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The Implementation Profile of The Science Literacy Movement in Elementary Schools

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ABSTRAK

Gerakan Literasi Sains telah diprogramkan oleh Kementerian Pendidikan dan Kebudayaan pada tahun 2017. Kenyataanya literasi sains peserta didik Indonesia masih dalam kategori rendah masih di bawah skor rata-rata ketuntasan PISA. Berdasarkan hal tersebut, penting memahami Gerakan Literasi Sains di sekolah, khususnya sekolah dasar. Penelitian ini bertujuan untuk menganalisis proses, kualitas, dan kendala implementasi Gerakan Literasi Sains di Sekolah Dasar. Penelitian ini tergolong dalam penelitian campuran (mix method). Desain penelitian campuran yang digunakan oleh peneliti adalah explanatory design. Subjek dari penelitian ini adalah program Gerakan Literasi Sains pada setiap satuan pendidikan di lokasi penelitian. Instrumen penelitian yang digunakan adalah angket evaluasi pelaksanaan Gerakan Literasi Sains dan pedoman wawancara. Data dianalisis secara deskriptif. Hasil penelitian menyatakan bahwa seluruh sekolah sudah melaksanakan Gerakan Literasi Sains namun belum menyentuk seluruh aspek Gerakan Literasi Sains; kualitas pelaksanaan gerakan literasi sains di sekolah secara keseluruhan sudah baik; dan kendala yang dialami terkait dengan situasi pandemi Covid-19, terbatasnya anggaran, terbatasnya sarana-prasarana, motivasi belajar yang masih rendah, dan kurangnya pembinaan dari berbagai pihak. Implikasi penelitian ini adalah Gerakan Literasi Sains perlu dilakukan secara holistik dan kreatif sehingga dapat diimplementasikan pada pebelajaran luring maupun daring.

ABSTRACT

The Science Literacy Movement was programmed by the Ministry of Education and Culture in 2017. In fact, the scientific literacy of Indonesian students is still in the low category, still below the average PISA completeness score. Based on these problems, it is important to understand the Science Literacy Movement in schools, especially elementary schools. This study aims to analyze the process, quality, and constraints of the implementation of the Science Literacy Movement in Elementary Schools. This research is classified as a mixed method. The mixed research design used by the researcher is an explanatory design. The subject of this research is the Science Literacy Movement program in each educational unit in the research location. The research instrument used was an evaluation questionnaire on the implementation of the Science Literacy Movement and interview guidelines. Data were analyzed descriptively. The results of the study stated that all schools had implemented the Science Literacy Movement but had not touched all aspects of the Science Literacy Movement; the quality of the implementation of the scientific literacy movement in schools as a whole is good; and the constraints experienced related to the Covid-19 pandemic situation, limited budget, limited infrastructure, low learning motivation, and lack of guidance from various parties. The implication of this research is that the Science Literacy Movement needs to be done holistically and creatively so that it can be implemented in offline and online learning.

1. INTRODUCTION

Science is derived from the word natural science or science, that is the natural sciences whose studies include physics, chemistry and biology, as well as other integrated sciences, such as geology and astronomy. Science is also a scientific study that focuses on and explains natural phenomena and their interactions (Abidin et al., 2017; Nofiana & Julianto, 2018). In principle, science is seen as a process, product

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and procedure. As a process, science is seen as all scientific activities to improve knowledge about nature or discover new knowledge. As a product, it is defined as the result of a process, in the form of knowledge taught at school or outside of school or reading material for the publishing or dissemination of knowledge. As a procedure, it is a methodology or way to know something which is commonly called The Scientific Method (Rusadi et al., 2019; Yunita & Meilanie, 2019). Entering the 21st century, the mastery of science and technology has become a benchmark for a country's progress in an increasingly fierce global competition. Therefore, science education, as part of the educational process, has the task of forming a young generation who is able to master science and technology so as to be able to advance Indonesia. Science education is also expected to be able to form students who are able to apply science concepts in everyday life while being involved in decision making or solving problems related to science (Natale et al., 2021; Suryaningsih, 2017).

