

Learning About Disasters Without Reading Risk: A Critique of Geography Education in Junior Secondary Social Studies

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ABSTRACT

Disaster education in junior secondary Social Studies has become increasingly important in Indonesia, where schools operate within regions shaped by floods, earthquakes, volcanic activity, landslides, coastal hazards, and climate-related risks. Yet the presence of disaster topics in learning materials does not necessarily mean that students are trained to read risk geographically. This study examines how disaster risk is represented in junior secondary Social Studies materials and whether those representations support spatial risk literacy. A qualitative document-based design was used, supported by critical content analysis. The analysis found that disaster learning is mainly organised around conceptual recognition, general preparedness, and national disaster awareness. Hazard recognition receives clearer treatment than exposure, vulnerability, local capacity, and the spatial relations that explain unequal risk. Maps, images, and public risk information appear in the materials, but they are not consistently used as resources for geographical inquiry. Local space often remains illustrative rather than analytical. The findings suggest that stronger disaster education does not require adding more content, but changing how existing materials work. Definitions, maps, and risk data can support students in connecting classroom knowledge with school surroundings, neighbourhood routines, and local constraints.



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INTRODUCTION

Indonesia gives disaster education an unusually demanding setting because risk belongs to the country's ordinary spatial condition rather than an occasional curricular topic. Earthquakes, floods, volcanic eruptions, landslides, coastal hazards, and climate-related disruptions reach schools through damaged roads, altered family livelihoods, evacuation routines, and neighbourhood infrastructures that were already fragile before an emergency began. Junior secondary students are old enough to notice these patterns, yet still depend on school materials to turn everyday observation into structured geographical reasoning. Geography education, when taught through Social Studies, can help students connect physical processes with settlement patterns, land use, mobility, and unequal access to safety. A weaker version of disaster learning stops earlier. Students are introduced to hazards and preparedness advice, while the spatial production of risk remains thinly examined (Mutanda & Ngcamu, 2026).

At the junior secondary level in Indonesia, geography is placed inside Social Studies rather than taught as an autonomous school subject. Such arrangement can be pedagogically productive because disaster risk rarely belongs to one discipline. A flood lesson needs rainfall, river morphology, drainage, housing density, local governance, and household routines to be considered together. Integration becomes less productive, however, when geographical reasoning is absorbed into general environmental awareness. Social Studies materials may ask students to recognise disaster types, describe impacts on society, or value preparedness, yet give limited attention to how risk differs from one neighbourhood to another. The curricular question is no longer whether disaster appears in Social Studies. A more difficult issue concerns how disaster becomes teachable after geography enters an integrated subject area (Miao et al., 2022).

Research on disaster risk reduction education has gradually moved away from a knowledge-deficit view of learners. Correct information about earthquakes, floods, or volcanic activity matters, but recent scholarship places stronger weight on risk perception, preparedness, school-community connection, and the capacity to translate knowledge into situated action. The Sendai-oriented literature also treats education as part of risk governance rather than as a neutral channel for transmitting safety messages (Gong et al., 2021). In geography education, this shift is especially important because risk is never detached from place. Students need to read how exposure is shaped by settlement location, infrastructure, land conversion, and everyday mobility. Without this spatial work, disaster education can become accurate in content while remaining weak in explanatory power (Seddighi et al., 2023).

A narrower body of textbook research gives useful warning for curriculum analysis. Comparative work on secondary geography textbooks has found that disaster risk reduction content is often present, but unevenly distributed, with stronger attention to understanding hazards and preparedness than to risk governance, resilience investment, and community participation. Indonesian scholarship has made a related point from another angle. Geography learning is often described as having strong potential for disaster literacy through spatial analysis, hazard mapping, and contextual learning, yet implementation remains uneven and dependent on school initiative (Kurniawan et al., 2025). These studies sharpen the problem but leave one area less examined. Disaster risk has rarely been analysed as a form of spatial reasoning inside junior secondary Social Studies, where geography is curricularised through an integrated subject.

