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Sixth-Grade Pupils' Perceived Need for Local Biology Learning Resources

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ABSTRACT. Pacitan's coastal habitats, cultivated land and cattle farms offer elementary schools several ways to teach biology. Choosing a resource requires evidence about what pupils value and what a particular activity helps them explain. This descriptive survey examined the first question. From November 2022 to January 2023, 150 sixth-grade pupils from 33 public elementary schools in the Pacitan City study area completed a questionnaire containing ten positively and ten negatively worded items. Reported item correlations ranged from 0.302 to 0.645, and Cronbach's alpha was 0.816. The reported scoring procedure yielded 628 out of 750, or 83.73%, in the highest agreement band. Using the displayed component scores before rounding yielded 83.66% and the same classification. These figures express aggregate endorsement. Individual responses and school-level distributions were unavailable, so the index cannot identify how many pupils strongly agreed or which resources they preferred. The findings support developing a small set of local biology tasks for classroom trials. A useful first test would ask pupils to explain a relationship between an organism and its habitat, then apply the same reasoning to an unfamiliar example. This would establish whether a resource pupils welcome also supports biological understanding.

Keywords: *Place-Based Learning, Elementary Science, Needs Assessment, Biology Education, Pacitan*

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INTRODUCTION

A sixth-grade pupil in Pacitan might recognise a grazing animal, a cultivated plant or an organism on the shore long before encountering it in a science textbook. Recognition gives a teacher somewhere to begin. It leaves a more difficult instructional question open. What features would the pupil select as evidence, and what biological relationship would those features help explain? A photograph of a familiar coast might prompt recollections of a family visit. A pair of photographs showing organisms on contrasting surfaces invites a different response. Pupils have something to compare, a reason to describe the surfaces carefully and grounds for reconsidering an initial explanation. The difference lies in what the lesson asks them to do with a local resource.

In this study, local potential refers to organisms, environments and livelihood activities within Pacitan Regency that teachers might draw on for elementary science. Biology denotes the life-science content of elementary science, including the characteristics of organisms and their relationships with the environment. These definitions matter because the resource and the lesson

occupy different levels. A farm is a setting, an animal is an object of study, and explaining the connection between an animal's food and its dependence on plants is an intellectual task. Listing regional attractions identifies possible settings. Choosing among them requires a clearer account of the task, the children who will undertake it and the evidence they will have available.

Research on nature-specific outdoor learning gives grounds for examining these choices. A review covering 147 studies distinguished curriculum lessons in local outdoor settings from residential programmes, school gardens and other forms of outdoor education (Mann et al., 2022). A review restricted to quantitative research with primary-school children narrowed the age range and focused on outcomes assessed in those studies (Miller et al., 2021). These boundaries matter in Pacitan. An excursion requiring a substantial journey and an observation made outside a classroom door both take place outdoors. Conversely, a locally collected image used indoors retains its geographical and biological context, even though it cannot reproduce all the information available at the site.

Related research also separates conditions for learning from the learning itself. Attention, engagement and opportunities for active participation are among the pathways proposed to connect experiences in nature with learning (Kuo et al., 2019). Reviews of regular outdoor classes and of environmental education report outcomes across educational, social and other domains (Ardoin et al., 2018; Becker et al., 2017). These distinctions have practical consequences. A pupil who pays closer attention during an activity has gained an opportunity to learn. A pupil who later explains why two organisms occupy different parts of a habitat has produced evidence of conceptual learning. The first observation gives a teacher reason to examine the second. It does not establish what the pupil understood.

Indonesian science education offers a particularly relevant discussion of how local knowledge enters a formal curriculum. Suprapto and colleagues distinguish questions of curriculum policy from the place of cultural knowledge in science lessons (Suprapto et al., 2021). A teacher drawing on a cattle keeper's account, for instance, needs to retain what the speaker means by a local term and decide separately which part of the account a class can investigate. A description of how a family selects feed has value as knowledge of a practice. A claim about which feed produces a particular growth pattern calls for observations extending beyond a classroom visit. Children should have room to explain how they know something, including when the source is another person.

A second body of Indonesian research examines instructional products and assessments. Work on a local knowledge-based module examined scientific literacy and thinking skills, while research on culture-integrated project assessment examined scientific attitudes and process skills in elementary education (Parmiti et al., 2021; Uslan et al., 2024). These studies begin after educators have made a series of choices about content, tasks and assessment. The present study addresses an earlier decision. Before teachers invest in an intervention, do the intended learners endorse using features of their region in biology lessons? Evidence from a successful module elsewhere gives a reason to try a design. Local endorsement supplies a different kind of information about its intended audience.

