



Parents' Involvement during Science Online Learning of Junior High School Students and Their Learning Outcome

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Abstract: The aim of this quantitative study was to determine the relationship between parents' involvement during science online learning of Junior High School students and their learning outcome. Researchers constructed a questionnaire about parents' involvement. The questionnaire was distributed to 56 VII grade students at Adventist Junior High School in Airmadidi. Students' learning outcome in Science Subject was collected from the subject teacher. This study found out that students often experienced their parents' involvement by guiding them in online learning, with the Mean Score is 3.64. The level of students' learning outcome in Science Subject was good, since the Mean Score is 85.75. This study also proved that there is a significant relationship between parents' involvement during online learning and students' learning outcome in Science Subject with $p = .009$. This means that the null hypothesis which stated there was no significant relationship between parents' involvement during online learning of Junior High School students and their learning outcome is rejected.

Key words: Parents' involvement; Science online learning; Students' learning outcome

Introduction

Parents have many obligations and responsibilities, one of which is in the field of education, to be able to guide their children. The role of parents in guiding their children at home cannot be avoided because parent should be the front line in educating their children at home, to enable them ready for future academic performance (Kyriakides & Creemers, 2018). Parent must be able to guide their children when studying at home because parental support can enable children to overcome their difficulties in learning different subjects. Science is learned in general as one out of some subjects in Junior High School curriculum, and it will be learned specifically as Biology, Physics and Chemistry at senior high school (Faisal & Martin, 2019). Through Science Subject, students learn how to understand the universe through targeted observations, to use scientific procedures in explaining the logic phenomenon so that

a conclusion can be reached (Wahyuni et al., 2017). Explained by Nurkamfajriani, et al. (2024) that in learning science, students observe what happens, try to understand what is observed, use new knowledge to predict situations, and test predictions under conditions to see whether the predictions are correct. The task of explaining these steps to students has been solely the responsibility of science teachers so far (Rayuwati, 2020), however, the technological advances in the field of education and the current situation of post-Covid19 have resulted in the role of parents being needed by students to better master the lessons shared by the teacher, especially to master the material presented during online learning.

Science is one of the most important subjects and is always given at every level of education, from elementary to high school level. Science learning is oriented towards the activities of students and educators who support concepts, principles and procedures that

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can encourage the achievement of meaningful learning objectives in obtaining satisfactory results (Dewi et al., 2019). In secondary high school level, students are encouraged to actively seek and discover knowledge, have high enthusiasm by proving for themselves the truth of a theory, so that they can apply concepts science learning in everyday life (Novitawati & Elyanoor, 2015). All those things are presented by the science teacher through online learning. Online learning as a learning in an open and distributed environment using tools that are activated via the internet and website-based technology to facilitate the learning process for students may not elude from obstacles. By integrating technology in learning, the quality in education can gradually be improved to enable students to be thinkers, creative, and productive as well (Febrina & Setiawan, 2024; Mantoviana et al., 2023). To avoid problems in online learning, Ng and Rodrigo (2023) advised that there are several things that should be considered, such as technological factors and pedagogies. This includes the learning content which must relevance to the specific learning objectives to be achieved, the methods and exercises used that can help the learning process so that learning can take place well, the media used such as pictures and words to present the content and to develop and even build new knowledge and skills according to learning objectives. These are the things that are often ignored by science teachers during online learning. Students need a help from adults at home to make them understand the learning materials and support from parents is required.

In the current situation, not only teachers, but parents are also expected to at least be able to know and understand the nature of science learning. The learning materials which are presented by the teachers through asynchronous learning with the use of E-learning platforms will provide opportunities for students to study at home the materials in depth which eventually may improve student learning achievement (Kuswanti et al., 2024). Parents are expected to guide their children in science learning at home and will be able to help them understand the lesson material that has been given or shared by the teacher previously (Bakti et al., 2023). Students who are guided by their parents at home are expected to not have difficulty in understanding the concept of science anymore (Novitawati & Elyanoor, 2015). In so doing, they will be more motivated to improve their learning outcome.