A sharper distinction is needed between learning about disaster and learning to read risk. Disaster awareness can remain descriptive, even when the content is factually sound. Risk literacy needs a more relational form of understanding because disaster losses are shaped by hazards interacting with exposure, vulnerability, and capacity. These ideas should not appear merely as terms in a diagram. For a junior secondary student, they become meaningful when a school route passes through a flood-prone street, when a hillside settlement expands above unstable ground, or when evacuation signs are present but difficult to follow for younger children and elderly residents. Through such concrete spatial relations, risk becomes something that can be interpreted rather than only remembered (Logayah et al., 2023).

Official risk information in Indonesia makes the gap between curricular presence and spatial depth more visible. The Indonesian Disaster Risk Index provides risk data at national, provincial, and district or municipal levels, including tabular and spatial presentation. Social Studies does not need to become technical risk-modelling training, yet students can still be introduced to the logic of comparing a textbook explanation with a district-level risk map. Such comparison changes the questions that become possible in class. A lesson on flooding can move from a general cause-and-effect explanation toward an inquiry into why a familiar area is classified as risky, which groups are exposed, and what local capacity can actually be seen around the school or neighbourhood (Song et al., 2022).

The analysis examines how disaster risk is represented in junior secondary Social Studies learning materials and whether that representation develops spatial risk literacy. The corpus consists of curriculum documents, textbooks, teacher guides, public teaching modules, and official disaster risk data used as a comparative reference. The contribution lies in shifting the evaluation of disaster education from topic inclusion to the quality of geographical reasoning made available to students. Disaster may appear in the curriculum and still be taught through a thin grammar of place, exposure, vulnerability, and capacity. That tension matters because Social Studies is expected to connect geographical conditions, natural resources, and disaster mitigation, while its learning process also invites students to collect, verify, interpret, and communicate information through documentary and field-based inquiry (Bendl et al., 2025).

RESEARCH METHODS

The research used a qualitative document-based design with critical content analysis. The object of analysis was not classroom practice, teacher perception, or student learning outcomes, but the way disaster risk is made available as teachable knowledge in junior secondary Social Studies. Documents were selected because they shape the early boundaries of what teachers and students are invited to ask, compare, map, and interpret before classroom adaptation takes place (Morote & Hernández-Hernández, 2023). The corpus consisted of Indonesian junior secondary Social Studies curriculum documents, textbooks, teacher guides, publicly accessible teaching modules, and official disaster risk data used as

a reference for reading regional risk. Selection followed three criteria. A document had to be relevant to Social Studies at the junior secondary level, contain material related to geography, environment, disaster, climate, mitigation, adaptation, or local spatial conditions, and be publicly accessible or officially circulated. This design allowed the analysis to examine curricular representation without making claims about how teachers actually enact the material in class.

The unit of analysis was a meaningful learning segment, including explanatory paragraphs, student activities, maps, images, assessment prompts, inquiry tasks, and teacher instructions that referred to disaster or geographically related risk. Coding was guided by the idea of spatial risk literacy. Rather than recording the mere presence of disaster terms, the analysis examined whether learning materials connected hazard with location, exposure, vulnerability, capacity, and possible action. A passage on flooding, for example, was treated differently when it only defined flood as excess water and when it asked students to relate drainage, land use, settlement position, and evacuation access in a familiar area. Initial coding used deductive categories derived from disaster risk reduction and geography education, while inductive coding remained open for patterns that emerged from the documents, including generic preparedness advice, weak use of maps, limited local inquiry, and the reduction of mitigation into behavioural reminders.

Analysis moved through three connected stages. First, curriculum mapping traced how disaster, climate, environment, mitigation, adaptation, and spatial inquiry were positioned in junior secondary Social Studies documents. Second, critical content analysis examined how textbooks and teaching materials translated those curricular expectations into explanations, activities, visuals, and assessment tasks. Third, official risk data were used as a comparative reference to examine whether learning materials created space for students to connect disaster concepts with regional risk patterns. Trustworthiness was maintained through source triangulation across curriculum documents, textbooks, teacher guides, public modules, and disaster risk data. Coding decisions were recorded in an audit trail that noted document selection, category refinement, and ambiguous cases. The analysis did not aim to rank textbooks or evaluate individual schools. Its main concern was the pedagogical grammar through which disaster risk is represented, simplified, or opened for geographical reasoning in junior secondary Social Studies (Pratiwi et al., 2023).