In the current curriculum, science education is given since students are at the elementary school. At the elementary school, science subjects use an integrated system with other subjects called thematic learning. The concept of science begins to enter thematic learning in grade IV to grade VI. The time allocation of science learning in each class is 3 hours of lessons/week (Wahyu et al., 2020; Wijaya, 2018). Quality science education is science education that is able to develop science literacy. Science literacy is the ability needed to keep pace with the rapid pace of technological development (Fausan et al., 2021; Nicolaou et al., 2019). Talking about science literacy, many definitions can be described (Effendi et al., 2021; Vandegrift et al., 2020). Science literacy can be defined as the ability to use scientific knowledge, identify questions, and draw conclusions based on evidence, in order to understand and make decisions regarding nature and changes made to nature through human activities (Haryadi & Pujiastuti, 2020; Yuliati, 2017). According to PISA, a person is said to have scientific literacy if they have the following characteristics: 1) have scientific knowledge and uses scientific knowledge to identify questions, acquire new knowledge, explain scientific phenomena and draw evidence-based conclusions about related issues; 2) have an understanding of the characteristics of science as a form of knowledge and human inquiry; 3) have an awareness of how science and technology shape material, intellectual and cultural aspects and 4) a willingness to be involved in science issues and science ideas as a reflective citizen.

The facts that the scientific literacy skills of Indonesian students are still not encouraging. In 2015 based on the results of the assessment by PISA, the scientific literacy score of Indonesian students only reached a score of 403 and it was still below the PISA average score of 493. This result placed Indonesia in 62nd rank out of 70 countries assessed (Junika et al., 2020; Narut & Supardi, 2019). In fact, scientific literacy is a skill that is absolutely needed in the post-modern era (Kristyowati & Purwanto, 2019; Safrizal et al., 2021). Responding to the fact that the scientific literacy skills of Indonesian students are low, the government through the Ministry of Education and Culture has launched the Gerakan Literasi Nasional (National Literacy Movement) Program since 2017. The National Literacy Movement is carried out not only in the school environment, but also in the family and community environment. One part of the National Literacy Movement is the Gerakan Literasi Sains (Science Literacy Movement). The science literacy movement does not only target students but the entire school community. The science literacy movement is implemented at all levels of education from elementary school to high school. One of the clusters that has implemented the scientific literacy movement is the elementary school Cluster I, North Kuta District, Badung Regency which has implemented the Science Literacy Movement since 2017..

Facts on the street state that scientific literacy in Indonesia has declined again. This is based on a report from PISA that in 2018 which stated that the science performance score of Indonesian students was 396 and decreased when compared to 2015 which was able to reach a score of 403 (Hewi & Shaleh, 2020; Tohir, 2019). Therefore, it is necessary to conduct a study or research to find out to what extent the Science Literacy Movement program has been carried out. In addition, research on the policies of the science literacy movement program is still sparse. So far, research on science literacy has been dominated by the topic of learning and developing learning media (Ni'mah, 2019; Rubini et al., 2018). Researchers are interested in researching the implementation of The School Literacy Movement. This research is expected to be a reference and advice for all education policy makers to succeed in the science literacy movement.

2. METHOD

This research is included in the mixed method. The mixed research design used by the researcher is an explanatory design, in which the researcher looks for quantitative data about the implementation of the scienceliteracy movement and then conducts qualitative analysis to strengthen the quantitative data. The type of data in this study is data on the implementation of the science literacy movement program which consists of 8 (eight) components, namely initial assessment, socialization of the science literacy movement to education stakeholders, policy design of the science literacy movement, activities design of the science literacy movement, Development of Learning-Based Science Literacy Movement, Development of

Community-Based Science Literacy Movement, Development of School Culture-Based Science Literacy Movement and Evaluation of Science Literacy Movement. In addition, researchers are also looking for data about the obstacles experienced by schools in developing the science literacy movement.

