

Connecting Sociological Concepts to Students' Social Worlds: Project-Based Learning and Interactive Digital Pedagogy in an Indonesian Secondary School

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Abstract

This qualitative case study examines how project-based learning (PjBL) and interactive digital tools were combined to teach social conflict and deviant behavior at SMA Negeri 3 Padang, Indonesia. Data were drawn from an in-person interview with a sociology teacher, classroom observation, and instructional documents. The analysis shows that learning was organized around recognizable social cases, collaborative interpretation, educational videos, and Quizizz-based formative activities. Digital tools supported problem framing, participation, feedback, and communication, but their use was shaped by unequal participation, device availability, internet connectivity, instructional time, and teacher digital capacity. Students were observed to engage actively in discussions and digital quizzes, although the qualitative design does not permit causal claims about learning gains. The study demonstrates that technology becomes educationally meaningful when it serves disciplinary purposes and is supported by teacher mediation, contextual problem design, and adequate classroom infrastructure. The analysis shows how sociological concepts become more learnable when teachers connect disciplinary abstraction with students' experiences while preserving analytical rigor.

Keywords: digital pedagogy; project-based learning; sociology education; social conflict; student engagement.

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Introduction

Secondary sociology is well positioned to connect disciplinary knowledge with problems students encounter in school and community life. Topics such as social conflict, bullying, deviant behavior, peer relations, and vandalism are not distant abstractions; they are social phenomena through which students can examine norms, power, identity, group dynamics, and institutional responses. The pedagogical difficulty is that familiarity does not necessarily produce sociological understanding. Students may readily recognize a conflict but still explain it primarily through blame, personality, or moral labels.

Project-based learning offers one way to organize sustained inquiry around students' social worlds, but contextual relevance is not sufficient on its own. The learning design must help students move from a familiar experience to a sociological question, from a question to evidence, and from evidence to a defensible conceptual explanation. Boardman et al. (2024) show that authentic secondary PjBL can reshape participation while retaining tensions around curricular coverage and disciplinary depth. That tension is central here: lived experience should become an entry point to sociology, not a substitute for sociology.

Digital technologies are often integrated into PjBL, yet the pedagogical contribution of technology is frequently overstated. A video can become passive entertainment, a quiz can become point-chasing, and presentation software can reward visual polish without strengthening disciplinary reasoning. A systematic review of technology-based student engagement emphasizes that engagement is shaped by instructional structure, social interaction, feedback, and access conditions rather than by technology alone (Balalle, 2024). Consequently, a useful analysis must ask not simply what tools were used, but how those tools were connected to the intellectual work of learning sociology.

At SMA Negeri 3 Padang, the study described the integration of PjBL with educational videos, digital presentations, and Quizizz in lessons on social conflict and deviant behavior. It also reported practical constraints, including differences in student readiness, uncontrolled gadget use, limited devices, unstable internet access, and uneven teacher confidence with technology. These conditions make the setting analytically useful because they reveal the relationship between pedagogical aspiration and classroom infrastructure.

The study asks: How were PjBL and interactive digital tools combined to contextualize social conflict and deviance, how did students participate in the observed learning activities, and what conditions constrained implementation? The contribution is a process-oriented account that treats digital tools as components of pedagogical design rather than as causal agents in their own right.

Contextualization in sociology should be understood as more than the use of a local example. A social case becomes pedagogically useful when students are required to interpret relationships, norms, group interests, power, and institutional responses rather than simply retell what happened. Conflict and deviance are strong topics for this purpose because students often recognize the situations immediately, yet their initial explanations may remain moral or personal. The teacher's task is to turn familiarity into an analytical problem. This mediated movement from everyday experience toward conceptual explanation is also compatible with a sociocultural understanding of learning (Vygotsky, 1978).

Digital tools mediate this movement by shaping what students can observe and how they can respond. A video stabilizes a social situation for repeated analysis, an online quiz produces immediate response data, and a digital presentation allows students to reorganize information for an audience. These functions are different from the broad claim that technology 'increases motivation.' Technology becomes educationally significant when it changes the structure of observation, discussion, feedback, or explanation.

