

Reconfiguring Teachers' Pedagogical Roles Through Project-Based Learning in Secondary Sociology: A Qualitative Study in Indonesia

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Abstract

Project-based learning (PjBL) is commonly described as student-centered, yet its implementation also changes and expands teachers' pedagogical work. This qualitative study examines how sociology teachers in Indonesian secondary education reconfigured their roles while implementing PjBL. The study drew on in-depth interviews, classroom observations, and instructional documents involving teachers with experience using project-based learning. The analysis identifies four interconnected roles: facilitator of inquiry, designer of contextual learning, authentic assessor, and manager and scaffolder of collaborative work. Teachers shifted from continuous exposition toward questioning, consultation, project monitoring, contextual task design, formative feedback, and assessment of both process and product. Implementation was constrained by limited instructional time, uneven student readiness, research-skill gaps, and group-work difficulties. The findings show that PjBL does not reduce the importance of teachers; instead, it relocates pedagogical authority toward the orchestration of inquiry, collaboration, assessment, and contextual sociological learning. The findings show that student-centered project learning depends on active teacher orchestration through planning, scaffolding, monitoring, feedback, and reflection.

Keywords: authentic assessment; contextual learning; project-based learning; teacher roles; sociology education.

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Introduction

Project-based learning is commonly associated with greater student agency, authentic tasks, collaboration, and sustained inquiry. These characteristics make it attractive for sociology, a subject that asks students to interpret social relationships, inequality, institutions, culture, and change rather than merely memorize definitions. Projects can provide students with opportunities to observe social phenomena, collect information, discuss alternative explanations, and communicate interpretations in forms that connect classroom knowledge with everyday social life.

However, describing PjBL as "student-centered" can obscure the work required from teachers. When students are expected to formulate questions, investigate social issues, manage group tasks, and produce public artifacts, teachers must make continuous decisions about task structure, conceptual guidance, pacing, differentiation, ethical boundaries, and assessment. Research on K-12 PjBL shows that teachers often occupy several roles simultaneously, including designer, facilitator, manager, and advocate for the project (Markula & Aksela, 2022). In secondary English classrooms, Boardman et al. (2024) similarly found that PjBL shifted classrooms toward more authentic and student-centered learning while generating new tensions around content coverage and student participation.

This issue is particularly significant in sociology. A project on family change, social inequality, digital interaction, or community conflict may appear authentic, but authenticity alone does not ensure sociological learning. Students need disciplinary concepts, research guidance, and criteria for evaluating claims. The teacher must therefore balance agency and structure: too much control can reduce a project to a conventional assignment, while too little guidance can leave students engaged in activity without conceptual depth.

Existing discussions of PjBL frequently focus on student outcomes, but implementation research increasingly shows that project quality depends on identifiable teacher practices. Experienced PjBL practitioners coordinate the framing of authentic problems, disciplinary goals, checkpoints, feedback, group processes, and public products rather than simply 'facilitating' from the side (Dean et al., 2023). This shifts the analytical question from whether PjBL is effective in the abstract to how teachers redistribute pedagogical work as students assume greater responsibility for inquiry and production.

The study addressed this implementation problem by focusing on teachers' changing roles in secondary sociology classrooms. The article asks: How do sociology teachers reconfigure their pedagogical roles when they implement PjBL, what forms of work characterize this reconfiguration, and what tensions constrain it? Rather than treating transformation as a simple shift from "teacher-centered" to "student-centered," the analysis conceptualizes PjBL as a redistribution of pedagogical authority and responsibility.

Describing PjBL as student-centered can obscure the amount of professional judgment required to make student agency productive. A project must be framed around a question that is open enough to invite investigation but bounded enough to be completed within curricular and institutional constraints. Teachers must anticipate what knowledge students need, what resources are accessible, what forms of evidence are appropriate, and what misconceptions may emerge. In this sense, the movement away from continuous exposition does not remove teacher authority. It redistributes authority across design, questioning, monitoring, and feedback.

