

The Effect of the Take and Give Learning Model on Grade XI Students' Learning Outcomes in the Reproductive System Topic

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ABSTRAK

Penelitian ini bertujuan untuk mengetahui hasil belajar peserta didik yang diajar dengan model pembelajaran Take and Give dan model pembelajaran Talking Stick, serta menguji pengaruh penerapan model pembelajaran Take and Give terhadap hasil belajar peserta didik kelas XI pada materi sistem reproduksi di MA Madani Pao-Pao. Penelitian ini menggunakan pendekatan kuantitatif jenis quasi experiment dengan desain nonequivalent control group design. Sampel penelitian sebanyak 48 peserta didik yang terbagi atas kelas XI A dengan 24 peserta didik sebagai kelas eksperimen dan kelas XI C dengan 24 peserta didik sebagai kelas kontrol, dipilih melalui teknik purposive sampling. Data dikumpulkan menggunakan tes hasil belajar pilihan ganda, kemudian dianalisis dengan statistik deskriptif dan statistik inferensial (uji normalitas, uji homogenitas, dan independent sample t-test) berbantuan SPSS versi 27. Hasil penelitian menunjukkan nilai rata-rata posttest kelas eksperimen sebesar 86,33 (kategori tinggi), lebih tinggi dibandingkan kelas kontrol sebesar 79,83 (kategori tinggi). Hasil uji hipotesis diperoleh nilai signifikansi $0,000 < 0,05$ sehingga H_0 ditolak dan H_1 diterima. Dapat disimpulkan bahwa model pembelajaran Take and Give berpengaruh signifikan terhadap hasil belajar peserta didik pada materi sistem reproduksi kelas XI MA Madani Alauddin.

ABSTRACT

This study aims to determine the learning outcomes of students taught using the Take and Give learning model and the Talking Stick learning model, and to examine the effect of the Take and Give model on the learning outcomes of eleventh-grade students on the human reproductive system topic at MA Madani Alauddin. This research used a quantitative quasi-experimental approach with a nonequivalent control group design. The sample consisted of 48 students, divided into class XI A as the experimental group and class XI C as the control group, selected through purposive sampling. Data were collected through a multiple-choice learning outcome test and analyzed using descriptive and inferential statistics (normality test, homogeneity test, and independent sample t-test) with SPSS version 27. The results showed that the experimental class posttest mean score was 86.33 (high category), higher than the control class at 79.83 (high category). The hypothesis test yielded a significance value of $0.000 < 0.05$, so H_0 was rejected and H_1 accepted. It can be concluded that the Take and Give learning model has a significant effect on students' learning outcomes on the reproductive system topic.

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Introduction

Education is a planned and systematic process for developing learners' potential and producing high-quality human resources (Sujana, 2019). Education involves not only teaching but also the provision of knowledge, the transformation of values, and the comprehensive development of learners' personalities, both within and outside school (Muhammad, 2015). This view is consistent with the mandate of Indonesian Law No. 20 of 2003 on the National Education System, which defines education as a conscious and planned effort to establish an active learning process through which learners can develop their potential (Republic of Indonesia, 2003). Accordingly, educational success depends substantially on the extent to which learning actively engages learners rather than positioning them merely as recipients of information.

Biology learning is concerned not only with mastery of concepts but also with learners' ability to connect biological concepts to phenomena in everyday life. Active learning has been shown to improve conceptual understanding and learning outcomes more effectively than teacher-centred instruction (Pratiwi et al., 2021; Siregar, 2019). In practice, however, many teachers face difficulties in selecting and implementing learning models that match the characteristics of the subject matter (Friani et al., 2017). As a result, lectures remain a dominant approach, often making learning monotonous and limiting learner participation (Yusrina et al., 2019). This situation highlights the need for alternative learning models that promote learners' active engagement.

