



# Implementation of Differentiated Learning of Sekolah Penggerak Program in Learning in Elementary Schools

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**Abstract:** The difference in student's needs and abilities in learning mathematics made teachers need to vary learning. This study aimed to describe the steps, implementation, and obstacles in the implementation of differentiated learning in mathematics learning in elementary schools. The location of this study was SDN 47/IV Kota Jambi. The subjects of this research were the principal, IVD class teachers, and IVD class students. Qualitative phenomenology was the type of approach used in this study. This study used interview guidelines, observation, and documentation. The data analysis technique used in this study consisted of three stages, namely data reduction, data presentation, and concluding. The results of the study found that differentiated learning in mathematics subjects begins with mapping students' mathematics learning needs, designing learning according to mapping results, and conducting evaluations on an ongoing basis. The implementation of differentiated learning does not mean that in the process it distinguishes all components of learning for one student at a time. The obstacles that are often faced are limited time and lack of experience so it needs adaptation.

**Keywords:** Differentiated; Learning; Sekolah Penggerak

## Introduction

Learning becomes a component of the education system. The quality of education will not be good if the quality of learning is not good. Efforts to achieve good education quality need to continue to be supported by maximum efforts in improving the quality of learning. The quality of good learning is in line with effective learning and learning outcomes are met. (Haleem et al., 2022), said that learning will be effective if there is a combination of humane, procedures, equipment, facilities, and materials that aim to make students behave better by the learning objectives that have been set. So, it can be concluded that learning can be effective if it can change humans in this case learners for the better at behaving, behaving, and behaving. That is, the purpose of carrying out learning is not only to achieve good intellectuality but also good morality.

If you look deeper into the meaning of effective learning above, the government, through the Ministry of

Education and Culture strives to achieve effective learning. This effective learning provides broad learning opportunities according to the characteristics and needs of students to achieve quality Indonesian education, namely by rolling out the Merdeka Belajar program. The application of independent learning is supported by the development of a Kurikulum Merdeka as stated in Kemendikbud Ristek No. 56 Tahun 2022. According to (Manurung et al., 2023), Merdeka Belajar is a form of transformation of education management that makes well-being the main orientation in learning.

A person needs psychological well-being in his learning environment. Khan et al. (García Bacete et al., 2014); (Ruggeri et al., 2020), say Psychological well-being, which is also referred to as psychological well-being, is very important for students in their teens because it will affect strong personal development, as well as affect the goals, directions, and values of the chosen life". The psychological well-being of each student becomes a need at different levels because the

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differences in student characteristics in a class lie not only in cognitive, psychological, or affective aspects but also in physical aspects. Learning and teaching for each child will certainly vary according to their needs and conditions.

Sekolah Penggerak is one of the programs that supports the achievement of Merdeka Belajar (Novita et al., 2022). The Mobilizing School program focuses on holistic learning outcomes by creating a Pancasila student profile. The transformation process in Sekolah Penggerak as mentioned by the Ministry of Education and Culture (Dhawan, 2020), is learning that can create comfort, security, inclusiveness, and pleasure for students and is also student-centered so that they can achieve learning outcomes that are above the expected level. Learning in Sekolah Penggerak in the process of their activities is designed by prioritizing differentiation also referred to as differentiated learning.

This differentiated learning is carried out by paying attention to the different needs of each student and does not mean that the teaching is based on the principle of one teacher with one student only. As stated by (Eikeland & Ohna, 2022), differentiated learning mixes all the differences of learners to obtain information, create ideas, and express what learners learn. Differentiated learning adjusts students' interests, readiness, and learning profiles to create improved learning outcomes. The principle of differentiated learning is by PP Nomor 57 Tahun 2021 Pasal 12 Ayat (1) point (f) that the atmosphere of implementing learning must be able to provide enough space for the initiative, independence, creativeness according to student's interests, talents, and physical and psychological development.

Differentiated learning with its principles must apply to all subjects. Especially regarding mathematics learning in elementary schools which often experience problems. Mathematics is not rarely considered difficult by students. According to the theory of cognitive development presented by (Kurniawan et al., 2018), elementary school age (7-11 years) is a stage of concrete thinking in which elementary school students more easily and quickly understand things that are concrete than abstract. The ability of each student to understand mathematics subject matter will certainly be more visible than the difference in students' ability to understand other subject matter (Li & Schoenfeld, 2019). This difference requires teachers to be able to take teaching actions according to the needs of each student and this is achieved by applying differentiated learning (Haelermans, 2022); (Adare et al., 2023).

