STREAM learning approach. This contains a religious element that is an addition to the standard STEAM approach. This research consisted of a literature review. 52 studies were found that met the inclusion criteria. Information was obtained from these studies about the development of STREAM learning in elementary schools and its religious characteristics. According to the findings, the characteristics of the religious element in elementary school STREAM learning include: 1) placing students as learning subjects and teachers as facilitators according to the dimensions of religious beliefs and feelings; 2) exposing students to direct experiences, which are in accordance with the dimensions of the religious effect, namely actual religious practices in everyday life; 3) integrating religious values into subjects in schools that are in accordance with the dimensions of religious influence and the practice of religion of each student; 4) presenting concepts in one process that is in line with the dimensions of students' religious knowledge; 5) linking religious elements to teaching materials or other subject matter in accordance with religious knowledge and students' religious practice; and 6) adjusting learning outcomes to the interests, needs, and characteristics of the students, because each student's religious beliefs and religious feelings will be different.

Keywords: religious, STEAM, STREAM, elementary school learning

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1. Introduction

Today is the age of the world of science and technology which is very rapidly developing in all fields. Likewise in the world of education, 21st century learning activities refer to a global movement, namely redefining teaching objectives, transforming learning methods/systems applied in everyday life, and expanding the period of assessment of student learning outcomes. The skills students need in facing the challenges of the 21st century are Critical Thinking and problem solving, Communication and Collaboration, as well as Creativity and innovation [1, 2]. One of the educational breakthroughs to build student skills is STEAM learning. STEAM is an approach to learning activities which is a method/learning system for students to generate new ideas based on science and technology through activities by moving all thinking power and exploring problem solving based on 5 (five) integrated scientific disciplines [3]. Suppose problem solving

is done by referring to several different disciplines so that problem solving will be something new, effective, efficient, and interesting.

STEAM learning involves critical, creative thinking processes and involves several methods in the innovation and examination process so that this approach stimulates students' curiosity and motivation about higher-order thinking skills which include problem solving, independent learning, collaboration, project-based learning, and problem-based learning. . To further complement the needs of students, STEAM learning was further developed into STREAM, which integrates religious elements in learning [4]. Following the current curriculum updates, students are expected to realize their abilities in life as individuals and citizens who are faithful, creative, innovative, productive, and practical and contribute to national and global life. The STREAM learning approach is suitable for primary school student learning, because elementary school uses thematic learning that integrates several disciplines [5].

2. Method

This research is a library research, using literature analysis to analyze research data. The formulation of the research problem that follows the research topic and refers to the background of the research problem is: How is the development of STREAM learning in elementary schools? What are the religious characteristics of STREAM learning in elementary schools? What is the urgency of STREAM learning in elementary school?

Articles relevant between title and content with the purpose of writing, both in English and Indonesian, and full text, the respondents are students with an age range of 6-12 years, the publication of writings in the range 2010-2021. Search Process: The process of searching for literature according to research questions through indexed electronic databases including ScienceDirect, ProQuest, Google Scholar, and Wiley Online with the keywords Religion, STEAM, STREAM, elementary learning.

Quality assessment was carried out based on the identification of inclusion and exclusion criteria to obtain the feasibility of the selected literature. The identification of the feasibility of the literature is carried out through questions arranged based on inclusion and exclusion criteria, including: Does the literature presented have a title and content that is appropriate (relevant) to the research objectives? Is the literature presented in English or Indonesian? What is the literature used as a data source for the 2010-2021 publications? Does the existing literature discuss and review STREAM learning in primary schools?

Based on the keywords entered in the database, the researcher obtained 8,140 articles. Researchers selected articles that were relevant to the title, abstract, and questions about the quality of the assessment. Unsuitable articles were omitted so that 52 articles relevant to the research title were obtained, with 40 international literature in English and 12 literature in Indonesian. While the literature published between 2010-2021 was 40 literatures. There are 21 articles related to religious studies specifically, while those related to STEAM and STREAM consist of 19 literatures, and other literature discusses learning in elementary schools.