Project-based learning adds the problem of orchestration. Teachers must decide when a digital search is appropriate, how groups evaluate information, how conceptual errors are surfaced, and how a product is brought back to the sociological learning goal. Research on secondary ICT integration and teacher digital competence emphasizes precisely this alignment among technology, pedagogy, and disciplinary purpose (Msafiri et al., 2023; Tzafilkou et al., 2023). Orchestration in this article therefore refers to the teacher's management of conceptual, social, and digital resources across the inquiry process.

Method

The research used a qualitative case-study design focused on sociology teaching at SMA Negeri 3 Padang, Indonesia. The principal informant was Hendra Wahyudi, S.Sos., a sociology teacher at the school. An in-person interview was conducted on 30 April 2025. Classroom observation was also conducted in the school environment, and documentary material included instructional plans and a project-oriented learning module developed for the lessons. The case-study framework supports interpretation of how contextual problems, collaborative work, and digital tools were combined in a bounded instructional setting. The bounded case-study design supports contextual interpretation rather than statistical generalization (Yin, 2018).

The data sources served complementary purposes. The teacher interview documented perceived instructional challenges, planning decisions, technology use, and student responses. Observation provided direct evidence of classroom interaction and participation. Documents were used to examine the relationship between planned activities and the enacted sequence of learning.

Analysis followed the broad sequence of data reduction, data display, and conclusion drawing. Material was organized into themes that recur across the interview, observation, and documents: contextual planning, collaborative case analysis, digital mediation, participation differences, implementation constraints, and perceived social learning. This thematic organization is consistent with an interpretive qualitative approach (Braun & Clarke, 2021).

The study did not include a comparison group, standardized achievement measure, or inferential analysis. Consequently, terms such as "significant improvement" are inappropriate. Observed participation and teacher-reported understanding are reported as qualitative patterns, not as measured effects. Ethics approval and consent procedures were not specified, which is acknowledged as a methodological reporting limitation.

Interview, observation, and documentary material were organized into recurring categories: contextual planning, collaborative case work, digital mediation, participation differences, infrastructure, and perceived learning. These categories were interpreted through contextualization, mediation, and pedagogical orchestration. The aim was to explain how the components of the lesson interacted rather than to treat each tool as a separate intervention.

The study contains no comparison group, standardized pre/post test, or inferential analysis. Statements about student participation are grounded in observed classroom behavior, while statements about understanding are treated as teacher perceptions or qualitative interpretations. This boundary is important because enthusiasm during a digital quiz cannot be equated automatically with conceptual learning.

Results and Discussion

Planning from recognizable social problems

The instructional design began with social situations that students could recognize: bullying, student fights, vandalism, interpersonal conflict, and other forms of rule-breaking. These cases functioned as entry points into the sociological concepts of deviance and conflict. Rather than introducing the lesson exclusively through definitions, the teacher used cases and short visual materials to ask students what happened, who was involved, what norms were at stake, and what social conditions might explain the event.

This contextual orientation was important because the school served students with varied academic backgrounds and learning habits. The teacher reported that some students struggled to adapt to the demands of senior secondary education and were easily distracted by non-academic gadget use. Anchoring the lesson in recognizable situations provided a common object of discussion before students were asked to work with more abstract concepts.

Collaborative case analysis as the core of the project sequence

Students worked in small groups to analyze cases, identify forms of deviance or conflict, discuss possible causes, and propose responses. The project logic was therefore organized around interpretation and solution-building rather than content reproduction. Group presentations required students to explain their reasoning to peers.

Observation suggested that the collaborative format created more opportunities for students to speak than a teacher-led lecture would have provided. However, participation was not uniform. Some students were more willing to articulate ideas, while others remained quiet or relied heavily on more active group members. This difference highlights a recurring problem in collaborative pedagogy: group activity can conceal individual disengagement unless roles and accountability are deliberately designed.

Video and Quizizz as pedagogical mediators

Educational videos were used as stimulus material, particularly at the beginning of a lesson. Their main function was to make a social situation visible and discussable. In this setting, video was not the content itself; it created a shared case that students could analyze.

