



The Implementation of Hybrid Cultural Learning Through the Integration of Deep Learning and Problem-Based Learning to Enhance Students' Cultural Literacy

Prihma Sinta Utami^{1*}, Wasis Suprpto², Trapsila Siwi Hutami³, Velinsia Purnama Ojo⁴

^{1,4}Department of History and Sociology Education, Universitas Insan Budi Utomo, Kota Malang, Indonesia

²Department of Primary School Teacher Education, Universitas Negeri Surabaya, Surabaya, Indonesia

³Department of Primary School Teacher Education, Universitas Jember, Jember, Indonesia

*Email corresponding author: prihmasintautami@uibu.ac.id

Article Info	Abstrak
<p>Article history: Received 12-10-2025 Revised 25-11-2025 Accepted 29-11-2025 Published 14-12-2025</p> <p>How to cite: Utami, P. S., Suprpto, W., & Hutami, T. S. (2025). The Implementation of Hybrid Cultural Learning Through the Integration of Deep Learning and Problem-Based Learning to Enhance Students' Cultural Literacy. <i>Edcomtech: Jurnal Kajian Teknologi Pendidikan</i>, 10(2), 171–178. https://doi.org/10.17977/um039v10i22025p171-178</p> <p>© The Author(s)  This work is licensed under a Creative Commons Attribution-ShareAlike 4.0 International License</p>	<p>Penelitian ini bertujuan menganalisis efektivitas Hybrid Cultural Learning melalui integrasi Deep Learning dan Problem-Based Learning (PBL) dalam meningkatkan literasi budaya mahasiswa pada mata kuliah Psikologi Pendidikan. Penelitian menggunakan metode mixed methods dengan desain sequential explanatory pada 72 mahasiswa yang terbagi ke dalam kelas eksperimen dan kontrol. Hasil kuantitatif menunjukkan peningkatan literasi budaya yang signifikan pada kelas eksperimen ($t = 7,842$; $p < 0,001$), dengan rata-rata skor meningkat dari 67,4 menjadi 84,9, sedangkan kelas kontrol tidak menunjukkan peningkatan yang signifikan. Analisis kualitatif mengungkapkan bahwa pembelajaran hibrida berbasis budaya dan PBL meningkatkan pemahaman kontekstual, partisipasi mahasiswa, kolaborasi, serta kemampuan berpikir tingkat tinggi (Higher Order Thinking Skills/HOTS). Disimpulkan bahwa integrasi Hybrid Cultural Learning, Deep Learning, dan PBL efektif dalam meningkatkan literasi budaya mahasiswa dalam pembelajaran Psikologi Pendidikan.</p> <p>Kata kunci: literasi budaya, <i>Hybrid Cultural Learning</i>, <i>Problem-Based Learning</i>, <i>deep learning</i>, pendidikan psikologi.</p> <p>Abstract <i>This study examines the effectiveness of Hybrid Cultural Learning integrating Deep Learning and Problem-Based Learning (PBL) in enhancing students' cultural literacy in an Educational Psychology course. A mixed-methods sequential explanatory design was employed with 72 students divided into experimental and control groups. Quantitative results indicate a significant improvement in cultural literacy in the experimental group ($t = 7.842$; $p < 0.001$), with mean scores increasing from 67.4 to 84.9, while the control group showed no significant change. Qualitative findings reveal that the integrated approach enhances contextual understanding, student participation, collaboration, and higher-order thinking skills (HOTS). Overall, the findings suggest that the integration of Hybrid Cultural Learning, Deep</i></p>

Learning, and PBL is effective in improving students' cultural literacy in Educational Psychology learning.

Keywords: literacy culture, Hybrid Cultural Learning, Problem-Based Learning, deep learning, psychology education.

INTRODUCTION

The development of artificial intelligence technology (Artificial Intelligence) Intelligence (AI) in the field of education has created new opportunities in understanding the learning process, student behavior, and the psychological dynamics that influence it. success academic (Hwang et al., 2020). Based on the UNESCO report (2023), more than 70% of universities in the world have started to integrate AI technology to improve students' understanding of learning behavior, motivation, and self-regulation, which are three key aspects in study Educational. However, data from the Ministry of Education, Culture, Research, and Technology (2024) shows that approximately 58% of Indonesian students still have a low understanding of the psychological factors that influence learning, especially how culture, social environment, and emotional experiences shape character and thinking processes. (Monita et al., 2025; Muttaqin et al., 2025).