RESULTS AND DISCUSSION

1. Disaster Learning as Conceptual Recognition

The curriculum mapping shows that disaster is not absent from junior secondary Social Studies. Disaster appears through geography-related units on environmental change, physical conditions of Indonesian regions, mitigation, and human interaction with space. In the textbooks and public teaching modules examined, the dominant entry point is still conceptual recognition. Students are invited to know what disasters are, identify common hazard types, explain broad causes, and mention appropriate responses. Such representation gives teachers a practical way to introduce difficult material to early adolescents (Kadir, 2026c). Yet the learning segments also reveal a quieter narrowing of geography. Disaster is made visible as an object of knowledge before risk is made available as a relation among place, exposure, vulnerability, and capacity.

Definition gives the clearest example of this narrowing. Explanatory passages tend to organise disaster through cause-and-effect statements that are easy to teach and assess. Floods are explained through rainfall and overflowing water, landslides through unstable slopes, volcanic eruptions through geological activity. These explanations are not wrong, and removing them would weaken basic scientific understanding. The issue lies in the point where explanation stops. A flood-prone street near a school is not dangerous only because rain falls heavily. Drainage capacity, building density, road elevation, waste management, and the location of safe exits shape the level of risk experienced by students. When these spatial relations remain outside the main learning task, geography becomes a vocabulary for naming hazards rather than a way of explaining why losses gather unevenly.

Preparedness is usually introduced through behavioural language. Students are asked to follow evacuation routes, remain calm, protect the environment, and take part in school safety activities. Such guidance can be useful, especially in a school setting where clear instructions matter. The documents rarely push preparedness into a fuller geographical inquiry. An evacuation route, for instance, is treated as something students should obey, not as a spatial arrangement that can be examined. A route that passes through a narrow gate, an area that regularly floods after afternoon rain, or a road shared with

market traffic creates a different safety problem from the one imagined in a general instruction. Preparedness then becomes a moral and procedural message, while the uneven conditions that make action easier for some students and harder for others receive limited attention (Gokmenoglu et al., 2021).

Visual materials carry the same tension. Photographs of damaged houses, flooded streets, cracked roads, or volcanic activity make disaster recognizable and can help students connect the topic with familiar public images. The analytical work remains thinner when visuals function mainly as illustration. A photograph of flood damage, for example, may create a sense of urgency, but the accompanying task often asks students to describe what happened rather than examine why that location was exposed. Maps have stronger potential because they can support comparison across regions and scales. In several learning segments, though, maps appear closer to locational support than to inquiry tools. Students can see where a hazard occurs, yet they are not consistently guided to ask how settlement patterns, infrastructure, and local capacity alter the meaning of that location (Li et al., 2022).

Assessment tasks strengthen the same pattern because they mainly reward recognition and short explanation. Questions invite students to define disaster, identify causes, describe impacts, and write appropriate mitigation steps. These tasks fit the cognitive level expected in junior secondary school, and they provide a manageable way to check comprehension. Still, they give limited room for students to work with the kind of evidence that would make risk more spatial. A task could ask students to compare a textbook description of flooding with a simple district risk map, or to explain why two nearby areas face different levels of danger despite experiencing the same rainfall. Such tasks would not require advanced technical skill. They would only require learning materials to treat maps, local observation, and public risk information as part of ordinary Social Studies reasoning.

The stronger categories of spatial risk literacy are not equally developed. Hazard recognition appears most clearly because disasters are named, classified, and explained. Exposure appears more weakly because students are not consistently asked to identify who or what lies in the path of danger. Vulnerability is thinner still, often reduced to general statements about affected communities rather than analysed through age, mobility, housing, infrastructure, or access to information. Capacity tends to appear as preparedness advice rather than as a situated question about what schools, families, and local institutions can realistically do. The imbalance matters because disaster risk reduction depends on the relation among these elements. Once one element dominates, the learning design moves toward awareness while leaving risk literacy only partly formed.

