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THE DEVELOPMENT OF A TREFFINGER MODEL BASED ON HYBRID LEARNING ON THE BHINEKA TUNGGAL IKA (PPSPS) THEME FOR THE FOURTH GRADE OF ELEMENTARY SCHOOL

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ABSTRACT

The objective of this research is to develop a learning model in the Project of Pancasila Student Profile Strengthening (PPSPS). This model is a Treffinger model based on hybrid learning for elementary school students. The development of a Treffinger model based on hybrid learning in this research used a development model adapted from Plomp (1997). The development model by Plomp has five main stages, including (1) preliminary investigation, (2) design, (3) realization/construction, (4) test, evaluation, and revision, and (5) implementation. The subjects of this research were the students in class 4A and 4B of Muhammadiyah Elementary School (MES) 1 Babat. The instruments used were student learning outcomes and student responses to the learning process. The validation instruments in this research were the validation tests of the lesson plans/teaching modules, students worksheets, student books, model books, and assessment instruments. Based on the results of preliminary study, a hybrid-learning-based Treffinger model was designed. The model design in this study included (1) model book design, (2) design of learning components (student books, teaching modules, worksheets), and (3) instrument design to obtain data in the model development process. The development of the Treffinger model based on hybrid learning was tested for the validity, resulting in a percentage of 92%, whereas the effectiveness was tested based on teacher observations resulting in a percentage of 93%. The learning outcomes had a percentage of 83%, and the practicality test based on student responses resulted in a percentage of 97%. Based on these research results, the development of the Treffinger Model based on hybrid learning is considered suitable for use.

Keywords: elementary school students; hybrid learning model; treffinger model

INTRODUCTION

Educational progress is related to the context of students' lives and the challenges of the Indonesian nation in the 21st century, which is facing the industrial revolution 4.0.[1,2] In the independent curriculum at the primary school level, there is co-curricular learning (PPSPS) which aims to achieve-competencies in the profile of Pancasila student.[3]

[1] Rizka Novi Irmaningrum, Zativalen Oriza, and A.F. Suryaning Ati MZ, "The Development of E-Comics Media Based on the Vark Model to Measure the Understanding of Elementary School Students," *EDUHUMANIORA: Jurnal Pendidikan Dasar Islam* 15, no. 1 (January 2023): 81–90, https://doi.org/10.17509/eh.v15i1.51780.

[2] Vaishnavi Pandey et al., "Accelerating the Renewable Energy Sector Through Industry 4.0: Optimization Opportunities in The Digital Revolution," *International Journal of Innovation Studies* 7, no. 2 (June 1, 2023): 171–88, https://doi.org/10.1016/j.ijis.2023.03.003.

[3] Kemdikbudristekdikti, Panduan Pengembangan Projek Penguatan Profil Pelajar Pancasila (Jakarta: Kemdikbudristekdikti, 2022), https://kurikulum.kemdikbud.go.id/file/1679308669_manage_file.pdf.

Indonesian students are expected to have the competencies to become citizens with character, excellence, and productivity in the 21st century.[4,5,6] Continuous learning to apply innovative strategies that enhance 21st century-skills.[7] 21st century skills include critical thinking, problem solving, creative thinking, and cooperative work skills.[8,9,10]

At the elementary school level, the curriculum currently used is the independent curriculum. The independent curriculum has three learning areas, including intracurricular, extracurricular, and co-curricular learning.[11] This curriculum is an effort to reform the education system to improve student character.[12] Co-curricular activities are activities at school carried out by students to strengthen, deepen, or enrich the subjects they have studied in extra-curricular activities.[13,14] One of the co-curricular activities is the PPSPS which is designed to reinforce the efforts to achieve the competencies and characters that are in accordance with the Pancasila student profile prepared based on the

[4] José Edgardo Abaya Gomez Jr., "The Size of Cities: A Synthesis of Multi-Disciplinary Perspectives on The Global Megalopolis," *Progress in Planning*, The Size of Cities: A Synthesis of Multi-Disciplinary Perspectives on the Global Megalopolis, 116 (August 1, 2017): 1–29, https://doi.org/10.1016/j.progress.2016.03.001.

[5] Mulundumina Shimaponda-Nawa and Glen T. Nwaila, "Integrated and Intelligent Remote Operation Centres (I2ROCs): Assessing The Human–Machine Requirements for 21st Century Mining Operations," *Minerals Engineering* 207 (February 1, 2024): 108565, https://doi.org/10.1016/j.mineng.2023.108565.

[6] Halah Ahmed Alismail, "Teachers' Perspectives of Utilizing Distance Learning to Support 21st Century Skill Attainment for K-3 Elementary Students during the COVID-19 Pandemic Era," *Heliyon* 9, no. 9 (September 1, 2023): e19275, https://doi.org/10.1016/j.heliyon.2023.e19275.

[7] Ahmed Alismail.

[8] Atilla Dilekçi and Halit Karatay, "The Effects of The 21st Century Skills Curriculum on The Development of Students' Creative Thinking Skills," *Thinking Skills and Creativity* 47 (March 1, 2023): 101229, https://doi.org/10.1016/j.tsc.2022.101229.

[9] Tang Tang, Valentina Vezzani, and Vikki Eriksson, "Developing Critical Thinking, Collective Creativity Skills and Problem Solving Through Playful Design Jams," *Thinking Skills and Creativity* 37 (September 1, 2020): 100696, https://doi.org/10.1016/j.tsc.2020.100696.

[10] Elif Aladağ, Alaattin Arıkan, and Hatice Özenoğlu, "Nature Education: Outdoor Learning of Map Literacy Skills and Reflective Thinking Skill Towards Problem-Solving," *Thinking Skills and Creativity* 40 (June 1, 2021): 100815, https://doi.org/10.1016/j.tsc.2021.100815.

[11] Restu Mufanti, Don Carter, and Neil England, "Outcomes-Based Education in Indonesian Higher Education: Reporting on the Understanding, Challenges, and Support Available to Teachers," *Social Sciences & Humanities Open* 9 (January 1, 2024): 100873, https://doi.org/10.1016/j.ssaho.2024.100873.

[12] AF Suryaning Ati MZ et al., "Grandparenting Pembentukan Karakter Siswa Sekolah Dasar Pada Pelaksanaan Pembelajaran Jarak Jauh (Pjj) Pada Masa Pandemi Covid-19," *Vox Edukasi* 13, no. 1 (April 19, 2022): 546957, https://doi.org/10.31932/ve.v13i1.1546.

[13] Shaikh Rezwan Rahman et al., "Effects of Co-Curricular Activities on Student's Academic Performance by Machine Learning," *Current Research in Behavioral Sciences* 2 (November 1, 2021): 100057, https://doi.org/10.1016/j.crbeha.2021.100057.

[14] Amanda Mogul, Elizabeth Laughlin, and Sarah Lynch, "A Co-Curricular Activity to Introduce Pharmacy Students to the Concepts of Innovation and Entrepreneurship," *American Journal of Pharmaceutical Education* 84, no. 8 (August 1, 2020): ajpe7805, https://doi.org/10.5688/ajpe7805.