This redistribution is especially significant in sociology because authentic projects often involve real social settings. A project on family communication, neighborhood change, inequality, or youth culture may require students to observe, interview, or analyze public information. The teacher must therefore attend to research feasibility and ethical boundaries as well as curriculum content. Student-centered sociology becomes possible only when the teacher builds an inquiry environment in which students know what counts as evidence and how to use sociological concepts to interpret it.

The first role is facilitator of inquiry. Facilitation is not passive supervision; it involves making students' thinking visible and intervening without replacing their reasoning. Questions such as 'What evidence supports that claim?' or 'Which sociological concept explains this pattern?' can redirect a group while preserving student ownership. The teacher therefore shifts from supplying answers toward structuring the conditions under which students must justify answers.

The second role is designer of contextual learning. Project quality begins before the project starts. Teachers translate broad curriculum goals into feasible social problems, determine what forms of fieldwork are appropriate, and establish milestones. Bell (2010) emphasizes the relevance of authentic real-world work, while Grossman, Dean, Kavanagh, and Herrmann (2019) argue that project-based teaching must preserve disciplinary learning within authentic activity. For sociology, design quality depends on whether a local issue can actually support the concepts students are expected to learn.

The third role is authentic assessor. PjBL distributes learning across planning, investigation, collaboration, production, and reflection, so assessment cannot focus only on a final answer. Rubrics can distinguish conceptual accuracy, evidence quality, analysis, cooperation, responsibility, communication, and revision. Individual reflection is particularly important because a strong group product can conceal uneven learning. Authentic assessment therefore makes the process of learning visible without abandoning disciplinary standards.

The fourth role is manager and scaffolder of collaboration. Group projects generate unequal participation, conflict over workload, differences in digital competence, and varying levels of research skill. Teachers must organize roles, monitor progress, and provide targeted support. Scaffolding may include examples of research questions, mini-lessons on interviewing, templates for field notes, or models of effective presentations. Markula and Aksela (2022) show that the deeper inquiry dimensions of project work are among the most difficult to implement, making such support essential.

Method

The study used a descriptive qualitative design to examine teachers' experiences of implementing PjBL in secondary sociology. Participants were purposively selected sociology teachers who had used PjBL for at least one semester. The final number of participating teachers and the exact school location were not reported in sufficient detail, which limits the transferability of the findings.

Data collection involved three sources. In-depth interviews elicited teachers' accounts of planning projects, facilitating investigation, managing collaboration, and assessing student learning. Classroom observations were used to examine how these roles were enacted during project activities. Instructional documents, including lesson plans, assessment rubrics, and student project reports, provided supplementary evidence concerning project design and assessment.

Teacher role enactment is treated as the unit of interpretation. Interview statements, observation notes, and instructional documents were organized around recurring functions: facilitation, contextual design, assessment, collaboration management, and scaffolding. These categories were compared across the project cycle to identify how roles overlapped and where teachers reported persistent tensions. The analysis remains descriptive and interpretive; it does not estimate the frequency of each role or test whether role change caused improved student achievement.

Results and Discussion

From information transmitter to facilitator of inquiry

Teachers described a visible reduction in continuous explanation and a corresponding increase in questioning, consultation, and guided inquiry. Instead of attempting to provide every answer, they increasingly used prompts that required students to define a social problem, identify relevant information, and justify an interpretation. One reported change was the willingness to "throw back" questions to students and guide them toward finding answers rather than immediately resolving uncertainty for them.

This shift did not eliminate direct instruction. Teachers still introduced key sociological concepts and intervened when students misinterpreted evidence. What changed was the purpose of explanation: rather than constituting the entire lesson, explanation became one resource within a longer cycle of investigation. Pedagogical authority was therefore redistributed rather than abandoned.

