

Structuring Sociological Inquiry with Worksheets: Classroom Action Research on Student Learning

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Abstract

This classroom action study examines how a structured worksheet was used to reorganize student learning activity in a Grade X sociology lesson on social research at SMAN 9 Padang. The intervention was implemented across two classroom cycles using observation-based indicators of readiness, participation, curiosity, motivation, and problem solving. The classroom record documents low and weakly structured participation in the initial cycle, including off-task talk, limited attention, and hesitant presentation. In the subsequent cycle, the worksheet provided explicit learning goals, task sequences, concept mapping, questions, conclusions, and reflection prompts. Classroom observations indicate more focused task completion and more visible participation after the worksheet was introduced. The findings suggest that worksheets can function as procedural scaffolds for sociological inquiry when combined with teacher guidance and opportunities for explanation. Because the classroom records contains inconsistent class-size figures, the findings are interpreted cautiously as evidence of local classroom improvement rather than causal effectiveness. The study also offers practical guidance for designing inquiry-oriented worksheets in secondary sociology.

Keywords: classroom action research; sociology education; student learning activity; social research; worksheet.

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Introduction

Education increasingly requires teachers to create learning environments in which students do more than receive information. In social research, this requirement is especially important because the subject matter asks learners to interpret ideas, connect concepts with experience, and communicate their reasoning. Yet the classroom problem documented in this study was passive, weakly structured classroom participation during discussion, questioning, group work, and presentation. Such conditions matter because observable participation is not a decorative feature of instruction; it is one of the mechanisms through which students encounter, test, revise, and communicate knowledge. A classroom may be orderly and still provide limited opportunities for intellectual participation. Conversely, a classroom that organizes meaningful tasks, clear roles, and structured interaction can create conditions in which students become more visible as learners.

Research on active learning helps clarify the mechanism expected from a worksheet. Structured tasks are most useful when they require learners to generate, organize, retrieve, and explain ideas rather than merely complete blanks. The ICAP framework distinguishes passive, active, constructive, and interactive engagement, emphasizing that the cognitive work demanded by a task matters more than the visible presence of a learning medium (Chi & Wylie, 2014). Reviews of active and generative learning likewise show that student performance

is strengthened when instructional design elicits explanation, retrieval, organization, and feedback (Prince, 2004; Freeman et al., 2014; Fiorella & Mayer, 2016). From this perspective, a worksheet in sociology can function as a cognitive and procedural scaffold when it sequences observation, questioning, categorization, and interpretation of social-research problems.

Worksheets are often treated as supplementary materials, but their pedagogical value depends on how they organize intellectual work. In a social-research lesson, students must move from a question to concepts, evidence, interpretation, and communication. A well-designed worksheet can make those moves explicit by sequencing tasks and preserving a visible record of students' reasoning. This function is especially relevant when students are still learning how to formulate questions, distinguish data from opinion, and connect sociological concepts with everyday situations. The present study therefore examines the worksheet as a structure for inquiry rather than as a printed product. The central concern is whether the sequence of prompts, teacher guidance, and reflection created more consistent opportunities for students to participate in the work of introductory sociological research.

For this reason, the present article does not frame a structured worksheet used to organize social-research learning tasks as a universally effective treatment. Instead, it treats the classroom as a situated pedagogical system and asks what changed in observable learning processes when the intervention was introduced. This distinction is important. Classroom action studies, qualitative case studies, exploratory factor analyses, and one-group pretest-posttest designs can provide useful evidence, but each design supports a different level of inference. Strengthening the manuscript therefore requires aligning the research question, evidence, and claims. The objective of this study is to examine how a structured worksheet could reorganize classroom activity during sociology lessons on introductory social research.

In this study, improvement is defined narrowly as a change in observable learning activity during sociology lessons on social research. The worksheet was intended to make the inquiry sequence visible—what students should notice, discuss, write, conclude, and reflect on—rather than to function as a proxy for achievement. This distinction matters because a student can complete a task without necessarily demonstrating durable conceptual understanding. The cycle evidence is therefore interpreted as evidence about participation and task engagement, not as a direct test of mastery.