Differentiated learning is incorporated into the Mobilizing Schools program (Kamila et al., 2023); (Fischman et al., 2018). Jambi Province is one of the

regions that has implemented the Mobilizing School program. SDN 47/IV Jambi City is one of the schools that has succeeded in becoming a Sekolah Penggerak. Preliminary observations at SDN 47/IV Jambi City were carried out by researchers on September 13, 2022. During the initial observation, the researcher also interviewed Mr. S as the waka of the curriculum of SDN 47/IV Jambi City. According to the results of the interview, SDN 47/IV Jambi City has been running the Sekolah Penggerak program for 2 years. There are as many as 73 teachers in this school, including 5 people are CGP (Prospective Mobilizing Teachers), 3 people are GP (Mobilizing Teachers) who are now left with 1 person because 2 others have switched assignments, and there are 2 PP (Practical Teachers), and the head of SD Negeri 47 / IV Jambi City himself is a retired PP. This shows that SDN 47/IV Jambi City has become a Sekolah Penggerak that meets the elements of completeness of actors in the mobilizing teacher program.

Still in the same interview, the researcher got information that teachers at SDN 47/IV Jambi City have paid attention to the needs of different students in teaching. Learning is already applied with a differentiated learning model that in practice, teachers distinguish core activities for students whose cognitive levels are different (Dalila et al., 2022). Starting from the process to the final assessment each student will be different. (Barrett et al., 2015), also said that at the end of each semester, an exhibition of the final product of student learning outcomes is held. This is in line with the existence of a differentiated approach in the product to differentiated learning.

The results of the initial observations made by the researchers showed that the learning of students at SDN 47/IV Jambi City was carried out student-centered (student-centered learning), as can be seen from the activeness of students during learning activities. Student-Centered is also a concept of differentiated learning. For example, when mathematics learning takes place in one of the classrooms, researchers witness teachers who invite students to learn to explore objects with a hands-on approach in the natural environment.

Based on the results of the interview and preliminary observations, researchers are interested in knowing how; differentiated learning steps in mathematics lessons at SD Negeri 47/IV Jambi City; implementation of differentiated learning in mathematics lessons at SD Negeri 47/IV Jambi City; factors inhibiting the implementation of differentiated learning in mathematics lessons at SDN 47/IV Jambi City. This background makes researchers interested in researching about Implementation of Differentiated Learning of Sekolah Penggerak Programs in Mathematics Subjects in Elementary Schools.

## Method

This research was conducted at an elementary school in Jambi City, Indonesia, namely SDN 47/IV Jambi City. SDN 47/IV Jambi City has been a Sekolah Penggerak for 2 years and has prioritized differentiation in its learning. The qualitative approach to phenomenology was chosen so that researchers can explore research problems in depth. (Bush et al., 2019), explains that phenomenological studies describe the general interpretations of some individuals regarding the various life experiences they live about concepts or phenomena. The source of data from this study is data obtained directly from the field also called field data. The principal, homeroom teacher IV and grade IV students of SDN 47/IV Jambi City were the subjects of this study. Data or information from this study was obtained using interviews, observations, and document studies, data validation was carried out with data triangulation techniques, namely techniques to test the validity of data by reviewing from various points of view. Data analysis is carried out by analytical techniques (descriptive steps, namely data reduction, data presentation, and concluding such as the concepts proposed by Miles and Huberman, (Dash et al., 2019). This research is carried out with a directed procedure, starting from the preparation, implementation, and completion stages.