Teacher as designer of contextual sociological inquiry

The second role concerned task design. Teachers developed project themes connected to students' social environments, such as family dynamics in the digital era, local social change, inequality, or community interaction. These themes were intended to make sociological concepts visible in settings students could observe. The thematic organization follows a reflexive qualitative logic that treats recurring role patterns as interpretive themes rather than frequency counts (Braun & Clarke, 2021).

Design work included more than selecting a topic. Teachers had to translate curriculum goals into a feasible project, determine what forms of evidence students could collect, sequence milestones, anticipate ethical or logistical problems, and define what would count as a successful product. In several cases, students were guided to prepare simple proposals, conduct interviews or observations, and connect their findings to concepts such as values and norms, social structure, or social change.

This role exposes an important distinction between a project and PjBL. A product-oriented assignment becomes project-based learning only when the project is organized around disciplinary learning and inquiry. The teacher's design work is therefore central to ensuring that the activity does not become detached from sociology.

Teacher as authentic assessor

PjBL also changed the object of assessment. Teachers described evaluating not only the final product but also project development, collaboration, responsibility, oral communication, written reporting, and reflection. Rubrics were used to make these criteria more explicit. Formative assessment occurred through consultations, draft feedback, individual reflection, and group discussion.

This broader assessment perspective allowed teachers to notice dimensions of student performance that conventional written tests often obscure. At the same time, it made assessment more demanding. Teachers had to distinguish individual from group contribution, evaluate both process and product, and explain criteria transparently. Authentic assessment therefore expanded rather than simplified teachers' evaluative responsibilities.

Teacher as manager and scaffolder of collaborative work

A fourth role emerged from the practical difficulties of project implementation. Students did not automatically possess the research, time-management, or collaboration skills required for independent project work. Teachers responded with mini-lessons on observation and interviewing, examples of previous work, staged deadlines, group consultation, and mediation when conflicts arose.

Digital platforms such as Google Classroom and WhatsApp were also used to monitor progress outside face-to-face lessons. These tools enabled continuity but created an additional layer of coordination. The teacher became responsible for maintaining project momentum across classroom and digital spaces.

Persistent implementation tensions

Teachers reported several recurring constraints: limited instructional time, unequal participation within groups, uneven research skills, and different levels of readiness for autonomous work. These tensions are analytically important because they show that PjBL is not a simple transfer of responsibility to students. The approach depends on the teacher's capacity to decide when to intervene, when to provide structure, and when to allow students to struggle productively. Comparable research in diverse secondary settings likewise shows that time, resources, curricular demands, and teacher support can enable or constrain project-based learning (Wilson, 2021).

Teacher work extended across disciplinary and digital boundaries

The study also described collaboration with teachers of Indonesian language and informatics. This suggests that project-based sociology can extend the teacher's role beyond a single subject. Report writing may require explicit literacy support, while digital products may benefit from technical guidance. Cross-subject coordination can improve project quality, but it also requires agreement about deadlines, standards, and responsibilities.

Digital platforms such as Google Classroom and WhatsApp further extended teacher work beyond scheduled classroom time. They enabled progress monitoring and consultation but also created additional expectations for availability. Sustainable PjBL therefore depends on organizational norms that define when and how digital communication is used, rather than relying only on individual teacher commitment.

Discussion

The findings support a role-reconfiguration view of PjBL. The teacher does not become less important in a student-centered classroom. Instead, the form of pedagogical work changes from continuous transmission toward the orchestration of inquiry. This interpretation is consistent with Markula and Aksela's (2022) finding that project teachers act simultaneously as designers, facilitators, and managers. It also resonates with Boardman et al. (2024), whose secondary-school study documented more student-centered and authentic learning alongside challenges in pacing, participation, and curricular coverage.

The sociology context adds two important dimensions. First, project design must preserve disciplinary integrity. Students may successfully complete a video, poster, or community report without demonstrating sociological reasoning. Teachers therefore need to specify the concepts, evidence, and forms of explanation expected in the project. Second, sociological inquiry may involve personal or sensitive issues. Teachers must manage ethical boundaries around interviews, family information, inequality, conflict, and other topics that could expose students or community members.