Quizizz was used in a Team Games Tournament format as a formative and motivational activity. Students appeared enthusiastic during digital quiz sessions, and the competitive format generated visible participation. Yet enthusiasm should not be equated automatically with conceptual learning. The strongest pedagogical use of the quiz occurred when answer feedback was connected to sociological explanations and misconceptions were discussed collectively.

This distinction is supported by wider research. Technology can contribute to engagement when it is integrated with feedback, social interaction, and clear learning structures, but it can also produce distraction or shallow participation when the tool becomes the goal of the activity (Balalle, 2024).

Differentiated participation and teacher mediation

The diversity of student readiness required continuous mediation. Some students responded strongly to visual prompts, others contributed more in verbal discussion, and still others required direct prompting or smaller-group interaction. The teacher's work therefore involved monitoring who was participating, rephrasing questions, providing examples, and redirecting off-task gadget use.

This role is consistent with evidence that student-centered inquiry increases rather than eliminates the need for responsive teacher support. Students require autonomy to formulate interpretations, but they also require prompts that help them test claims against concepts and evidence. Research on inquiry-oriented digital reading shows that collaborative annotation can strengthen information-literacy work when learners are guided to evaluate and discuss sources (Chen et al., 2022). In sociology, a comparable principle applies when students search digital material about social issues: access must be paired with criteria for relevance, credibility, and conceptual use.

Infrastructure as part of pedagogy

Implementation was constrained by unequal device availability, unstable internet connectivity, limited instructional time, and differences in teacher digital competence. These were not peripheral technical issues. They shaped which activities could be completed, how quickly groups could work, and whether all students could participate on equal terms. Similar work in diverse secondary settings shows that time, resources, curricular fit, and teacher support are interconnected conditions for sustained PjBL implementation (Wilson, 2021).

The case therefore suggests that digital PjBL depends on both pedagogical and infrastructural readiness. A well-designed activity can fail if the platform is inaccessible or if technical troubleshooting consumes the time intended for discussion. Conversely, modest technologies can be useful when their function is clear and backup arrangements are available.

Learning sociology through social interpretation

The most educationally important pattern was the movement from naming a social problem toward explaining it. Students were asked to connect cases with sociological categories and consider multiple causes or responses. Teacher reports and observation indicated that contextual cases made discussion easier and encouraged students to connect theory with school and community realities.

The evidence supports the claim that the approach created opportunities for contextual sociological reasoning. It does not establish a quantified increase in critical thinking, collaboration, or achievement. Those outcomes would require additional measures.

The same gadget functioned as learning resource and distraction

A distinctive tension in the case was that the same device used for digital learning was also used by some students for games, social media, or live streaming. The teacher was therefore not introducing technology into a technology-free environment; the instructional challenge was to redirect devices already embedded in students' everyday attention practices. This complicates the assumption that frequent smartphone use is equivalent to academic digital competence.

Short, purposeful digital tasks linked to group accountability appeared more manageable than unstructured device use. Nevertheless, classroom norms and monitoring remained necessary. The case suggests that digital pedagogy also involves the social regulation of attention: students need to learn when a device functions as an academic tool and what forms of use undermine collaborative learning.

Discussion

The case shows that the value of technology-supported PjBL lies in pedagogical alignment. Videos were useful because they supplied analyzable social situations; group tasks were useful because they required interpretation and negotiation; and Quizizz was useful when it generated feedback on conceptual understanding. Technology became meaningful when it supported the work of sociology.

This interpretation places contextualization within a broader literacy problem. Students may be highly familiar with social media, neighborhood events, or peer-group experiences while lacking the disciplinary language needed to analyze them. Practitioner-research on student writing shows that teachers need explicit awareness of the language demands embedded in subject learning (Seah et al., 2022). The sociology teacher therefore works across two translations: from social experience to sociological concept, and from informal expression to an evidence-based academic explanation that can be discussed, revised, and communicated.

The findings also challenge the assumption that contemporary students are automatically competent digital learners. Familiarity with smartphones or social media does not mean that students can use digital tools productively for inquiry. In the observed context, some forms of gadget use competed directly with lesson goals. Digital literacy therefore includes the capacity to select, evaluate, create, and communicate information for a disciplinary purpose—not merely the ability to operate a device.

