



# Executing Biology Education Using TPS Method for Homeschooled Students to Enhance Communication Skills and Engagement

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## RESEARCH ARTICLE

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**Abstract:** Homeschooling education closely parallels traditional classroom learning, involving guidance from a teacher (tutor) and parents. The educational emphasis extends beyond academic proficiency. Introducing Biology education through the Think-Pair-Share model in homeschooling aims to enhance communication skills and student involvement. This descriptive research employs a comprehensive analysis, incorporating both quantitative and qualitative assessments. The findings indicate positive developments in communication skills among homeschooling students, coupled with excellent engagement in biology-related learning activities.

**Keywords:** *Homeschooling, Think-Pair-Share, Biology*

## Introduction:

Homeschooling, chosen by parents as a non-formal educational option, functions as an alternative schooling approach conducted within the home environment, providing a relaxed and personalized learning atmosphere for students (Muhtadi, 2014; Sadid, 2012).

Upon close examination of the homeschooling approach, it becomes evident that the prevalent instructional strategy is expository, involving the systematic and passive delivery of information to students. Interaction primarily revolves around the teacher-student relationship, with minimal engagement among the students themselves. This limitation stems from time constraints within the learning process, impeding interpersonal interactions within the learning community. Despite its student-friendly environment, the homeschooling model reflects certain characteristics of traditional schooling.

In the context of atmosphere, activities, and environment (Dien, et al., 2015), the effectiveness of various teaching approaches significantly impacts students' abilities. Therefore, the choice of an appropriate instructional model becomes essential. When it comes to instructing Biology to Homeschooling students, the selection of a suitable model holds particular importance, especially given the inherent association of Biology education with a scientific approach (Sudarisman, 2018).

An effective instructional model for Homeschooling students is the cooperative Think-Pair-Share (TPS) model, as suggested by Lie (Wena, 2008). Cooperative learning involves a system in which students work together on well-defined tasks, while the teacher serves as a facilitator.

The TPS cooperative learning model is designed to influence the dynamics of student interaction.

This structure encourages students to collaborate in small groups (pairs), prioritizing cooperative acknowledgment over individual recognition.

Implemented through the prescribed procedures (Suprijono, 2009), the application of the Think-Pair-Share (TPS) model begins with the Thinking phase. During this stage, the teacher poses questions related to the lesson, prompting

individual contemplation by the students. The Pairing phase entails collaborative efforts among students, while the Sharing phase involves students presenting their answers to the entire class. TPS has proven to yield favorable outcomes in enhancing students' understanding of the learning material under the teacher's guidance (Org, Sugiarto, & Sumarsono, 2014).

Table I: Objectives and TPS Activities

Objectives	Student Activities
Overseers	<ul style="list-style-type: none"> <li>• Enhancing the teacher's explanation of the lesson material</li> <li>• Reading relevant books</li> <li>• Utilizing digital devices to search for references</li> <li>• Writing independent responses</li> <li>• Capable of independently solving problems</li> </ul>
Pairing	<ul style="list-style-type: none"> <li>• Reading sources and relevant books together</li> <li>• Utilizing digital devices to search for references together with the partner • Collaboratively formulating answers regarding the lesson material</li> <li>• Solving problems together as a pair</li> <li>• Responding to teacher's questions</li> <li>• Responding to classmates' questions</li> </ul>
Share	<ul style="list-style-type: none"> <li>• Collaboratively presenting the results of paired discussions in class</li> <li>• Sharing the discussed outcomes with the partner</li> </ul>

Numerous research investigations into the efficacy of TPS, as conducted by Sugiarto & Sumarsono (2014), have consistently demonstrated enhancements in narrative reading skills. Another study by Hetika et al. (2018) presents evidence of heightened student motivation and improved academic performance. While certain research primarily concentrates on augmenting academic capabilities, the process also entails delineating student activities. This emphasis is in harmony with the fundamental principle of homeschooling, which revolves around nurturing the development of students' interests and talents.

The implementation of homeschooling can be entrusted to institutions, teachers, or innovative approaches (Dien et al., 2015). The selection of learning materials and subjects in homeschooling is solely the responsibility of tutors, guaranteeing that subjects are customized to meet the needs of students. Consequently, homeschooling encompasses a diverse range of activities beyond collaborative problem-solving, encompassing learning, independent exploration, personal development, fostering cooperation, and instilling discipline.

Education is a tangible and concrete process

(Hamalik, 2005). Consequently, the interaction between teachers and students, as well as among students themselves, carries significant importance. Positive activities conducted by students during the learning process are crucial for the overall learning experience. With limited time for learning among students, there is a potential for minimal interaction. Therefore, the implementation of TPS can play a positive role in enhancing engagement.

Positive learning activities exert a significant influence on academic capabilities and foster an inherent awareness of learning. The incorporation of TPS aids in the enhancement of communication skills, a vital aspect in 21st-century science education (Sugiarto & Sumarsono, 2014). Diverse forms of verbal communication associated with learning, such as discussions, presenting discussion outcomes, responding to queries, and documenting final discussion results, can be facilitated. Table 2 provides a comprehensive overview of communication skill indicators.

No	Oral Communication Indicators
1	Mastery of discussion material during presentation.
2	Delivering discussion outcomes systematically and clearly.
3	Asking questions to the teacher or other students.
4	Ability to answer questions from the teacher or other students.

Building on the preceding explanation, the aim of this study is to augment academic capabilities, scrutinize the learning activities carried out by students during the educational process, and assess the communication skills of the students.

**RESEARCH METHOD**

This research follows a descriptive approach, employing both quantitative and qualitative analyses. The study focuses on two homeschooled students in Banjarmasin City, featuring one male and one female, each possessing unique characteristics.