Graduate Competency Standards.[15] The project to strengthen the Pancasila student profile has a theme as a determinant for every project implemented in the education unit. The PPSPS themes in the elementary school education unit include sustainable lifestyle, local wisdom, diversity, engineering and technology to build the Republic of Indonesia, and entrepreneurship.[16] The PPSPS theme in this research was the theme of diversity. Students recognize and promote a culture of peace and non-violence, learn to build respectful dialogues about diversity and the teaching values they adhere to.

The Pancasila student profile comprises some character traits and competencies that students are expected to achieve, which are based on the noble values of Pancasila.[17] The character of Pancasila student profile in the project to strengthen the Pancasila student profile consists of having faith in God Almighty and having noble character, global diversity, working together, being independent, thinking critically, and being creative. Indonesian students are expected to have the competencies to become citizens with character, excellence, and productivity in the 21st century.[18]

The results of field observations on July 8, 2023 showed that when the teachers conducted a self-development program, the students were given regular problem assignments or sent home earlier than usual. Once, when the school was conducting a teacher resource development, online learning was needed because it was impossible to serve students in face-to-face learning.[19,20,21,22] There was also a problem when the students were able to learn, but it was not possible to go to school, as was the case with

[15] Ija Suntana et al., "Ideological Distrust: Re-Understanding The Debate on State Ideology, Normalization of State-Religion Relationship, and Legal System in Indonesia," *Heliyon* 9, no. 3 (March 1, 2023), https://doi.org/10.1016/j.heliyon.2023.e14676.

[16] Kemdikbudristekdikti, *Panduan Pengembangan Projek Penguatan Profil Pelajar Pancasila*.

[17] Nurhayati, Jamaris, and Sufyarma Marsidin, "Strengthening Pancasila Student Profiles in Independent Learning Curriculum in Elementary School," *International Journal Of Humanities Education and Social Sciences* 1, no. 6 (June 22, 2022), https://doi.org/10.55227/ijhess.v1i6.183.

[18] Dini Irawati et al., "Profil Pelajar Pancasila Sebagai Upaya Mewujudkan Karakter Bangsa," *Edumaspul: Jurnal Pendidikan* 6, no. 1 (March 1, 2022): 1224–38, https://doi.org/10.33487/edumaspul.v6i1.3622.

[19] Tianchen Sun, Glenndi Tjuandi, and Ji-Eun Kim, "Temporal Changes in Procrastination in Online and Face-to-Face Learning Environments," *International Journal of Industrial Ergonomics* 100 (March 1, 2024): 103546, https://doi.org/10.1016/j.ergon.2024.103546.

[20] Sun, Tjuandi, Kim

[21] Xiaomin Li and Wenyan Hu, "Peer Versus Teacher Corrections Through Electronic Learning Communities and Face-to-Face Classroom Interactions and EFL Learners' Passion for Learning, Speaking Fluency, and Accuracy," *Heliyon* 10, no. 4 (February 29, 2024), https://doi.org/10.1016/j.heliyon.2024.e25849.

[22] Sevcan Özöztürk et al., "The Effect of Online and Face-to-Face Active Learning Methods on Learning Attitudes," *Nurse Education Today* 129 (October 1, 2023): 105915, https://doi.org/10.1016/j.nedt.2023.105915.

COVID-19. Students are expected to continue learning and remain in control of learning to achieve the learning goals, and it is expected that lost learning will not occur. In learning that involves projects, students are required to think creatively.[23,24,25] By thinking creatively, they will be able to produce a project in accordance with the learning objectives.

The Treffinger model is a learning model with problems that must be solved. The preparation to solve the problems involves paying attention to important facts in the surrounding environment, then generating various ideas, and selecting the appropriate solution to be implemented in reality.[26] The Treffinger learning model consists of 3 important components, including understanding challenges, generating ideals, and preparing for actions.[27] The components of understanding challenges are determining goals, exploring data, and formulating problems. The component of generating ideals is generating ideas. The components of preparing for actions are developing solutions and building acceptance.[28] The preliminary data indicates that there is a need for a solution to the problem; therefore, the researchers develop a "hybrid-learning-based Treffinger" learning model which is expected to provide offline-online facilities and provide stimulus to enable students to think creatively in making the projects for learning.

[23] J Dowson, C Unterhitzenberger, and D J Bryde, "Facilitating and Improving Learning in Projects: Evidence from A Lean Approach," *International Journal of Project Management* 42, no. 1 (January 1, 2024): 102559, https://doi.org/10.1016/j.ijproman.2024.102559.

[24] Simegn Alemneh and Girma Gebrie, "The Role of Project-Based Learning In Improving The Writing Ability and Sub- Writing Abilities of 10th Grade Amharic Speaking Students.," *Social Sciences & Humanities Open* 9 (January 1, 2024): 100843, https://doi.org/10.1016/j.ssaho.2024.100843.

[25] Andreas Hartmann, Joanne Vinke-de Kruijf, and Ruben van Weesep, "Asking The Right Questions: The Role of Reflection for Learning in and Between Projects," *International Journal of Project Management* 41, no. 5 (July 1, 2023): 102494, https://doi.org/10.1016/j.ijproman.2023.102494.

[26] dkk Arifah, "Pengembangan Model Treffinger Berbasis Nilai Pendidikan Karakter Dalam Pembelajaran Menulis Teks Cerita Pendek Di SMA," *Journal Repository Upi*, 2023, 30–44.

[27] Huda, Miftahul. 2013. *Model-Model Pengajaran Dan Pembelajaran*. Yogyakarta: Pustaka pelajar.

[28] R. Handayani et al., "Development of Learning Tools Using Treffinger Learning Model to Improve Creative Thinking," *Journal of Physics: Conference Series* 1088, no. 1 (September 2018): 012090, https://doi.org/10.1088/1742-6596/1088/1/012090.

Hybrid learning is a learning method that combines online learning with face-to-face learning.[29,30,31,32] Teachers simultaneously conduct learning for students who study online and students who study in class by utilizing the existing technology.[33] In this study, the design of the learning model used was the Treffinger model based on hybrid learning which combined online and offline learning simultaneously. This learning model was used in the activities of the strengthening project of Pancasila student profile with the Bhinneka Tunggal Ika theme for class IV of elementary school in both online and offline modes. The final project to achieve was that students were able to hold an Indonesian Independence Day festival according to the topic taken, which was the Independence Day festival held in the odd semester.

The results of the research conducted by,[34] Showed that the Treffinger learning model is feasible and successfully applied in the learning process. According to.[35] The hybrid learning model in learning can improve understanding of the teaching material and improve student learning outcomes. The Treffinger learning model can meet the validity test requirements.[36] Developing a hybrid model can increase the competency of graduates

[29] Trisni Andayani, Harun Sitompul, and Julaga Situmorang, "Pengembangan Model Pembelajaran Hybrid Learning dengan Pendekatan Problem Based Learning pada Matakuliah Pengantar Sosiologi," *JUPIIS: Jurnal Pendidikan Ilmu-Ilmu Sosial* 12, no. 2 (December 6, 2020): 506, https://doi.org/10.24114/jupiis.v12i2.20155.