In the context of Educational Psychology, cultural literacy is an important competency that helps students understand how cultural background influences learning styles, perceptions, motivation, and interactions. social (Szelei et al., 2020). Research shows that the inability to understand cultural differences leads to low academic empathy and a lack of adaptability in prospective educators when dealing with diversity participant educate (Schwarzenthal et al., 2020). However, the teaching of Educational Psychology in many universities is still dominated by theoretical and lecture-based approaches, thus providing less contextual experience for students.

Hybrid Approach Cultural Learning is present as a relevant innovation for learning Educational Psychology because it combines deep learning which in a pedagogical context means in-depth, reflective, and analytical learning with Problem- Based Problem -based Learning (PBL) problem real (Sandika et al., 2025). PBL has been proven to be able to increase critical thinking skills by 34–45% more effectively than other learning strategies. conventional (Putra et al., 2025), including in understanding psychological issues in a cultural context such as cross-cultural learning motivation, group dynamics, and differences in student behavior based on cultural values.

Through deep integration learning and PBL, Hybrid model Cultural Learning provides Educational Psychology students with the opportunity to analyze empirical cases, interpret behavioral phenomena based on theory, and understand variations in student responses based on cultural background. This process not only enriches students' theoretical insights but also enhances their psychological cultural literacy skills, namely, their understanding of how culture shapes students' cognitive, affective, and social processes.

By combining deep learning not only with computational technology but also as a profound learning approach that motivates students to engage in reflective analysis, symbolic interpretation, and a comprehensive understanding of cultural values, the Hybrid Cultural Learning approach offers an innovation to address these challenges (Huang et al., 2024; Q. Li et al., 2021). The Problem-Based Learning (PBL) paradigm, which has been shown to improve students' problem-solving abilities, teamwork, and active involvement, strengthens this integration (Supena et al., 2021; Trullàs et al., 2022). According to earlier studies, PBL can

improve cultural context mastery by up to 40% more than typical lecture techniques (Awaluddin, 2025).

This article examines how the Hybrid model is implemented Cultural Learning can improve students' cultural literacy and how they respond to learning experiences that combine digital, analytical, and problem-based aspects. that, research entitled "The Implementation of Hybrid Cultural Learning through the Integration of Deep Learning and Problem-Based Learning to Enhance Students' Cultural Literacy in the Educational Psychology Course" aims for test in a way empirical how the learning model hybrid This can increase literacy culture students, good from aspect cognitive, affective, and skills social culture.

METHOD

This research uses a mixed approach methods with sequential design Exploratory. The first stage is a qualitative exploration through observation, interviews, and document analysis to understand the learning process. The second stage is a quantitative analysis using a One Group Pretest – Posttest design to measure the effectiveness of the hybrid model. Population in study This is all over students who take eye studying Educational Psychology with There are 66 students in the History and Sociology Education Study Program. Meanwhile, sample a total of 35 students were selected by purposive sampling (as quantitative data) for active students follow class and willing become respondents). Qualitative data 10 informants were taken key (student representative).

Instrument quantitative data collection with pretest and posttest using essays with description as following.

Table 1. Description Indicator Instrument Test

No	Indicator	Amount Question
1	Knowledge culture psychological	3
2	Ability interpretation behavior based culture	4
3	Implementation theory	3

Instrument next used is a questionnaire instrument perception student with scale Likert. As for the indicators measurement that is measure involvement, motivation, usefulness and satisfaction to the model.

Qualitative data collection with use interview, sheet observation class, and documentation. Interview sheet used for measure question about experience learning, change method view student, obstacles and strategies in context culture. Instruments observation class used for measure interaction social, depth discussion, role facilitator (lecturer), and practice reflection. Documentation For measure assignments and assessments presentation. Quantitative data analysis techniques using normality test and sample t-test. Qualitative data analysis using Miles and Huberman which includes data reduction, data presentation, verification, and conclusions.

RESULT and DISCUSSION

Engineering Implementation Hybrid Cultural Learning with PBL

The implementation of the hybrid cultural learning process with PBL was carried out with design during 7 meetings or until premid-Semester Exam. The steps activities that have been done, arranged as following:

1. Pre Meeting (Pretest Preparation)

In the activity This done model socialization, distribution PBL group, and literacy pretest culture in psychology education.