Assessment is another site where the role transformation becomes visible. Reviews of PjBL note considerable diversity in outcome measures (Guo et al., 2020). The present study suggests that teachers experience this not as an abstract measurement problem but as a practical classroom challenge: how to recognize conceptual understanding, collaboration, process, and artifact quality without allowing one dimension to dominate the others. Rubrics and formative checkpoints can make this work more transparent, but they also require assessment literacy.

The results also complicate celebratory accounts of student autonomy. Student choice is valuable only when learners possess sufficient procedural knowledge to act on that choice. Where research and collaboration skills are weak, scaffolding becomes part of PjBL rather than evidence that PjBL has failed. The pedagogical challenge is to provide enough structure to support inquiry without converting the project into a sequence of teacher-directed tasks.

The study has limitations. The study report does not provide a participant count or sufficient contextual detail about the research site. It also relies on qualitative evidence and cannot establish changes in achievement or long-term teacher professionalism. Future studies should compare role configurations across schools, include student perspectives, and examine how different forms of scaffolding affect the quality of student sociological inquiry.

Role expansion rather than role replacement

The findings support a view of teacher transformation as role expansion. PjBL reduces the centrality of continuous lecture but increases the number of decisions teachers make before, during, and after student activity. Teachers design authentic contexts, facilitate inquiry, monitor social dynamics, scaffold research practices, coordinate resources, and evaluate complex performances. Student agency is therefore produced through teacher work that is often less visible than exposition.

This interpretation challenges a simple contrast between teacher-centered and student-centered pedagogy. A teacher can speak less while exercising more sophisticated professional judgment. The important question is not how much control the teacher relinquishes, but how authority is used to create progressively greater student responsibility without sacrificing disciplinary rigor.

Disciplinary alignment as the central implementation problem

Project activity can become disconnected from sociology when students focus on completing a product rather than developing an explanation. Markula and Aksela (2022) found that collaboration and artifact creation are more readily enacted than coherent inquiry and student-generated questions. The same risk appears in secondary sociology. A poster on social inequality can be visually strong but analytically weak if students do not use evidence or concepts. The teacher's role as designer and assessor is therefore central to maintaining disciplinary alignment.

Assessment can help solve this problem by signaling what counts as quality. If a rubric rewards only creativity, punctuality, and presentation, students may infer that conceptual analysis is secondary. A stronger rubric separates sociological concepts, evidence, interpretation, collaboration, and communication. Periodic checkpoints also allow the teacher to correct conceptual drift before students invest substantial time in a final product.

Managing collaboration as pedagogical work

Group work is often treated as an automatic benefit of PjBL, yet collaboration is itself a skill that requires instruction and management. Dominant students can monopolize decision making, while quieter students may perform peripheral tasks. Teachers can respond through role rotation, short progress conferences, peer feedback, and individual reflection. These practices make contribution visible and reduce the likelihood that group performance conceals unequal learning.

For sociology, collaboration has an additional disciplinary value because the group becomes a small social system. Students encounter negotiation, status, responsibility, conflict, and informal norms while completing the project. Teachers can use brief reflective questions to help students connect these experiences with sociological concepts, turning the social organization of the project into another learning resource.

Time, curriculum coverage, and selective use of projects

Time pressure was one of the most persistent tensions in the study study. Extended projects compete with curriculum coverage, school schedules, and other assessments. This does not mean that PjBL is impractical; it means that projects should be used selectively. Units that benefit from sustained inquiry can justify a substantial project, while other topics may be better served by shorter case-based or discussion activities.

Selective use also allows teachers to build student readiness progressively. Early projects can be tightly scaffolded and limited in scope. Later projects can provide greater autonomy as students develop research, collaboration, and communication skills. A curriculum that treats every assignment as a major project may exhaust both teachers and students and reduce the quality of inquiry.