The instrument used in this research is the science literacy movement assessment questionnaire developed by the Ministry of Education and Culture in 2017. The questionnaire consists of 8 (eight) components with each component containing indicators. Each indicator is given a score from 0-4. A score of 0 is very bad, a score of 1 is bad, 2 is quite enough, a score of 3 is good and a score of 4 is very good. To obtain data about the obstacles in carrying out the science literacy movement, the instrument used was an interview guideline. The research instrument in the form of a questionnaire was carried out with a validation test first. The instrument in this study was tested for expert validity. Validity tested by two experts in education administration and science education. After testing the validity of the two experts, the validity score was 0.96. If the validity score is in the range of 0.8 – 1.0, it is classified as very high (Darmayanti & Wijaya, 2020; Yusup, 2018). The instruments continued with field validity and reliability tests. The validity and reliability tests were carried out in 20 (twenty) elementary schools that had implemented the science literacy movement. The results of the validity test on all items have a score above 0.300 so that it can be declared valid. And then, the reliability test used Cronbach's Alpha reliability. If it has a reliability score of 0 – 0.20, it is classified as very low; 0.21 – 0.40 is low; 0.41 – 0.60 is classified as moderate; 0.61 – 0.80 is high and if the score is 0.81 – 1.00 it is very high (Darmayanti & Wijaya, 2020; Tomoliyus & Sunardianta, 2020). Based on the results of the reliability test, a score of 0.921 was obtained for the science literacy movement research instrument. Thus the reliability of the instrument is classified as very high.

Data collection methods were carried out in three ways, namely observation, interviews and document studies. The observation method is carried out on scientific literacy activities that have been done by the school. Then, interviews were conducted with the principal and the literacy movement development team in each school. In addition, researchers also conducted document studies in the form of physical evidence of the implementation of science literacy movement. The data analysis technique used descriptive analysis techniques, namely descriptions to explain the answers given by respondents on a scale. The data obtained from the interviews were used as supporting data. Researchers calculated the overall score for the implementation of scientific literacy and the score for each component. The score was converted based on conversion table as shown in Table 1.

Table 1. The Conversion Score of Science Literacy Implementation

No	Range	Category
1	0,00 – 0,99	Bad
2	1,00 – 1,99	Enough
3	2,00 – 2,99	Good
4	3,00 – 4,00	Very Good

3. RESULT AND DISCUSSION

Result

The results of the research that will be presented are in the form of data on the average score, the highest score and the lowest score for the overall aspects of the science literacy movement, per aspects of the science literacy movement and per indicators of the science literacy movement. Data for the overall science literacy implementation are presented in Table 2.

Table 2. Profile Data of Science Literacy Movement as a Whole

Data Type	Score
Average Score	2,13
The Highest Score	2,72
The Lowest Score	1,47

Referring to the data in Table 2, it can be seen that the implementation of science literacy movement in the elementary schools of cluster I, Kuta Utara is in the good category. This is evidenced by the average score of 2.13 which is classified as good. This indicates that all elementary schools in Cluster I, North Kuta District have implemented the Science Literacy Movement program with good quality. Then, the profile data of science literacy movement in each aspects are presented in Table 3.

Table 3. Profile Data of Science Literacy Movement Aspects

No	Aspects	Average Score	The Highest Score	The Lowest Score
1	Initial Assessment	2,0	2,7	1,0
2	GLS socialization to education stakeholders	2,4	3,0	1,5
3	Policies Design of GLS	2,0	3,5	0,0
4	Activities Design of GLS	2,1	3,0	1,3
5	Development of Learning-Based GLS	2,8	3,5	1,2
6	Development of School Culture-Based GLS	1,7	2,6	0,3
7	Development of Community-Based GLS	1,8	3,1	1,0
8	Evaluation of Science Literacy Movement	2,2	3,3	1,1

Based on the data in Table 3, it can be seen that there are 4 (four) aspects of the science literacy movement that are in the good category and the rest are in the enough category. The highest average is in the aspect of developing scientific literacy in learning activities and the lowest is in the aspect of developing a culture-based scientific literacy movement. On the other hand, there are elementary schools or educational units that are able to achieve very good scores on certain aspects, namely the socialization of the Science Literacy Movement, Policies of the Science Literacy Movement, Design of Science Literacy Activities, and Development. The Community-Based Science Literacy Movement and Evaluation of the Science Literacy Movement. The data in the table also shows that there are educational units that do not have a science literacy movement policy design. Finally, it can be concluded that the quality of the implementation of the Science Literacy Movement per aspect is mostly in the good category.