One model that can promote learner engagement is the Take and Give cooperative learning model. It gives learners opportunities to receive and share information with peers by exchanging knowledge through content cards (Sahriah et al., 2021). Such interaction can support conceptual understanding while also developing learners' communication, collaboration, and sense of responsibility during learning.

The effectiveness of cooperative learning is also supported by international research. Gillies (2016) described cooperative learning as a pedagogical practice that can promote socialisation and academic achievement from preschool to higher education, as learners work together towards shared goals that may be difficult to achieve individually. Similarly, a study of university students in Spain found that cooperative learning significantly strengthened learning-goal orientations compared with learning without a structured collaborative arrangement, while also enhancing interpersonal skills (Mendo-Lázaro et al., 2022). These findings support the view that learning structures built around interaction and shared responsibility, as in Take and Give, may promote learner engagement and achievement across educational contexts and levels.

Previous studies have reported positive effects of the Take and Give learning model on student learning outcomes at various educational levels. Samosir et al. (2021) found that the model improved elementary school students' learning outcomes, while Ikawati (2017) reported improved

achievement in information and communication technology. Hia et al. (2025) reported improved science learning outcomes when the model was combined with Mind Mapping. Yanti et al. (2022) also found that Take and Give supported by PowerPoint or audiovisual media improved learners' motivation and learning outcomes. These findings are consistent with Anas et al. (2021), who reported that innovative learning media, including Magic Card and Game Twister, improved student learning outcomes in biology. Taken together, this evidence suggests that learning models and media that increase learner participation can contribute to improved learning outcomes (Pratiwi et al., 2021).

Observations at MA Madani Alauddin indicated that Grade XI biology lessons were still dominated by lectures, and learner activity was not optimal. Learners tended to receive information passively, while interaction among them remained limited. These conditions were associated with suboptimal learning outcomes. In addition, the human reproductive system is characterised by abstract and interrelated concepts, making it important to use a learning model that can foster learner activity, communication, and collaboration (Alamsyah et al., 2022).

Although previous studies have demonstrated the effectiveness of Take and Give in improving learning outcomes (e.g., Samosir et al., 2021), much of this research has involved elementary school learners or combined the model with additional instructional media, such as PowerPoint (Esah, 2017), Mind Mapping (Seputra, 2020), or audiovisual media (Yanti et al., 2022). Research has examined Take and Give across different educational levels and subject areas: Samosir et al. (2021), for example, studied elementary school learners in Theme VIII; Ikawati (2017) examined achievement in information and communication technology; and Hia et al. (2025) investigated junior high school science using Take and Give alongside Mind Mapping. Thus, although the model has been studied in varied contexts and with supporting media, the literature cited in this article does not appear to address its use for the human reproductive system at the Madrasah Aliyah level, with content cards serving as the primary means of information exchange and no additional media. This study addresses that context by comparing Take and Give with Talking Stick. It examines the effect of the Take and Give learning model on Grade XI students' learning outcomes in the human reproductive system topic at MA Madani Alauddin.

Examining Take and Give without additional media is relevant not only to the literature but also to practical classroom conditions. Some schools, particularly madrasahs in less-served areas, lack adequate access to multimedia equipment such as projectors and computers or to stable internet connections. Under these conditions, teachers need empirical evidence on whether a learning model can significantly affect student outcomes through direct peer interaction using content cards, without relying on media that may require additional costs or technical skills. The findings may therefore offer a practical and straightforward learning alternative for schools with limited technology-based learning facilities.

Methodology

This study used a nonequivalent control group design involving pre-existing experimental and control classes. Both classes completed a pretest before instruction and a posttest after instruction. Students were not randomly assigned to the groups.

