Tax Literacy Through Scrabble: Making Tax Education Engaging and Effective for Students

Sulthan Alif Nursyahputra[1], Ismet Ismatullah[2], Venita Sofiani[3]

sulthanalifn@ummi.ac.id[1], ismet.ismatullah@ummi.ac.id[2], venitasofiani@ummi.ac.id[3]

[1,2,3]Faculty of Economic and Business, Universitas Muhammadiyah Sukabumi, Indonesia

Corresponding Author: Sulthan Alif Nursyahputra

Abstract. Early tax education for students is considered an important effort to increase their understanding of the benefits and functions of taxes. The aim of tax education for school students is to raise their awareness as future taxpayers of the importance of taxes for collective progress. To ensure that the education process runs smoothly and effectively, creativity is needed to make the delivery of the material easily understandable by students and to increase their interest in the material presented. Using traditional game media such as Scrabble can be the solution to this problem by incorporating tax knowledge into the game. The research method used is a quasi-experimental method with pre-test and post-test as the basis for assessing students' understanding, processed using SPSS 24. The final results of this study indicate that after receiving education and playing the Scrabble game, students show a significant increase in understanding of taxation in Indonesia.

Keywords: Tax Education, Tax Knowledge, Tax Literacy, Scrabble

1. Introduction

Indonesia is a country whose income relies on tax revenue, this can be seen from the contribution of tax revenue in 2023 which reached Rp. 2,155.4 trillion or grew by 5.9% from the previous year [1]. Based on several studies that have been conducted, increasing tax revenue has a significant effect on the level of taxpayer compliance in paying taxes [2] [3] [4] [5] which means that if the level of compliance increases, tax revenue will also increase. In 2023, the number of registered taxpayers was 63.1 million [6] but the number of taxpayers who had only submitted annual tax returns for 2023 until January 2024 was only around 1.48 million [7]. Although there is an increase in tax revenue each year, the tax ratio for 2023 has decreased by 0.20% from the previous year where in 2023 the tax ratio reached 10.21% while the tax ratio in 2022 reached 10.41% [8] which makes Indonesia's position lower than other ASEAN countries [9]. This has become a phenomenon that is the basis for research.

Many factors affect a country's tax ratio, including the public's understanding of the obligation to pay taxes imposed on them [10]. Understanding of taxes is an important asset for taxpayers in carrying out their tax obligations [11], with an understanding of the importance of taxes, it will increase taxpayer compliance in paying their tax obligations [12]. However, the level of public understanding regarding the importance of paying taxes in Indonesia is still very low and has not yet reached its optimal point [13]. The government, in this case the Ministry of Finance through the Directorate General of Taxes (DGT) continues to innovate to increase public understanding of taxes, one of which is by introducing taxes to school students ranging from elementary school (SD) to high school (SMA) through a tax education program that began in 2017 with the aim of introducing taxes early.

Several researchers have made innovations in introducing taxes using games both traditionally [14] and RPG-based (Role-playing game) or web-based games [15]. In contrast to the research that has been done before, the team intends to conduct tax socialization using word arrangement games. There are many types of word arrangement games, the word arrangement game that is frequently done is scrabble. In this research, the team will make innovations using scrabble to produce a new product that is a development of the previous product.

In particular, there are 2 objectives of this research, which are to create a tax socialization tool for students and to provide an early overview to students regarding tax obligations that must be paid in the future. The tax socialization tool that will be made can be useful in improving students' reasoning skills in introducing taxes in Indonesia. After playing games with this tool, students can recognize and memorize some basic concepts of tax imposition in Indonesia such as income tax and value added tax. The research conducted has a priority with other studies where research on socialization tools, especially in the field of taxes, only a few have conducted research and are only limited to traditional and web-based games or RPGs, besides that the products produced are unique from other similar products. The research that will be conducted will produce findings in the form of a tax words game board, where the tax words game board has a form like a scrabble game but with several innovations applied. This tax words game has a contribution to scientific development, especially in the field of tax science. This research will also produce outputs in addition to the mandatory outputs, namely progress reports, final reports, scientific articles and social media accounts in the form of products that are ready to be patented.