The evidentiary claim also depends on what changed across the action cycles. The worksheet was progressively organized around learning objectives, a concept map, instructions, questions, a conclusion, and reflection. The relevant question is not whether worksheets are inherently effective, but whether this structure reduced ambiguity in the classroom task and gave students a clearer route into social-research activity. Recent worksheet studies similarly emphasize the value of structured inquiry prompts and scaffolding for concept-focused engagement (Amini et al., 2022; Illahi & Yurnetti, 2023).

The case is situated in an Indonesian senior secondary sociology classroom where students were learning social research, a topic that asks them to move from everyday observation to more disciplined inquiry. This content makes task structure especially important: students must identify a social issue, formulate questions, organize evidence, and communicate a conclusion. A worksheet can support that progression when it functions as an inquiry scaffold rather than a collection of decontextualized questions. The present study examines that instructional function within one classroom action cycle sequence.

The analysis therefore focuses on three study-specific questions: What forms of low learning activity were visible before the worksheet was restructured? How did student activity change as the worksheet sequence became more explicit across the action cycles? What limits should be placed on interpreting those changes, given the short intervention, the observation-based indicators, and the inconsistency in the recorded class size? These questions keep the article aligned with the evidence actually available in the classroom record.

Previous research on worksheets has commonly emphasized feasibility, learning outcomes, or students' responses to instructional media. Those findings are useful, but they do not fully explain how a worksheet changes the organization of classroom participation. Active-learning research suggests that learning improves when students are required to retrieve, generate, organize, and explain ideas rather than merely receive information (Chi & Wylie, 2014; Fiorella & Mayer, 2016). Self-regulated learning research similarly highlights the value of explicit goals, monitoring, and reflection (Panadero, 2017). What remains less visible in many classroom studies is the mechanism linking these design features to observable participation. This article addresses that gap by examining how a structured worksheet redistributed attention, task completion, questioning, and presentation within a sociology classroom.

A disciplinary perspective further clarifies why the case matters. Learning about social research requires students to coordinate factual information with interpretation. In social-science and humanities classrooms, concepts are not meaningful when they remain detached from concrete situations. Students must identify relationships, classify evidence, compare explanations, and communicate a position. This means that classroom activity should be evaluated not merely by how busy students appear but by whether the activity carries

intellectual work. The intervention in this study is therefore best understood as an attempt to redesign the pathway through which students encounter and use disciplinary ideas.

For worksheet-supported inquiry, participation should be read at more than one level. Visible writing and task completion indicate behavioral engagement, whereas asking questions, connecting concepts, and composing a conclusion suggest more cognitively generative activity. The ICAP framework is useful here because it distinguishes passive, active, constructive, and interactive engagement rather than treating all on-task behavior as equivalent (Chi & Wylie, 2014). The observation ratings used in this study cannot fully resolve those levels, but the distinction helps prevent inflated claims about learning.

A structured worksheet may also redistribute access to participation by giving every student the same sequence of prompts and space for written responses. That design can reduce dependence on a few confident students who dominate whole-class talk. At the same time, the records do not show whether improvement was evenly distributed among students or concentrated among those who were already more engaged. The study therefore treats the worksheet as a potential participation scaffold while leaving distributional questions open for future student-level analysis.

For the teacher, the worksheet functioned as a design object that could be revised between cycles. The first cycle revealed where instructions, sequencing, and opportunities for reflection were insufficiently clear; the second cycle allowed those components to be reorganized. This is an important feature of classroom action research: improvement emerges through the diagnosis of specific instructional frictions rather than through adoption of a model by name. The worksheet became useful because its structure was adjusted in response to observed classroom behavior.

The topic of social research gives this design problem disciplinary importance. Students cannot learn research only by memorizing definitions of variables, data, or methods; they need repeated practice in asking questions, sorting information, and explaining why particular evidence supports a conclusion. In this setting, the worksheet acted as a bridge between teacher explanation and student inquiry by specifying a sequence while leaving room for students to produce their own responses. That balance matters because too little structure can leave novice learners uncertain about what to do, whereas excessive structure can reduce inquiry to completion. The classroom-action design made it possible to observe whether a more explicit task architecture improved participation without assuming that the worksheet alone caused every change.