2. Cycle Hybrid Learning

- a. Online (asynchronous) session: materials introduction culture & psychology (micro-lecture videos, readings, digital resources), assignments individual exploration (analysis artifacts culture, video observation). This online introduction done through application edlink. As for the display activities on edlink as following.

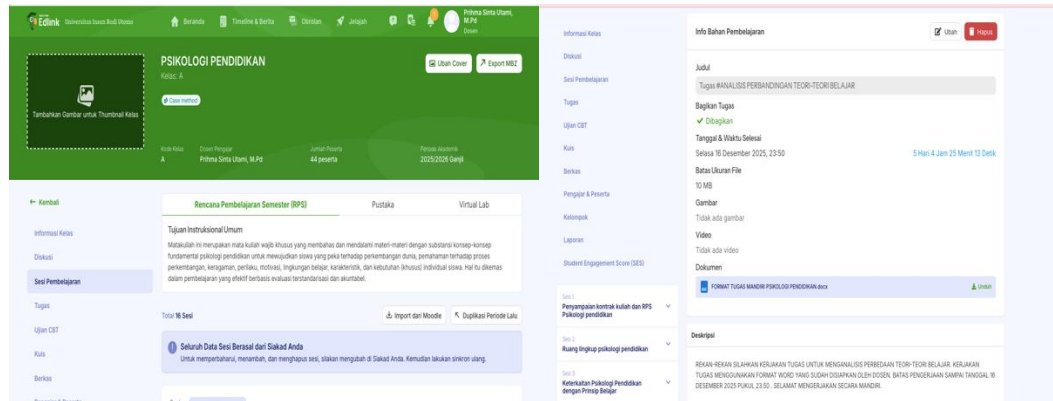


Figure 1. Online session (asynchronous) via edlink

- b. Synchronous/face-to-face sessions: group discussions, deep learning facilitation (questions) essential, reflection concept), PBL activation (exposure case, problem identification, investigation plan).
- c. PBL Activities: group investigate case psychology education related with difference culture (Division material that is motivation Study intercultural and teacher- student conflict Because mark culture), collect data, analyze with framework theory psychology education, composing solution based culture.
- d. Reflection & Journal: each student write journal reflective linking theory psychology, evidence culture, and resolution processes problem.

3. Closing (Posttest & Presentation)

In the activity This done presentation solutions offered by each group, literacy posttest culture, questionnaire perception and interviews in depth on the samples that have been appointed.

The results of the pre-test and post-test show that student own literacy culture more psychological Good after use learning integrated hybrid with PBL. The results obtained as following.

Table 2. Pretest and Posttest Results

Average score pretest	Average score posttest	Gain Score	t-test
67.4	84.9	0.64	t= 7.482 p < 0.001

From the results analysis implementation learning, there is three aspects seen the improvement, namely in the aspect cognitive aspects affective and aspects psychomotor. From the results analysis cognitive, students capable linking theories psychology (such as

motivation, development, regulation self) with context culture. In the aspect affective, students show sensitivity to difference culture participant educate. In the aspect of psychomotor, students can analyze case psychological based values culture and composition relevant solutions.

Research result show that HCL increases literacy culture students. Combining two factor This make this model successful. Deep learning: pushing meaning, reflection, and analysis in-depth. Then cultural learning: presenting context culture as factor psychological important in learning. This is in line with theory constructivism Vygotsky's social theory which emphasizes that culture forming cognitive processes and development individual (Hyun et al., 2020; Newman & Latifi, 2021). Students who study through analysis culture in a way direct more fast understand psychology education in situation real. Theory sociocultural is theory created by Lev Vygotsky which emphasizes that interaction social, language and culture very influence mental development of children and adults. The essence of theory This is that learning and development No can done without context social and cultural place somebody are. Therefore that, the Hybrid Cultural Learning and PBL models are implementation direct from Vygotsky 's theory. This combines technology, interaction social, cultural, and problem solving problem to in framework learning holistic.