2.   Literature Review

Referring to the Law of the Republic of Indonesia Number 16 of 2009, tax is defined as a mandatory contribution to the state owed by individuals or entities that is coercive based on the law, without direct compensation, and used for state purposes to achieve the greatest prosperity of the people [16]. As a form of state revenue, taxes play an important role in the development of Indonesia. This is evident from the tax contributions that have become the largest revenue for Indonesia year after year [17]. According to the 2022 State Budget (APBN), state revenue from taxes reached Rp. 1,265.0 trillion, making it the largest in the 2022 APBN [18]. Therefore,

continuous efforts are needed by the state to enhance taxpayers' awareness of making payments to continue contributing to national development [19]. There are many ways to increase tax awareness, ranging from improving services [20] to tax education, which is the focus of this research. The Directorate General of Taxes (DJP) has undertaken bureaucratic reforms aimed at increasing state revenue from the tax sector, including simplifying tax regulations, launching applications, and conducting tax outreach to the general public, ranging from kindergartens to universities, through activities such as tax awareness inclusion.

As recorded in the Memorandum of Understanding between the Minister of Finance and the Minister of Research, Technology, and Higher Education Number MoU-4/MK.03/2016 and Number 7/M/NK/2016, concerning the Enhancement of Tax Cooperation, the Directorate General of Taxes (DJP) fully supports the activities of bureaucratic reform by establishing Tax Centers in universities that generate tax volunteers [21]. Generally, these tax volunteers have the duty of assisting taxpayers, both personally and in groups, in fulfilling their tax obligations, particularly in tax reporting. They also provide education and outreach about taxation to the public. This education and outreach can take the form of "Tax Goes To School," which involves visits to schools to give students a basic understanding of taxation. This is very important, as students will eventually become taxpayers. Therefore, early preparation will be very helpful in creating a positive understanding of taxes, fostering awareness of the importance of paying and reporting taxes. Additionally, this activity aims to instil values of patriotism and nationalism in students as the future generation of the nation.

In addition to providing tax education to students, through this program, we also use interactive media such as Scrabble as a tool to increase students' motivation to participate in the program. Scrabble is a board game played by two to four players, in which players attempt to form words by placing letter tiles onto the game board. Each letter tile has a numerical value printed on it, which determines the player's score when the tile is used to form a word. However, unlike regular scrabble, our version, named "Tax Word," is an advanced modification of the traditional scrabble game, combining the existing word game with tax education. By incorporating elements of tax knowledge into the scrabble game, players can not only enjoy their leisure time with a fun game but also enhance their understanding of basic tax concepts interactively. It is predicted that students participating in the trial of the Tax Word product will show high levels of enthusiasm and engagement in the game due to the combination of a popular game element with the relatively unfamiliar subject of taxation. With the incorporation of engaging gameplay elements and the new challenge presented by the addition of tax-related content, students are expected to feel motivated to actively participate in the game and learn about tax concepts interactively. Additionally, this product is anticipated to increase student interest in tax education by presenting the material in a fun and interactive format. Consequently, the trial results are expected to demonstrate that Tax Word can be an effective tool for enhancing students' understanding and interest in taxation.

3. Research Method

This research aims to measure the effectiveness of using Scrabble media in increasing students' interest in understanding taxation. The Scrabble media used has been modified to incorporate taxation concepts into the game by giving question related to tax knowledge that has been conveyed before playing the game to start the game. The design modifications also involve adding tax-related elements such as tax terms, tax symbols, or even relevant illustrations. Additionally, this research employs a qualitative approach using a quasi-experimental method and the result of the test were then analysed using SPSS 24. This method was selected because it is deemed appropriate for the data, which involves purposive sampling of specific groups in their entirety [22]. The research was conducted at several high schools in Sukabumi City with a total population of 100 students. Specifically, the 100 students come from SMKN 4 Sukabumi City, SMAN 4 Sukabumi City, MAN 2 Sukabumi City and SMAN 2 Sukabumi City. Data were obtained through pre-tests and post-tests during the activities. The pre-test was used as a measuring tool to assess the students' understanding of taxation before being presented with the material. The post-test was used to assess the students' level of understanding after the material and after using the Scrabble game.