This finding does not suggest that conceptual recognition has no value. Junior secondary students need shared terms before they can analyse risk, and teachers need materials that do not overload the classroom with technical detail. The problem sits in the way recognition becomes a stable endpoint. Disaster is presented as an event to be known, an impact to be described, and a response to be remembered. Geography could carry the analysis further by asking how unsafe spaces are produced through everyday arrangements that students can observe around school, home, and neighbourhood routes. The first finding, then, is more precise than a claim of absence. Disaster learning is present in junior secondary Social Studies, but its dominant form still gives more space to identifying hazards than to reading the spatial conditions through which risk becomes unequal.

2. The Missing Grammar of Spatial Risk

Risk becomes difficult to teach when learning materials separate hazard from the social and spatial conditions that give hazard its consequences. Across the examined Social Studies documents, disaster is usually introduced through recognisable causes, visible impacts, and practical responses. Such organisation makes the topic accessible, yet it also creates a narrow chain of reasoning. Students can move from a named hazard to a recommended form of mitigation without being asked to examine what lies between them. Spatial risk grammar refers here to the way learning materials connect hazard, location, exposed subjects, unequal vulnerability, and feasible action into a teachable line of inquiry. In the examined materials, that line is often interrupted. Hazard is made clear, while the relations that turn hazard into uneven risk remain less available for classroom reasoning (Ishikawa & Newcombe, 2021).

The interruption appears first in the way location is used. Textbook passages and module activities often refer to disaster-prone areas or show where certain hazards occur, but location tends to work as background information. A place is named, mapped, or illustrated, yet the learning task does not always ask what is located there, who uses the space, and how ordinary routines become exposed

to harm. A flood-prone district, for example, means very little for risk literacy if students are not guided to think about the school road that floods before morning classes, the houses built close to drainage channels, or the bridge that many residents rely on during evacuation. Geography is present at the level of place names, but place has not fully become an analytical relation.

A similar pattern appears in explanatory passages on disaster causes. The materials usually provide clear physical explanations, and those explanations remain necessary for junior secondary learners. Flooding is linked to rainfall and water overflow, landslides to slope instability, and volcanic activity to geological processes. A stronger geographical explanation would allow these physical causes to meet the built and social conditions of everyday life. Heavy rain becomes a different educational object once students are asked why one neighbourhood drains quickly while another remains flooded for hours. A slope becomes more than a landform once road cutting, house construction, and limited relocation options enter the discussion. The documents tend to preserve physical causation more successfully than they develop the mediating relations through which risk becomes uneven.

Vulnerability is the weakest part of this grammar because affected communities are usually treated in broad terms. The language is understandable for SMP materials, but it can flatten differences that matter during and after disaster. A family living near a river does not face the same risk simply because the household is located in a flood-prone area. The presence of young children, elderly relatives, insecure housing, or limited transport can alter the meaning of the same hazard. Learning materials could invite students to compare two households in one risky area and ask why recovery would differ after the water recedes. That kind of task would keep the analysis accessible while moving students beyond the idea that vulnerability is only a general condition of being affected.

Capacity is more visible than vulnerability, although its treatment remains mostly procedural. The documents give attention to preparedness through evacuation advice, school safety routines, and environmental care. Such material provides a useful language of action, but the action is often detached from the resources and constraints that shape whether preparedness can be carried out. A poster about evacuation appears simple until students ask whether the route is passable during dismissal time, whether younger students know the meeting point, or whether families around the school have received the same information. Capacity becomes more geographical at that moment because safety depends on arrangements that can be observed, tested, and revised. The materials examined rarely move preparedness into this kind of spatial inquiry.