Discussion

Profile of the Implementation of Science Literacy Movement

Based on the results of observations, it can be stated that all elementary schools in Cluster I, Kuta Utara District, Badung Regency have implemented science literacy movement. But, every school has various systems and policies in implementing literacy even though some of them have similarities. In the aspect of the initial assessment, most schools use learning resources in the form of textbooks and non-learning books, libraries, teaching aids and the internet as learning resources in developing science literacy. Some schools already have science laboratories as learning resources and some already have reading corners. In carrying out the Science Literacy Movement, books and science laboratory facilities are mostly used by schools as the main learning resource (Antoro et al., 2021; Hernawan et al., 2020).

Then with regard to human resources involved in the development of science literacy, all schools optimize the role of teachers, parents, educators and principals. They work as program designers, facilitators and program evaluators. Regarding the infrastructure used, they optimize the facilities in the internal school environment. In terms of funding sources, elementary schools with the status of public schools generally do not raise funds in the context of developing science literacy (Antoro et al., 2021; Magdalena et al., 2019). Unlike the case with private schools, they generally seek funds for the implementation of science literacy from the school committee or parents and donations from students who have completed the education process at the school.

Several schools in Cluster I, Kuta Utara District, especially those with private status, have a culture related to the development of science literacy. There is a school that regularly holds a science festival at the end of every school year. The festival was attended by all students. The students exhibit simple science experiments and works related to science. Then, there is another private school which regularly organizes Elementary School Science Olympiad where students will be given science questions that practice higher order thinking skills. In relation to the socialization of the implementation of the Science Literacy Movement, all schools conducted outreach activities to students, parents, teachers, committees, school supervisors and the education office. It is different when formulating the policy of the Scientific Literacy Movement. The school generally involves the teacher and the principal.

Furthermore, it is regarding the policy design of the science literacy movement. In general, all elementary schools in the research locations formed a general literacy development team and did not specialize in each field. Several schools have legalized the literacy development team through a decree (SK) of the principal. The team consists of the person in charge in this case held by the principal, then the team leader in charge of formulating the program, the secretary in charge of making implementation reports, collecting materials and reference sources in charge of collecting learning resources, aligning the quality of the material in charge of checking and ensuring the quality learning resources, quality of order aligners in charge of monitoring the process of implementing the literacy movement and program implementation assessors in charge of assessing the implementation of the literacy movement program.

All schools have also formulated various school regulations related to the Science Literacy Movement. The regulations made include requiring students to read silently (silent reading) 15 (fifteen) minutes before learning begins. They are generally given the opportunity to read various science books that are in accordance with the current and cognitive development of elementary school children. Then, some schools also require visits to the library for students and teachers, disposing and sorting waste by type. There are some schools that require students to make a summary of the books they read in the library(Destrianto & Dwikurnaningsih, 2021; Hernawan et al., 2020). In the design of the science literacy movement activity, most schools utilize the physical potential of a school garden as a means of developing science literacy. There are several schools that have science laboratories and use them in the development of science literacy. Regarding the flagship program, generally it is owned by private schools. For example, there are science festival programs, science Olympiads and other superior activities.

The implementation of the science literacy movement is also carried out in classroom learning activities (Jayadiningrat & Widiani, 2021; Suroso et al., 2021; Suryawati et al., 2018). This is reflected in the Lesson Plan (RPP) that has been made in which the formulation of learning objectives and learning activities directs students to develop science literacy. The examples are facilitating students to conduct experiments, learning contextually, and developing student-centered learning. Teachers often use school gardens as a source of learning science outside the classroom. In addition, the school also always facilitates teachers to develop themselves outside of school in order to improve the quality of science literacy programs, such as participating in literacy training, human resource literacy training and various other activities. The development of science literacy is also carried out based on school culture (Kristyowati & Purwanto, 2019; Setiawan, 2019). Some schools already have a culture related to science literacy, such as disposing of garbage in its place, sorting waste and carrying out waste management. In addition, several schools also have science literacy communities such as science lovers club, robot club and little doctor. The science club has a regular study schedule outside of school hours to study and answer science questions that practice higher order thinking skills. They will be prepared to take part in elementary school science competitions. Then the robot club is made for the robot lovers. The small team of doctors is a team that is trained in basic medical skills and is often assigned as a health team at flag ceremonies.