A final conceptual point concerns the relationship between educational design and evidence. In this study, a structured worksheet used to organize social-research learning tasks should be understood as a configuration of tasks, expectations, interactions, and feedback rather than as a single independent variable with an automatic effect. This perspective helps explain why apparently similar innovations can produce different outcomes across classrooms. Implementation quality depends on whether students understand the task, whether participation is distributed, whether teacher feedback is timely, and whether the activity requires use of the target concepts. It also clarifies why the same innovation may support one outcome more strongly than another. A worksheet may improve task organization without necessarily improving long-term retention; a collaborative model may increase communication while leaving group processing uneven; a digital tool may improve immediate performance while creating new demands for verification. The present article therefore treats the intervention as a situated pedagogical arrangement and uses the available evidence to identify plausible mechanisms rather than to assert an undifferentiated treatment effect.

The contribution of the study is therefore modest but specific. It shows how a familiar instructional resource can operate as a cognitive and procedural scaffold when its components are aligned with the demands of sociological inquiry. Rather than asking whether worksheets are generally effective, the study identifies what changed in the classroom when goals, task sequences, concept mapping, questions, conclusions, and reflection were made visible in one learning artefact. This mechanism-oriented interpretation is useful for classroom action research because it connects observed improvement to design features that teachers can inspect and revise. The study also keeps its claims close to the evidence: the outcome is observable learning activity in one class, not a general measure of long-term achievement or causal effectiveness.

The action-research tradition also positions instructional materials as objects of teacher reflection rather than fixed products. Indonesian discussions of classroom action research and teacher professionalism emphasize iterative diagnosis and improvement of practice (Ani, 2008; Aqib, 2010). Broader work on learning media likewise stresses that media should be selected and designed in relation to instructional goals rather than treated as an end in itself (Hasan, 2020). In this case, the worksheet became analytically useful because the teacher could identify which prompts, sequences, and reflection components required revision between cycles.

Scaffolding research further helps locate the worksheet between excessive guidance and unsupported independence. Guided-inquiry scaffolds can improve conceptual engagement when prompts make the learning pathway visible without supplying the reasoning itself (Rahayu et al., 2022). This balance also matters for classroom equity: active-learning research shows that participation structures can shape who gains access to

cognitively demanding work (Theobald et al., 2020). The worksheet in this study is therefore interpreted as an external organizer of task sequence, while teacher feedback and student-generated explanations remain necessary for meaningful sociology learning.

Indonesian worksheet research provides a useful practical backdrop. Alternative-solution worksheets have been used to support creative mathematical thinking (Aripin & Purwasih, 2017), science worksheets have been embedded in contextual instruction (Asrizal et al., 2019), and e-worksheet designs have been associated with learning activity and ICT-oriented learning (Janah, 2020; Liana & Alpindo, 2021). These studies vary in subject and design, but collectively suggest that the pedagogical value of a worksheet depends on what intellectual actions it structures. The present sociology case extends that question from media feasibility toward the organization of inquiry participation.

Method

This study used a CAR design at SMAN 9 Padang. The participants were class X.E3 students. The design was selected because the research question concerned a bounded educational process rather than a population-level estimate. The study focused on social research. The central pedagogical or analytic focus was a structured worksheet used to organize social-research learning tasks. The study preserves the research design and data while clarifying the level of inference that the design can reasonably support.

The classroom record describes two action cycles over two meetings. Cycle 1 documented baseline activity under discussion, questioning, lecture, and group-work routines; Cycle 2 introduced the worksheet. The study record is internally inconsistent about class size, reporting 32 students in the Method section and 35 students in the Results section. Because no attendance log is supplied, the discrepancy is retained as a methodological limitation rather than silently reconciled.

Data were drawn from the classroom action records used to rate five dimensions of learning activity—readiness, activity, curiosity, motivation, and problem solving—together with field descriptions of off-task talk, leaving the room, concentration, discussion, and presentation. The study did not rely on interviews or standardized achievement tests. The evidence therefore captures changes in observed classroom participation across the pre-action condition and the two action cycles, with descriptive notes used to clarify what the rating shifts looked like in practice.