Next, for strengthen results pretest and posttest done distribution questionnaire. Response results student through questionnaire perception, can seen the result as following:

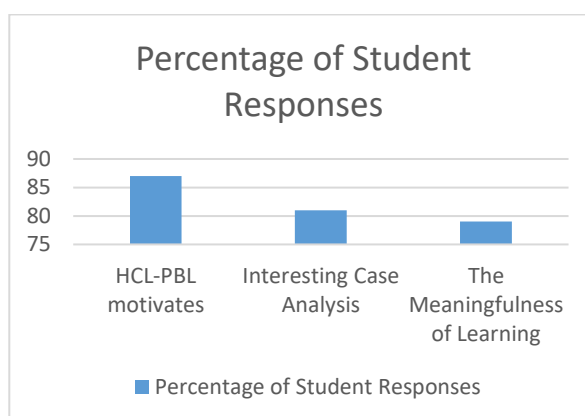


Figure 2. Percentage of Response Student

From the data results displayed can concluded that percentage response student Enough tall for respond implementation hybrid cultural learning with PBL. Conclusion that more from 75% of overall sample give response positive. Qualitative data strengthened with findings online participation reached 78%, an increase intensity collaboration group by 32%, and an increase quality argumentation student based on rubric evaluation by 27%.

Theory Vygotsky's study, also known as as Theory Sociocultural, emphasizing that interaction social, language, and context culture determine learning and development cognitive somebody (Alkhudiry, 2022; Rahmatirad, 2020). Activities meaningful social create knowledge, not knowledge individual. Therefore that, for Study with well, people should Work same, talking One each other, and use tool culture, such as technology. Second hybrid cultural and problem-based learning (PBL) approaches involve student as subject active in the learning process based context culture and interaction social. Second approach This in a way conceptual in line with Vygotsky's view.

Strategic Role Hybrid Cultural Learning with PBL

From the results interview to student sample, student report that integration culture in the learning process make material psychology education more easy understood. One of the quote informants obtained that:

"I became Can see connection between theory development with habit culture in the area I feel more real and easy understood."

Findings can concluded that student can show example life real from culture local and link it with theory psychology. PBL studies encourage student For speak about background each culture so that they can share opinion .

In the hybrid model, students Work in online and face-to-face groups face. PBL allows student identify problem based culture . One of the quote informants obtained that :

"Time to work PBL case, it turns out each the region has its own way different in handle problem that boy make our discussion is getting more life."

Findings can concluded that Group discussion demonstrate a rich cultural perspective. Students realize the existence of cultural diversity in Indonesian education. Tasks group bring up dynamics positive like each other exchange experience culture.

The integration of digital platforms with meeting face advance increase involvement students. Introverted students are more active expressing opinions in digital space. Face-to-face classes advance deepen previous argument discussed online. One of the quote informants obtained that :

"I am more brave write opinions on online platforms compared speak direct."

PBL integration strengthens dimensions solution problems rooted in the situation class actually. Students No only memorize theory psychology, but identify problem real (eg. miscommunication Because difference value), analyze reason psychological and cultural, proposes solution based theory. PBL is here play role important as bridge between theory psychology education and practice pedagogical based culture. Findings This support study Susanti (2023) and Kusumawardani (2024) who showed that PBL improves ability think critical thinking and problem solving of students (Kusumawardani & Aminatun, 2024; Susanti et al., 2023).

CONCLUSION

Engineering implementation learning based on Hybrid Cultural Learning with proven PBL integration effective, relevant, and transformative for increase literacy culture student in context Educational Psychology. Findings This show that the HCL–PBL model is not only innovation methodological, but also developmental important for strengthening competence psychopedagogy prospective teacher.

REFERENCES

- Alkhudiry, R. (2022). The Contribution of Vygotsky's Sociocultural Theory in Mediating L2 Knowledge Co-Construction. *Theory & Practice in Language Studies (TPLS)*, 12(10).
- Awaluddin, R. (2025). Penerapan Model Problem Based Learning (PBL) Berbasis Kearifan Lokal pada Materi Pencemaran Lingkungan Untuk Meningkatkan Pemahaman Siswa Kelas X di SMAN 2 Bolo. *Jurnal Jendela Pendidikan*, 5(02), 312–321.
- Huang, R., Weaver, J. C., Matney, G., Huang, X., Wilson, J., & Painter, C. (2024). Exploring teacher learning through a hybrid cross-cultural lesson study in China and the United States. *International Journal for Lesson & Learning Studies*, 13(1), 41–55.