Regarding the development of community-based science literacy, this is realized by schools in various ways. One of them is by inviting the school committee to play an active role and provide moral support in implementing science literacy. Then the implementation of the science literacy movement also involves elements of society, especially those who work in the field of science, for example, parents of students who work as doctors are invited to give lectures on health and the environment. All schools have also used the environment outside of school as a source of science learning, such as waste processing sites, mangrove tourism forests and even private schools that have land devoted to student learning. The implementation of the science literacy movement should be evaluated regularly. Schools in the research locations carry out an evaluation of the science literacy movement by measuring students' scientific competence through daily, mid-semester and end-semester assessments. In addition, school principals and committees also monitor the implementation of the science literacy movement. The monitoring results will be followed up in order to improve the quality of the science literacy movement program.

The Implementation Quality of Science Literacy Movement

Overall, the implementation of the science literacy movement in elementary schools in cluster I, Kuta Utara District is good. It can be seen from the average score of 2.13 which if converted belongs to the good category. However, if we look at the scores of each school, there are 4 (four) out of 10 (ten) schools or about 40% of schools have an average score below 2.00 or have enough category and the rest are in good category. Regarding the initial assessment aspect, the quality is in good category. If it is analyzed based on the indicators, all elementary schools in the research locations already have very good quality science learning resources. These schools already have textbooks and non-learning books, quality science learning media, internet facilities, library, and reading corner. There are even some schools that already have science laboratory so that the development of the science literacy movement becomes more established (Dwikoranto et al., 2017; Pramono et al., 2019).

The quality of human resources that play a role in the science literacy movement varies in each school. The 50% of schools assess for the quality of human resources with enough category result. These schools tend to rely solely on teachers, principals, education staff and parents in developing science literacy. Whereas, the science literacy movement is should emphasize public involvement. The public referred to, for example, the business world and the industrial world, professions and other parties involved in the field of science. They can be expected to provide insight and science skills in a wider environment and motivate students to enjoy learning science. Other schools with good category have started to involve the public in the implementation of the science literacy movement, for example by bringing in professional groups such

as doctors and environmental conservation teams to provide scientific insights. Although, the quantity still not optimal. Then, most schools have also identified cultural potentials related to science literacy. Generally they have a culture of reading in the library and studying science outside the classroom. This is certainly useful in developing science literacy, especially in increasing scientific knowledge which is growing day by day. In addition, learning science outside the classroom is also of course useful in developing science literacy. That's because basically science is related to nature, especially the nature around us (Asih, 2017; Hendrayana, 2017). However, there are still 30% of schools in Cluster I, Kuta Utara District that do not have a culture related to scientific literacy.

Most elementary schools in Cluster I, Kuta Utara District, especially those with the status of public schools, did not raise funds for science literacy development. Their reason is the fear of the assumption of illegal levies (extortion). This can actually be circumvented by optimizing the School Operational Assistance (BOS) fund. Moreover, in the Guidebook for the National Literacy Movement, it is explained that school principals in education units are tasked with compiling RKS and RKAS related to the development of science literacy. The second solution that can be offered is to ask the local government for assistance in procuring quality science reading materials. In this case, the local government has the task of providing quality reading materials in the literacy movement. Overall, the quality of elementary school on this indicator is in the bad category with a mean score of 0.7. The next is the socialization aspect of the science literacy movement to stakeholders. The quality of the whole school in this aspect is good. Most schools carry out socialization related to science literacy programs to various stakeholders such as teachers, students, committees, parents and the local education office. Thus, the stakeholders will have the same perception about the science literacy movement program. In addition, with the socialization, it will provide space for stakeholders to take a role in the success of the science literacy movement (Magdalena et al., 2019; Santika, 2021).