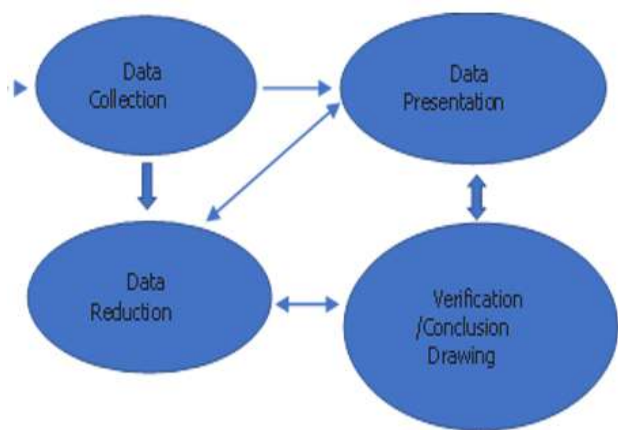


Figure 1. Data Analysis Technique

## Result and Discussion

The results of research on the implementation of differentiated learning of Sekolah Penggerak programs in mathematics subjects in elementary schools are described in this section. The elaboration of the research data consists of Differentiated learning steps of the Sekolah Penggerak program in mathematics subjects in elementary schools; Implementation of differentiated learning of the Sekolah Penggerak program in

mathematics subjects in elementary schools Factors inhibiting the implementation of differentiated learning of the Sekolah Penggerak program in mathematics subjects in elementary schools.

The researcher conducted this research for about 1 month, starting with the submission of an observation permit to conduct a preliminary study at SDN 47/IV Jambi City, until then the research permit was received by the principal. Initial observations were made to find out directly and clearly about the picture at SDN 47/IV Jambi City, then interviews were conducted to find out the initial picture and focus of the research. After the initial observation is completed and the research proposal is completed, the researcher applies for a research permit to conduct research periodically.

The description of the data was obtained by starting to find a class teacher as a research subject who would be used as an informant in interviews through the recommendation of the principal. The research focuses only on the formulation of research problems, namely the differentiated learning steps of the Sekolah Penggerak program in mathematics subjects in elementary schools; implementation of differentiated learning of Sekolah Penggerak programs in mathematics subjects in elementary schools; and factors hindering the implementation of differentiated learning of Sekolah Penggerak programs in mathematics subjects in primary schools.

The description of the results of research on differentiated learning at SDN 47 / IV Jambi City is divided into 3 subs. This division is based on the purpose of this study, which is to describe the steps, implementation, and factors inhibiting the implementation of differentiated learning.

### *Differentiated Learning Steps in Mathematics Subjects*

Differentiated learning according to what is stated by (Mirawati et al., 2022), is carried out through 3 steps as will be explained below; Mapping learning needs based on three aspects, namely: learning readiness, interest in learning, and student learning profiles Mapping students' learning needs can be done through interviews, observations, or surveys using questionnaires, etc. Teachers can map students' learning needs in a variety of ways. Some teachers make questionnaires that are distributed at the beginning of each new teaching which will later be filled out by the parents, and some do mapping by pretesting students' learning abilities. All the ways that teachers do it boil down to the term diagnostic assessment as a way of mapping students' learning needs, as stipulated by the Ministry of Education and Culture. Diagnostic assessment according to (Samino García, 2023), is an assessment to identify students' competencies,

strengths, and weaknesses that are carried out specifically. The existence of this Diagnostic Assessment makes the learning design by the competencies and conditions of students.

Talking about the diagnostic assessment questionnaire for mathematics learning needs distributed by teachers at the beginning of the new school year. The questionnaire was distributed by the teacher online through his class group. The content of the questionnaire is adjusted to the things that teachers want to know about their students. It usually contains questions about the weaknesses and strengths that students have in learning mathematics as observed and understood by the parents. This questionnaire is given to the parents of each student at the beginning of school in the new school year.

Another way to distribute questionnaires is to pretest. Teachers can choose to conduct diagnostic assessments by conducting pretests to measure students' math learning needs (Schons et al., 2023). Regarding the pretest of learning ability, the teacher gives math problems at the beginning of the new school year. This is done to see the extent of students' abilities, review what materials students can understand and do not understand, as well as learning needs such as what each student has. We can give an example of students' ability to understand the concept of multiplication. Teachers should not directly teach mathematics while the basic mathematics skills alone are still not mastered by students (Hill et al., 2008). The multiplication ability of students is tested first, whether it is suitable if it is continue to learn the next material or still needs to be re-taught. If there are only about 3 students in a class who already understand the concept of multiplication, the other students only memorize the multiplication of numbers 1-10. The results of these pretests are the results of mapping students' learning needs. The extent to which students can keep up with learning and what needs each student needs to be met by the teacher.