[30] Nyman Eija et al., "The Experiences of Health Sciences Students with Hybrid Learning in Health Sciences Education—A Qualitative Study," *Nurse Education Today* 132 (January 1, 2024): 106017, https://doi.org/10.1016/j.nedt.2023.106017.

[31] Chaman Verma, Zoltán Illés, and Deepak Kumar, "An Investigation of Novel Features for Predicting Student Happiness in Hybrid Learning Platforms – An Exploration Using Experiments on Trace Data," *International Journal of Information Management Data Insights* 4, no. 1 (April 1, 2024): 100219, https://doi.org/10.1016/j.jjimei.2024.100219.

[32] Nyman Eija et al., "The Experiences of Health Sciences Students with Hybrid Learning in Health Sciences Education—A Qualitative Study," *Nurse Education Today* 132 (January 1, 2024): 106017, https://doi.org/10.1016/j.nedt.2023.106017.

[33] Abdulhak, Ishak, ari Djohar, and Dinn Wahyudin. 2018. "The Development of Hybrid Learning Curriculum Model for Improving Teachers Competencies in Teacher Education Institutions in Indonesia and South Korea." *International Research Journal of Advanced Engineering and Science* 3 (1): 31–35.

[34] Arifah, Fitotun, "Pengembangan Model Treffinger Berbasis Nilai Pendidikan Karakter Dalam Pembelajaran Menulis Teks Cerita Pendek Di SMA," *Journal Repository Upi*, 2023, 30–44.

[35] Andayani, Sitompul, and Situmorang, "Pengembangan Model Pembelajaran Hybrid Learning dengan Pendekatan Problem Based Learning pada Matakuliah Pengantar Sosiologi," 506.

[36] Handayani et al., "Development of Learning Tools Using Treffinger Learning Model to Improve Creative Thinking."

at UPI.[37] The hybrid learning model can solve physics problems.[38] According to [39] these results of previous research show that the Treffinger and hybrid learning models can achieve the expected learning objectives.

The aim of this research was to develop a learning model in the project to strengthen the Pancasila student profile using the Treffinger model for elementary school students. The Treffinger model was developed with a hybrid learning model which combined online and offline learning by inviting students to think creatively in dealing with problems. The Treffinger model based on hybrid learning discussed the theme of Bhinneka Tunggal Ika (PPSPS) with the topic of Indonesian Independence Day for the fourth-grade elementary school students.

The difference from previous research was in the development of the Treffinger model based on hybrid learning for elementary schools with the Bhinneka Tunggal Ika (PPSPS) theme. The scope of this research was the independent variable, which was the Treffinger model based on hybrid learning. This independent variable was developed into a model with the most recent outcomes. The limitation of this research was that it was carried out only for the fourth-grade students of MES 1 Babat in the odd semester of the 2022/2023 academic year. This research was conducted on the PPSPS theme of Bhinneka Tunggal Ika with the topic of Indonesian Independence Day.

RESEARCH METHODS

The trial phase was carried out in two stages, namely a small-scale trial and large-scale trial.[40] The trial was carried out for class IV of elementary school in Semester 1 in August 2023. The small-scale trial was carried out at MES Sidoharjo with 5 students randomly selected. The large-scale trial was carried out at MES 1 Babat in the 1st semester in September 2023 for 2 classes each with 30 students.

[37] Ishak Abdulhak et al., "The Development of Hybrid Learning Curriculum Model for Improving Teachers Competencies in Teacher Education Institutions in Indonesia and South Korea," *International Research Journal of Advanced Engineering and Science* 3, no. 1 (2018): 31–35.

[38] Lestari et al., "Hybrid Learning on Problem-Solving Abiities in Physics Learning: A Literature Review," *Journal of Physics: Conference Series* 1796, no. 1 (February 2021): 012021, https://doi.org/10.1088/1742-6596/1796/1/012021.

[39] Sabina Ndiung et al., "The Effect of Treffinger Creative Learning Model with the Use Rme Principles on Creative Thinking Skill and Mathematics Learning Outcome," *International Journal of Instruction* 14, no. 2 (2021): 873–88, https://doi.org/10.29333/iji.2021.14249a.

[40] Sugiyono, *Metode Penelitian Kombinasi (Mixed Methods).* (Bandung: Alfabeta, 2011).

The researchers used the content validation instruments to provide information about the validity of the hybrid-learning-based Treffinger model. The content validity test was given to two validators. The content validation indicators include material content, language, and depth of material. The data collection regarding the practicality of the hybrid-learning-based Treffinger model was carried out in a small-scale trial and large-scale trial. The instrument used was a teacher response questionnaire regarding the use of books. The indicators of teacher response were the quality of the content of the model explanation, ease of implementation, appearance of the book, and suitability of the steps in the book.

The development of Treffinger model based on hybrid learning in this research used the development model adapted from Plomp (1997). The development model by Plomp has five main stages, including preliminary investigation, design, realization/ construction, expert validation test, trial, evaluation, revision, and implementation.[41] The following are the stages of developing a hybrid-learning-based Treffinger model.

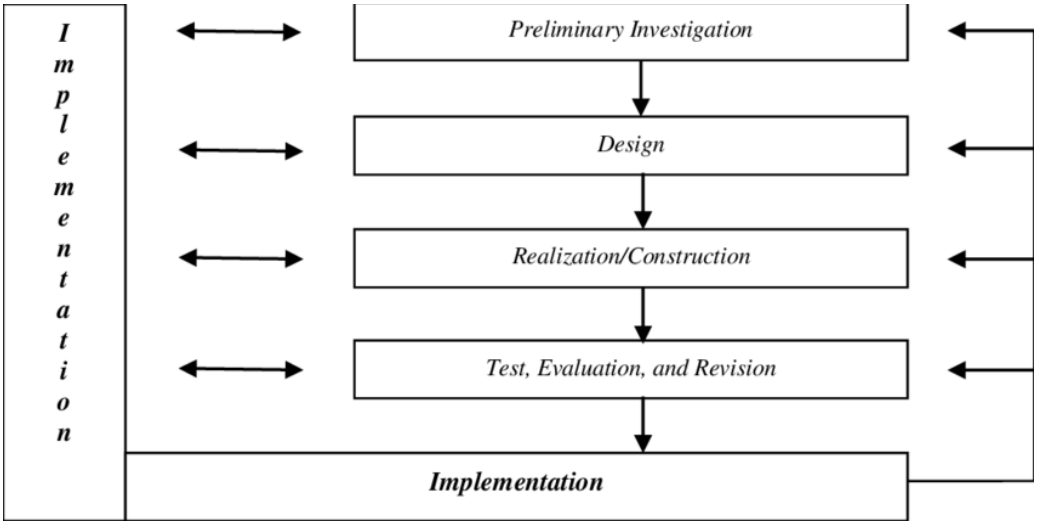


Figure 1
Plomp's Development Stage
Source : [42]

A preliminary investigation was carried out to examine and analyze the circumstances related to the implementation of the project to strengthen the profile of Pancasila students (PPSPS) and the theories related to its implementation the current

[41] T. X Plomp, *Educational and Training Systems Design: Introduction* (Enschede: University of Twente, Faculty of Educational Science and Technology Enschede., 1997).
[42] T. X Plomp, *Educational and Training Systems Design: Introduction* (Enschede: University of Twente, Faculty of Educational Science and Technology Enschede., 1997).

elementary school curriculum is the independent curriculum, which contains co-curricular learning or a project to strengthen the profile of Pancasila students. The PPSPS theme in this research was the unity in diversity with the topic of Indonesian Independence Day. The learning model was implemented in the project to strengthen the profile of Pancasila students. The learning components used were the student books, lesson plans, and worksheets as the supporting learning tools needed in the implementation of the learning model.