Professional development and institutional support

Teacher development should move beyond introducing the procedural steps of PjBL. Teachers need opportunities to design driving questions, examine real student work, calibrate assessment rubrics, practice facilitation moves, and anticipate research or group-work difficulties. Haatainen and Aksela (2021) similarly report that teachers perceive meaningful benefits from project learning while also confronting substantial implementation challenges. Professional learning is more useful when it treats these difficulties as design problems rather than as failures of motivation.

Schools also shape the feasibility of role transformation. Shared planning time, flexible scheduling, access to digital tools, and coordination across subjects can reduce the burden on individual teachers. Without organizational support, the expanded roles required by PjBL may become unsustainable even when teachers are committed to the approach.

Limitations and directions for research

The study is constrained by incomplete reporting of the number of teachers and schools and by the absence of systematic student interview data. It also does not include standardized measures of learning outcomes. The findings should therefore be read as an interpretive account of role configurations rather than evidence that those configurations produce superior achievement.

Future studies should specify participant and observation details, compare novice and experienced PjBL teachers, analyze classroom interaction and feedback episodes, and include student perspectives on the amount and type of teacher guidance they find useful. Longitudinal work could also examine whether teachers' role configurations change as they gain experience and whether institutional support reduces the workload associated with project orchestration.

Practical design principles for sociology teachers

A practical planning sequence follows from the analysis. Teachers can begin by specifying the sociological understanding students should demonstrate, then select a social problem that makes that understanding

observable. The next step is to identify the research and collaboration skills students will need and teach those skills before they become barriers. Milestones for proposal development, evidence collection, analysis, and presentation should include opportunities for feedback and revision.

Finally, the assessment plan should distinguish process from product and group performance from individual learning. Such design keeps the project subordinate to disciplinary goals and clarifies the expanded professional role of the teacher: not the owner of all information, but the architect and regulator of a learning environment in which students can conduct increasingly independent social inquiry.

Implications for teacher professionalism in Sociology

The role changes identified in this study also have implications for how sociology teacher professionalism is understood. Professional expertise is not limited to mastery of sociological content or classroom explanation. In project-based settings, expertise includes the ability to translate disciplinary concepts into investigable questions, recognize when students need methodological support, and design social situations in which abstract concepts can be applied. This broadens professional competence from subject transmission toward pedagogical judgment about the relationship among curriculum, context, and student readiness.

Reflection becomes an important part of that professionalism. Because projects are open-ended, teachers cannot predict all group difficulties in advance. They need to review what kinds of prompts generated stronger explanations, which milestones were unrealistic, where group participation became unequal, and which assessment criteria failed to distinguish strong from weak analysis. A reflective cycle allows teachers to refine project design rather than repeat the same structure mechanically.

The transformation also raises a workload issue that should not be ignored. Monitoring groups, reviewing drafts, coordinating fieldwork, and responding through digital platforms can require more time than conventional lessons. If institutions promote PjBL without adjusting planning time or providing shared resources, teacher transformation may be celebrated rhetorically while becoming difficult to sustain in practice. Institutional policy should therefore recognize the labor associated with authentic assessment and project supervision.

These considerations reinforce the article's central argument that PjBL should not be understood as the displacement of teachers by autonomous students. It is a reorganization of pedagogical labor. Students gain meaningful agency when teachers deliberately construct opportunities, boundaries, feedback systems, and assessment criteria that make independent inquiry possible.

At the classroom level, this means that teacher guidance should be deliberately visible to students. Explaining why a checkpoint exists, why a rubric separates evidence from presentation, or why a group must revise its research question helps students understand the logic of inquiry. In this way, scaffolding does not merely solve immediate problems; it teaches students how to manage future projects with greater independence.

At the curriculum level, project work is strongest when it builds cumulatively. Students can begin with teacher-framed investigations, progress to partially student-designed projects, and eventually take greater responsibility for questions, data, and presentation. Such progression provides a realistic pathway from structured support to autonomy and helps prevent the abrupt expectation that students become independent researchers simply because a project has been assigned.