Parents' involvement can be experienced by their children in different types of guidance. Different guidance is the example of parent involvement such as academic guidance, social guidance, or personal guidance. When their children face academic problems, parents can provide direction to help, and even to facilitate all the necessities that children need in the

learning process. They can also help their children to comprehend the material that may be difficult to understand, help with the homework and remind them of their responsibilities as students (Putri & Nur, 2022). Social guidance from parents can help their children to overcome difficulties in their social lives so that they can get involved in good social relationships with their friends. Furthermore, if their children must overcome their personal problems because of their lack of ability to adapt to new situations or challenges, parents continue to motivate their children and not put them down. By the guidance from the parents, children's self-esteem built (Lengkana, 2020). This is a part of parent involvement as personal guidance to their children. Parents can also play a role by actively communicating with teachers when they encounter problems when receiving learning materials for students at home so that the learning process can well take place (Jafarov, 2015).

With the involvement of parents, several benefits are indicated. Students' performance increased, learning attitudes improved, drop out rated decreased, and well behavior is shown are among those benefits (Arshard, Shahzadi & Mahmood, 2016). Their academic performance increased because parents always remind them to study and provide support such as praise or appreciation in the form of prizes for the results achieving good grades. The feeling of being supported by their parents makes them have the desire to spend more time learning and avoid missing class meetings. As a result, their behavior changes to be better.

Yet, teachers and parents should be aware that there are several factors that can hinder the success of students' learning, especially the online learning process students experienced at home. Some student's still lack experience in accessing the technology in teach (Amalia et al., 2024). Moreover, the ability of students to receive an explanation from the teacher without any distractions, as well as the support from the parents by providing facilities determine how online learning can run effectively and efficiently. Besides that, the facility for online learning is also important in supporting the learning process, so if the condition of the facilities does not support learning, it will hinder the learning process of students. Parents need to provide adequate facilities so that the learning process can run smoothly and directed. Another problem arises when students even must study under the threat of their parents. Parents acknowledged that online learning does look fun for students, but when it should be carried out from home, this is not easy for parents (Atiqoh, 2020). According to Putri and Nur (2020), some children have even become victims of their parents' impatience in guiding them to learn at home. Not to mention other problems as stated by Purwanto (2020) that parents feel objectionable because they must prepare additional funds for children

to study from home. If this continues, it is feared that it will affect student learning outcomes.

It is obvious that students' learning outcomes in Science Subject are related to various factors, whether they are internal or external factors (Fatri & Asrizal, 2023). Based on some observations and interviews with teachers and students done by the researchers at some school, it was revealed that Science Subject has been considered difficult by some of them (Widowati et al., 2017), more specifically in terms of Physics Subject (Agustian et al., 2024). This perception may cause the decrease of students' interest in learning science (Haryono, et al., 2024). The large opinion of students who state that Science Subject is difficult is true as proven by the students' achievement of the final school exam as reported by the Ministry of National Education which is still very far from the expected standard. Based on the results of the 2018 PISA survey, Indonesian students' science scores were ranked 70th out of 78 countries (OECD, 2019). This shows that the science learning outcomes of Indonesian students are still low. After several years, this condition has not shown any changes. A study conducted by Pamungkas et al. (2023) revealed that the achievement of Indonesian students in science was only 33.3%, which meant failed to achieve minimum standards in science. Without the consideration from parents for their children success in learning, good learning outcomes might be impossible for them to achieve.

Unfortunately, the demand for mastery of information and communication technology is one of the obstacles faced in the online learning system, especially for parents who are required to be able to guide their children in online learning. So, it is indicated that not all students will be successful in online learning (Nurkamfajriani, et al., 2024) due to parents' lack of knowledge in using technology. Another study conducted by Jalan et al. (2022) also revealed that most students (71.6%) in their study admitted that they felt annoyed by the involvement of their parents during online learning classes. They acknowledge that even though their parents were involved, 63.4% of them think that there was no effect on their academic performance.

Apart from that, accompanying children to study at home and at the same time parents also must do office work, or other housework, is indeed a challenge for parents. Some parents complain that the responsibility of parents at home is not to replace the role of teachers (Sabiq, 2020). Complaints from parents might cause children to lose their enthusiasm for learning. The current situation and conditions motivate researchers to find out whether student learning outcome is related with the involvement of parents in guiding their children during science online learning at home. That is why researchers conducted a study entitled the

relationship between parent involvement during science online learning and students' learning outcome of VII grade students at Adventist Junior High School in Airmadidi. This study was to answer the research questions about the level of parent involvement, the level of students' learning outcome in Science Subject, and whether a significant relationship occurs between parent involvement during science online learning and students' learning outcome. Based on the findings, the hypothesis which stated that there is no significant relationship between parents' involvement during science online learning and students' learning outcome can be proved.