4. Result and Discussion

To determine the students' understanding of taxation, pre-tests and post-tests were conducted before and after the activities. The activities consisted of providing students with material about taxation and guidance to play the game, followed by playing Scrabble to boost their enthusiasm and make the activities more dynamic and interactive. The focus of the tests was to measure students' understanding of taxation through the medium of Scrabble, with the aim of increasing their interest in learning about taxes in a more enjoyable manner. The scale used in the pre-tests and post-tests consisted of five points, with the lowest point being 1 (no comprehension), 2 (minimal comprehension), 3 (partial comprehension), 4 (moderate comprehension), and the highest score being 5 (Complete comprehension).

This test consists of 5 questions, with the lowest total score being 5 points and the highest total score being 25 points. The data population used consisted of a total of 100 students, including 25 students from SMAN 2 Kota Sukabumi, 25 students from SMAN 4 Kota Sukabumi, 25 students from SMKN 4 Kota Sukabumi, and 25 students from MAN 2 Kota Sukabumi. To view the data distribution from the pre-tests conducted by the participants, refer to Figure 1 below.
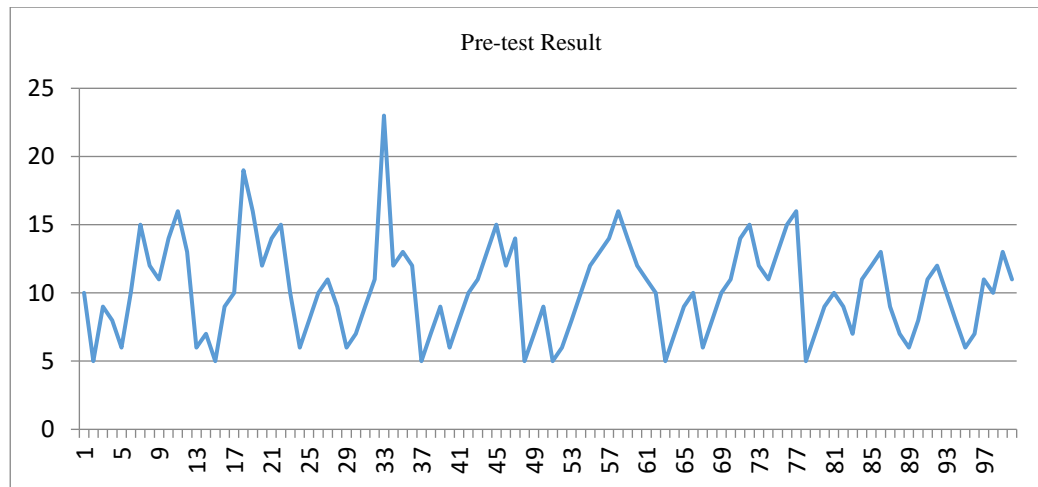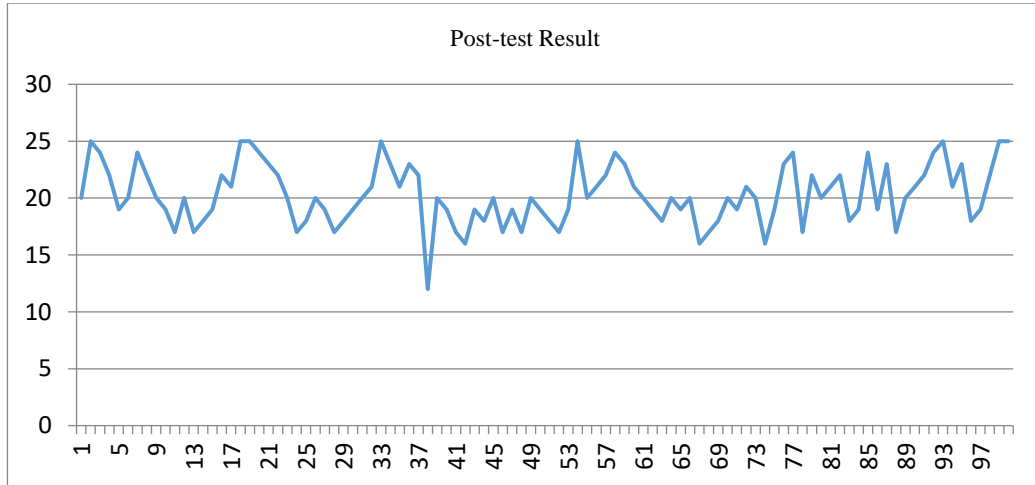
Figure 1. The data distribution of pre-test result on students

As can be seen in Figure 1, the pre-test data, which included 100 students, was collected before any educational intervention and before playing Scrabble. The lowest level of student understanding in the pre-test was 5 points, indicating that the students did not have any comprehension about the concept of taxation at all. Additionally, most students scored below 15 points, which means that the majority of students had a very low understanding of taxation concepts.