Taken together, these design and organizational implications suggest that teacher transformation should be evaluated by the quality of inquiry students are able to sustain, not by the simple absence of lecturing. A successful project-based sociology classroom remains highly structured, but the structure is increasingly embedded in questions, milestones, feedback, and criteria rather than in continuous teacher explanation.

Contribution: Teacher Role Reconfiguration as the Mechanism of PjBL

The study's broader contribution is to treat teacher-role change not as a side effect of project-based learning but as one of the mechanisms through which PjBL becomes educationally coherent. The language of student-centered learning can create the impression that effective projects require teachers to withdraw. The evidence examined here points in the opposite direction. Student agency depends on substantial professional work before, during, and after the visible project: selecting a socially meaningful problem, identifying the disciplinary concepts that must remain central, sequencing milestones, diagnosing group difficulties, modeling inquiry practices, and assessing both process and product. This interpretation is consistent with research showing that PjBL can promote engagement when learning is organized around authentic tasks (Almulla, 2020), but it also explains why implementation quality is uneven. A large meta-analysis of problem-, project-, and case-based learning found small-to-moderate positive motivational effects with considerable heterogeneity across contexts (Wijnia, Noordzij, Arends, Rikers, & Loyens, 2024). In sociology classrooms, such heterogeneity is especially important because the projects themselves often involve contested social problems and real communities. Teachers must protect student agency without allowing inquiry to become conceptually shallow or ethically careless. The reconfiguration identified in this study can therefore be summarized as a shift from delivering finished explanations to orchestrating conditions for disciplined inquiry. Professional development for PjBL should

consequently focus less on generic project templates and more on problem framing, scaffolding, group facilitation, ethical fieldwork, formative feedback, and authentic assessment. This framing also clarifies that teacher professionalism is not reduced by student-centered pedagogy; it is made more complex, distributed, and visible across the learning process. This interpretation is consistent with systematic evidence that higher-order and critical thinking in problem- and project-based environments depends on deliberate task design and guidance (Loyens, van Meerten, Schaap, & Wijnia, 2023).

The transformation described in this study can be clarified by considering recent evidence on what teachers actually have to do when project-based learning is enacted in classrooms. PjBL does not eliminate teaching; rather, it redistributes teaching across the design, facilitation, monitoring, feedback, and assessment of extended student activity. A 2024 synthesis of K–12 students' perceptions shows that project work can increase enthusiasm and contemporary skills, yet it can also generate initial anxiety, consume considerable time, and create concerns about insufficient content coverage (Oduro, Muganga, Parker, & Sang, 2024). These tensions help explain why the teacher's role in the present study expanded rather than diminished. Teachers had to decide how open a project should be, what evidence students needed to collect, when groups required intervention, and how sociological concepts should remain visible in the final products. In this sense, the shift from information transmitter to facilitator should not be interpreted as a reduction in professional authority, but as a move toward a more complex form of pedagogical judgment.

Recent literature also suggests that the quality of PjBL depends on how teachers coordinate authenticity with curriculum coherence. Yusri, Yusof, and Sharina (2024) identify recurring PjBL elements such as collaboration, creativity, communication, problem solving, and conceptual understanding, while Boardman et al. (2024) show that authentic project enactment may still involve tensions around participation and curricular coverage. Rehman, Huang, Mahmood, AlGerafi, and Javed (2024) similarly connect well-designed projects with student engagement and 21st-century competencies. Applied to sociology, these findings underline a distinctive professional task: teachers must enable students to investigate real social issues without allowing projects to become detached from disciplinary reasoning. The teacher therefore acts as a bridge between curriculum concepts and the social worlds students investigate. This bridging function includes helping students formulate sociologically meaningful questions, distinguish description from explanation, use evidence responsibly, and reflect on how class, institutions, norms, culture, or social change shape what they observe.