This quantitative study employed a quasi-experimental method with a nonequivalent control group design. The design involved pre-existing experimental and control classes; both completed a pretest before instruction and a posttest afterwards, but students were not randomly assigned. The study was conducted at MA Madani Alauddin. The population comprised all 141 Grade XI students across four classes. The sample consisted of 48 students: Class XI A served as the experimental class (24 students), and Class XI C served as the control class (24 students). The classes were selected purposively, taking into account the research schedule and the school's recommendation to avoid disrupting instruction. Class XI A received instruction using the Take and Give model, whereas Class XI C received instruction using the Talking Stick model.

The intervention covered the human reproductive system. In the experimental class, the teacher distributed cards containing information about the topic. Students studied the information on their cards and then exchanged it with classmates in turn. After the exchange, the teacher and students discussed the material and clarified understanding before completing an assessment. In the control class, the teacher presented the material and asked questions about the human reproductive system using the Talking Stick model. Students took turns holding or receiving the stick and answered a question or explained their understanding when selected. The teacher clarified and reinforced their responses, and the lesson concluded with an assessment. Both classes studied the same content and completed the same learning-outcome test; the instructional model was the only difference between the treatments.

Talking Stick was selected as the comparison model because it also involves active student participation but uses a different interaction pattern from Take and Give. In Talking Stick, students take turns answering questions or explaining their understanding when the stick is passed to them. Take and Give, in contrast, emphasises peer-to-peer information exchange through content cards. Comparing the two models enabled the study to examine differences between learning organised around peer information exchange and learning organised around turn-taking. Talking Stick served as the comparison because it was the model used in the control class.

The research instrument was a 25-item multiple-choice learning-outcome test. Two experts established its content validity by assessing the alignment of the items with the human reproductive system content and learning indicators, the appropriateness of item construction, the clarity of stems and answer options, and language use. The validators judged all 25 items to meet the content-validity criteria and to be suitable for measuring student learning outcomes. Data were analysed

using descriptive statistics and inferential statistics, specifically an independent-samples t-test in SPSS version 27. Before hypothesis testing, the assumptions were examined using the Shapiro–Wilk normality test and Levene’s test for homogeneity, with the significance level set at 0.05.

Results and Discussion

Descriptive statistical analysis showed that the students’ initial performance in both groups was very low: the mean pretest score was 29.67 in the experimental class and 28.00 in the control class. After the intervention, the mean posttest score increased to 86.33 in the experimental class (high category) and 79.83 in the control class (high category), as presented in Table 1.

Table 1

Descriptive Statistics of Learning Outcomes in the Experimental and Control Classes

Statistic	Experimental Pretest	Experimental Posttest	Control Pretest	Control Posttest
Maximum score	44	96	44	96
Minimum score	16	76	12	68
Mean	29.67	86.33	28.00	79.83
Standard deviation	8.334	6.452	8.668	6.404

As shown in Table 1, the mean pretest score was 29.67 in the experimental class and 28.00 in the control class. After instruction, the mean posttest scores increased to 86.33 and 79.83, respectively. Thus, the mean score increased by 56.66 points in the experimental class and 51.83 points in the control class. Scores increased in both classes, with a larger increase in the experimental class.

Before hypothesis testing, the learning-outcome data were examined using the Shapiro–Wilk normality test. The results indicated that all data groups were normally distributed, as all significance values exceeded 0.05.

Table 2

Shapiro–Wilk Normality Test Results for Student Learning-Outcome Data

Class	Statistic	df	Sig.	Interpretation
Experimental Pretest	0.932	24	0.109	Normal
Experimental Posttest	0.928	24	0.088	Normal
Control Pretest	0.954	24	0.323	Normal
Control Posttest	0.943	24	0.186	Normal

Levene’s test of the posttest scores yielded a significance value of 0.499 (> 0.05). Therefore, the posttest score variances in the experimental and control classes could be considered homogeneous.

