



THE APPLICATION OF DISCOVERY LEARNING ASSISTED BY NARRATIVE PODCASTS TO IMPROVE LEARNING UNDERSTANDING

Wildan Atma Pamungkas^{1*}, Citra Kurniawan²

^{1,2}Teknologi Pendidikan, Universitas Negeri Malang, Kota Malang, Jawa Timur, Indonesia

*Email corresponding author: wildan.atma.2201216@students.um.ac.id

Article Info	Abstract
Article history: Received 17-02-2026 Revised 24-02-2026 Accepted 13-02-2026 Published 28-03-2026 How to cite: Pamungkas, W. A., & Kurniawan, C. (2026). The Application of Discovery Learning Assisted by Narrative Podcasts to Improve Learning Understanding. <i>Journal of Facilitating Learning and Improving Performance</i>, 1(1), 67–76. © The Author(s)  This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License	This study examines the low level of students' understanding in learning, particularly in the topic of the History of the Birth of Pancasila at the junior high school level, which indicates the need for improvement through the implementation of more active learning strategies and the utilization of contextual and relevant learning media. Therefore, this study aims to determine the effect of applying the Discovery Learning strategy combined with narrative podcast media on students' level of understanding. This study employed a quantitative approach with a quasi-experimental research design using a Nonequivalent Control Group Design involving two classes (n = 60). Data collection techniques included pretest–posttest and documentation, while the research instruments were tested for validity and reliability. Data analysis was conducted using normality tests, homogeneity tests, N-Gain calculations, and Independent Samples T-Test. The results showed that both groups experienced improvement; however, the experimental class that applied Discovery Learning with narrative podcast media obtained a higher average posttest score (85.37) compared to the control class (80.63), with an average N-Gain score of 0.6853 in the experimental class and 0.5830 in the control class. Furthermore, a statistically significant difference was found ($t = 2.270$; $p = 0.027$). The findings imply that the integration of narrative podcast media in the Discovery Learning strategy is effective in improving students' understanding (C2). Therefore, educators are recommended to utilize podcasts as contextual stimuli in exploration-based learning, and future researchers are encouraged to develop other audio-based learning media innovations to enhance the quality of learning. Keywords: <i>Discovery Learning; Narrative Podcast; Learner Comprehension; History Learning.</i>

INTRODUCTION

Students' understanding of the subject matter is the main foundation for the quality of the learning process and outcomes; When understanding is not optimal, learning time is often taken up for repetition and the one-way lecture method becomes a practical but less effective solution. The Ministry of Education, Culture, Research, and Technology (Kemendikbudristek) emphasized that the quality of learning is greatly influenced by the level of interactivity, classroom atmosphere, and cognitive activation provided by educators; Learning that is less interactive and does not adjust the characteristics of students has an impact on their weak ability to develop competence and understanding (Ministry of Education and Culture, 2023).

The need for interactive learning and activating students' cognition directs attention to the use of innovative media such as narrative podcasts. Empirical studies show that story-structured audio media is able to increase engagement and facilitate the development of mental schemas because the flow, characters, and context of the audio help listeners organize information; Development and evaluation research found that instructionally designed podcasts increase the effectiveness of listening and learning engagement (Adawiyah & Damayanti, 2022). Studies that applied podcasts to history materials and PPKn also reported positive responses and increased understanding when podcasts were combined with supportive learning activities (Wahyuni et al., 2022; Fatihah et al., 2023).

Increasing understanding through narrative media requires a systematic learning framework so that the process of constructing meaning takes place optimally, one of which is through discovery learning. The literature asserts that this model effectively encourages the construction of meaning through exploration, verification, and generalization, but its success depends largely on the level of scaffolding provided; Meta-analysis shows that guided discovery is superior to unguided discovery because it reduces cognitive burden and strengthens knowledge transfer (Alfieri et al., 2011). Local research has also found that the application of discovery learning can improve concept understanding in various fields of study, but its implementation requires careful planning so that obstacles such as time constraints and student readiness can be overcome (Ainiyyah & Saraswati, 2023; Siregar, 2024).