Then regarding the involvement of stakeholders in making priority programs for the science literacy movement, schools in research locations generally only involve stakeholders engaged in education such as teachers, principals, school supervisors and the local education office. Besides the principle of the implementation of the science literacy movement is the involvement of the public both from the family and the community. In formulating the program, the school should involve parents and the surrounding community and the professional community related to science. This will produce a good quality science literacy movement program.

The science literacy policy design has two indicators, namely the existence of an implementing team for the science literacy movement and regulations on science literacy. From the 10 (ten) schools surveyed regarding the implementation of the science literacy movement, only 4 (four) schools have an implementing team for the science literacy movement. Thus the quality for this indicator is in the enough categories with an average score of 1.6. The four schools that have a science literacy implementation team only involve school internal parties. Whereas in the Guide to the Science Literacy Movement published by the Ministry of Education and Culture, the science literacy team should involve school supervisors and representatives of parents who will later function as movers and monitors of the implementation of the science literacy movement. In addition, in the composition of the team there were noscience literacy facilitators. The existence of a scientific literacy facilitator is very important because a science facilitator is the spearhead of the implementation of the science literacy movement. All elementary schools in Cluster I, Kuta Utara District have also made policies in the form of regulations that support the development of science literacy. The quality for this indicator is good. Each school designs as many as 2 (two) to 4 (four) regulations on science literacy, for example disposing of garbage in its place, sorting waste based on criteria, cleaning the school environment and planting live pharmacy plants. This rule is obeyed by all school members and implemented consistently.

The implementation of the science literacy movement should use the potential of the physical, social and cultural environment. In this regard, the elementary schools in the research locations have not implemented this well. This is evidenced by the average score of 1.3 and is included in the category enough. Most schools only take advantage of physical environmental facilities such as school gardens and libraries. Some schools take advantage of the social environment, for example schools that are located close to a waste processing site, and they are invited to visit that location to learn directly about waste management. One of the programs that can improve students' science literacy skills is to invite students to camp in an unspoiled environment so that students directly learn about nature from its source.

In relation to superior science literacy activities based on class, school, culture and society, the quality of the implementation is still lacking in all elementary schools where the research is located. The activities generally consist of silent reading for 15 (fifteen) minutes before learning begins, although there are several schools that have science festivals and Olympiads. Science-based literacy activities should be carried out with various activities, for example carrying out problem-based, project-based learning and the use of science-based educational games in learning. Then for school-based activities, for example, it can hold

Science Language Month (Bulan Bahasa Sains) and explore the surrounding nature. Elementary schools at the research location have also facilitated their students to carry out science literacy activities. One of them is by providing a wall magazine which is updated regularly and requires all students to visit the library in turns. The quality of this activity is classified as very good. The development of the science literacy movement has also been carried out in learning activities. However, in learning planning in the Lesson Plan (RPP) the quality is still sufficient (mean score 1.5). This is because the teacher instills literacy in the part of learning activities only. Literacy aspects should be embedded in all components of the lesson plan, namely indicators, objectives, activities and learning evaluations.

In learning activities, all teachers in elementary schools in the research location have tried to do interesting learning by applying experimental-based learning or contextual learning so that the quality of learning is good. However, teachers should use a variety of science learning models, such as project-based learning, Community Science Technology (Sains Teknologi Masyarakat) learning models and problem-based learning. Such learning can be said as effective learning. Effective science learning can improve students' science literacy skills which are still low (Nurcahyani et al., 2021; Ristina et al., 2019). Learning science literacy should be carried out in stages in the form of a contact stage, namely the concept introduction stage. Curiosity stage is the stage where students are given questions. Furthermore, the answer to the question was explored through the stages of concept formation and concluded at the decision-making stage. The conclusion is then applied to the concept development stage, where students are given to explore the concepts obtained in a wider application. Finally, an evaluation was carried out to measure students' understanding. In addition, the learning model that can be used to improve students' science literacy is a process-oriented guided inquiry learning model (Aiman et al., 2020; Rodriguez et al., 2020).