The students at the school where the study was conducted were in class IV of elementary school. The student analysis to be examined was the student character based on the Pancasila student profile in the dimensions of faithful, devoted to God Almighty with noble character; elements of religious morals and morals towards humans; global diversity, elements of acknowledging and appreciating the culture of the Indonesian nation and the world, independence; mutual cooperation; elements of collaboration and caring; independence; elements of understanding oneself and situations; critical reasoning, element of obtaining and processing information and ideas; creativity, elements of producing original ideas and producing original works and actions.[43] The needs of students and teachers in implementing the learning model were identified, and a review of the theories and learning models that support the development of models related to the problems found in the initial investigation was conducted.[44]

The hybrid-learning-based Treffinger model was designed by including the model book design, design of learning components (student books, teaching modules, worksheets), and instrument design to obtain data in the model development process.

The design of the model book included a description of the rationale for the Treffinger model based on hybrid learning, the supporting theories, the model components, and the instructions for implementing the model. The design of the learning model components included the student books, teaching module, and student worksheets

[43] Tri Astuti, Eko Handoyo, and Pranichayudha Rosulina, "Strengthening The Dimensions Of Pancasila Student Profile In School Mover In The Era Of Industrial Revolution 4.0," *Al-Bidayah : Jurnal Pendidikan Dasar Islam* 14, no. 2 (December 31, 2022): 295–314, https://doi.org/10.14421/albidayah.v14i2.837.

[44] Hossein Ghasempour Moqhadam, Moosa Piri, and Galavij Vafayi far, "Curriculum Assessment Need of Language Learning Skills in Pre Primary Schools in Order to Enter the First Grade of Elementary School Based on Tyler's Four Elements," *Procedia - Social and Behavioral Sciences*, 2nd Cyprus International Conference on Educational Research (CY-ICER 2013), 89 (October 10, 2013): 425–35, https://doi.org/10.1016/j.sbspro.2013.08.872.

(worksheets). The teaching module was designed by considering such aspects as emphasizing the creation of understanding (meaning), not memorization without understanding, and creating conditions that allow students to construct their knowledge both online and offline by applying the Treffinger model based on hybrid learning. The worksheets was designed by considering some factors, such as enabling students to achieve competencies according to the indicators or learning objectives set, allowing students to construct their knowledge, and supporting the emergence of brainstorming (brainstorming suggestions). The instrument design included instruments to assess the validity, practicality, and model effectiveness.

The results of the model design were then described in detail to become the realization/construction of the initial model or prototype. Model realization/ construction was the result of model development before testing the model validity. The results of the realization/construction of this model included drafts of the model book, student books, worksheets, teaching module, and model assessment instruments.

A model book is a successfully developed learning model packaged in the form of books.[45] The model book realized in developing this model consisted of three chapters. In chapter 1, the theoretical basis of the hybrid-learning-based Treffinger model was described, which included the background, learning model, learning approaches, learning strategies, and learning methods. The relationship between the models, approaches, strategies, and methods can be seen in Figure 2. In chapter 2, the Treffinger model based on hybrid learning was described which included the study of the Treffinger model based on hybrid learning,[22] basic principles of the Treffinger model based on hybrid learning, and components of the Treffinger model based on hybrid learning that consisted of syntax, social system, reaction principle, support system, as well as instructional impact and accompanying impact. A brief description of the five components of the hybrid-learning-based Treffinger model can be seen in Figure 1. In chapter 3, the instructions for implementing the hybrid-learning-based Treffinger model learning were outlined, which included preparing learning objectives for implementing learning, class organization, development of a Treffinger model based on hybrid learning, evaluation, preparation of

[45] Fitri Yuliawati and Siwi Aminah Pangestu, "Analysis of Teacher Errors in Applying The Problem-Based Leaning Model in The Teacher Professional Education Program-in-Service Program," *Al-Bidayah : Jurnal Pendidikan Dasar Islam* 14, no. 1 (2022): 81–94, https://doi.org/10.14421/albidayah.v14i1.1023.

learning tools (teaching modules and worksheets), and examples of teaching modules and worksheets.[46]

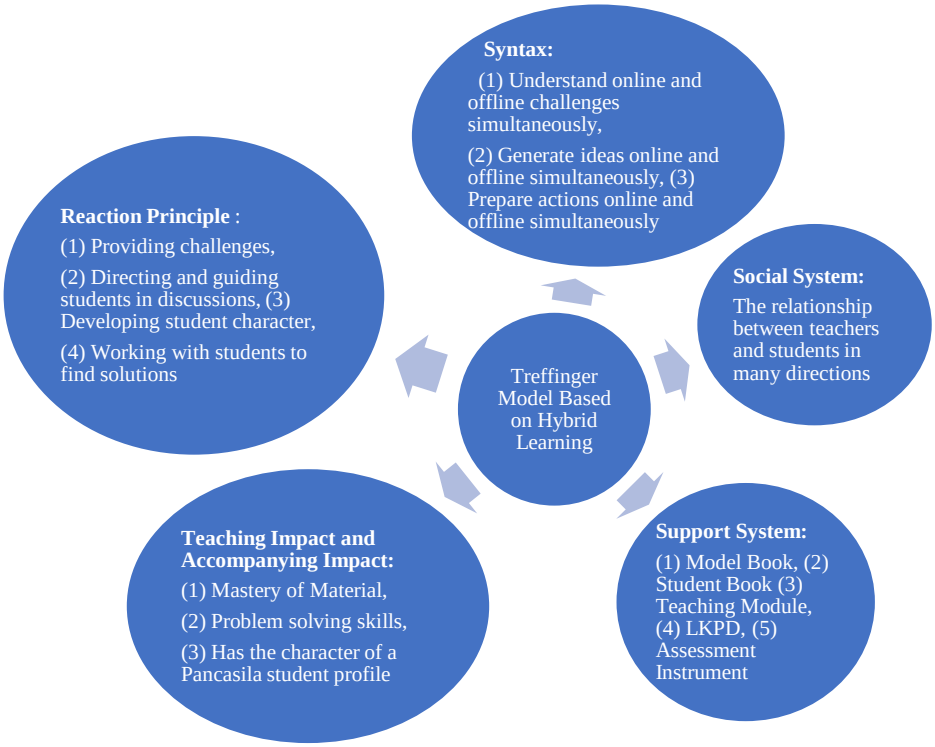


Figure 2
Treffinger Model Based on Hybrid Learning
Sources:[47]

Treffinger Model Based on Hybrid Learning	**Learning approaches** (Student Centered/ Constructivist)
	Learning strategies (Project Based Learning, Creative Problem Solving, Inquiry, Cooperative)
	Learning methods (Lectures, Questions and Answers, Discussions, Assignments, Projects, Problem solving, etc.)