This effective discovery learning framework opens up opportunities for integration with narrative podcast media as a contextual stimulus in the process of exploring and verifying concepts. Some relevant applied studies have indeed incorporated these elements, but they still leave gaps: research on podcasts generally focuses on listening skills and language domains, while discovery learning research often uses conventional tools such as LKPDs (Learner Worksheets) and laboratories; The systematic integration between narrative podcasts as a contextual stimulus and discovery learning as a framework for cognitive processes has not been widely tested quasi-experimentally in non-language subjects at the secondary level (Jamaludin & Saputra, 2021; Komariah & Jayanti, 2022; Revastia, 2025).

The research gap is the basis for affirming the scientific novelty of this article in the form of causal testing of the integration of discovery learning with narrative podcast media to improve students' conceptual comprehension (C2) skills, operationalized through paraphrasing, interpretation, example/non-example, and generalization

indicators, and measured using a Nonequivalent Control Group design with quantitative metrics such as pretest–posttest scores, N-Gain, and inferential statistical tests (Wahyuni et al., 2022; Fatihah et al., 2023).

The causal test was formulated in a research problem regarding the difference in the level of understanding between the application of discovery learning strategies assisted by narrative podcast media and the application of discovery learning without podcast support; The zero hypothesis states that there is no difference, while the alternative hypothesis states that there is a significant difference between the two conditions (Komariah & Jayanti, 2022).

The formulation of these problems and hypotheses leads the purpose of this article study to find out whether the integration of narrative podcast media in discovery learning strategies results in a significant improvement in the level of conceptual understanding of students compared to the application of discovery learning without podcasts.

METHODS

Method This research method uses a quasi-design-experiment with the Nonequivalent Control Group Design. This design was chosen because it corresponds to the field conditions in the school where the research was conducted, where the experimental class and the control class could not be determined at full random, but still allowed for a strong comparison between the two groups. The experimental group received treatment in the form of learning with a discovery learning strategy combined with narrative podcast media, while the control group only received learning with a discovery learning strategy without a podcast. This design is in line with previous research that emphasizes the importance of quasi-design-experiment to test the effectiveness of innovative learning media (Wahyuni et al., 2022). The research design used in this study is presented in Table 2.1 below.

Table 1. Research Design

Groups	Pretest	Treatment	Post Test
Experiments	O ₁	X (<i>Discovery Learning</i> + Narrative Podcast)	O ₂
Controls	O ₁	X (No Narrative Podcast)	O ₂

Description:

O₁ : pretest to measure the initial ability to understand concepts

X : Treatment with Discovery Learning Strategies through Narrative Podcast Media

O₂ : Final test (posttest) to measure the results of concept understanding after learning

The research subjects were students at the secondary level at the school where the research was located. Class selection is carried out purposively by considering the equality of initial characteristics, such as academic ability and educational background, so that the assumption of sample homogeneity can be met. This homogeneity is important so that the difference in learning outcomes can be attributed more to learning treatments, not to external factors. Similar research emphasizing sample homogeneity was also conducted in a study on the application of discovery learning in science subjects (Akihary, 2023).

The research instrument consists of a comprehension ability test designed to measure the cognitive domain of C2 according to the revised Bloom taxonomy. This test includes paraphrasing indicators, interpretation, giving examples and nonexamples, and generalization. In addition, student worksheets (LKPD), LKPD assessment rubrics, and guidelines for the use of narrative podcast media are used. The instruments are tested for validity and reliability before use, as is the practice carried out in diagnostic research to measure students' misconceptions and conceptual understanding (Safitri, Winarti, & Suharto, 2020).

The data collection procedure is carried out through several stages. First, a pretest was given to both groups to find out the initial abilities of the students. Second, the experimental group received learning with a narrative podcast-based discovery learning strategy, while the control group received learning with a discovery learning strategy without a podcast. Teachers act as facilitators who provide scaffolding according to the stages of discovery learning (stimulation, problem identification, data collection, data processing, verification, and generalization). Third, after the treatment was completed, both groups were given a posttest to measure the improvement in understanding. Documentation in the form of photos, observation notes, and LKPD results was also collected as supporting data. This procedure is in line with research that emphasizes the importance of exploratory and reflective activities in podcast-based learning (Revastia, 2025).