The investigation occurred during the odd semester of the 2018/2019 academic year. The instrument utilized in this study is not specified in the text; additional information about the instrument used in the research is needed for completeness. student worksheets, observation sheets Student activities are analyzed descriptively, while communication skills are assessed based on the standard criteria set in Table 3.

No	Achievement	Category
2	90%	A (Excellent)
3	75%	B (Good)
4	40%	C (Sufficient)
5	<40%	D (Low)

**RESULTS AND DISCUSSION**

The comparison of student activities within the Think-Pair-Share (TPS) framework is outlined in Table 4. The table highlights the differences in activities between Student I and Student S. During the initial session, both students faced challenges in autonomously finishing the assigned tasks, resulting in prolonged learning durations despite the use of electronic devices. The initial hesitancy in interaction between Student I and Student S impeded their problem-solving skills, and incomplete assignments hindered their ability to express ideas in class.

Moreover, the task of independently writing and completing answers remained unresolved for both students until later stages. This challenge was

mainly attributed to the constrained time allocated for the initial thinking phase, originally set at 10 minutes and extended by an additional 5 minutes

to facilitate completion. In subsequent meetings, simpler tasks were introduced, enabling students to contribute more effectively.

Table 4: Comparison of Student Learning Activities in TPS

Learning Activities	Student I	Student S
Paying attention to the teacher's explanation of the learning material	Yes	Yes
Reading relevant books related to the learning material	Yes	Yes
Using electronic devices to search for references	Yes	Yes
Writing answers individually	Yes	Yes
Reading sources and relevant books together	No	Yes
Using electronic devices to search for references together	No	Yes
Discussing with a partner about answers	No	No
Solving problems as a pair	No	No
Responding to teacher's questions	Yes	No
Responding to classmates' questions	Yes	No
Presenting paired discussion results in class	No	No
Sharing discussion results	No	No
Maintaining ideas	No	No

- 'I' represents student 1 (female).
- 'S' represents student S (male).

In the second session, both Student 1 and Student S effectively completed the tasks assigned by the teacher. The progress observed in the students involves collaborative efforts throughout the learning process, including participating in discussions, reading, and searching for answers collectively, presenting the outcomes of their discussions, and sharing these results. The improvement in student activities is closely linked to the support provided by the teacher serving as a facilitator. This corresponds with Sanjaya's (2006) perspective, emphasizing that group work entails evaluating one's success within the group, facilitating success for all members. Numerous

studies affirm the effectiveness of cooperative TPS by highlighting the prevalence of diverse activities. According to Kothiyal, Majumdar, Murthy, & Iyer's (2013) research, active behaviors during the think phase predominantly included writing, with speaking (30%) and writing (23%) dominating behaviors during the pair phase, both being desirable and active. Ultimately, in the share phase, the primary behavior was 'following the instructor's discussion' (60%).

Concerning the teacher's conduct in the learning process, the flexibility in the interaction between the teacher and students, such as the teacher's enthusiasm during instruction, contributes to creating a comfortable learning environment for students. Achieving an optimal learning condition

occurs when the teacher can control and manage an enjoyable atmosphere to attain the teaching objectives (Suhardi, 2013).

**Table 5 Summary of Communication Skills and Student Achievement**

scss				
No	Student	Gender	Communication Skills	Grade Category
1	I	Female	68.75	C (Fair)
2	S	Male	75	S (High)
3	I	Female	75	S (High)
4	S	Male	87.5	B (High)

- The evaluation of communication skills encompasses four established indicators.
- Indicator 1 focuses on the command of discussion material during presentations. In the initial meeting, neither student I nor S had achieved mastery of the material, evident in their reliance on reading discussion outcomes and their inability to explore answers.

The subsequent indicator pertains to the presentation of discussion outcomes. It is evident that when tasked with presenting the results of the discussion, both students failed to do so systematically and clearly. As a result, some questions were addressed without appropriately tackling the difficulty level, and difficult questions were only approached after solving the easier ones. The third and fourth indicators involve posing questions and responding to peers or the teacher, both of which the participants executed proficiently. This is evident from the increasing frequency of responses provided by the students. The accomplishment of these two indicators aligns with the improvement in student activities during the pair and share stages of cooperative learning. This is supported by additional research indicating

that cooperative learning enhances student communication and collaboration (Melawati & Paristiowati, 2014).

Through the evaluation carried out during the learning sessions, it is apparent that both Student I and Student S exhibited an enhancement in communication skills. This is substantiated by the advancement of Student I's rating from fair to good, and Student S, originally assessed as good at 75, progressed to 87.5, falling under the high category. One drawback associated with TPS is the restricted time allocation, divided into three phases. Equal time allocation for each stage is unattainable due to the differing focal points of activities. Moreover, the teacher is required to function as a facilitator, actively engaging students in the learning process.

**Conclusion:**

In conclusion, the research carried out at Universitas Lambung Mangkurat on the science process skills of Biology Education Department students yielded noteworthy findings. Conducted over a span of two months, the study focused on the quantitative analysis of students' performance using specific scoring methods.

The results indicated that the ability to measure was the highest among basic skills, while observation skills ranked the lowest. The study also delved into integrated science process skills, shedding light on students' competence in various sub-skills.

Furthermore, another research investigation into homeschooling unveiled positive developments in communication skills and overall student activity through the implementation of Think-Pair-Share (TPS) in biology learning.

To sum up, these studies underscore the significance of effective teaching methods and the continual enhancement of science process skills, particularly in non-traditional learning

environments.

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