3. Result

3.1. Development of STEM, STEAM, and STREAM Learning

STREAM learning was born from the development of STEM and then STEAM. STEAM learning is a blend of disciplines that integrates science, technology, engineering, art, and mathematics into an integrated learning approach that is applied to the curriculum and learning in academic units [6]. The STEAM learning approach emerged and played a role after STEM (Science, Technology, Engineering, and Mathematics) learning. According to a systematic study of various kinds of literature [7], we conclude that the STEM learning framework includes five things, namely: (1) integration of STEM content; (2) inquiry-based learning; (3) problem-based learning; (4) design-based learning; and (5) cooperative learning. After developing this STEM model, there was the addition of Art, which was then integrated into the STEM learning discipline. Art is added to STEAM based on the assumption that science and technology can be interpreted as engineering and Art, where all elements contain elements of mathematics [8]. Another study [9] added Art to STEM to STEAM believing that in the 21st century, it is design and Art that will change the economy as science and technology have played a role in changing the economy in previous centuries. STEAM can dilute limitations and replace them with criticism, investigation, and innovation [10]. STEAM learning makes students understand that Art and science involve many forms of creativity, critical thinking skills, and imagination when students try to understand various problems from real life [11]. Several studies have shown that STEAM learning aims to spread students' creativity and improve problem solving skills in everyday life [12]. Stimulating creativity in STEAM learning is needed to improve students' thinking to be more independent, flexible, confident, creative, and skilled in problem solving. Creativity can be learned through the models and practices they get during learning in the classroom and outside the

classroom. The addition of religious aspects to STREAM can complement the five pillars of education in Indonesia that are used as references to achieve educational goals in Indonesia, namely learning to know, learning to do, learning to be, learning to live together in peace, and learning to strengthen faith, piety, and morals. glorious. The purpose of national education [13] is to develop into human beings who believe and fear God Almighty, have noble character, are healthy, capable, creative, knowledgeable, independent, responsible, and become a democratic society. Religion is one aspect of character teaching which is being used in all aspects of life. In the family, academic unit, and society. Because it is needed by generations to face the challenges of the times. So it can be concluded that STREAM is an integrated learning approach that supports students to make broader efforts about the real world situation that is integrated from a religious point of view [14]. STREAM supports meaningful learning experiences and problem solving while still believing that science, technology, engineering, art, religion and mathematics are interconnected. Therefore, it is appropriate that STREAM learning is applied in learning in elementary schools as learning that follows the development situation of the 21st century[15].

3.2. Characteristics of Religion Element in STREAM Learning

The more advanced technological developments in the fields of education, religion and culture are increasingly distant and separated from science. Students also perceive the contradiction between science and religion that these two things are separate and cannot be combined. For this reason, scientists must appreciate the cognitive value of religious science and link religion with science in learning so that students do not think that science and religion are two separate things. Separating religion and science, basically detaches human intelligence from three dimensions [16]. Whereas individuals who can associate scientific knowledge with religious knowledge are individuals who have high literacy abilities. One of the important elements of Religion in the STREAM learning method is the balance of students' knowledge of religion, technology, and science through the integration of STREAM learning [17-18].

More specifically, the study states that religious education can be social capital to achieve good academic achievement. Religious involvement increases an individual's social capital in family and peer networks, promoting educational success. So there is a positive influence of religious involvement on some academic outcomes [19]. In this integration, religion contributes its teachings to science, and science rewards its discoveries in religion.