Data analysis is carried out quantitatively in several stages. First, the instrument is tested for validity and reliability. Second, a prerequisite test for analysis in the form of normality and homogeneity tests is carried out to ensure the suitability of the use of parametric statistical tests. Third, the improvement of understanding was analyzed by calculating pretest and posttest scores as well as N values-Gain for each group. Fourth, the difference in results between the experimental and control groups was tested using an independent t-test. If the prerequisites are not met, a nonparametric test is used as an alternative. This analysis follows quantitative research practices that assess the effectiveness of learning models on students' conceptual understanding (Kurniawan et al., 2025).

With a systematic research design, subject, instrument, data collection procedure, and analysis, this study is expected to provide empirical evidence on the effectiveness of integrating discovery learning strategies with narrative podcast media in improving students' conceptual understanding.

RESULTS

The research findings were obtained from quantitative data in the form of pretest and posttest results, N test-gains, as well as independent t-tests performed in the experimental class and the control class. The research instruments used have gone through validity and reliability tests. The results of the validity test showed that the pretest and posttest question items had a validity coefficient that was in the high category. For example, in the pretest validity test, an average score is obtained-The average correlation was 0.72, while in the posttest it was 0.75. The reliability test also showed good consistency with a pretest's Cronbach Alpha value of 0.81 and a posttest

of 0.84. Thus, test instruments are suitable to be used to measure students' conceptual comprehension abilities.

The pretest data shows that the initial abilities of students are relatively homogeneous. The average pretest score of the experimental class was 58.4, while the control class was 57.9. This difference is not significant, so it can be concluded that the two groups have comparable initial abilities. This is in accordance with the research assumption that the characteristics of the sample are homogeneous, especially in terms of initial ability and educational background.

After treatment, the posttest results showed a significant improvement in the experimental class. The average posttest score of the experimental class reached 82.6, while the control class only reached 74.2. This improvement suggests that the use of narrative podcasts in discovery learning is more effective.

The N-Gain analysis corroborates the findings. The average N-Gain value of the experimental class was 0.62 which was in the medium to high category, while the control class only reached 0.41 which was in the low to medium category. Based on the N-Gain criteria, this shows that the increase in students' understanding is greater in the experimental class. These findings are in line with research by Adawiyah & Damayanti (2022) which confirms that narrative podcasts are able to increase the effectiveness of comprehension through a coherent story structure.

Table 2. Independent Sample T-Test Results

		Levene's Test for Equality of Variances		T-test for Equality of Means				
		F	Sig.	t	df	Sig. (2- tailed)	Mean Difference	Std. Error Difference
Learning Outcomes	Equal Variances Assumed	2.964	.090	2.270	62	.027	4.750	2.092
	Equal Variances Not Assumed			2.270	58.637	.027	4.750	2.092

An independent t-test was performed to determine the significance of the difference between the experimental and control classes. Based on Table 3.1, it can be concluded that the test results show a significance value (Sig. 2-tailed) of $0.027 < 0.05$, so that the null hypothesis (H_0) is rejected and the alternative hypothesis (H_1) is accepted. Thus, there is a significant difference in the level of understanding between the application of discovery learning using narrative podcasts and without using narrative podcasts. These findings support the research results of Fatihah et al. (2023) who reported that podcasts can improve students' understanding of concepts in PPKn learning.

In addition to quantitative data, the documentation of the learning process shows that students in the experimental class are more active in asking questions, discussing, and drawing conclusions. This is different from the control class which tends to be passive and only follows the teacher's direction. This observation is consistent with the

research of Revastia (2025) which reported that junior high school students responded positively to podcast-based learning because the method was considered more interesting and motivating.

Overall, the results of this study show that the integration of narrative podcasts in discovery learning can increase student engagement while strengthening their conceptual understanding. These findings are in line with the constructivist theories of Piaget (1952) and Vygotsky (1978), who emphasized that understanding arises from active construction processes and social interactions with scaffolding supports. In this study, narrative podcasts serve as an initial stimulus that triggers curiosity, while the discovery learning stage helps students process information systematically.

DISCUSSION

The results showed that the application of discovery learning strategies combined with narrative podcast media provided a significant increase in the level of students' understanding compared to the application of discovery learning without podcasts. These findings are in line with the framework of thinking built in the research, where narrative podcasts serve as contextual stimuli that spark learners' curiosity and emotional engagement, while discovery learning provides a cognitive structure for processing information exploratively and reflectively. Thus, the combination of the two results in a more meaningful and in-depth learning process.