For sociology, the central pedagogical criterion should be whether students are learning to interpret social life with concepts and evidence. A case about bullying, for example, can be discussed as an individual behavioral problem or as an interaction involving group norms, power, social status, institutional responses, and peer cultures. PjBL has disciplinary value when the project moves students toward the latter form of reasoning.

The study is limited by its single-school design, one principal teacher informant, and absence of student interviews or outcome measures. Future research could combine classroom observation with student focus groups, analyze project artifacts using a sociological reasoning rubric, and compare conceptual explanations before and after a project sequence. Such designs would allow stronger claims about learning while preserving attention to classroom process.

Technology as a mediator, not an independent cause

The most important finding is that technology contributed through identifiable pedagogical functions rather than through its mere presence. Video created a common object of attention, Quizizz accelerated feedback, and

digital presentation supported communication. These functions are consistent with Balalle's (2024) conclusion that engagement in technology-based education depends on instructional structure, interaction, and feedback. The case therefore supports a function-first approach: teachers should identify what intellectual work students need to perform before selecting a digital tool.

This perspective also changes how success is evaluated. A competitive quiz may produce visible excitement, but its disciplinary value depends on the quality of the questions and the discussion that follows. A visually appealing presentation may demonstrate technical competence but not necessarily sociological reasoning. Assessment should therefore prioritize conceptual accuracy, use of evidence, explanation of social relationships, and recognition of alternative interpretations.

Infrastructure is part of pedagogy

Limited devices and unstable internet access affected grouping, pacing, and participation. These constraints should not be treated as external to pedagogy because they determine who can participate and how much instructional time is available. A design that assumes uninterrupted individual connectivity may exclude students when access is uneven. More resilient practice allows shared-device work and maintains non-digital alternatives that preserve the same sociological objective.

Teacher digital competence is similarly pedagogical rather than purely technical. Knowing how to operate Quizizz or create a video is only one component. Teachers also need to interpret student responses, decide whether the tool fits the learning goal, anticipate distraction, and provide an alternative when technology fails. Digital competence therefore involves subject-specific judgment.

From activity to sociological reasoning

The case reinforces a broader concern in PjBL research: active participation is not sufficient evidence of disciplinary learning. Students can be busy, collaborative, and enthusiastic while still relying on common-sense explanations. Sociological learning becomes visible when students identify norms and actors, explain relationships among causes, use evidence, and justify why one interpretation is more persuasive than another. This emphasis is consistent with systematic evidence that critical and higher-order thinking in problem- and project-based environments must be deliberately elicited and supported (Loyens, van Meerten, Schaap, & Wijnia, 2023).

Teachers can make this progression explicit by asking groups to document how their explanation changes. An initial response can be compared with the final project argument, allowing students to see whether they have moved from blame toward multi-causal social interpretation. Such reflection makes the sociological purpose of project work more visible.

Implications for assessment and differentiation

Digital and project-based activities created multiple entry points for students with different preferences and confidence levels, but active classrooms can still conceal passive students. Teachers should therefore combine group products with individual checks, short written reflections, or targeted questioning. This makes it possible to distinguish group energy from individual understanding.

Differentiation can also occur through task roles. Students may contribute as discussion facilitators, evidence organizers, presenters, or digital editors, but roles should rotate so that students do not become permanently confined to tasks that avoid analytical work. The aim is equitable access to sociological reasoning, not only equitable distribution of workload.

Practical and institutional implications

For teachers, a practical rule is to begin with the sociological function and then choose the technology. Video is useful when a case needs to be observed; an online quiz is useful when misconceptions need rapid diagnosis; a shared document is useful when group reasoning needs to be visible; and digital presentation is useful when students need to communicate an interpretation. This sequence reduces the use of technology for novelty alone.

Schools can strengthen implementation by providing reliable connectivity, shared devices, technical support, and professional learning that links digital tools to subject-specific pedagogy. Teachers also need planning time to redesign tasks and discuss evidence from classroom use. Without such support, technical troubleshooting can consume time that should be devoted to sociological inquiry.