Two pupils attending the same school might know an agricultural setting in different ways. One might participate in household cultivation, another might recognise produce only after harvest. A coastal site within the same regency might be familiar through photographs to pupils who have never visited it. Assuming shared experience could reward children who already know the setting while leaving others to infer essential details. Providing a common observation, image or short account gives the whole class access to the evidence. Pupils with more experience can then contribute additional questions without carrying responsibility for teaching their classmates.

Here, perceived need means the degree of agreement expressed on a questionnaire about using local resources. It differs from an inventory of materials, a request for a particular excursion

or a diagnosed gap in biological knowledge. The distinction guides the analysis. The study asks what level of aggregate agreement participating sixth-grade pupils expressed and how far the available scores support decisions about developing learning resources. It also considers how a school might translate that evidence into a task with an assessable biological objective. The pupil survey answers the first question with data. Examples drawn from Pacitan's settings develop the instructional implications without attributing unmeasured preferences to pupils.

METHOD

The study used a descriptive quantitative survey. Researchers collected responses between November 2022 and January 2023 from 150 sixth-grade pupils attending 33 public elementary schools in the area identified in the study records as Pacitan City, East Java, Indonesia. Pacitan Regency supplies the geographical frame for the proposed resources. The participating schools define the narrower setting for the pupil survey. Grade six was selected because pupils had encountered the elementary science curriculum, including biology-related topics. The investigation involved no allocation to teaching conditions, no instructional intervention and no follow-up assessment. Its unit of participation was the pupil. The available results summarise the group.

The study records give the numbers of participating pupils and schools. They do not specify the sampling frame, the number invited at each school, the distribution of respondents among schools or the response rate. Consequently, school participation establishes the breadth of recruitment but supplies no basis for weighting school estimates or treating the sample as representative of all sixth-grade pupils in the regency. The available materials also do not document recruitment permissions, parental consent or pupil assent procedures. No approval number or consent procedure is inferred here. The analysis uses aggregate figures and makes no attempt to identify individual pupils, schools or households.

Researchers distributed the questionnaire directly to participating pupils. It comprised 20 statements, ten phrased positively and ten negatively. Each offered five response options from strongly agree to strongly disagree, with an undecided midpoint. This format allowed pupils to indicate the direction and strength of agreement without writing an extended explanation. The records do not reproduce the statements or their original order. The synthesis therefore retains the construct at the level at which it was reported. It does not assign questions to subscales for access, enthusiasm, environmental concern or preferences for particular resources. These dimensions would require explicit wording and supporting measurement evidence (Boateng et al., 2018; Flake & Fried, 2020).

Before the main administration, the instrument underwent Pearson correlation testing and an internal consistency check using IBM SPSS Statistics 23. All 20 item correlations exceeded the reported comparison value of 0.210. The documentation does not identify the pilot sample size, specify whether the total excluded the item under examination, or provide correlations for each statement. The range and threshold are therefore reported as instrument checks. They do not establish that every item covers a distinct and necessary aspect of perceived need. In science education research, an alpha coefficient describes an aspect of the scores obtained under particular conditions. Its interpretation depends on what the questions ask and how the scale is structured (McNeish, 2018; Taber, 2018).

The analysis follows the reported index procedure. The two displayed components were rounded separately to whole numbers and summed. Dividing that sum by the reported maximum of 750 and multiplying by 100 gives the primary index. The original interpretation placed values from 0 to 19.99% in the strongly disagree band, 20 to 39.99% in disagree, 40 to 59.99% in undecided, 60 to 79.99% in agree and 80 to 100% in strongly agree. These labels describe ranges

of the summary index. An individual pupil selecting a response and a group index falling in a range are different observations, even when the labels use the same words.

The reported maximum equals 150 respondents multiplied by five scale points. It is consistent with a summary reduced to the scale of one response per pupil. A raw sum across 150 complete twenty-item questionnaires would instead have a maximum of 15,000. The records do not give the intermediate transformation from individual responses to the two displayed components, the negative-item scoring key or the handling of missing answers. The calculation below reproduces the final steps from reported aggregates. It does not reconstruct the missing transformation. As a sensitivity check, the components were also added before rounding and their sum divided by the same denominator. No inferred counts were substituted for missing responses.

RESULT AND DISCUSSION

Result

Instrument checks

All reported item correlations fell between 0.302 and 0.645. Even the lower bound exceeded the stated threshold, by 0.092. The reported alpha of 0.816 indicates internal consistency for the tested set of questions. Table 1 separates the two checks because they address different properties. The correlation summary compares individual item relationships with a reference value. Alpha summarises covariance across the scale. Neither measure describes the distribution of agreement in the main sample. It would therefore be inappropriate to use either statistic to identify the most popular statement or to infer how consistently pupils from different schools responded.

Table 1. Instrument checks for the 20-item questionnaire

Check	Reported value	Interpretation
Item correlations	0.302 to 0.645	All exceeded the reported threshold of 0.210.
Internal consistency	Cronbach's $\alpha = 0.816$	Describes the set of scores. Dimensionality was not tested.