Digital orchestration adds another layer to those teacher roles. Secondary-school ICT research shows that effective integration depends on pedagogical purpose, teacher competence, infrastructure, and classroom support (Msafiri et al., 2023; Tzafilkou et al., 2023). Problem-centered teaching likewise requires teachers to interpret what counts as a worthwhile problem and to scaffold students' movement from initial ideas toward disciplined solutions (Lane et al., 2023; Lonergan et al., 2022). In the present case, this means that the teacher's role transformation should be understood as coordinated design, facilitation, monitoring, feedback, and assessment rather than a simple reduction of teacher authority.

The role framework also connects to two complementary strands of research. Falloon (2020) conceptualizes teacher digital competence as an integration of technical, pedagogical, contextual, and professional judgment, while Kurniasari et al. (2024) show how Indonesian project learning can be organized around socially consequential issues. Together, these perspectives support the four-role interpretation developed here: teachers in PjBL must coordinate disciplinary purpose, digital and material resources, group processes, and assessment rather than merely step back as students work.

Conclusion

Project-based sociology teaching reconfigures rather than diminishes the teacher's role. In the cases reported here, teachers moved toward four interconnected forms of work: facilitating inquiry, designing contextual projects, assessing process and product, and scaffolding collaborative investigation. These roles require teachers to redistribute authority while maintaining responsibility for disciplinary quality, inclusion, pacing, and ethical practice.

The implication for professional development is clear. Training teachers to "use PjBL" should not stop at the procedural steps of a project cycle. Teachers need support in designing authentic sociological questions, teaching basic inquiry skills, managing group dynamics, and constructing transparent assessment criteria. When these capacities are present, PjBL can become a vehicle for connecting sociological concepts with students' social worlds rather than simply a more elaborate form of assignment.

Declarations

Author contribution

Author 1: developed the main research idea and objectives, designed the research methodology, conducted data collection and investigation, performed the data analysis, and prepared the first draft of the manuscript. Author 2: contributed to the development and implementation of the research methodology, supported the data collection and investigation process, and reviewed and revised the manuscript to improve its academic quality, clarity, and structure, provided input into the research concept and direction, supervised and guided the overall research process, reviewed and improved the manuscript, and contributed to obtaining financial support or research funding

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The authors declare that there is no conflict of interest related to the publication of this article.

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References

- Almulla, M. A. (2020). The effectiveness of the project-based learning (PBL) approach as a way to engage students in learning. *SAGE Open*, 10(3). <https://doi.org/10.1177/2158244020938702>
- Bell, S. (2010). Project-based learning for the 21st century: Skills for the future. *The Clearing House*, 83(2), 39-43. <https://doi.org/10.1080/00098650903505415>
- Boardman, A. G., Polman, J. L., Scornavacca, K., Seidel Potvin, A., Garcia, A., Dalton, B., Stamatis, K., Guggenheim, A., & Alzen, J. L. (2024). Examining enactments of project-based learning in secondary English language arts. *AERA Open*, 10, 1–17. <https://doi.org/10.1177/23328584241269829>
- Braun, V., & Clarke, V. (2021). One size fits all? What counts as quality practice in (reflexive) thematic analysis? *Qualitative Research in Psychology*, 18(3), 328-352. <https://doi.org/10.1080/14780887.2020.1769238>
- Dean, C. G. P., Grossman, P., Enumah, L., Herrmann, Z., & Kavanagh, S. S. (2023). Core practices for project-based learning: Learning from experienced practitioners in the United States. *Teaching and Teacher Education*, 133, 104275. <https://doi.org/10.1016/j.tate.2023.104275>
- Falloon, G. (2020). From digital literacy to digital competence: The teacher digital competency (TDC) framework. *Educational Technology Research and Development*, 68, 2449–2472. <https://doi.org/10.1007/s11423-020-09767-4>
- Grossman, P., Dean, C. G. P., Kavanagh, S. S., & Herrmann, Z. (2019). Preparing teachers for project-based teaching. *Phi Delta Kappan*, 100(7), 43-48. <https://doi.org/10.1177/0031721719841338>
- Guo, P., Saab, N., Post, L. S., & Admiraal, W. (2020). A review of project-based learning in higher education: Student outcomes and measures. *International Journal of Educational Research*, 102, 101586. <https://doi.org/10.1016/j.ijer.2020.101586>
- Haatainen, O., & Aksela, M. (2021). Project-based learning in integrated science education: Active teachers' perceptions and practices. *LUMAT: International Journal on Math, Science and Technology Education*, 9(1), 149-173. <https://doi.org/10.31129/LUMAT.9.1.1392>
- Kurniasari, P., Mardikaningsih, A., & Aini, R. N. (2024). Penggunaan model Project Based Learning (PjBL) berbasis socio-scientific issue untuk meningkatkan hasil belajar mahasiswa dalam mata kuliah psikologi pendidikan. *Edu Sociata: Jurnal Pendidikan Sosiologi*, 7(1), 924-929. <https://doi.org/10.33627/es.v7i1.2354>
- Lane, D., McGarr, O., & Nicholl, B. (2023). Unpacking secondary school technology teachers' interpretations and experiences of teaching 'problem-solving'. *International Journal of Technology and Design Education*, 33, 123–142. <https://doi.org/10.1007/s10798-022-09731-8>
- Lonergan, R., Cumming, T. M., & O'Neill, S. C. (2022). Exploring the efficacy of problem-based learning in diverse secondary school classrooms: Characteristics and goals of problem-based learning. *International Journal of Educational Research*, 112, 101945. <https://doi.org/10.1016/j.ijer.2022.101945>