Limitations and research agenda

The study is limited to one school and one principal teacher informant. It did not include systematic student interviews or quantitative measures of learning, so the analysis cannot determine whether digital PjBL improves achievement, empathy, or critical thinking. The findings are best read as a process account of implementation conditions.

Future research should analyze student products, compare explanations before and after project sequences, and examine participation logs or discussion transcripts. Comparative work across schools with different levels of infrastructure could also clarify how access conditions shape the quality and equity of digital project learning.

Disciplinary implications for teaching conflict and deviance

Conflict and deviance are pedagogically productive because they make disagreement, norms, sanctions, and institutional responses visible. However, their familiarity can also encourage oversimplification. A student may interpret a conflict as the result of two incompatible personalities or a deviant act as evidence of bad character. The teacher's use of cases should therefore be organized around questions that redirect attention toward social mechanisms: What norms are being enforced? Which groups possess authority? What interests are in tension? How do institutional rules shape possible responses?

This sociological reframing also helps students distinguish explanation from justification. Understanding the social conditions of a behavior does not require approving it. The classroom can therefore examine causes and consequences while still discussing responsibility. This distinction is important when sensitive cases are used because students may otherwise assume that a structural explanation excuses harmful behavior.

The use of collaborative analysis can deepen this distinction when groups are asked to compare competing explanations. One group may emphasize peer pressure, another school regulation, and another family or community conditions. Discussion then becomes an opportunity to examine how different analytical lenses highlight different dimensions of the same case. The teacher can ask students to evaluate which explanation is best supported by the available evidence rather than selecting a single predetermined answer.

Digital media can strengthen this comparative work when they provide common evidence to all groups. A shared video, timeline, or document ensures that students are not arguing from entirely different factual bases. This makes disagreement more analytically productive because groups must interpret the same material through different concepts. It also allows the teacher to return to specific moments in the evidence when challenging an unsupported claim.

The implication for curriculum design is that digital PjBL should be sequenced around increasing analytical complexity. Early tasks can ask students to identify actors, norms, and consequences. Later tasks can require comparison of explanations, evaluation of evidence, and design of socially informed responses. The project product then becomes a culmination of disciplinary reasoning rather than an isolated multimedia assignment.

Such sequencing can also reduce cognitive overload. When students are asked simultaneously to learn a platform, understand a new concept, coordinate a group, and produce a polished artifact, technical demands can displace sociological thinking. Teachers can introduce digital routines gradually and reuse familiar tools across units so that students can devote more attention to analysis.

An additional implication concerns formative feedback. Digital tools can shorten the interval between student response and teacher intervention. When a quiz or collaborative document reveals a misconception, the teacher can address it before the final product is completed. This is particularly useful in sociology because misconceptions can take the form of moral stereotypes that become increasingly difficult to revise once they are embedded in a group narrative.

Feedback should nevertheless remain explanatory. Simply displaying the correct answer after a quiz item does not necessarily help students understand why an alternative is inadequate. Teachers can ask students to articulate the reasoning behind their choice, compare responses, and return to the original case. These follow-up moves convert a digital response into an opportunity for conceptual revision.

The same principle applies to project presentations. Peer questions can be structured around evidence and concepts rather than general praise. Students can be asked which evidence supports a claim, what concept is being applied, or how the explanation would change under a different institutional response. Such questioning makes the presentation part of the inquiry rather than merely a ceremonial end point.

Overall, the case indicates that the strongest digital pedagogy is iterative. Students encounter a case, form an initial interpretation, receive evidence and feedback, revise their reasoning, and communicate a more developed explanation. Technology can accelerate or enrich parts of this cycle, but the cycle itself remains pedagogical and sociological.

Teacher reflection after each implementation cycle is therefore important. Reviewing which prompts generated stronger discussion, where technical transitions consumed time, and which students remained peripheral can inform the next design. Small adjustments in question wording, group composition, or media choice may have greater pedagogical value than adding a new platform.

This reflective orientation also provides a more realistic account of innovation. Digital PjBL is not a fixed package that can be transferred unchanged between schools. It is an adaptive design practice in which teachers align sociological goals, student readiness, available infrastructure, and evidence from previous lessons.