Analysis proceeded descriptively across the action sequence. The pre-action ratings were used to establish the initial pattern, after which Cycle 1 and Cycle 2 observations were compared indicator by indicator and interpreted alongside the classroom notes. No inferential statistical test was warranted because the study involved one intact class and iterative instructional change. The analytical emphasis is instead on convergence between the rating pattern and the observed changes in task attention, questioning, discussion, written work, and presentation.

Credibility depends mainly on the consistency between the predefined activity indicators and the classroom descriptions recorded during the cycles. The article therefore cross-checks numerical ratings against concrete observations rather than treating the ratings as self-explanatory. It also preserves an unresolved discrepancy in the source documentation: one section reports 32 students whereas another reports 35. Rather than silently harmonizing those figures, the discrepancy is retained as a limitation because it affects the precision of any student-level interpretation.

The analysis used the observation ratings and field descriptions recorded across the classroom-action cycles. Ratings were read descriptively rather than as inferential statistics, and changes were interpreted together with notes on attention, task completion, questioning, and presentation. The study record contains an inconsistency in class size: the Method section reports 32 students, whereas the Results section reports 35. Because an attendance register was not available in the materials, the discrepancy is retained as a limitation rather than resolved by assumption. This does not prevent interpretation of the documented classroom pattern, but it does limit precision in percentage-based statements and reinforces the need to treat the findings as local evidence of classroom improvement.

Three limitations shape the interpretation. First, the class-size discrepancy in the source record prevents a fully precise denominator for student-level statements. Second, the action sequence was short, so the persistence of the observed changes is unknown. Third, the outcome was learning activity rather than a direct measure of sociological research knowledge or research skill. Consequently, the study supports a claim about improved classroom engagement under a more structured worksheet design, not a causal claim about long-term academic achievement.

Results and Discussion

Baseline participation remained weak

Cycle 1 ratings showed readiness at 3 on a five-point observation scale, while activity, curiosity, motivation, and problem-solving were each rated 2. Field descriptions recorded off-task conversation, repeated exits from class, limited concentration, weak task structure during discussion, and low confidence during presentations.

The baseline pattern suggests that the main difficulty was not simply a lack of willingness to learn. Students were working without a sufficiently explicit pathway for moving from instructions to an accountable product. Low ratings for activity, curiosity, motivation, and problem solving therefore point to a coordination problem in the learning environment: expectations were present, but the steps through which students could demonstrate engagement were not yet consistently organized.

The worksheet reorganized classroom work

In Cycle 2, the worksheet was designed with a title, student identity, learning objectives, a concept map, instructions, questions, conclusion, and reflection. The teacher distributed it individually, provided guidance, observed completion, invited students to present their work, aligned answers through whole-class clarification, and ended with reflection.

The worksheet changed this situation by externalizing the sequence of work. Learning objectives, a concept map, questions, a conclusion, and a reflection prompt created checkpoints that students and the teacher could use to monitor progress. This made participation less dependent on spontaneous volunteering and more closely tied to completing and explaining a defined series of inquiry tasks.

Activity became more visible and structured

The classroom records that student activity improved after the worksheet was introduced, particularly in readiness, attention to instructions, completion of assigned tasks, and willingness to present. The strongest evidence is observational and should therefore be read as a classroom-improvement pattern rather than as an experimental treatment effect.

The increase in visible activity should be interpreted as a change in participation opportunities rather than proof of deeper conceptual mastery. Students had more occasions to read instructions, formulate responses, complete tasks, and present their work. These behaviors are educationally meaningful because they make thinking observable, but the study did not independently assess the quality or durability of students' sociological understanding.

The intervention changed the organization of participation

Across the reported evidence, the most consistent change concerned how participation was organized around a structured worksheet used to organize social-research learning tasks. Students or institutional actors were given clearer sequences, roles, products, or decision points than in the initial condition. This result matters because it shifts attention from the innovation as an object to the practices that the innovation made possible. The source does not provide evidence that every participant changed in the same way, but it does show a reorganization of the learning or implementation environment.

Across the cycles, the most consequential shift was the redistribution of responsibility. The teacher continued to guide the lesson, but students were expected to carry a larger share of the work of organizing information and communicating answers. In that sense, the worksheet functioned less as a content container than as an interface between teacher guidance and student action.