Science learning carried out in elementary schools where the research is located has developed aspects of science literacy. Aspects of science literacy in question are scientific competence, scientific knowledge and scientific attitude(Abidin et al., 2017; Fakhriyah et al., 2017). Scientific competence that has been developed is the ability to explain phenomena scientifically. However, students' abilities should be expanded further with the ability to design and evaluate scientific investigations and the ability to interpret data. Then the knowledge competencies that have been instilled are in the form of content knowledge and procedural knowledge. This is of course in accordance with the science literacy level developed at the elementary school level, namely mastery of factual and conceptual knowledge. The last aspect of scientific attitude is that students have been directed to behave as scientifically literate people such as throwing garbage in its place, sorting out garbage and cleaning up the environment.

Elementary schools in the research locations have provided opportunities for their teachers to develop their own capacities through various activities, such as participating in literacy training and continuous professional development. However, there has been no capacity building for teachers who are specialized in science literacy. It is recommended that the government and universities provide training to elementary school teachers on science literacy or conduct science facilitator programs so that teachers are able to develop science literacy programs that are appropriate to the student's culture. The development of the school culture-based science literacy movement is still not running optimally. All elementary schools in the research location have not identified local wisdom in the development of science literacy. This is due to the condition of the school environment, which in fact is a new area and is inhabited by immigrants and the natural environment is already depleted. Then with regard to the literacy community, only 40% of schools have it, for example science clubs, robot teams and little doctors. They are guided by the teacher regularly and systematically. The entire school community has also shown the attitude of a science literacy, for example getting used to throwing garbage in its place, sorting garbage and cleaning the school environment.

The quality of the implementation of the community-based science literacy movement in the research location schools is still not satisfactory or is in the sufficient category. Most schools still have not utilized the capacity of parents in science literacy activities. In fact, many parents at the school have professions closely related to science, such as doctors and other medical personnel. They should be involved in literacy activities. In addition, parents can be involved in providing literacy facilities and infrastructure in the form of reading materials, science teaching aids and other roles. However, the school committee has provided moral support to schools in developing science literacy. Some schools have used learning resources outside the school environment as a place for developing science literacy. Some of them regularly visit the zoo to learn about biodiversity, visit waste management sites and other learning resources. However, it is necessary to diversify learning resources considering that science can be applied widely and is multidisciplinary.

Every program must be evaluated for its implementation and results. The same is true for the science literacy movement. However, the fact is that the quality of the evaluations carried out in the schools where the research is located is still lacking. There is no school that has evaluated the literacy movement program using a clear instrument. In addition, the achievement of science literacy in students is also not

measured. They claim that the achievement of science literacy can be seen from the results of daily, mid-semester and end-semester assessments. Whereas science literacy ability is measured by scientific literacy tests, both those developed by PISA and other institutions (Saraswati et al., 2021; Shaffer et al., 2019). After carrying out science literacy activities, several schools felt an increase in the academic achievement of their students. The examples are the percentage increasing of students who pass the KKMand the success of students winning science competitions at the elementary school level.

Overall, the implementation of the science literacy movement in the research location schools had met the indicators and also had not met the indicators. For class base indicators, what have been fulfilled is the use of innovative learning models and the existence of science products produced by students. Then the class base indicators that have not been met are the absence of teacher training in the field of science and the absence of PISA-based science literacy score measurement. Then for the school culture base, the indicators that have been met are the existence of a school literacy development team, the existence of school policies on science literacy and science literacy activities. However, the indicators that have not been met are access to online sites related to science literacy, allocation of science literacy funds, monthly science literacy activities and presentation of information related to science literacy. Then related to the indicators of the community base that have not been achieved is the involvement of the community in the development of the science literacy movement. In addition, schools should start cultivating characters that spur the growth of students' science literacy. Characters that can support the growth of students' science literacy culture, for example respecting other people's ideas, showing interest in science and a culture of learning together (Heliawati et al., 2020; Rifqi, 2021).