Table 1. Pre-test category result

Total Score	Category	Amount	Percentage
21 - 25	Complete Comprehension	1	1%
16 - 20	Moderate Comprehension	5	5%
11 - 15	Partial Comprehension	39	39%
6 - 10	Minimal Comprehension	48	48%
5	No Comprehension	7	7%
			100%

Furthermore, based on the pre-test results shown in Table 1, 48% of the population fell into the minimal comprehension category, and 38% were in the partial comprehension category. Meanwhile, only 5% of the population achieved moderate comprehension, and 1% attained complete comprehension. This indicates that nearly half of the population has minimal knowledge of taxation and needs further education.

Figure 2. The data distribution of post-test result on students

Meanwhile, referring to Figure 2, it can be seen that after students received tax education through Scrabble, their understanding increased significantly, with the highest score reaching 25 points and the lowest score being 12 points. This indicates that tax education using the Scrabble game has significantly improved students' understanding, as evidenced by the post-test results conducted after the activities.

Table 2. Post-test category result

Scale	Category	Amount	Percentage
21 - 25	Complete Comprehension	41	41%
16 - 20	Moderate Comprehension	58	58%
11 - 15	Partial Comprehension	1	1%
6 - 10	Minimal Comprehension	0	0%
5	No Comprehension	0	0%
			100%

As seen in Table 2, students' understanding improved, with 58% falling into the moderate comprehension category and 41% into the complete comprehension category regarding taxation. Meanwhile, only 1% of the population remained in the partial comprehension category.

Table 3. Reliability test result

Reliability Statistics

Cronbach's Alpha	N of Items
,612	2

To conduct hypothesis testing, several prerequisite tests must be performed. One of these is the reliability test. To test the reliability of the data obtained, SPSS Statistics version 24 was used. A questionnaire is considered reliable or dependable if a person's responses to the statements are consistent or stable over time. A questionnaire is deemed reliable if it provides a Cronbach's alpha value greater than 0.6 [23]. As shown in Table 3, the reliability test results indicate a Cronbach's Alpha value of 0.612, which can be concluded that the reliability test for the variable is dependable.

Table 4. Kolmogorov-Smirnov test Result

One-Sample Kolmogorov-Smirnov Test

		pretest	Posttest
N		100	100
Normal Parameters[a,b]	Mean	10,25	20,30
	Std. Deviation	3,424	2,619
Most Extreme Differences	Absolute	,079	,136
	Positive	,079	,136
	Negative	-,063	-,071
Test Statistic		,079	,136
Asymp. Sig. (2-tailed)		,126[c]	,200[c]

a. Test distribution is Normal.
b. Calculated from data.
c. Lilliefors Significance Correction.

To test the normality of the data for each variable, the researcher used the Kolmogorov-Smirnov test with a significance level of 0.05. Based on the normality test results shown in Table 4, we can see that Scrabble as a tax education medium has a positive impact, resulting in increased understanding. Additionally, it can be concluded that the data for the Table 4 variable is normally distributed with significance value in pre-test being 0,126 and post-test being 0,200, as the significance values are greater than the normal significance level of 5% or 0.05 (Asymp. Sig (2-tailed) = 0.200 > significance = 0.05).

Table 5. Homogeneity Test Result

Test of Homogeneity of Variances

Levene Statistic	df1	df2	Sig.
5,453	1	198	,081

Additionally, we used a homogeneity test to determine whether the groups come from the same population or not. Based on Table 5, it can be seen that the significance level (sig. value) using the Based on Mean statistic (statistic based on the mean) for students' understanding of taxation is 0.081, which means that this significance value is greater than the test significance level of 0.05. This indicates that the data on students' understanding of taxation is homogeneous.