Observed improvement remained context dependent

The pattern observed here belongs to one class, one teacher-designed worksheet, and one sociology topic. Social research is particularly compatible with sequencing tools because the content itself involves stages of inquiry. A worksheet might operate differently in topics that require debate, interpretation of competing theories, or extended fieldwork. The case is therefore most useful as a design example: it shows how a teacher can convert a broad goal of 'active learning' into a visible sequence of prompts, actions, and reflections that can be revised across cycles.

The improvement remained dependent on the particular class, topic, teacher guidance, and observation procedure. A structured worksheet cannot be separated from the way instructions are explained, feedback is provided, and students are invited to revise or present their reasoning. The findings therefore support design principles for similar lessons, while leaving broader effectiveness claims for comparative or experimental research.

Discussion

Worksheet as cognitive and procedural scaffold

The observed increase in classroom activity is therefore best interpreted as evidence that the worksheet changed the participation architecture of the lesson. Such a claim is consistent with research showing that active-learning benefits depend on what learners are cognitively required to do and how teachers structure feedback and self-regulation (Hattie & Donoghue, 2016; Panadero, 2017; Sweller et al., 2019). It is also important not to equate completion with learning: durable learning is more likely when students retrieve and reorganize knowledge rather than simply reproduce presented information (Karpicke & Blunt, 2011; Dunlosky et al., 2013). The present classroom action study does not test these mechanisms experimentally, but its cycle-based observations are compatible with the interpretation that the worksheet created more explicit opportunities for students to act on sociological content.

From activity to sociological inquiry

A second issue concerns from activity to sociological inquiry. In the present case, observable change should be read as evidence that the learning environment created additional opportunities for students to interpret, communicate, decide, or respond. This is particularly important in subjects concerned with social phenomena, citizenship, history, values, or digital judgment, because disciplinary learning requires more than completing a task. Students need opportunities to connect concepts with cases, compare perspectives, justify claims, and examine the consequences of their reasoning. The value of an interactive model is therefore strongest when activity is tied to a disciplinary form of thinking.

Teacher guidance and the limits of material-centered explanations

The third issue is teacher guidance and the limits of material-centered explanations. The study indicates that the worksheet did not operate independently of teacher judgment. The teacher selected the sequence of tasks, clarified what counted as an acceptable response, monitored participation, and used the completed worksheet as a basis for discussion. This is consistent with research showing that learning strategies are effective when learners understand the purpose of the task and receive guidance appropriate to the cognitive demands involved (Hattie & Donoghue, 2016; Sweller et al., 2019). A worksheet can therefore redistribute classroom activity without eliminating teacher expertise; its pedagogical value depends on how well the prompts, timing, feedback, and follow-up discussion are aligned with the intended sociological reasoning.

Methodological limits and implications for action research

Finally, methodological limits and implications for action research requires explicit attention. The evidence comes from a bounded educational study and should not be generalized statistically beyond its participants. Observation percentages may be sensitive to attendance and observer judgment; qualitative findings depend on the range of informants; exploratory factor analysis with a modest sample requires replication; and one-group pretest-posttest designs cannot exclude maturation, testing, or other contextual influences. These limitations do not make the findings useless. They instead define what the study can contribute: a transparent account of a locally implemented educational process and a set of propositions that can be tested in stronger comparative designs.

Implications for educational practice

For practice, the findings support using a structured worksheet used to organize social-research learning tasks only when its structure is aligned with a clear learning problem. Teachers should identify the specific behavior or reasoning that needs to change, design tasks that make that behavior necessary, and use observation or assessment to determine whether the intended change actually occurs. Activities should include explicit instructions, opportunities for peer or teacher feedback, and a closing phase in which learners explain what they learned and how they know it. In institutional programs, the same logic applies: roles, time, resources, and goals need to be aligned rather than merely documented.