Visual and assessment materials deepen this tension. Images of flooded streets, damaged houses, or volcanic eruptions give disaster a concrete appearance, while maps help students see distribution across places. Yet the accompanying questions often keep the work close to recognition. Students may be asked to describe the image, identify the type of disaster, or state a mitigation step. Those prompts check comprehension, but they do less to make students argue from spatial evidence. A map of disaster-prone areas could support a short inquiry into why public facilities are exposed or how students would reach a safe point if a familiar route failed. Without such prompts, visual material remains informative rather than analytical, and the map becomes a location aid rather than a tool for judgment.

This pattern shapes the learner imagined by the curriculum materials. Students are treated as recipients of disaster knowledge and followers of correct safety behaviour, while their capacity to interpret familiar spaces is used only lightly. Early adolescents already compare routes, notice recurring flood points, understand which roads are crowded, and observe how public facilities are placed around their neighbourhoods. That ordinary spatial knowledge could become a bridge into formal risk literacy. The materials do not need to make students perform technical risk modelling. More realistic classroom work could begin from a school route, a nearby river, a crowded intersection, or a district risk map and then ask how hazard, exposure, vulnerability, and capacity meet in that place. Such work would give disaster learning a more grounded geographical direction (Toyoda et al., 2021).

The second finding therefore refines the first. Disaster learning in junior secondary Social Studies is not simply too conceptual. Its deeper weakness lies in the way risk elements appear without being held together as a chain of reasoning. Hazard receives the clearest treatment, location appears without enough inquiry, vulnerability is softened into general affectedness, and capacity is reduced to recommended action. Spatial risk literacy needs these elements to interact so that students can explain how unsafe places are produced and how realistic forms of mitigation might be considered. This unresolved relation leads directly to the next issue, since a curriculum cannot teach students to read risk

spatially while leaving local data, regional maps, and the student's own environment at the margins of analysis.

3. Local Risk Without Local Reading

National disaster knowledge becomes pedagogically limited when students are not given a route for translating it into questions about their own district, school surroundings, or daily mobility. The analysed Social Studies materials recognise Indonesia as a disaster-prone country and use that national framing to introduce students to floods, earthquakes, volcanic eruptions, landslides, and climate-related hazards. Such scale helps students understand why disaster belongs to public life in Indonesia. Yet the same scale also makes risk appear too broad to be examined. Textbook explanations can move comfortably from Indonesia's geographical position to general disaster impacts, while the learning tasks give less attention to the smaller spaces where students meet risk in practical terms. Locality is acknowledged as background, but not consistently turned into an object of inquiry (Sakurai et al., 2022).

Official disaster risk data expose this weakness because they already present risk through territorial categories that are closer to school-level inquiry than the national narrative alone (Kadir, 2026b). The Indonesian Disaster Risk Index and related public systems organise risk at provincial and district or municipal levels. In the analysis, these data functioned as a comparative reference for asking whether textbook explanations, maps, and classroom tasks allowed students to connect disaster concepts with the risk profile of a specific area. The comparison made the gap clearer at three levels without requiring statistical testing. Materials tended to rely on national hazard explanation, offered few prompts for reading district-level risk, and rarely connected administrative risk information with the environments students can observe around school or home (Song et al., 2023).

Scale is the main source of the problem. National framing gives disaster learning coherence, but it also allows materials to avoid the uneven geography of risk. A student in a coastal settlement does not need the same inquiry path as a student whose daily route crosses an urban floodplain or a volcanic foothill. The documents do not need to localise every lesson for every district. The issue is that they rarely provide a transferable inquiry structure through which teachers and students can move from a national explanation to a local question. Without such structure, local adaptation depends heavily on teacher initiative, and risk reading becomes an optional extension rather than a normal part of geography-oriented Social Studies.

Maps sit at the centre of this missed opportunity. In several materials, maps locate disaster-prone regions or indicate the distribution of hazards across Indonesia. Their inclusion suggests that spatial reasoning has entered the lesson, yet the accompanying prompts often keep the map close to orientation. Students are guided to identify where a hazard occurs, while fewer tasks ask them to treat the map as evidence for an argument about exposure. A district risk map paired with a school-route observation would change the nature of the task. The student would not only see that an area is risky, but begin to ask how movement, public facilities, and familiar routes make that risk matter in daily life (Handoyo et al., 2024).