Figure 3
Relationship between the Model, Approach, Strategy, and Method
Source :[48]

[46] B. Joyce, Marsha Weil, and Emily Calhoun, *Models of Teaching Model-Model Pengajaran* (Yogyakarta: Pustaka Pelajar, 2011).

[47] T. X Plomp, *Educational and Training Systems Design: Introduction* (Enschede: University of Twente, Faculty of Educational Science and Technology Enschede., 1997).

[48] T. X Plomp, *Educational and Training Systems Design: Introduction* (Enschede: University of Twente, Faculty of Educational Science and Technology Enschede., 1997).

There were several tests carried out, including expert validation test for assessing the validity of the model and model components (student books, lesson plans, and worksheets) and after successfully assessing the validity of the model and its components as well as revising the model, then a trial of the model and its components to obtain results on the practicality and effectiveness of the hybrid-learning-based Treffinger model.[49]

Table 1
Expert validation of the model components grid

Component	Criteria	Score		
		1	2	3
RPP / Teaching Module	Suitability of Learning Objectives			
	Suitability of Learning Steps			
	Conformity Assessment			
Worksheets	Fulfilling			
	Presentation			
	Language			
	Graphics			
Student book	Language			
	Contents			
	Effectiveness			
Model Book	Syntax			
	Language			
	Design			
Assessment Instrument	Suitability of learning objectives			
	Appropriateness			
	Usefulness			
Total				
Average				

Source : Personal Documents

The validator completed the table above with a score of 1 (poor), a score of 2 (good), and a score of 3 (very good). If the validation process resulted in a score of 1, there would be revisions according to the validator's suggestions.

The implementation stage was the stage of using the product of the hybrid-learning-based Treffinger model created in the implementation of the project to

[49] Sugiyono Sugiyono, *Metode Penelitian Kuantitatif, Kualitatif, Dan R&D*, 19 (Bandung: Alfabeta, 2013).

strengthen the profile of Pancasila students for the fourth-grade students of elementary school to instill student character.

Table 2
Student responses to the efficiency of Treffinger model based on hybrid learning

Criteria	Score Results		
	1 (less suitable)	2 (suitable)	3 (very suitable)
Interesting			
Pleasant			
Flexible			

Source : Personal Documents

RESULTS AND DISCUSSION

The implementation of the hybrid-learning-based Treffinger model research activities can be described as follows.

Initial investigations or initial studies are carried out to examine and analyze the conditions related to the implementation of learning.[50] In this research, an initial investigation was carried out for the project to strengthen the profile of Pancasila students (PPSPS) and theories related to its implementation[51] for class IV students of MES 1 Babat, which showed that:

The current elementary school curriculum is the independent curriculum, and one of which is the co-curricular learning or a project to strengthen the profile of Pancasila students. The PPSPS theme in this research was diversity with the topic of Indonesian Independence Day. The learning model implemented in the project to strengthen the profile of Pancasila students only focused on one character while it had to be able to achieve the learning objectives of at least two P3 characters. The learning component used was only a student's book without any other components. There should have been student books, teaching modules, worksheets, and assessments as the supporting learning tools needed in implementing the learning model.

The condition of the students at the school where the study was conducted was the students in class IV Semester 1 of Elementary School. The student analysis to be

[50] Brian Frank, Natalie Simper, and James Kaupp, "Formative Feedback and Scaffolding for Developing Complex Problem Solving and Modelling Outcomes," *European Journal of Engineering Education* 43, no. 4 (July 4, 2018): 552–68, https://doi.org/10.1080/03043797.2017.1299692.

[51] Zhong Sun et al., "Detecting the Correlation Between Mobile Learning Behavior and Personal Characteristics Among Elementary School Students," *Interactive Learning Environments* 26, no. 8 (November 17, 2018): 1023–38, https://doi.org/10.1080/10494820.2018.1428633.

examined was the character profile of Pancasila students in the following dimensions: belief, having faith in God Almighty, and having noble character, elements of religious morals and morals towards humans; global diversity, elements of knowing and appreciating the culture of the Indonesian nation and the world, independence; cooperation, elements of collaboration and care; independence; elements of self-understanding and situations; critical reasoning; elements of acquiring and processing information and ideas; creativity; elements of producing original ideas and producing original works and actions.

The needs of students and teachers in implementing the learning model were identified, and a review of the theories and learning models that supported the development of the model related to the problems found in the initial investigation was conducted.

The initial investigation in this research aimed to determine the background and initial abilities possessed by students. Based on the results of the initial investigation on the students of class IV semester 1 with the Bhinneka Tunggal Ika theme and the topic of Indonesian independence, it was found that there was a lack of interesting and motivating learning models for students, especially in PPSPS activities as new activities in the independent curriculum. The PPSPS activity guides students to be able to produce student characters that match the Pancasila student profile. This has moved the researchers to develop a new model that can produce students with character according to the goals they want to achieve.[52] The learning model was the Treffinger model based on hybrid learning. This model could overcome the background problem of class IV students at MES 1 Babat.

Based on the results of the initial study, a hybrid-learning-based Treffinger model was designed to include the model book design, design of learning components (student books, teaching modules, worksheets), and instrument design to obtain data in the model development process.[53]

[52] Chunyan Yang, George G. Bear, and Henry May, "Multilevel Associations Between School-Wide Social–Emotional Learning Approach and Student Engagement Across Elementary, Middle, and High Schools," ed. Tim Curby, *School Psychology Review* 47, no. 1 (March 1, 2018): 45–61, https://doi.org/10.17105/SPR-2017-0003.V47-1.

[53] Holly Hapke, Anita Lee-Post, and Tereza Dean, "3-in-1 Hybrid Learning Environment," *Marketing Education Review* 31, no. 2 (April 3, 2021): 154–61, https://doi.org/10.1080/10528008.2020.1855989.

The design of the model book included a description of the rationale for the Treffinger model based on hybrid learning, supporting theories, model components, and instructions for implementing the model. The design of the learning model components included student books, teaching module, and student worksheet (worksheets). The teaching module was designed by considering several aspects, such as emphasizing the creation of understanding (meaning), not memorization without understanding, and creating conditions that allowed students to construct their knowledge both online and offline by applying the Treffinger model based on hybrid learning.

The worksheets was designed by considering several factors, including enabling students to achieve competencies according to the indicators or learning objectives set, allowing students to construct their knowledge, and supporting the emergence of brainstorming (brainstorming suggestions). The instrument design included instruments to assess the validity, practicality, and model effectiveness.

The module and learning tool design stage is used to prepare the presentation of the module and learning tool development.[54] The development of hybrid-learning-based Treffinger model books and learning tools was done via Microsoft Word assisted using Canva and Corel applications.

The results of the model design were then described in detail to become the realization/ construction of the initial model or prototype.[55] The model realization/ construction was the result of previous model development before the model validity testing was carried out. The results of the realization/ construction of this model included drafts of the model book, student books, worksheets, teaching module, and model assessment instruments.