A practical implication concerns worksheet design itself. In social-research lessons, the worksheet should move beyond procedural completion toward a sequence that makes thinking visible. One useful progression is to begin with a concrete social phenomenon, ask students to formulate an investigable question, identify relevant categories or evidence, compare possible explanations, and end with a short evidence-based interpretation. Such sequencing is compatible with generative-learning principles because students must organize and explain information rather than merely copy it (Fiorella & Mayer, 2016). It also creates opportunities for retrieval, self-monitoring, and revision, processes associated with more durable learning (Karpicke & Blunt, 2011; Panadero, 2017). The implication is not that every sociology lesson requires a worksheet, but that when worksheets are used, their design should embody the intellectual sequence of inquiry rather than serve as a substitute for instruction. The findings also underline a measurement issue. Classroom activity percentages provide useful formative information for action research, but they do not by themselves establish the depth of conceptual understanding. A

student may complete more tasks, ask more questions, or participate more visibly without necessarily producing a stronger sociological explanation. Future classroom cycles could therefore combine activity observation with short written explanations, concept classification tasks, or reflective prompts that capture what students understand about social research. This distinction matters because active learning is most defensible when behavioral participation is connected to cognitive engagement (Chi & Wylie, 2014). The present study offers evidence of a reorganized learning process in one class; a stronger next step would be to examine whether that reorganization also improves the quality of students' research questions, evidence use, and interpretation.

A final design consideration is accessibility. A worksheet that structures inquiry can still exclude students if directions are dense, response spaces are inflexible, or the sequence assumes identical reading speed. Teachers can preserve the same intellectual objective while varying how prompts are presented, allowing brief oral clarification, or giving students additional processing time. These adjustments do not change the core learning demand; they reduce avoidable barriers around the task. For classroom action research, documenting such adaptations would also help explain why participation changes across cycles and would make the instructional design more transparent for other teachers seeking to adapt the approach.

The findings also raise an equity question. Whole-class discussion tends to make participation most visible among students who are already confident speakers, whereas a written scaffold can provide a quieter route into the same intellectual task. This does not guarantee equitable participation, but it broadens the forms through which students can prepare, monitor, and communicate a response. Self-regulated learning models emphasize goal setting, monitoring, and reflection as processes that help learners take greater responsibility for learning (Panadero, 2017). In the present classroom, the worksheet's sequence of objectives, questions, conclusions, and reflection prompts can be read as a simple external support for those processes. Future classroom cycles could examine whether such supports are used differently by students with different levels of prior knowledge or confidence and whether written participation later translates into stronger oral explanation.

A further implication concerns cognitive load and task visibility. Novice learners can struggle when a lesson requires them to coordinate several unfamiliar actions at once: understand a concept, remember instructions, decide what evidence is relevant, and produce an acceptable response. Instructional-design research suggests that unnecessary coordination demands can consume working-memory resources that would otherwise support learning (Sweller et al., 2019). A worksheet can reduce this burden when it externalizes the sequence of work without doing the thinking for students. The design challenge is therefore to distinguish productive structure from over-scaffolding. Prompts should make the inquiry pathway visible while still requiring students to retrieve, generate, and explain ideas. This interpretation is consistent with generative-learning research, which emphasizes active production of meaning rather than passive exposure to information (Fiorella & Mayer, 2016).

Implications for further research

Future classroom action studies should retain the indicator-based observation used here but add evidence that connects activity to learning quality. Student research questions, short written explanations, concept maps, or mini-research products could be scored with transparent criteria across cycles. Recording attendance consistently would also resolve denominator problems, while student-level trajectories could show whether quieter learners benefit from the worksheet to the same extent as already active classmates. Longer follow-up would help determine whether the gains persist after the scaffold is reduced.

Conclusion

This study examined to examine how a structured worksheet could reorganize classroom activity during sociology lessons on introductory social research. The evidence indicates that a structured worksheet used to organize social-research learning tasks was associated with a meaningful reorganization of the studied learning or implementation process. The most defensible contribution is not a universal claim of effectiveness, but a context-specific account of how tasks, roles, interaction, feedback, and reflection changed within SMAN 9 Padang.

The revised analysis also demonstrates the importance of methodological alignment. Educational innovation should be evaluated through the outcomes that were actually measured, and inconsistencies in source data should be disclosed rather than silently corrected. This produces conclusions that are narrower but more credible. For teachers and institutions, the practical implication is to treat pedagogical models and technologies as structures for learning activity, not as ends in themselves. For researchers, the next step is to test these locally observed mechanisms with stronger measurement, transparent sampling, and designs capable of supporting broader inference.

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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Conflict of Interest

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

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