Table 3

Independent-Samples t-Test Results

Levene F	Sig. Levene	t	df	Sig. (2-tailed)
0,464	0,499	3,503	46	< 0,001

The independent-samples t-test on the posttest scores yielded $t = 3.503$, $df = 46$, and a two-tailed p-value < 0.001 . Because the p-value was below 0.05, the posttest scores differed significantly between the experimental and control classes. The experimental class had a higher mean posttest score (86.33) than the control class (79.83). Therefore, H_0 was rejected and H_1 was accepted, indicating a significant effect of the Take and Give learning model on Grade XI students' learning outcomes in the reproductive system topic at MA Madani Alauddin.

The assumption tests indicated that the pretest and posttest data were normally distributed and that the variances were homogeneous, as the significance values for the Shapiro-Wilk and Levene tests exceeded 0.05. The independent-samples t-test yielded a two-tailed p-value below 0.05, indicating a significant difference in learning outcomes between the experimental and control classes. In this study, the class using Take and Give achieved higher scores than the class using Talking Stick.

The findings indicate that Take and Give was associated with a larger increase in learning outcomes than Talking Stick: the mean score increased by 56.66 points in the experimental class, compared with 51.83 points in the control class. This difference may be related to the Take and Give sequence, which requires students to understand the information on their cards and explain it to a partner or another group member. This exchange encourages two-way communication, positioning students as active information providers as well as recipients. This interpretation is consistent with evidence that active student participation contributes to biology learning outcomes (Hasmiati et al., 2017). The exchange of information in Take and Give is also compatible with information-processing accounts, which describe understanding as involving the reception, processing, and subsequent communication of information (Rehalat, 2014).

The findings are supported by Faisal et al. (2023), who reported that learning involving active student participation can improve learning outcomes. Although their approach differed, their results are consistent with the present finding that Take and Give can support achievement by encouraging active participation. The Talking Stick model used in the control class was also followed by an increase in learning outcomes, with posttest scores reaching the high category; however, the increase was smaller than in the experimental class. Fadhilah et al. (2024) likewise reported that interactive learning media can improve engagement and learning outcomes. Although that study used different media, it supports the broader observation that learning activities promoting student participation can have positive effects on achievement. Since this study did not

measure students' perceptions or experiences of either model, differences between the classes are discussed in terms of observed scores and the instructional activities implemented. These findings underscore the importance of selecting an appropriate learning model, consistent with studies comparing the effects of instructional media and learning models on student outcomes (Anas et al., 2021).

In Take and Give, students study information on content cards and then explain it to their peers. This activity gives them an opportunity to process information and express their understanding in their own words. Explaining and exchanging information may help students connect concepts and remember the material. This is a plausible pedagogical explanation for the observed learning outcomes; students' cognitive processes were not measured directly in this study.

The independent-samples t-test yielded a significance value reported as 0.000 ($p < 0.001$), supporting the conclusion that Take and Give had a significant effect on student learning outcomes in the reproductive system topic. This finding is consistent with previous studies of Take and Give across different subjects and educational levels, which generally report significant improvements in student learning outcomes (Yanti et al., 2022). It is also consistent with research on other active and cooperative learning strategies, including Make a Match (Fauhah & Rosy, 2020), Problem-Based Learning (Rahmat, 2018), and the metacognitive PBLRQA strategy (Bahri & Idris, 2018). On the basis of the present findings, Take and Give may be considered as one alternative for teaching the human reproductive system.

Conclusion

Learning outcomes improved after instruction in both classes. The mean score in the class using Take and Give was higher than that in the class using Talking Stick, and statistical testing showed a significant difference between the classes. In this study context, the use of Take and Give was associated with better learning outcomes in the human reproductive system topic. Because the study used a quasi-experimental design with non-randomly selected groups, the findings should be interpreted cautiously. Take and Give may be considered as one alternative learning model for teaching the human reproductive system.

Future studies should involve more students and multiple schools so that the findings can be examined across a wider range of contexts. Once the results have been tested with a larger sample, subsequent research could investigate Take and Give in other subject areas. Researchers should also report the initial performance of both groups and describe the class-selection criteria in detail.

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