#### *Planning differentiated learning based on mapping results*

The mapping results that have been obtained by the teacher will be used as a guide for designing learning. Learning will be designed according to the needs, interests, and learning styles of students. Adjustment of student needs in learning is carried out in the form of providing a choice of teaching strategies, learning content, or other things that create the fulfillment of student learning needs. Such treatment of teachers is a demand in the application of differentiated learning where teachers need to be creative. An example is when the teacher already knows that only a small percentage of students in his class have understood the concept of multiplication (not just memorizing multiplication),

then the teacher will design teaching that needs to re-teach students about the concept of multiplication. That is, it can be seen that here, the need for students is that they need to be re-taught about the concept of multiplication. The teacher will teach the ability to understand the concept of multiplication to students who are still not good at multiplication ability.

Oktifa (2021) also explained the follow-up of the results of mapping student learning needs. Students who obtain a grade point average will carry out learning according to their phases. If the student's score is below average, the teacher will assist or relearn basic competencies that have not been met. Then, students who score above average will run learning with enrichment. The follow-up of the results of mapping student learning needs as mentioned by (Darling-Hammond et al., 2020), is an ideal condition that should be able to run. Teachers should also try to implement these ideal conditions, even though in reality they are not yet fully implemented. Students who can understand the desired learning outcomes will continue to be improved along with the teacher providing students with a re-understanding of the mathematics subject matter that students do not yet understand.

The learning design made by the teacher will be outlined in the mathematics teaching module. In the teaching module, the teacher gives students the choice to carry out learning according to their learning interests. The teacher should not impose his will to apply the way of teaching that he thinks is already good. Teachers provide opportunities for students to explore their knowledge through a wide selection of activities and ways of teaching. The teacher's treatment will make it easier for students to understand the subject matter and demonstrate what is already understood.

#### *Evaluate and reflect on ongoing learning*

The evaluation system rolled out in differentiated learning is a system that pays attention to the differentiation of students' needs and abilities. The evaluation system in differentiated learning does not essentially mean making a different package of evaluation questions for each student. If that happens, then how overwhelmed teachers are to carry out differentiated learning?

The scoring or evaluation system in differentiated learning in mathematics subjects is carried out by giving the same question package to each student during the student evaluation exam. Teachers can give different questions from other students to students whose abilities are very below average. The evaluation questions given by the teacher will be adjusted to the cognitive abilities of students by not neglecting the achievement of learning outcomes. However, this rarely



happens because in general, students in schools have average specifications, rarely those who are very below average. There are 2 types of evaluation carried out in differentiated learning, namely summative assessment and formative assessment.

#### *Implementation of Differentiated Learning*

That there are 4 components to the implementation of differentiated learning. We can also call this component a differentiated learning strategy. Teachers can carry out differentiated learning with strategies of content differentiation, process differentiation, product differentiation, and learning environment differentiation. However, of the 4 components of differentiated learning, 3 are the main components in the implementation of differentiated learning, namely differentiation in content, process, and product.

#### *Differentiation in content*

Teachers differentiate the content of mathematics learning by varying what students learn. The content in this case is closely related to the learning material and curriculum. Teachers adapt the content of the curriculum and learning materials to the conditions and abilities of students. This differentiation of content is related to what students learn by considering the results of mapping student needs. However, differentiating the content of learning does not necessarily mean that the teacher makes each student experience a different lesson material.

This differentiation of content is carried out using the teacher analyzing the readiness of students to learn by referring to the material to be taught. Teachers can relate the learning to be taught with material that has been taught and mastered before. Reading materials in learning can be varied by the teacher according to the level of understanding of students. When a reading resource in learning cannot make students understand the subject matter, the teacher can use other reading materials to adjust the student's readability level. Teachers can provide additional resources that match the student's level of understanding. This means that mathematics subject matter is not only taught with the help of mathematics textbooks provided by the government but also books in addition.

Teachers also give students the option of what kind of material they want to learn. For example, when in class you have to learn about the multiplication of 3 numbers, the teacher asks students whether they want to learn the multiplication of 2 numbers first or directly to the multiplication of 3 numbers. When students choose to learn the multiplication of 2 numbers first, the teacher teaches according to the student's choice. This is done so that the teacher can provide an understanding of the concept of doing multiplication first, even though

the teacher must flashback to past material. Only then, when students are judged to be ready to be taught 3-number multiplication, then the teacher can start teaching it.