Table 6. Hypothesis Statistical Test

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	Pretest	10,25	100	3,424	,342
	Posttest	20,30	100	2,619	,262

Table 7. Paired Sample T-test

Paired Samples Test

		Paired Differences			
		95% Confidence Interval of the Difference			
		Upper	t	df	Sig. (2-tailed)
Pair 1	pretest – posttest	-9,410	-31,177	99	,000

The paired sample t-test is employed to identify any differences in the means between two related samples (two groups). This test is a component of parametric statistics, which necessitates that the research data be normally distributed, adhering to the principles of parametric statistics [24]. In the output shown in Table 6, the summary statistics for both samples from the pre-test and post-test reveal average scores of 10.25 and 20.30, respectively, from a total of 100 students or respondents, indicating an increase in scores. Furthermore, as seen in Table 7, the t-value calculation is -31.177 with a probability value (Sig.) of 0.000, which is less than 0.05. Since this value is less than 0.05, it means that H0 is rejected and the research hypothesis H1 is accepted. This indicates that statistically, the use of Scrabble as an educational medium for teaching taxation after the post-test can improve students' understanding of taxation knowledge, particularly in Indonesia.

5.   Conclusion

Based on the trials and analysis conducted, the use of Scrabble has improved students' understanding of taxation in Indonesia. This is evident from the average scores shown in the results of the Kolmogorov-Smirnov test and the hypothesis test, where the average understanding of taxation among students increased from 10.25 before the intervention to 20.30 after being instructed to play Scrabble, with an average increase of 10.05 points. Therefore, it can be concluded that using Scrabble as an interactive medium can enhance students' understanding of taxation. Additionally, this study shows that incorporating games into tax education can boost students' motivation, making them more enthusiastic and quicker to grasp the material presented.

References

[1] Annur, C.M.: Pendapatan Negara Tembus Rp2.700 Triliun pada 2023, Mayoritas dari Pajak, katadata, 3 January. Available at: https://databoks.katadata.co.id/datapublish/2024/01/03/pendapatan-negara-tembus-rp2700-triliun-pada-2023-mayoritas-dari-pajak (2024).

[2] Bandiyono, A., Syifa, N. and Utami, R.: Tahun 2018 dan Implikasinya terhadap Penerimaan Pajak dan Kepatuhan Wajib Pajak UMKM di Banjarmasin, Journal of Applied Accounting and Taxation Article History (2021).

[3] Novasari, A. and Ratnawati, D.: Pengaruh Ekstensifikasi Pajak, Tingkat kepatuhan Wajib Pajak, dan Pemeriksaan ajak Terhadap Penerimaan Pajak Penghasilan Wajib Pajak Orang Pribadi, BAJ (Behavioral Accounting Journal, 3(2) (2020).

[4] Riyadi, S.P., Setiawan, B. and Alfarago, D.: Pengaruh Kepatuhan Wajib Pajak, Pemeriksaan Pajak, dan Pemungutan Pajak terhadap Penerimaan Pajak Penghasilan Badan, Jurnal Riset Akuntansi & Perpajakan (JRAP), 8(02), pp. 57–67 (2021).

[5] Sari, H.A.Y., Makaryanawati, M. and Edwy, F.M.: Pengaruh Sosialisasi Pajak Terhadap Realisasi Penerimaan Pajak dengan Kepatuhan Wajib Pajak Sebagai Variabel Intervening, Owner (Riset dan Jurnal Akuntansi), 4(2), p. 603 (2020).

[6] Kurniadi, D.: Integrasi NIK-NPWP Disebut Efektif Dongkrak Jumlah WP di 2023, DDTC News. Available at: https://news.ddtc.co.id/integrasi-nik-npwp-disebut-efektif-dongkrak-jumlah-wp-di-2023-1796538, (2023).

[7] Muhammad, N.: 1,48 Juta Wajib Pajak Telah Lapor SPT Tahunan per 24 Januari 2024, Katadata. Available at: https://databoks.katadata.co.id/datapublish/2024/01/26/148-juta-wajib-pajak-telah-lapor-spt-tahunan-per-24-januari-2024, (2024).

[8] Rachman, A.: Rasio Pajak RI Bertahan Double Digit di 2023, 10,21% dari PDB, CNBC Indonesia. Available at: https://www.cnbcindonesia.com/news/20240102150643-4-502087/rasio-pajak-ri-bertahan-double-digit-di-2023-1021-dari-pdb, (2024).

[9] Panjaitan, J.Y.: Strategi Meningkatkan Tax Ratio Dengan Menggali Potensi Pajak Penghasilan Orang Pribadi, Buletin APBN, VIII (18), pp. 3–7 (2023).