Digital Mediation as Sociological Pedagogy

A central contribution of this case is the distinction between using digital tools and using them sociologically. Videos, Quizizz, presentation software, and online resources can increase the variety of classroom activity, but they become disciplinary tools only when they support observation, comparison, interpretation, and evidence-based explanation. This distinction matters because evidence on project-based learning shows positive average effects while also documenting substantial variation across designs and settings (Chen & Yang, 2019). Similarly, a recent meta-analysis of problem-driven approaches reports positive but heterogeneous motivational effects, indicating that the presence of an authentic problem does not guarantee equivalent engagement for all learners (Wijnia, Noordzij, Arends, Rikers, & Loyens, 2024). In the observed setting, the pedagogical value of a video lay not in its attractiveness but in its capacity to stabilize a social situation for collective analysis; the value of a digital quiz lay in immediate feedback that could reveal misconceptions; and the value of a presentation task lay in requiring students to organize an explanation for an audience. These functions depend on teacher orchestration. Project-based teaching research similarly emphasizes the need to preserve disciplinary content while students undertake authentic work (Grossman, Dean, Kavanagh, & Herrmann, 2019). For sociology, digital pedagogy should therefore be designed around a progression from social event to sociological question, from question to evidence, and from evidence to conceptually grounded interpretation. This perspective also changes how “engagement” should be evaluated. Observable enthusiasm or rapid participation is useful, but deeper engagement is demonstrated when students can compare interpretations, justify claims with evidence, revise an explanation after feedback, and connect a local case to broader sociological concepts. Technology is most valuable when it makes those forms of reasoning easier to practice and more visible to the teacher.

The findings can be positioned more precisely within recent work on authentic inquiry and digital learning. Secondary ICT integration is most productive when technology serves a defined pedagogical function and is accompanied by teacher support (Msafiri et al., 2023), while digital competence frameworks emphasize the professional capacity to select and orchestrate tools rather than merely operate them (Falloon, 2020). The present case adds a disciplinary requirement: digital activity becomes sociologically meaningful only when it helps students gather social evidence, compare perspectives, and construct explanations using concepts rather than simply reproduce online information.

The Indonesian literature offers particularly useful comparison. Ramadhan (2024) and Relawati, Ramadhan, and Hainon (2024) show how digital tools can support active sociology learning when embedded in structured classroom interaction. Anissi and Darmansyah (2024) similarly report the use of problem-based interactive multimedia in integrated social science. These studies strengthen the plausibility of technology-supported contextual learning while preserving an important boundary: the current case does not establish a causal digital-PjBL effect. Its evidence is better suited to explaining how one teacher connected social experience, conceptual scaffolding, group inquiry, and digital resources.

This process orientation is also consistent with research on information literacy. Digital inquiry requires students to select, annotate, compare, and interpret information rather than treat search results as evidence by default (Chen et al., 2022). For sociology teachers, this means designing tasks in which students must explain why a source is relevant, whose perspective it represents, and how it supports or challenges a sociological claim. Contextual learning becomes intellectually stronger when familiarity creates the question and disciplined inquiry determines the answer.

The case can also be located within the wider PjBL evidence base. Guo et al. (2020) show that project learning produces diverse outcomes across implementation conditions, while Yusri et al. (2024) identify substantial variation in the elements and frameworks used across studies. Kurniasari et al. (2024) provide an Indonesian example of projects organized around socially relevant issues. These studies strengthen the argument that connecting students' social worlds to sociology depends on design quality: authenticity must be accompanied by conceptual framing, inquiry routines, and assessment criteria.

Conclusion

The integration of PjBL and interactive digital tools at SMA Negeri 3 Padang illustrates a practical pathway for making secondary sociology more connected to students' social environments. The most productive activities were those in which technology served a clear pedagogical function: presenting a case, supporting collaborative analysis, providing formative feedback, or enabling students to communicate an interpretation.

The study also shows why digital innovation should not be evaluated by tool use alone. Unequal participation, device access, internet stability, time, and teacher digital capacity all shape what is pedagogically possible. The implication is that effective technology-supported sociology teaching requires alignment among sociological concepts, authentic social problems, student collaboration, teacher scaffolding, and feasible infrastructure.

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.

Use of generative AI

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