Aggregate endorsement and rounding

Table 2 shows the calculation in the order used for the reported result. The positive component of 329.55 rounded to 330 and the negative component of 297.90 rounded to 298. Together they yielded 628. With 750 as the denominator, the percentage was 83.73% to two decimal places, 3.73 percentage points above the 80% lower boundary for the highest band. Using the components at their displayed precision gave a total of 627.45 and an index of 83.66%. The choice between these rounding procedures changed the result by 0.07 percentage points at the displayed precision. Both procedures assigned the aggregate to the same band.

Table 2. Reproduction of the aggregate needs index

Calculation	Inputs	Result
Rounded component sum	330 + 298	628
Index as reported	628 ÷ 750 × 100	83.73%
Component sum before rounding	329.55 + 297.90	627.45
Index before rounding	627.45 ÷ 750 × 100	83.66%
Category under both procedures	80% to 100%	Strongly agree

The calculations establish the direction of the group result and its stability to one specific reporting choice. They do not resolve uncertainty about the earlier scoring steps. In particular, the difference between 329.55 and 297.90 cannot establish whether pupils responded more favourably to positive wording. Such a comparison would require the scoring direction, the relationship between the sets of statements and the variability of responses. Grouping items by wording alone also gives no evidence that the two groups measure different educational needs. The distinction matters because a teacher might otherwise devote time to an apparent difference created by the scoring process rather than by pupils' preferences.

What the index identifies

The result supports a descriptive statement about endorsement of local resources among the participating pupils. It does not give the count who selected strongly agree. Even on one five-point question, four pupils who all choose four and four pupils who choose three, three, five and five produce the same total. Their response patterns differ substantially. The ambiguity grows when responses to twenty questions are combined. A chart allocating the 150 pupils to five categories would therefore present invented frequencies. Table 3 sets out which decisions the available evidence supports and which require a different observation. It keeps resource selection separate from the assessment of a taught lesson.

Table 3. Decisions supported by the survey and evidence still required

Decision	Available evidence	Evidence needed for the next step
Develop a local example	High aggregate endorsement	Pupil feedback on a prototype
Choose between settings	No setting-specific estimates	Ranked choices with reasons and school access information
Adopt a lesson more widely	No achievement data	Work samples before and after teaching, plus a comparable lesson for causal evaluation

Although the questionnaire drew participants from 33 schools, the aggregate does not identify a single school's score. Nor does it show whether pupils endorsed coastal examples more often than agricultural or livestock examples. These settings appear in the study as candidates for development. None constitutes a ranked choice or a separately measured result. In practical terms, schools have a reason to develop and test examples, but still need to choose a setting on grounds such as access, biological content and suitability for a shared task. The following discussion examines how those choices affect what a lesson would allow pupils to learn and teachers to assess.

Discussion

Interpreting Endorsement As A Design Decision

The Pacitan index answers a modest but consequential question. The participating pupils expressed sufficient aggregate support to justify testing a local resource before committing to a larger set of materials. It leaves the choice of resource open. A school facing a decision between commissioning a coastal field guide and preparing a short schoolyard activity therefore has evidence for localising the curriculum, but little direct evidence for either expenditure. A small trial reduces that uncertainty. It enables teachers to see whether pupils understand the instructions, find the relevant evidence and use it to answer a biological question. Each observation concerns a decision the original survey could not settle.

Children's views deserve attention at more than one stage of development. In a qualitative study with pupils aged nine to eleven, researchers examined the perspectives of pupils and

teachers taking part in curriculum-based outdoor learning (Marchant et al., 2019). That design helps explain features of participation that a closed questionnaire leaves unresolved. A short conversation in Pacitan might reveal why a pupil welcomes a coastal example or why another prefers to work from a photograph. The answer might involve prior experience, the opportunity to learn something new, confidence in the activity or a practical difficulty. Asking a child to demonstrate how they would use a draft resource often makes these differences easier to recognise than asking whether the finished idea sounds appealing.

Motivation requires equally careful treatment. A school-year quasi-experiment examined motivation in education outside the classroom (Bølling et al., 2018). A separate study compared subsequent classroom engagement after lessons in nature (Kuo, Browning, & Penner, 2018). The outcomes differ in both timescale and meaning. A child returning from an observation task might participate readily in discussion while still misunderstanding the relationship between an organism and its habitat. Another might contribute little orally and produce a precise written explanation. Recording willingness to participate alongside the quality of an explanation would let teachers see both cases. Using enjoyment alone as evidence of learning would conceal them.