On the other hand, disharmony about the basic views between science and religion can lead to cognitive dissonance. Therefore, to overcome this, there needs to be a debate between science and religion. STREAM's learning approach serves as a vehicle for building debates between science and religion. STREAM learning is needed to realize harmonization between humans, the environment, and citizens using God. STREAM is an integrated learning approach using a religious perspective to invite students to think more broadly about current world issues Religiosity [20] is an attitude and behavior that is obedient in carrying out the teachings of the religion adopted, is tolerant of the implementation of worship of other religions, and lives in harmony with adherents of other religions. In other words, religious values are the appreciation and implementation of religious teachings in everyday life. The success of students in religious education can be measured by living the religious values that are reflected in their attitudes and behavior. This reflection is seen in daily activities such as discipline in worship, honesty, noble character, sincerity, patience, and helping each other. Of course, in the cultivation of religious values, the role of the teacher is very significant. One study [21]found that Religion had influenced teachers' teaching approaches in the UK on certain topics. Science helps students to answer "How" questions. Meanwhile, religion will answer the "Why" question, which reveals something beyond science. Religion will provide richer epistemic insight for students to deal with the problems they face. Through religious teaching, students will be able to understand that the beliefs of their friends are different and none is better or worse [22]. In this integration of religion, the interdisciplinary approach [23] so that students understand the history of religion, actual issues of religion in society and religious doctrines around the world. Religious values can be presented through life stories and experiences that also express religious behavior. Based on this context, the learning process aims to cultivate values by internalizing religious values. While the delivery model is in the form of habituation or examples. This model of exemplary and habituation is also useful in instilling religious values in students. The habituation method is very appropriate for inculcating values because activities that are often carried out will be more easily attached to students. Morals and ethics are very important in science. Morality and ethics cannot be separated from religious guidance. Ethics is one of the important factors in the relationship between religion and science [24], while both are believed to influence education in some countries [25]. The inculcation of religious values in elementary school students positively shapes the behavior and character of children. There are five dimensions of religious aspects proposed by Glock and Stark [26], namely: 1) Religious belief (an aspect of belief), namely belief in God and accepting dogmatic things in the teachings of his religion. This

faith is the most fundamental dimension for religious adherents; 2) Religious practice (worship aspect), namely aspects related to attachment, which include the frequency and intensity of several behaviors, where such behavior has been determined by religion such as procedures for carrying out worship and religious rules; 3) Religious feeling (appreciation aspect), which describes the form of feeling felt in religion or in religious rituals, for example reverence during worship; 4) Knowledge of religion (knowledge aspect), namely aspects related to one's understanding and knowledge of the teachings of his religion. 5) The influence of religion (practical aspect), namely applying religious teachings through attitudes and behavior in everyday life.

Religious values contained in the dimensions of religious aspects must be instilled to build the character of elementary school students.

3.3. STREAM Learning in Elementary School

The current curriculum provides thematic learning for basic education in Indonesia. The STEAM approach is an attempt to apply integrative thematic learning that involves multiple learning content [27-29]. In elementary school lessons, the material is presented according to the theme so that the themes taught in the subjects are all STEAM-based [30-31]. This is supported by research [32] which supports that teachers in primary schools are more enthusiastic and have more positive responses and views towards STEAM learning and practice than teachers in secondary schools. These findings indicate that the STEAM approach can be more easily applied in the curriculum and learning in the Basic Education Unit. STEAM applied in the Basic Education Unit introduces the importance of physical movement, critical thinking, student collaboration, and a positive classroom environment, which are components of a mind learning approach that can work harmoniously in STREAM learning. The material taught is thematically integrated with the education unit and integrated to support learning in accordance with the applicable curriculum. Likewise, the spirit of the STREAM approach is in line with the implementation of thematic learning in the Basic Education Unit.