Measurable improvement in understanding through pretest–posttest scores and N-Gain scores in the experimental class showed that the integration of narrative podcasts was able to strengthen conceptual understanding (C2) indicators, such as the ability to reinterpret ideas, interpret phenomena, provide examples and non-examples, and compile generalizations. This is consistent with the research of Adawiyah & Damayanti (2022) who found that narrative podcasts increase learning engagement and the effectiveness of comprehension in listening material. In the context of this study, the audio narration presented through podcasts helps students build mental representations of Pancasila material, so that they can more easily understand abstract concepts.

In addition, the results of this study also support the findings of fatihah et al. (2023) who reported that the use of podcasts in PPKn learning in universities is able to improve students' understanding of concepts. The similarity of these findings shows that narrative podcasts have the potential across educational levels, both at the secondary and tertiary levels, to simplify complex concepts through a coherent storyline. In this study, junior high school students who previously had difficulty understanding the basic material of Pancasila were able to more easily relate new information to their initial knowledge thanks to contextual narratives.

The research findings also strengthen the results of the study by Wahyuni et al. (2022) which show that the use of podcast-based inquiry learning models in history learning increases students' creativity and learning outcomes. In this study, narrative podcasts not only function as a medium for conveying information, but also as a spark for exploration in the discovery learning stage. Students are encouraged to ask questions, conduct analysis, and draw conclusions based on the narrative they listen to.

Thus, narrative podcasts reinforce the exploratory process that is at the core of discovery learning.

When compared to the Revastia (2025) study, which reported the positive response of junior high school students to listening learning through podcast-based discovery learning, the results of this study provide stronger quantitative evidence through quasi-design-experiment. Revastia emphasizes the motivation and involvement aspects, while this study adds a dimension of measuring conceptual understanding with valid and reliable test instruments. Thus, the study not only confirmed the positive response of the learners, but also showed a marked improvement in their cognitive abilities.

From a theoretical perspective, the results of this study support the constructivist view of Piaget (1952) and Vygotsky (1978) who emphasized that understanding arises from an active construction process through social interaction and the help of more competent individuals. In this study, narrative podcasts serve as an initial stimulus that triggers the process of assimilation and accommodation, while teacher scaffolding in the discovery learning stage helps students internalize meaning. This is in line with Vygotsky's concept of zone of proximal development (ZPD), where learners can achieve a higher level of understanding with the right support.

The results of the study are also consistent with the meta-analysis by Alfieri et al. (2011) which shows that guided discovery learning is more effective than unguided discovery. In this study, teachers provide scaffolding in the form of directions, examples, and feedback during the learning process, so that students do not experience excessive cognitive load. Narrative podcasts act as a medium that makes it easier to prepare information schemes, so that cognitive burden can be minimized. Thus, the combination of narrative podcasts and guided discovery learning results in more efficient and effective learning.

Meanwhile, Akihary's (2023) research applies discovery learning in the fields of chemistry and biology, the results of this study show consistency in improving concept understanding. However, this research makes a new contribution by utilizing narrative podcasts as a learning medium, not just worksheets or laboratory activities. This expands the scope of the application of discovery learning by showing that narrative-based audio media can also be effective in improving conceptual understanding of social subjects such as Pancasila.

Komariah & Jayanti's (2022) research highlights that most discovery learning research still uses conventional learning tools and assesses learning outcomes through traditional cognitive tests. This study complements these findings by showing that the integration of digital media such as narrative podcasts can enrich learning experiences and provide more meaningful outcomes. Thus, this research contributes to the development of digital education theory by emphasizing the importance of integrating innovative media in constructivist learning models.

From the perspective of comprehension ability, the results of this study are also in line with the findings of Safitri et al. (2020) which show that many students experience misconceptions in chemical materials due to difficulties in interpretation. In this study, the use of narrative podcasts helped students reduce misconceptions by providing a clear and easy-to-follow narrative context. This shows that story-based media can be an

effective strategy to overcome the interpretation difficulties that often arise in learning abstract concepts.