- Hwang, G.-J., Xie, H., Wah, B. W., & Gašević, D. (2020). Vision, challenges, roles and research issues of Artificial Intelligence in Education. In *Computers and Education: Artificial Intelligence* (Vol. 1, p. 100001). Elsevier.
- Hyun, C. C., Tukiran, M., Wijayanti, L. M., Asbari, M., Purwanto, A., & Santoso, P. B. (2020). Piaget versus Vygotsky: Implikasi Pendidikan antara Persamaan dan Perbedaan. *Journal of Engineering and Management Science Research (JIEMAR)*, 1(2), 286–293. <https://journals.indexcopernicus.com/search/article?articleId=2661032>
- Kusumawardani, W., & Aminatun, T. (2024). PBL in blended learning design to increase critical thinking and problem-solving skills. *Jurnal Penelitian Pendidikan IPA*, 10(6), 3303–3308.
- Li, Q., Li, Z., & Han, J. (2021). A hybrid learning pedagogy for surmounting the challenges of the COVID-19 pandemic in the performing arts education. *Education and Information Technologies*, 26(6), 7635–7655.
- Li, Y., Tolosa, L., Rivas-Echeverria, F., & Marquez, R. (2025). *Integrating AI in education: Navigating UNESCO global guidelines, emerging trends, and its intersection with sustainable development goals*.
- Mochizuki, Y., & Vickers, E. (2024). UNESCO, the geopolitics of AI, and China's engagement with the futures of education. *Comparative Education*, 60(3), 478–497.
- Monita, D. M., Ariani, N. W. E. P., Juniantariani, N. L., Dewi, S. A. A. O., Pradnyani, A. A. B. D., Putri, I. N., Cantika, N. L. A. R. A., Ariswari, N. M. M. D., Maharani, N. D., & Dewi, N. K. K. (2025). *Psikologi dalam Pendidikan Inklusi*. Nilacakra.
- Muttaqin, M. F., Ahsani, E. L. F., & Wijayama, B. (2025). *PROBLEMATIKA PENDIDIKAN DI INDONESIA: TANTANGAN DAN SOLUSI (Mengupas Aspek Sosial, Ekonomi, dan Karakter dalam Pendidikan)*. Cahya Ghani Recovery.
- Newman, S., & Latifi, A. (2021). Vygotsky, education, and teacher education. *Journal of Education for Teaching*, 47(1), 4–17.
- Putra, M. H. A., Suriansyah, A., & Rafianti, W. R. (2025). Analisis Penggunaan Model Pembelajaran Problem Based Learning (PBL) dalam Meningkatkan Kemampuan Berpikir Kritis Siswa. *MARAS: Jurnal Penelitian Multidisiplin*, 3(1), 1–10.
- Rahmatirad, M. (2020). A review of socio-cultural theory. *Siasat*, 5(3), 23–31.
- Sandika, N. A., Basit, A., Putra, R. J., Nufriзал, A., Putra, B. A., Gunawan, R. G., Ameliya, D., & Utami, R. J. (2025). *Deep Learning dalam Pendidikan Tinggi: Strategi, Metode, dan Implementasi*. Pradina Pustaka.
- Schwarzenthal, M., Schachner, M. K., Juang, L. P., & Van De Vijver, F. J. R. (2020). Reaping the benefits of cultural diversity: Classroom cultural diversity climate and students' intercultural competence. *European Journal of Social Psychology*, 50(2), 323–346.
- Supena, I., Darmuki, A., & Hariyadi, A. (2021). The Influence of 4C (Constructive, Critical, Creativity, Collaborative) Learning Model on Students' Learning Outcomes. *International Journal of Instruction*, 14(3), 873–892.
- Susanti, M., Suyanto, S., Jailani, J., & Retnawati, H. (2023). Problem-Based Learning for Improving Problem-Solving and Critical Thinking Skills: A Case on Probability Theory Course. *Journal of Education and Learning (EduLearn)*, 17(4), 507–525.
- Szelei, N., Tinoca, L., & Pinho, A. S. (2020). Professional development for cultural diversity: The challenges of teacher learning in context. *Professional Development in Education*, 46(5), 780–796.
- Tarumasely, Y., Halamury, M., Sipahelut, J., & Labobar, W. (2024). *Perubahan Paradigma Pendidikan Melalui Teknologi AI; Membaca Perubahan Motivasi dan Kemandirian*

Belajar Siswa di Indonesia. Academia Publication.

Trullàs, J. C., Blay, C., Sarri, E., & Pujol, R. (2022). Effectiveness of problem-based learning methodology in undergraduate medical education: a scoping review. *BMC Medical Education*, 22(1), 104.