As stated previously, some factors might hinder the academic achievement of students. However, in this study researchers limited the independent variable to one factor which is parent involvement. Furthermore, the scope of this study was focused only on VII grade Junior High School students' learning outcome in Science Subjects at Adventist Junior High School in Airmadidi as the dependent variable. It is important to examine significant factors that contribute to students' learning outcome. By doing so, the researchers hoped that the results of this study would give some information to parents about the importance of parent involvement in science online learning at home for their children, and in the end would give contribution to improve students' learning outcome as well.

Method

This quantitative study employed descriptive and correlative research design. Quantitative descriptive is a method that functions to describe or provide an overview of the object under study through data or samples that have been collected as they are, without carrying out analysis and making generally accepted conclusions (Sugiyono, 2014). This study described the level of parents' involvement during science online learning and students' learning outcome. The correlation method was to find out whether there is a significant relationship between the two variables under study. Suyanto (2018) explained that correlation study is to determine the relationship and level of relationship between two or more variables without any attempt to influence the variables so that there is no variable manipulation. So, this can be concluded that correlational study is a research method used to test the relationship between variables which is analyzed by using statistical procedures.

The population in this study was 126 VII grade students at Adventist Junior High School in Airmadidi. By applying the purposive sampling method, the researchers collected the data. The purposive sampling method required sample members with certain

considerations (Suyanto, 2018). In this study, the respondents were those who experienced online learning in Science Subject at home which were guided by their parents. Based on the criteria, 72 students admitted that they were accompanied by their parents while studying at home. However, only 56 respondents answered the questionnaire completely. So, 56 out of 126 students were respondents of this study.

The questionnaire used was a questionnaire constructed by the researchers regarding parents' involvement in assisting their children during online learning, based on Barges and Loges' idea (Cited in Jafarov, 2015). They proposed the indicators of parent involvement which consisted of the assistance in online learning, the assistance in completing their children's home assignment, and the development of parent-teacher relationship in preparing online learning process. The total items of the questionnaire were 15 items. Meanwhile, the data of students' learning outcome were taken from the results of Science Subject final exams of VII grade students. The respondents of the study were asked to fill in the questionnaire that represents their perception about the involvement of their parents. Each item of the questionnaire consisted of five choices in accordance with the indicators based on a 5-point scale answer format, which were divided into: N = Never (1), R = Rarely (2), S = Sometimes (3), O = Often (4), A = Always (5).

The instrument used was first tested for validity and reliability through a pilot study. The instrument was distributed to 33 students. As Azwar (2015) explained that validity refers to the accuracy of the measuring function of an instrument, while reliability refers to the stability, or being trusted. Therefore, the instrument is declared valid and reliable if a Cronbach Alpha value = > 0.7 (McLeod, 2019). It was found that the instrument's Cronbach Alpha was .829, which means the instrument is reliable to be used as the questionnaire.

This study data analysis techniques with statistical tests were used by utilizing statistical software such as *Mean Score* to find out the level of parent involvement during science online learning and the level of students' learning outcome. Moreover, to prove whether there is a correlation between variables, *Spearman's Rho Correlation* was used. To interpret the data, the researchers used a Likert's Scale which has five levels to measure attitudes or opinions about the level of parent involvement in science online learning of the students. Data interpretation is based on the following criteria, such as: 4.50 - 5.00 as Always, 3.50 - 4.49 as Often, 2.50 - 3.49 as Sometimes, 1.50 - 2.49 as Rare, and 1.00 - 1.49 as Never. Furthermore, to interpret the students' learning outcome the researchers based it according to Adventist Junior High School assessment scale which as follows: 90-100 is for Very Good, 79-89 is for Good, 70-78 is for Enough,

and < 70 is for Low (Adventist Junior High School Curriculum Section, 2021).

Result and Discussion

The first research question of this study was to determine the level of parent involvement during science online learning in guiding their children study at home. Table 1 shows that the *Mean Score* was 3.64 for the level of parents' involvement during science online learning. This score can be interpreted as parents often assist their children during science online learning.