The research of Tias et al. (2024) which uses the concept attainment model to improve understanding of mathematical concepts is also relevant to the findings of this study. Both emphasized the importance of learning strategies that allow students to rephrase concepts with words-own words and group them by attributes. In this study, narrative podcasts function as a stimulus that makes it easier for students to rearrange the concept of Pancasila in their own language, so that the C2 comprehension indicator can be achieved.

In addition, Kurniawan et al.'s research (2025) emphasizes that learning design that is tailored to the characteristics of students affects the level of understanding. The results of this study support these findings by showing that the use of narrative podcasts is in accordance with the characteristics of junior high school students who are more interested in audio media-Short and narrative visuals. Thus, the integration of narrative podcasts in discovery learning is a form of adaptation of learning design that is relevant to the needs of students.

Overall, the results of this study show that the integration of discovery learning strategies with narrative podcast media is effective in improving students' conceptual understanding. These findings are consistent with constructivist theory and previous research, while also making a new contribution by demonstrating the effectiveness of narrative podcast media in non-language subjects at the secondary level. This research also affirms the importance of systematic instructional design, teacher scaffolding, and the integration of innovative media in learning to achieve deeper understanding.

Therefore, this study not only provides empirical evidence regarding the effectiveness of narrative podcasts in discovery learning, but also expands the scope of the digital and constructivist education literature. These findings can be the basis for the development of curriculum and learning strategies that are more adaptive to the characteristics of twentieth-century students-21, as well as making a theoretical contribution to the development of digital media-based learning models.

CONCLUSION

Based on the results of the research and discussions that have been conducted, it can be concluded that there is a significant difference in the level of understanding of students between classes that use discovery learning strategies assisted by audiovisual learning media and classes that use discovery learning strategies without the help of these media. The use of audiovisual learning media in discovery learning strategies has been proven to be able to improve students' understanding more optimally. This is because audiovisual media helps students understand the material more clearly, while discovery learning strategies encourage students to be active in discovering and constructing knowledge.

Thus, the integration between discovery learning strategies and audiovisual learning media can be used as an effective learning alternative in improving students' understanding of concepts. These results show that the success of learning is not only determined by the media used, but also by learning strategies that are able to activate students' thinking processes.

REFERENCE

- Adawiyah, S. R. A., & Damayanti, M. I. (2022). Pengembangan media pembelajaran audio podcast narasi menggunakan aplikasi anchor untuk pembelajaran menyimak teks fiksi di kelas V sekolah dasar. *Jurnal Penelitian Pendidikan Guru Sekolah Dasar*, 10(9).
- Ainiyyah, Z. F., & Saraswati, U. (2023). Pengaruh Model Discovery Learning Terhadap Kemampuan Berpikir Kritis Siswa Pada Materi Manusia dan Sejarah Kelas X IPS di MA Al Asror Tahun Pelajaran 2022/2023. *Historia Pedagogia*, 12(1), 34-43. <https://doi.org/10.15294/hisped.v12i1.65118>
- Akihary, W., Maruanaya, R. F., Lestuny, C., & Maruanaya, S. P. (2023). The YouTube-assisted discovery learning model: Improving students' cognitive learning outcomes and critical thinking. *Journal of Education and Learning (EduLearn)*, 17(4), 548-554. <https://doi.org/10.11591/edulearn.v17i4.20851>
- Alfieri, L., Brooks, P. J., Aldrich, N. J., & Tenenbaum, H. R. (2011). Does discovery-based instruction enhance learning?. *Journal of educational psychology*, 103(1), 1-18.
- Anderson, L. W., & Krathwohl, D. R. (2001). *A taxonomy for learning, teaching, and assessing: A revision of Bloom's taxonomy of educational objectives: complete edition*. California: Addison Wesley Longman, Inc.
- Bruner, J. S. (1961). *The act of discovery*. Harvard Educational Review, 31(1), 21–32.
- Fatihah, H., & Waluyati, S. A. (2023). Podcast Sebagai Media Pembelajaran Era Digital Di Perguruan Tinggi. *Bhineka Tunggal Ika: Kajian Teori Dan Praktik Pendidikan PKn*, 10(1), 87-95. <https://doi.org/10.36706/jbti.v10i1.20441>
- Hutahaean, C. N., & Juhana, A. (2023). Study Literature Review: Pemanfaatan Podcast sebagai Media Edukasi dalam Dunia Pendidikan. *Edudikara: Jurnal Pendidikan dan Pembelajaran*, 8(3), 134-138. <https://doi.org/10.32585/edudikara.v8i3.348>
- Jamaludin, Z. Z., & Saputra, E. R. (2021). Pengembangan podcast dengan model Addie pada materi cerita rakyat sebagai sumber belajar berbasis audio. *Jurnal Teknologi Pendidikan: Jurnal Penelitian Dan Pengembangan Pembelajaran*, 6(2), 120-127. <https://doi.org/10.33394/jtp.v6i2.3887>
- Kapur, M. (2014). Productive failure in learning math. *Cognitive science*, 38(5), 1008-1022. <https://doi.org/10.1111/cogs.12107>
- Ministry of Education, Culture, Research, and Technology. (2023). Learning Outcomes of Pancasila Education Phase D. Ministry of Education and Culture.
- Komariah, S., & Jayanti, U. N. A. D. (2022). The Effect of Discovery Learning on Students' Conceptual Understanding of Cell. *Jurnal Pendidikan MIPA*, 23(4), 1900-1915. <https://doi.org/10.23960/jpmipa/v23i4.pp1900-1915>
- Kurniawan, C., Surahman, E., Utami, D. D., & Nordin, R. M. (2025). Attempts to Harness AI Model in Online Differentiated Learning on Students' Understanding Levels. *JTP-Jurnal Teknologi Pendidikan*, 27(2), 587-597. <https://doi.org/10.21009/jtp.v27i2.54400>
- Mardi, M., Putri, D. E., Yasmanelly, Y., & Syofiani, S. (2025). Efektivitas Podcast Edukatif sebagai Media Inovasi Pembelajaran Bahasa Indonesia di Era Digital. *Edu Cendikia: Jurnal Ilmiah Kependidikan*, 5(02), 481-493. <https://doi.org/10.47709/educendikia.v5i02.6711>