Thematic learning focuses on students, integrates multiple content, provides hands-on experience to students, is flexible, and provides opportunities for students to develop according to their talents and interests. The characteristics of a more complete thematic learning can be explained as follows: [33]. 1) placing students as learning subjects and teachers as facilitators who accompany, guide, and assist students' problems that occur in class; 2) make students face to face with real problems that become the basis for understanding things that are still abstract. 3) there is no clear separation between

the eyes. Learning is more focused on themes related to everyday life; 4) presenting the concept of several contents in one learning process so that students' mastery of concepts becomes intact. 5) flexible where skilled teachers connect teaching materials from one container to another, as well as with other learning resources from students or other learning resources; 6) learning outcomes can be adjusted to the interests, needs, and characteristics of students so that students have the opportunity to explore their potential. This makes thematic learning in the Basic Education Unit in line with the spirit of STREAM-based learning.

4. Discussion

Based on the characteristics of thematic learning, it can be determined the characteristics of religious elements in STREAM learning following the thematic approach pattern, regarding the 5 (five) dimensions of religious aspects proposed by Glock and Stark in [26], among others: 1) placing students as learning subjects and teachers as a facilitator who guides, and accompanies students in class according to the dimensions of Religious Belief and Feelings, namely the belief and appreciation of students as individuals who embrace religion; 2) can expose students to direct experience, so that students deal directly with real problems following the dimensions of the Religious Effect, namely religious experiences in real daily life; 3) integrate religious values into subjects at school, so that there is no separation between subjects. Learning focuses more on themes related to everyday life following the dimensions of the Religious Influence and Religious Practices of each student; 4) Presentation of concepts from several contents in one learning process at the same time so that students' mastery of concepts becomes intact so that it is in harmony with the dimensions of students' Religious Knowledge; 5) Flexibility, religious elements can be linked to teaching materials or other content of lessons that follow religious knowledge and students' religious practice; 6) learning outcomes can be adjusted to the interests, needs, and characteristics of students because each student's religious beliefs and religious feelings will be different so that learning outcomes will be adjusted to the interests and needs of students so that students can develop according to their needs.

A study showed that the STREAM approach had an impact on improving student learning outcomes, and their activities in learning made them more innovative in developing interesting products [34]. The STREAM method provides a link between science, technology, engineering, Arts, Religion, and mathematics. Thus supporting a meaningful learning experience and problem solving. Through STREAM, science and technology

can be interpreted through art and engineering as well as mathematics [35]. STREAM can improve students' critical thinking skills because the collaboration between this model and approach in thematic learning can make students actively participate in learning [36]. In addition, it is certainly a very good opportunity for elementary school teachers to apply the project-based STREAM learning model to increase curiosity, imagination, and social attitudes in learning. Thus, STREAM learning in elementary schools is expected to further stimulate students' skills to face 21st century challenges that demand 4C competencies: creative, critical thinking, communicative, and collaboration.

5. Conclusion

The religious element is an essential element to be integrated into STEAM learning into STREAM learning. The element of religion is related to the formation of morals and behavior in elementary school students, so it is necessary to instill religious values in the development of student character. The characteristics of the religious element in STREAM learning in elementary schools include: 1) placing students as learning subjects and teachers as facilitators according to the dimensions of Religious Beliefs and Feelings; 2) exposing students to direct experiences, which are in accordance with the dimensions of the Religious effect, namely actual religious practices in everyday life; 3) integrate religious values into subjects in schools that are in accordance with the dimensions of Religious Influence and the practice of religion of each student; 4) Presentation of concepts from several contents in one process that is in line with the dimensions of students' Religious Knowledge; 5) religious elements can be linked to teaching materials or other subject matter in accordance with religious knowledge and students' religious practice; 6) learning outcomes can be adjusted to the interests, needs, and characteristics of students, because each student's religious beliefs and religious feelings will be different. In addition, religious education can be a social capital to achieve good academic achievement, so that it has a positive effect on student learning outcomes. Therefore, with the characteristics of religious elements in STREAM learning in elementary schools, students' knowledge becomes balanced between Science, Technology, Religion, Engineering, Art, and Mathematics. STREAM learning can answer the challenges of 21st century development, which is to produce generations who master critical thinking skills, creative, problem solving, working well together, communication skills, creativity, noble character, and noble character.

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