- Loyens, S. M. M., van Meerten, J. E., Schaap, L., & Wijnia, L. (2023). Situating higher-order, critical, and critical-analytic thinking in problem- and project-based learning environments: A systematic review. *Educational Psychology Review*, 35, 39. <https://doi.org/10.1007/s10648-023-09757-x>
- Markula, A., & Aksela, M. (2022). The key characteristics of project-based learning: How teachers implement projects in K-12 science education. *Disciplinary and Interdisciplinary Science Education Research*, 4, Article 2. <https://doi.org/10.1186/s43031-021-00042-x>
- Oduro, F., Muganga, A., Parker, D., & Sang, G. (2024). Students' perceptions of project-based learning in K-12 education: A synthesis of qualitative evidence. *International Journal of Instruction*, 17(3), 509-528. <https://doi.org/10.29333/iji.2024.17328a>
- Rehman, N., Huang, X., Mahmood, A., AlGerafi, M. A. M., & Javed, S. (2024). Project-based learning as a catalyst for 21st-century skills and student engagement in the math classroom. *Heliyon*, 10(23), e39988. <https://doi.org/10.1016/j.heliyon.2024.e39988>
- Tzafilkou, K., Perifanou, M., & Economides, A. A. (2023). Assessing teachers' digital competence in primary and secondary education: Applying a new instrument to integrate pedagogical and professional elements for digital education. *Education and Information Technologies*, 28, 16017-16040. <https://doi.org/10.1007/s10639-023-11848-9>
- Wijnia, L., Noordzij, G., Arends, L. R., Rikers, R. M. J. P., & Loyens, S. M. M. (2024). The effects of problem-based, project-based, and case-based learning on students' motivation: A meta-analysis. *Educational Psychology Review*, 36, 29. <https://doi.org/10.1007/s10648-024-09864-3>
- Wilson, K. (2021). Exploring the challenges and enablers of implementing a STEM project-based learning programme in a diverse junior secondary context. *International Journal of Science and Mathematics Education*, 19(5), 881-897. <https://doi.org/10.1007/s10763-020-10103-8>
- Yusri, R., Yusof, A. M., & Sharina, A. (2024). A systematic literature review of project-based learning: Research trends, methods, elements, and frameworks. *International Journal of Evaluation and Research in Education*, 13(5), 3345-3359. <https://doi.org/10.11591/ijere.v13i5.27875>