The Obstacles Faced by Schools in Implementing the Science Literacy Movement

Every elementary school in Cluster I, Kuta Utara District has its own obstacles in implementing science literacy movement. Some of the obstacles found as follow ; First, Covid-19 Pandemic Situation**.** The outbreak of the Covid-19 virus has made the government adapt in the implementation of educational activities. One of the policies formulated is to implement Learning from Home. This situation certainly makes it difficult for the school to carry out the science literacy movement (Handayani, 2021; Kurniati et al., 2021). Some literacy activities have stopped, such as visits to libraries, visits to learning resources outside of school, learning outside the classroom, science festivals and community literacy development. In response to this, several schools have implemented various ways, for example involving parents in the implementation of science literacy in the family environment, assigning children to read science books and implementing online-based innovative science learning, for example providing practical tutorials by utilizing tools and materials at home.

The seconds problem is limited literacy budget**.** Schools, especially with the status of public schools, are experiencing financial constraints in the development of the science literacy movement. Unlike the case with private schools, they are supported by funds from the foundation and donations from parents. In response to this, the principal of public schools carried out a strategy by asking for book donations sincerely to students, especially students who were about to graduate and optimizing existing resources. Masalah dana adalah salah satu masalah terbesar di setiap sekolah negeri dalam melaksanakan Gerakan Literasi Sains (Hernawan et al., 2020; Yani et al., 2021). The third problem is teachers have difficulty in developing science literacy due to students' low motivation and interest in learning. This happens because literacy has not been cultivated in the student's family environment and the assumption that science is a difficult subject (Kurniawan et al., 2019; Zaharah et al., 2017). The teachers deal with this by carrying out science learning in a fun way and binding students with rules, for example requiring visits and reading books in the library and giving assignments that stimulate students to read science books.Beside that, the next problem is limited infrastructure in developing science literacy. The implementation of the science literacy movement certainly requires adequate facilities and infrastructure, such as books, teaching aids and internet facilities (Agatha & Poedjiastoeti, 2021; Muftianti et al., 2019). However, the existence of these infrastructure facilities in schools is still inadequate in terms of quantity and quality. This was due to limited funds. Schools deal with this by utilizing natural learning resources and maintaining good quality infrastructure.

Finnaly, Lack of Guidance in Developing Science Literacy Movement. Based on the results of interviews, principals felt that there was a lack of guidance for schools, committees and teachers on how to implement and technical guidelines for the science literacy movement (Amelia & Yulita, 2019; Syofyan et al., 2018). So far, coaching has only come from the school supervisor. Schools certainly expect guidance from local and central governments, universities, literacy activist institutions and other parties so that the implementation of the science literacy movement will be better.

This research is expected to give contribution to the developers and initiators of the Science Literacy Movement program so that later they get an idea of how the implementation of the Science Literacy Movement is and the obstacles encountered, especially at the elementary school level. This research

resulted in several implications, including the government should provide funds either through *BOS* funds or other funds to all schools for the implementation of the School Literacy Movement, especially scientific literacy. Then, the government is also expected to provide sufficient training to each school along with teachers and principals related to the Science Literacy Movement program. The school is also expected to establish a Science Literacy Movement facilitator and carry out evaluations of the Science Literacy program and students' scientific literacy skills on a regular, continuous basis and using valid and reliable instruments. This research has weaknesses. They are in terms of data collection methods, especially the interview method which only interviewed the principal and teachers but did not interview students and other schools. Second, this research did not take place in a wide area, only one school cluster. Therefore, the next researcher is expected to be able to research with more complex methods and a wider research area. In addition, it is also hoped that there will be research that examines the implementation of the Science Literacy Movement in families and communities.

4. CONCLUSION

Based on the discussion above, it can be concluded several things as follows. First, all elementary schools in Cluster I, Kuta Utara District, have implemented a science literacy movement. Next, the quality of science literacy movement implementation in the elementary schools in Cluster I, Kuta Utara District as a whole is good. However, if we look at each aspect and the indicators for each aspect, the quality varies from bad, enough, good and very good. The last, obstacles experienced by elementary schools in Cluster I, Kuta Utara District in developing the Science Literacy Movement are the Covid-19 pandemic situation, limited budget, limited infrastructure, low learning motivation and lack of guidance from various parties.

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