A model book is a successfully developed learning model packaged in the form of books.[56] The model book realized in the development of this model consisted of three

[54] Ayman Yafouz et al., "Hybrid Deep Learning Model for Ozone Concentration Prediction: Comprehensive Evaluation and Comparison with Various Machine and Deep Learning Algorithms," *Engineering Applications of Computational Fluid Mechanics* 15, no. 1 (January 1, 2021): 902–33, https://doi.org/10.1080/19942060.2021.1926328.

[55] Eva'atussalamah Eva'atussalamah, Agus Zainul Fitri, and Choiruddin Choiruddin, "Development of Thematic E-Modules Based on Al-Qur'an Verses to Improve Student Learning Outcomes," *Al-Bidayah : Jurnal Pendidikan Dasar Islam* 14, no. 2 (December 31, 2022): 279–94, https://doi.org/10.14421/albidayah.v14i2.793.

[56] Bill Lucas, "A Five-Dimensional Model of Creativity and Its Assessment in Schools," *Applied Measurement in Education* 29, no. 4 (October 1, 2016): 278–90, https://doi.org/10.1080/08957347.2016.1209206.

chapters. In chapter 1, the theoretical basis of the hybrid-learning-based Treffinger model was described, including the background, learning model, learning approaches, learning strategies, and learning methods.[57] In chapter 2, the Treffinger model based on hybrid learning was described, including the study of the Treffinger model based on hybrid learning, basic principles of the Treffinger model based on hybrid learning, and components of the Treffinger model based on hybrid learning which included syntax, social system, reaction principle, support system, as well as instructional impacts and accompanying impacts (description of the five components of the hybrid-learning-based Treffinger model).[58] In chapter 3, the instructions for implementing the hybrid-learning-based Treffinger model were outlined, which included preparing the design of learning objectives, implementing learning, organizing the class, developing the hybrid-learning-based Treffinger model, assessment, preparation of learning tools (teaching modules and worksheets), and examples of teaching modules and worksheets. In the realization stage, the researchers made a plan for the Treffinger Module based on hybrid learning as follows.

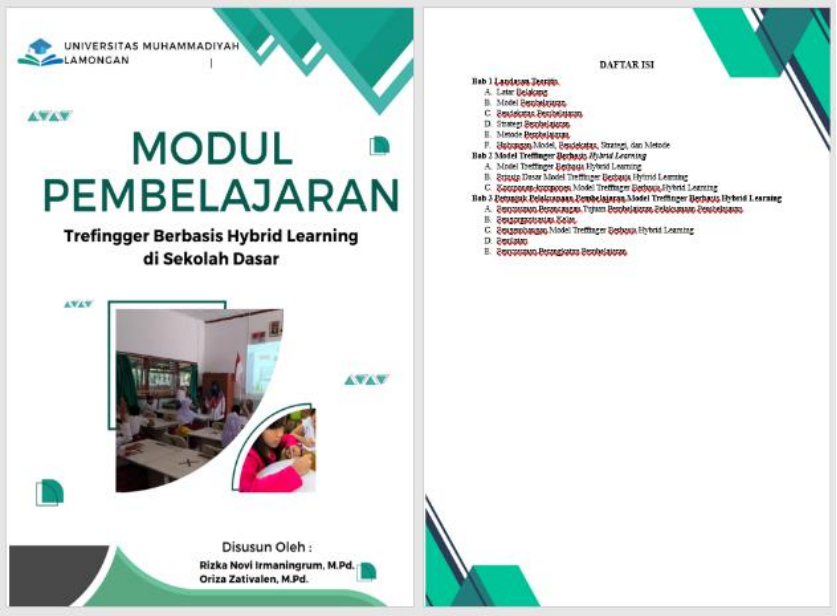


Figure 4
Creating a Treffinger Module Based on Hybrid learning
Source : Personal Documents

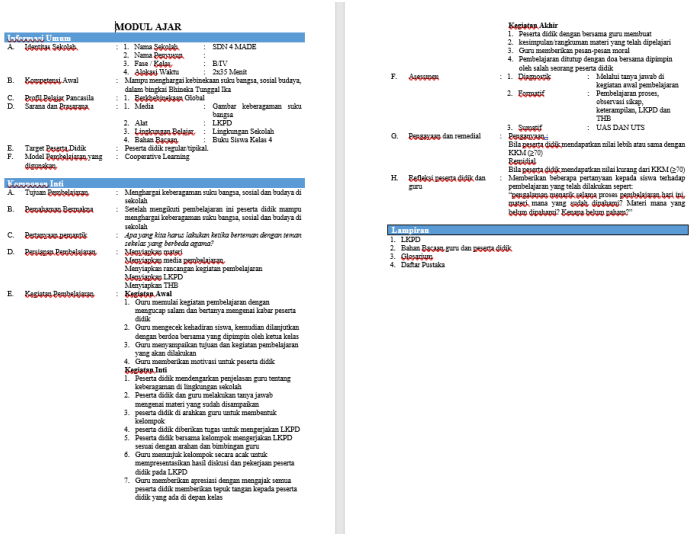
[57] Chin-Wen Chien, "Integration of Technical Vocabulary into Peer Observation of Teaching for Taiwanese Elementary School English Teachers' Professional Learning," *Education 3-13* 47, no. 2 (February 17, 2019): 176–90, https://doi.org/10.1080/03004279.2017.1420672.

[58] Jana-Michaela Timm and Matthias Barth, "Making Education for Sustainable Development Happen in Elementary Schools: The Role of Teachers," *Environmental Education Research* 27, no. 1 (January 2, 2021): 50–66, https://doi.org/10.1080/13504622.2020.1813256.

After creating the Treffinger module based on hybrid learning as a reference in creating a learning component design to reflect this, it contained the concept maps, learning outcomes, learning objectives, and learning materials listed in the student book as follows.

Figure 5
Student book with the Bhinneka Tunggal Ika theme for Class IV of Elementary School
Source : Personal Documents

After creating a Student Book, the next step was to create a Teaching Module as a reference for teachers in the project of strengthening Pancasila student profiles which contained general information, core components, and attachments as follows.[59]


MODUL AJAR

Informasi Umum

A. Identitas Sekolah
1. Nama Sekolah : SDN 4 MADE
2. Nama Penyusun :
3. Fase / Kelas : B/IV
4. Alokasi Waktu : 2x35 Menit

B. Kompetensi Awal : Mampu menghargai kebinekaan suku bangsa, sosial budaya, dalam bingkai Bhineka Tunggal Ika

C. Profil Pelajar Pancasila : 1. Berkebinekaan Global

D. Sarana dan Prasarana :
1. Media : Gambar keberagaman suku bangsa
2. Alat : LKPD
3. Lingkungan Belajar : Lingkungan Sekolah
4. Bahan Bacaan : Buku Siswa Kelas 4

E. Target Peserta Didik : Peserta didik regular tipikal.

F. Model Pembelajaran yang digunakan : Cooperative Learning

Komponen Inti

A. Tujuan Pembelajaran : Menghargai keberagaman suku bangsa, sosial dan budaya di sekolah

B. Pemahaman Bermakna : Setelah mengikuti pembelajaran ini peserta didik mampu menghargai keberagaman suku bangsa, sosial dan budaya di sekolah