Everyday spatial knowledge receives similar treatment. Junior secondary students already know which road becomes crowded after school, where water gathers after heavy rain, and which route feels difficult during an emergency drill. Such knowledge has analytical value when placed beside official data, yet the documents mostly use local experience as illustration or reflection. Observation tasks ask students to look at their environment, but the instructions do not always help them organise what they see through risk categories. A flooded street remains an example of flooding rather than evidence of exposure, drainage capacity, mobility constraint, or unequal safety. The student's neighbourhood enters the lesson, but its role stays too close to anecdote.

Mitigation and adaptation activities show the same separation between local action and local risk structure. The materials give attention to cleanliness, evacuation discipline, and environmental care, which are appropriate for school learning. The analytical gap appears when these actions are not tested against the spatial conditions of a particular place (Harada et al., 2023). Cleaning drainage near a school may be meaningful, but that action has a different pedagogical value when students also ask why water collects there, which route becomes blocked, and whose movement is most affected. In the materials examined, action is often presented as a correct response to disaster knowledge. A stronger geographical treatment would make action depend on a prior reading of local constraint (Kadir, 2026a).

Climate-related risk sharpens the same pattern because climate change is usually introduced through broad environmental consequences. Students are given vocabulary for changing rainfall, heat, drought, or coastal disturbance, yet the spatial distribution of those effects receives less curricular attention. Climate becomes a large-scale problem before it becomes a question about the schoolyard with little shade, the household that relies on irregular water supply, or the neighbourhood where drainage fails after short intense rain (Enke & Budke, 2023). The issue is not that climate learning must become technical. Rather, climate and disaster are connected conceptually, while the local geography that would help students interpret that connection remains weakly developed in the learning sequence.

Public risk data, maps, and familiar environments are therefore not absent because they are impossible to use at SMP level. They remain peripheral because the materials have not fully changed their epistemic role. Data appear outside the ordinary lesson, maps support location, and local experience supports engagement, but these resources are not consistently treated as materials from which students build geographical claims. This matters for the method of learning embedded in Social Studies. The curriculum already values collecting, verifying, interpreting, and communicating information. Disaster education would fit that process more closely if local risk became the object through which those skills were practised. The present pattern leaves students with national disaster awareness, but fewer opportunities to learn how risk is assembled in the places they know.

The third finding completes the movement from presence, to reasoning, to locality. Disaster topics are present, spatial risk grammar remains incomplete, and local risk has not yet become a stable object of inquiry. The materials examined give students an important starting point by making disaster visible within Social Studies. Their limitation lies in the restricted function assigned to local data and lived space. Risk is still more often taught as information about Indonesia than as a relation students can trace through district data, school surroundings, and ordinary mobility. A geography education that stays inside Social Studies can still be spatially demanding, but only if local risk is treated as a source of knowledge rather than a contextual decoration.

CONCLUSION

Disaster education in junior secondary Social Studies is already visible, but its pedagogical form remains uneven. Curriculum documents and learning materials introduce students to disaster concepts and preparedness, yet they give less room for reading risk as something produced through place. The main issue is not the absence of disaster topics. Students are often guided to recognise hazards and recall proper responses before they are asked to examine why a familiar road floods repeatedly, why an evacuation route may fail, or why households in the same area face different levels of danger. Geography education becomes weaker when local space stays at the edge of learning.

A more useful direction would be to work with existing materials in a different way. Textbook explanations, maps, images, and public risk data can become starting points for modest inquiry into the places students know. This shift would keep Social Studies accessible while giving geography a stronger analytical role. Disaster learning would no longer stop at national awareness or general preparedness. It would help students connect public risk information with school surroundings, neighbourhood routines, and local capacity. Future research can examine how teachers translate these documentary possibilities into classroom practice, especially in regions where disaster risk is encountered through ordinary movement and infrastructure rather than distant textbook cases.

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