- Nantana, M. G. R., & Wiradimadja, A. (2023). Inovasi belajar abad 21 melalui pengembangan media podcast pembelajaran IPS berbasis instagram. *JIPSINDO*, 10(1), 69-87. <https://doi.org/10.21831/jipsindo.v10i1.57702>
- Permatasari, I., & Jambak, M. I. (2024). Faktor Sistem Interaksi Penggunaan Aplikasi Podcast untuk Pembelajaran: Narrative review. *Jurnal Software Engineering and Computational Intelligence*, 2(01), 59-65. <https://doi.org/10.36982/jseci.v2i01.4264>
- Piaget, J. (1952). *The origins of intelligence in children*. New York: International Universities Press.
- Qonitah, F. N. M., Syaifuddin, S., & Madyan, S. (2024). Pengaruh model discovery learning terhadap hasil belajar peserta didik. *Vicratina: Jurnal Pendidikan Islam*, 9(7), 118–136.
- Revastia, R. (2025). Students' Reactions Toward Teaching Listening Through Discovery Learning Using Podcast. *PROJECT (Professional Journal of English Education)*, 8(1), 14-20.
- Saeedakhtar, A., Haqju, R., & Rouhi, A. (2021). The impact of collaborative listening to podcasts on high school learners' listening comprehension and vocabulary learning. *System*, 101, 102588. <https://doi.org/10.1016/j.system.2021.102588>
- Safitri, L., Winarti, A., & Suharto, B. (2020). Analisis pemahaman konsep makroskopik-submikroskopik-simbolik menggunakan pendekatan submikroskopik pada materi larutan asam basa. *JCAE (Journal of Chemistry And Education)*, 4(1), 16-23. <https://doi.org/10.20527/jcae.v4i1.527>
- Sugiyono, D. (2013). *Metode penelitian pendidikan pendekatan kuantitatif, kualitatif dan R&D*. Bandung: Alfabet.
- Vygotsky, L. S. (1978). *Mind in society: The development of higher psychological processes* (Vol. 86). Cambridge: Harvard University Press.
- Wahyuni, A., Sumanggar, P., Ekawarna, E., & Gano-an, J. C. (2022). Improving student creativity and Learning outcomes through the podcast-based inquiry Learning model. *Jurnal Pendidikan Ilmu Sosial*, 32(2), 201-212. <https://doi.org/10.23917/jpis.v32i2.20321>