Learning is carried out with content differentiation also includes teachers giving students options to add depth to learning. When it is found that some students do not understand a subject matter being taught, the teacher can repeat teaching the material that is not yet understood to reexplore the content of the material. For example, when the teacher is teaching material about angles, the teacher encounters that there are students who do not understand how to make the angle according to the number of degrees of inclination requested. So, the teacher provides the depth of material for students on how to make the angle. The impact of teachers doing this is that teachers can make students who don't understand understand, and students who already understand can get deeper into the material being taught.

An example of differentiation in the next content is that the teacher organizes learning by forming small groups. This group is heterogeneous, meaning that the content of the group is students who have good cognitive abilities and students who are the opposite. Students who already understand the subject matter or whose cognitive abilities related to the material taught are good will be used as peer educators for their group of friends. This is done so that students can understand the material more easily and students who have mastered the material are honed in their skills.

#### *Differentiation in the process*

The differentiation of this process how students interact with the material that will later determine students' learning choices. Learning in the classroom needs to be modified by adjusting students' learning styles and choices so that students' learning needs can be accommodated properly. Accommodating one's learning as said by Gregory and Chapman (in (Vlachopoulos & Makri, 2017), means that learning is made so that students can be active; learning activities involve actual learning, such as exercises, games, demonstrations, and modeling; and learning does not only occur individually but is also planned to run in groups.

Differentiating the learning process means that teachers build the same understanding of students even with different support, complexity, and challenges (Pozas et al., 2023). Teachers design learning activities that accommodate students' diverse learning styles. Sometimes teachers need to organize learning with the help of videos, picture reading books, etc. to accommodate visual learning styles. Students with an

auditory learning style will more easily meet their learning needs by listening to audio recordings, friends' explanations, teacher explanations orally, discussing, questioning, etc. Meanwhile, kinesthetic learning styles will be well accommodated through practicums, demonstrations, demonstrations, etc.

An example of differentiation in the process of learning mathematics is that when learning about angles, students can be invited to observe angular images to determine the size of the angle. The teacher also added by explaining orally so that the understanding of the material about angular learning is increasingly explored. Then, students are invited to practice how to make angles according to the size of the angle determined with the help of a bow. That is, in accommodating differences in learning styles, learning is not done by grouping students according to their learning styles. However, learning is varied with all students experiencing every learning style the teacher designs.

#### *Differentiation in products*

Products include things that reflect the level of mastery of students with the subject matter of mathematics already studied. Differentiation in products means that teachers give students a wide variety of choices in how students demonstrate their learning outcomes (Österman & Bråting, 2019). The product in mathematics learning is a form of student interpretation in understanding the subject matter that has been taught by teachers in the field of mathematics (Schoen & LaVenja, 2019). (Planas et al., 2023), states that differentiation in this product can be in the form of reports, brochures, skits, etc.; the resulting product is a reflection of the student's understanding; and teachers can provide a wide selection of variations and challenges. The differentiation of this product can be organized by teachers in the form of learning projects. So, students are instructed to present their mathematical understanding by running a mathematical product creation project determined by the teacher by providing a selection of variations.

Mathematics is an exact science, and any mathematical product created cannot go out of the context of its provisions. For example, when the teacher gives a bow-making project, the choice of variations that can be given by the teacher is only in the form of variations in the color of the product, the materials used, or the motifs drawn in the bows made. Things that have become the essence of the bow, such as the shape of the bow, certainly cannot be varied but must be by the provisions of the bow shape.

An evaluation will also be conducted to measure the skill level of the student. Especially at SDN 47/IV,

Jambi City has Harvest Works activities that are carried out at the end of each semester. This activity is carried out to measure the extent of students' skills from the results of the products made. The products made are those that relate to the school-defined theme. Products are exhibited and promoted to make students trained in entrepreneurial spirit. Students' mathematical skills are seen from how students apply their mathematical abilities. For example, students calculate the capital and profit from the results of selling products during the Harvest of Works.

The principal has an important role so that the implementation of differentiated learning in mathematics subjects can run well. Several roles need to be performed by the principal in supporting the implementation of differentiated learning in schools, namely, (Hariyati et al., 2023): The principal plays a role in collaborating with teachers, school committees, parents, and education offices of districts in terms of providing new learning resources and learning environments that are considered important and needed for students; The principal plays a role in ensuring the procurement of new facilities and infrastructure as learning resources and new learning environments for teachers and students; The principal has a role to play in ensuring that all planning and implementation of teacher learning is carried out for the success and convenience of learning of students, parents and the community as users of educational services in schools.