C. Pertanyaan pemantik : *Apa yang kita harus lakukan ketika bersenyan dengan teman sebelas yang berbeda agama?*

D. Persiapan Pembelajaran : Menyiapkan materi
Menyiapkan media pembelajaran.
Menyiapkan rancangan kegiatan pembelajaran
Menyiapkan LKPD
Menyiapkan THB

E. Kegiatan Pembelajaran :
Kegiatan Awal
1. Guru memulai kegiatan pembelajaran dengan mengucap salam dan bertanya mengenai kabar peserta didik
2. Guru mengecek kehadiran siswa, kemudian dilanjutkan dengan berdoa bersama yang dipimpin oleh ketua kelas
3. Guru menyampaikan tujuan dan kegiatan pembelajaran yang akan dilakukan
4. Guru memberikan motivasi untuk peserta didik

Kegiatan Inti
1. Peserta didik mendengarkan penjelasan guru tentang keberagaman di lingkungan sekolah
2. Peserta didik dan guru melakukan tanya jawab mengenai materi yang sudah disampaikan
3. peserta didik di arahkan guru untuk membentuk kelompok
4. peserta didik diberikan tugas untuk mengerjakan LKPD
5. Peserta didik bersama kelompok mengerjakan LKPD sesuai dengan arahan dan bimbingan guru
6. Guru menunjuk kelompok secara acak untuk mempresentasikan hasil diskusi dan pekerjaan peserta didik pada LKPD
7. Guru memberikan apresiasi dengan mengajak semua peserta didik memberikan tepuk tangan kepada peserta didik yang ada di depan kelas

Kegiatan Akhir
1. Peserta didik dengan bersama guru membuat
2. kesimpulan/rangkuman materi yang telah dipelajari
3. Guru memberikan pesan-pesan moral
4. Pembelajaran ditutup dengan doa bersama dipimpin oleh salah seorang peserta didik

F. Asesmen :
1. Diagnostik : Melalui tanya jawab di kegiatan awal pembelajaran
2. Formatif : Pembelajaran proses, observasi sikap, keterampilan, LKPD dan THB
3. Sumatif : UAS DAN UTS

G. Pengayaan dan remedial : Pengayaan :
Bila peserta didik mendapatkan nilai lebih atau sama dengan KKM (≥70)
Remidial
Bila peserta didik mendapatkan nilai kurang dari KKM (≥70)

H. Refleksi peserta didik dan guru : Memberikan beberapa pertanyaan kepada siswa terhadap pembelajaran yang telah dilakukan seperti:
"pengalaman menarik selama proses pembelajaran hari ini, materi, mana yang sudah dipahami? Materi mana yang belum dipahami? Kesan belum paham?"

Lampiran
1. LKPD
2. Bahan Bacaan guru dan peserta didik
3. Glosarium
4. Daftar Pustaka

Figure 6
Teaching module on the theme of Bhinneka Tunggal Ika (PPSPS)
Source : Personal Documents

[59] Sam Hubley et al., "The Impact of Entertainment Education for Social and Emotional Learning in Elementary Schools," *American Journal of Health Education* 51, no. 5 (September 2, 2020): 299–309, https://doi.org/10.1080/19325037.2020.1795751.

After creating the teaching module, the next step was creating an worksheets which contained the learning outcomes, learning objectives, materials, steps for use, and sheets for students working on assignments given by the teacher as follows.[60]

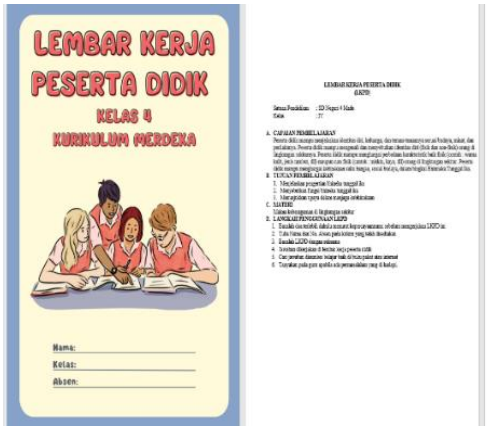


Figure 7
Worksheets with the Bhinneka Tunggal Ika (PPSPS) theme
Source : Personal Documents

The hybrid-learning-based Treffinger model assessments included the diagnostic, formative, and summative aspects as follows.

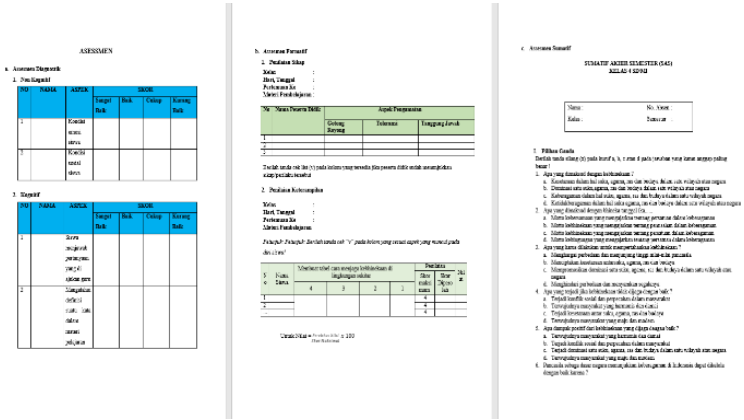


Figure 8
Instrument for assessing the Bhinneka Tunggal Ika (PPSPS) theme
Source : Personal Documents

There were several tests carried out, including (1) the expert validation test to assess the validity of the model and model components (student books, lesson plans, worksheets).[61]

[60] Salma Laleka, "Developing Multilevel School Leadership for Instructional Improvement in Elementary Schools of Post-Colonial Pakistan," *International Journal of Leadership in Education* 22, no. 2 (March 4, 2019): 222–36, https://doi.org/10.1080/13603124.2018.1543563.

[61] Ming-Yueh Hwang, Jon-Chao Hong, and Yung-Wei Hao, "The Value of CK, PK, and PCK in Professional Development Programs Predicted By The Progressive Beliefs of Elementary School

Table 3
Results of expert validation of model components

Component	Criteria	Appraiser I	Assessor II
RPP / Teaching Module	Suitability of learning objectives	3	3
	Suitability of Learning Steps	3	3
	Conformity Assessment	3	3
Worksheets	Fulfilling	3	3
	Presentation	3	2
	Language	2	3
	Graphics	2	2
Student book	Language	3	2
	Contents	3	3
	Effectiveness	3	3
Model Book	Syntax	3	3
	Language	2	2
	Design	3	2
Assessment Instruments	Suitability of learning objectives	3	3
	Appropriateness	3	3
	Usefulness	3	3
Total		28.12	27.5
Average		2.78	

Source : Personal Documents

Based on Table 1, the components of the RPP/teaching module, worksheets, student books, model book, and assessment instruments received an average of 2.78 from assessor I and assessor II with criteria 1 being not good, 2 being good, and 3 being very good. This validation result shows that 92.7% of the model components can be used or are feasible in the model development research.[62]

The implementation stage was the stage of using the product of the Treffinger model based on hybrid learning on the theme of Bhinneka Tunggal Ika (PPSPS) for the

Teachers," *European Journal of Teacher Education* 41, no. 4 (August 8, 2018): 448–62, https://doi.org/10.1080/02619768.2018.1471463.