Table 1. Descriptive Statistics

	N	Min.	Max.	Mean	Std. deviation
Parent involvement	56	2.30	4.80	3.64	.55
Valid N (listwise)	56				

This finding is similar with the results of the study conducted by Fransiska (2020) which revealed that parents have been able to frequently accompany their children to study at home, taking turns with husband or wife to stay beside their children when learning is taking place, and realizing that this is the duty of parent towards their children learning success (Rahmat et al., 2023; Rubini et al., 2018). Collaboration between teachers and parents is needed to improve the learning process and students' achievement in science learning. This is in accordance with Lengkana's (2020) study results which affirmed that parents could create a sense of security when children follow online learning at home, and even motivate them, provide appropriate behavior during online learning.

The second research question of this study is to find out the level of student learning outcome in science. Table 2 shows the level of student learning outcome in science with the *Mean Score* is 85.75. This score means that students have good learning outcome in science.

Table 2. Level of Students' Learning Outcomes in Science Subject

	N	Min.	Max.	Mean	Std. dev.
Students' learning outcomes in Science Subject	56	62	95	85.75	7.25
Valid N (listwise)	56				

Malagola et al. (2023) identified that the good grades achieved by students as an indicator that they understand the concept taught. To understand the concept of the subject matter is crucial. Similar results

were discovered by Ng and Rodrigo (2023). Their study found out that the students were able to achieve good grades as the result of joining science online learning. Online learning enables students to develop their way of learning. Students who are successful in learning signify achieving learning goals or instructional objectives. There is a change in students' behavior as a cause of interactions between individuals and the surrounding environment due to self-awareness. Teacher functioned as a facilitator, who provided encouragement and opportunities for students to seek information from the students' own perspective.

The third research question is to determine the relationship between parents' involvement during science online learning and students' learning outcome. The researchers utilized Spearman's Rho correlation method. The results in Table 3 show that $r=.35, p<.05$.

It is explained that if the p value is $<.05$ or 5% statistically, this indicates that there is a significant relationship between the two variables (Sugiyono, 2014). With the value of $p = .01$, it can be interpreted that there is a significant relationship between parents' involvement during science online learning and students' learning outcome. That is why the null hypothesis which stated that there is no significant relationship between parents' involvement during science online learning and students' learning outcome is rejected.

A similar result was obtained by Mugumya et al (2022) which proved that there was a significant relationship between parents' involvement and students' academic performance ($r=0.58, p<.05$). They observed that when students were studying, parents helped them by providing verbal persuasion to do their homework, or to help them remember the learning material they have learned. Other research findings also revealed Naparan and Olivar (2023) that parent involvement during online learning and student learning outcomes have a significant relationship ($r=.39, p<.05$). With parents' involvement, students would be able to solve the problems they face in completing the tasks given to them by the science teacher.

Table 3. The Relationship between Parents' Involvement during Science Online Learning and Student Learning Outcome

		Parents' involve.	Students' learning outcomes
Spearman's rho	Correlation Coefficient	1.00	.35**
	Sig. (2-tailed)	.	.01
	N	56	56

Conclusion

The finding of this study showed that students of VII grade at Adventist Junior High School in Airmadidi experienced high level of parents' involvement during science online learning. The involvement of the parents has been experienced by the students during online learning, when they have to do their assignment. Students noticed that their parents were willing to communicate with the teacher about the preparation before online learning began. However, there is still a chance for parents to increase their involvement level in guiding their children learning at home. Guidance is a type of assistance that can be provided by parents in helping their children to make choices, solve problems they face, or to adapt to new learning experiences for them. Adaptation to new things for students includes understanding new learning topics, which still cannot be understood by them. Where guidance through moral assistance is in the form of advice, affection, direction, even assistance in completing study assignments. On the other hand, guidance through material assistance is also needed to provide the facilities for the continuity of children's learning activities at home. Meanwhile, coordination activities carried out by parents and teachers in monitoring children's activities through sending WhatsApp texts and carrying out learning evaluations are parents' efforts in guiding their children's learning. Parents have a big role in providing guidance through assistance or effort to their children. Parents' involvement during online learning determines their children's achievement. Parents who do not pay attention to their children's education can cause their children to be unsuccessful in their education. Conversely, when parents provide good guidance to their children, the science online learning process can run well, because parents are one of the keys to success for their children's learning outcome. That is why the role of parents in providing study guidance at home is very influential on their children's education. Providing guidance that is carried out continuously and systematically will be able to help children solve the problems they face, according to their potential and abilities. Therefore, parent involvement is required.

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Author Contributions

The authors contributed to conceptualize the topics, construct the content, collect the data, analyze the data, and interpret the results.

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The authors affirmed no potential conflicts of interest might occur regarding the research, authorship, and publication of this article.

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