[10] Pratama, A. and Urumsah, D.: Model konseptual determinan kepatuhan wajib pajak orang pribadi usaha kecil mikro dan menengah (UMKM), Proceeding of National Conference on Accounting and Finance, 5, pp. 305–310 (2023).

[11] Alfina, Z. and Diana, N.: Pengaruh Insentif Perpajakan Akibat Covid-19, Pemahaman Perpajakan, Kesadaran Wajib Pajak Terhadap Kepatuhan Wajib Pajak Dalam Menyampaikan Surat Pemberitahuan Tahunan (Studi Kasus pada Wajib Pajak Yang Terdaftar di KPP Pratama Malang Utara), E-JRA , 10(04), pp. 47–57 (2021).

[12] Khodijah, S., Barli, H., & Irawati, W.: Pengaruh Pemahaman Peraturan Perpajakan, Kualitas Layanan Fiskus, Tarif Pajak dan Sanksi Perpajakan Terhadap Kepatuhan Wajib Pajak Orang Pribadi. Jurnal Akuntansi Berkelanjutan Indonesia, 4(2), 183-195 (2021).

[13] Septriliani, L., & Ismatullah, I.: Pengaruh Sistem Administrasi Perpajakan Modern Terhadap Kepatuhan Wajib Pajak Orang Pribadi. Jae (Jurnal Akuntansi Dan Ekonomi), 6(1), 92-102 (2021).

[14] Ermayanti Susilo, D. and Mahendri: Menumbuhkan Kesadaran Pajak Siswa Sekolah Dasar Melalui Permainan Edukatif (2021).

[15] Dwianika, A., Rayeb, A. El and Nurhidayah, F.: Edukasi Pajak Kaum Millenial Berbasis Web Games, Jurnal Pengabdian Pada Masyarakat, 7(4), pp. 1059–1068 (2022).

[16] Winanto, A., Rahman, R. S., Rinaldi, M., Prawiranegara, G. P., Judijanto, L., Tampubolon, A. S., ... & Suhardi, D.: Perpajakan: Teori Komprehensif. PT. Sonpedia Publishing Indonesia (2024).

[17] Nurmilah, R., Sofianti, V., Darsawati, E., Ismatullah, I., & Angraini, R.: The Effect of Nationalism on Taxpayer Compliance in The Effort to Achieve Regional Economic Development. In Proceedings of the 3rd International Conference of Business, Accounting, and Economics, ICBAE 2022, 10-11 (2022).

[18] Kementerian Keuangan.: Informasi APBN 2022 Melanjutkan Dukungan Pemulihan Ekonomi dan Reformasi Struktural. Kemenkeu RI [Internet]. (4):1–55 (2022).

[19] Nurmalasari, N., Ismatullah, I., & Darsawati, E.: Analisis Penerimaan Pajak Daerah Dalam

Meningkatkan PAD. Jurnal Proaksi, 7(2), 108-116 (2020).

[20] Rizky, D., Rasidin, R., & Sofiani, V.: Pengaruh Surat Tagihan Pajak, Pelayanan, Dan Kepatuhan Terhadap Pendapatan Asli Daerah Pada Sektor Pajak Hotel Dan Restoran. Jurnal Proaksi, 8(1), 166-180 (2021).

[21] Arsandi, S. A., & Ahmad, N.: Kebijakan Inklusi Kesadaran Pajak dan Strategi Komunikasi DJP: Studi Kasus Program Pajak Bertutur. Jurnal Akuntansi Terapan Indonesia, 5(1), 18-32 (2022).

[22] Abraham, I., & Supriyati, Y.: Desain kuasi eksperimen dalam pendidikan: Literatur review. Jurnal Ilmiah Mandala Education, 8(3) (2022).

[23] Singh, S., Madaan, G., Singh, A., Sood, K., Grima, S., & Rupeika-Apoga, R.: The AGP model for risk management in agile IT projects. Journal of Risk and Financial Management, 16(2), 129 (2023).

[24] Afifah, S., Mudzakir, A., & Nandiyanto, A. B. D.: How to calculate paired sample t-test using SPSS software: From step-by-step processing for users to the practical examples in the analysis of the effect of application anti-fire bamboo teaching materials on student learning outcomes. Indonesian Journal of Teaching in Science, 2(1), 81-92 (2022).