*Differentiated learning works well when students in the classroom can feel the following.*

Students can achieve all learning objectives the application of differentiated learning in mathematics subjects can make it easier for students to understand mathematics subject matter than ever before and students achieve improved grades

*Students obtain learning outcomes that are by the level of difficulty of the material provided by the teacher*

This happens because students are taught according to their abilities. When teachers apply differentiated learning well, mathematics learning that was previously difficult becomes easier. This is because in the application of differentiated learning when students have learning difficulties, the teacher gives special guidance to the student (Ma'ruf Dharmaji & Astuti, 2023). In addition, teachers also teach by paying attention to the learning styles of students. Then, the teacher will adjust the mathematics learning method to the learning style that students like so that students' learning difficulties can be resolved because of the fulfillment of their learning needs.

*Establish a strong relationship between teachers and students so that students are enthusiastic about learning*

The differentiated learning environment makes teachers required to be more able to understand and pay more attention to the psychological well-being of their students. Teachers also accompany students to be able to achieve improved learning outcomes by creating a comfortable atmosphere when they are with students (Aarts et al., 2020). This makes students more closely related to the teacher and they become more enthusiastic about carrying out learning.

*Students become accustomed to and appreciate diversity*

The diversity referred to here is the diversity of the level of ability and learning needs of each student. Students will get used to the way teachers handle students whose needs vary.

*Factors Inhibiting the Implementation of Differentiated Learning*

Although differentiated learning is something that has existed for a long time in the world of education, the introduction of the concept of its application is a new thing for teachers in Indonesia. This makes teachers still not fully understand how to implement differentiated learning in all subjects, especially in mathematics learning. (Jayantika & Santhika, 2023), said that this differentiated learning began to be known in Indonesia since the existence of the mobilizing teacher education program which was first held in 2020.

Differentiated learning in its implementation will certainly experience obstacles. Schools that run a Kurikulum Merdeka also adjust the learning in each class to run in a differentiated manner. Applying differentiated learning will drain more time than when applying undifferentiated learning. This is because teachers must apply variations in learning. Teachers must be able to meet all the different needs of students. That takes more time, while the time available is stammered. Often before all student needs are met, the time used by the teacher is no longer enough to complete the learning. Teachers often have difficulty dividing time and feel that they lack the time to differentiate learning. That is often an obstacle in implementing differentiated learning in mathematics subjects.

## Conclusion

The results of the data collected through interviews, observations, and document studies allow researchers to draw several conclusions. First, to carry out differentiated learning in mathematics subjects, teachers must map out students' learning needs. Second, the implementation of differentiated learning in mathematics subjects can be carried out properly when

components in schools can collaborate. Teachers play a big role in realizing the fulfillment of students' mathematics learning needs as well as the purpose of implementing differentiated learning. The principal is a component that plays an important role in supervising and providing facilities and infrastructure for the implementation of differentiated learning, especially in mathematics subjects in schools. Researchers can illustrate that this differentiated learning does not mean that teachers have to teach 25 students with 25 different ways of teaching, create 25 different materials, or give 25 different tasks or projects. Likewise, the evaluation system is carried out like the evaluation system in general. The evaluation system in differentiated learning, especially in mathematics subjects, does not mean that teachers make 25 different question packages for 25 students. Based on all these explanations, it can be concluded that differentiated learning, especially in mathematics subjects, is a reasonable decision on how teachers respond to students' mathematics learning needs. Third, the obstacle that affects the implementation of this differentiated learning is limited time. The different learning needs of students require that teachers be able to accommodate them well, while to do so is not enough with limited time.

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## Author Contributions

Conceptualization, S. M., & A. P. L.; methodology, S. M.; validation, A. P. L. and S. M.; formal analysis, A. P. L.; investigation, S. M and A. P. L.; resources, S. M and A. P. L.; data curation, S. M.: writing – original draft preparation, S. M and A. P. L.; writing – review and editing, S. M.: visualization, and A. P. L and S. M. All authors have read and agreed to the published version of the manuscript.

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## Conflicts of Interest

The authors declare no conflict of interest.

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