[62] Rizka Novi Irmaningrum and Linaria Arafatul Ilmi Uswatun Khasanah, "Pengaruh Media Video Terhadap Hasil Belajar Kognitif Siswa Kelas V Sekolah Dasar," *TANGGAP : Jurnal Riset Dan Inovasi Pendidikan Dasar* 2, no. 1 (November 30, 2021): 50–63, https://doi.org/10.55933/tjripd.v2i1.272.

fourth-grade students of elementary school. This implementation stage cannot be carried out before the validation test stage is completed.[63]

The development of Treffinger model based on hybrid learning on the theme of Bhinneka Tunggal Ika was tested on class IV students in two study groups, A with a total of 23 students and B with a total of 25 students of MES 1 Babat. In this study, the fourth-grade teachers of MES 1 Babat were observed by two observers from the author's partner.

Table 4
Teacher observations for the Treffinger model based on hybrid learning

Criteria	**Percent Score**	
	Teacher I	**Teacher II**
Application	8	8
Practicality	8	9
Teacher Understanding	9	8
Total	25	25
Average	8.33	

Source : Personal Documents

Based on the data in Table 2, the teacher observations in using the hybrid-learning-based Treffinger model yielded an average of 8.33 with a percentage of 93%. Teacher observation is conducted to examine the effectiveness of learning. This teacher observation has several criteria, such as implementation, practicality, and teacher understanding.[64] This shows that the teacher's response to the Treffinger model based on hybrid learning is suitable for use.[65]

The student learning outcome tests for class A and class B were seen from the increase in Meeting I and Meeting II to determine the effectiveness of learning.

[63] Cong Khanh Nguyen et al., "Development and Psychometric Evaluation of The Interpersonal Problem-Solving Inventory for Vietnamese Elementary School Students," *International Journal of School & Educational Psychology* 11, no. 1 (January 2, 2023): 60–71, https://doi.org/10.1080/21683603.2021.1945511.

[64] Karen Kerr, "Teacher Development Through Coteaching Outdoor Science and Environmental Education Across The Elementary-Middle School Transition," *The Journal of Environmental Education* 51, no. 1 (January 2, 2020): 29–43, https://doi.org/10.1080/00958964.2019.1604482.

[65] Rizka Novi Irmaningrum, Oriza Zativalen, and M. Arif Nur Hidayat, "Analisis Metode Brainstorming dalam Kemampuan Berpikir Kritis pada Mata Kuliah Landasan Pedagogik Mahasiswa PGSD," *Jurnal Ilmiah PENDAS: Primary Educational Journal* 4, no. 1 (June 20, 2023): 1–10, https://doi.org/10.29303/pendas.v4i1.2981.

Table 5
Results of Learning Tests I and II

Class	Meeting	Average Results
A	I	75.5
	II	88.8
B	I	73.4
	II	97.4

Source : Personal Documents

The tests of learning outcomes I and II showed that there was an increase from meeting I to meeting II. The evidence of the increase was shown by the average result of class A in meeting I and meeting II of 75.5 and 88.8, respectively, while in class B, meeting I had 73.4 with an increase in meeting II of 97.4. The increase in the learning outcome test in class A is 82% and 85% in class B. Based on the teacher observations and student learning outcomes tests, it is proven that the effectiveness of the model is deemed feasible. This is proven by the implementation of the hybrid-learning-based Treffinger model carried out by the teachers. This results in increased student learning outcomes.[66]

After successfully assessing the validity of the model and its components as well as revising the model, a trial and implementation of the model and its components was then carried out to obtain results on the effectiveness of the hybrid-learning-based Treffinger model.[67] Next, a practicality test was carried out by looking at student responses.

Table 6
Table of student responses to the efficiency of the Treffinger model based on hybrid learning

Criteria	Score Results	
	Class A	Class B
Interesting	65	66
Pleasant	63	62
Flexible	67	68
Total	135	
Average	2.82	

Source : Personal Documents

[66] Sun et al., "Detecting the Correlation Between Mobile Learning Behavior and Personal Characteristics Among Elementary School Students."

[67] Rizki Novia Irmaningrum et al., "Implementasi Problem Based Learning Untuk Meningkatkan Aktivitas Dan Hasil Belajar Mahasiswa," *Elementa: Jurnal Pendidikan Guru Sekolah Dasar* 4, no. 2 (July 2022): 14–24, https://doi.org/10.33654/pgsd.

Based on Table 4, the students' responses to the practicality of the hybrid-learning-based Treffinger model are feasible with criteria 1 as less, 2 as suitable, and 3 as very suitable from 23 students in class A and 25 students in class B. This is proven by the average response of 2.82 with a percentage of 94% in the criteria of being interesting, fun, and flexible.

The discussion in this research based on the findings indicated that the expert validity test of the model components reached a percentage of 92.7%. The model effectiveness identified from the teacher observations and student learning outcomes was declared adequate with a teacher observation percentage of 93% and average student learning outcomes of 83%. The practicality test of the model showed that it was feasible based on the student responses with a percentage of 94%.

Based on the results of the validity test, effectiveness test, and practicality test, the Treffinger model based on hybrid learning was declared feasible. The results of this research were able to answer the problem formulation in this research, in which the Treffinger model based on hybrid learning was successfully developed. These results show conformity with an existing theory[68] stating that the Treffinger model is able to solve problems that must be faced and,[69] that problem solving can be done online and offline, which can be developed into the latest model for elementary school students. The results of the research are also in accordance with previous research on the Treffinger model[70] and hybrid learning[71] both of which prove that these two models are capable of becoming the newest output models for elementary school students.

CONCLUSION

The results of the expert validity test showed that the model components were declared feasible with a percentage of 91.7%. The effectiveness of the model was good based on the results of teacher observations and learning outcome tests. These results showed a percentage of 93% in teacher observations and 83% in student learning

[68] Miftahul Huda, *Model-Model Pengajaran Dan Pembelajaran* (Yogyakarta: Pustaka pelajar, 2013).

[69] Abdulhak et al., "The Development of Hybrid Learning Curriculum Model for Improving Teachers Competencies in Teacher Education Institutions in Indonesia and South Korea."

[70] Lestari et al., "Hybrid Learning on Problem-Solving Abiities in Physics Learning."

[71] Sabina Ndiung et al., "The Effect of Treffinger Creative Learning Model with the Use RME Principles on Creative Thinking Skill and Mathematics Learning Outcome," *International Journal of Instruction* 14, no. 2 (April 2021): 873–88, https://eric.ed.gov/?id=EJ1291117.

outcomes. The practicality was declared good based on the student response results of 94%. Based on the validity test, effectiveness test, and practicality test, the development of a hybrid-learning-based Treffinger model was declared suitable for use. It is expected that future researchers will examine the effectiveness of this learning model in instilling the character profile of Pancasila students.

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DECLARATION OF CONFLICTING INTERESTS

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