Choosing the biological question

Pacitan's coast offers a starting point for teaching about habitat, but the coastline itself is too broad a subject for one elementary lesson. A more workable question asks which visible features distinguish two places where organisms occur. Pupils could mark observations on two photographs of contrasting shore surfaces, using the same categories for each. They would record an organism's position, the surface it occupies and any visible shelter. A claim about association would then have an evidential basis. A claim about why an organism survives there would require additional information. This difference gives the teacher a concrete reason to introduce the distinction between what pupils see and what they infer.

Pictures of different habitats need comparable framing. A close view of one surface and a distant view of another might make one site appear more biologically diverse simply because small organisms are easier to see. The teacher could show pupils a second crop of the same image and ask which organisms have disappeared from view. The organisms remain in the habitat even though the photographic record has changed. The exercise introduces a limit of observation without asking children to master formal sampling theory. It also turns a difficulty of image-based learning into a biological question about detection. A pupil who revises a comparison after noticing the different scales has demonstrated a form of reasoning a species list will miss.

Cultivated plants offer a different advantage. A class can return to the same individual and observe change over time. A pupil might draw a selected shoot twice, date the drawings and record the position of a newly visible leaf. Comparing the records provides evidence of growth. Comparing two unrelated plants of different heights does not establish how much either grew. Research linking plant awareness to the relevance of plants in people's lives helps explain why food crops deserve attention in a course sometimes organised around more conspicuous animals (Stagg & Dillon, 2022). Familiarity with the crop gives pupils a point of entry. The repeated record gives them grounds for distinguishing a process from a single appearance.

A cattle-farming example invites questions about feeding relationships, resource use and the source of material for growth. A teacher might present a keeper's account of what an animal eats alongside photographs of the plants involved. Pupils could draw arrows from the plants to the animal and explain what each arrow represents. They could then decide whether water belongs in a food chain and justify their decision. This task identifies a specific conceptual difficulty. An animal depends on water, but dependence alone does not make water a food organism. Using separate symbols for food and other requirements gives pupils a reason to make their model more precise. No visit or contact with livestock is necessary for that distinction.

These three settings support different kinds of evidence. The shore creates a spatial comparison, the plant supports a record through time, and the cattle example lends itself to a model of relationships. A teacher choosing a growth objective has a reason to favour a plant that pupils can revisit. A teacher interested in interpretation of visual evidence might select the two shore photographs. Starting with the explanatory task also limits how much material teachers need to prepare. One carefully documented example often supplies more opportunities for revision and discussion than a catalogue of local organisms with no question attached.

Linking local accounts, observation and explanation

The term local wisdom requires care. A plant, a farm and a beach are local resources. A community's account of how to use, care for or interpret those resources involves knowledge and practice. Calling every object an example of local wisdom obscures who holds that knowledge and how it was acquired. Indonesian scholarship on curriculum and local knowledge gives teachers a basis for recognising this distinction (Suprapto et al., 2021). A worksheet could identify the source of a statement in ordinary language, such as an observation made by the class or a description supplied by a grower. Each source then has a clear role in the explanation, and pupils learn to attribute information to the person or activity that produced it.

Consider a grower who reports changes in a crop after a sequence of rainy days. Pupils might identify which changes a photograph records and which require the grower's observations across several days. They could ask if both fields received the same amount of rain or if another condition differed. These questions take the account seriously because they preserve its setting and invite further investigation. They also make clear why a single image cannot settle a claim about cause. A teacher can accept local names in preliminary notes and introduce the scientific term once pupils understand what it denotes. This sequence keeps linguistic familiarity from becoming an unintended test of biological understanding.

One implication concerns the division of work in the classroom. If the pupil who knows the organism always names it and the strongest writer always records the result, the finished group sheet gives little information about individual understanding. Rotating who observes, who records and who challenges the proposed explanation allows pupils to practise different roles. A short individual interpretation after the group activity would reveal what each pupil took from it. Research on school gardens highlights the social and emotional dimensions of shared outdoor work (Pollin & Retzlaff-Fürst, 2021). Community education partnerships have also examined the development of science identities (Camasso & Jagannathan, 2018).

Assessing literacy, argument and transfer

Scientific literacy becomes assessable when pupils use evidence to make a decision about an explanation. An Indonesian study of graphic organisers examined their use in elementary science literacy learning (Fitria et al., 2023). A simple organiser for the Pacitan materials could have three spaces: what I noticed, what I think it means, and what else I would need to check. The third space matters. It enables a pupil to recognise insufficient evidence without treating uncertainty as failure. Research on evidence-based reasoning in middle-school engineering design likewise asks how learners connect daily experiences to the reasons they give (Putra et al., 2024). In a coastal example, naming an organism, citing where it appears and explaining why that observation supports a limited claim are distinguishable achievements.

A task on feeding relationships illustrates how a teacher could assess transfer. Pupils first explain a locally familiar plant-to-cattle link. Later they receive a picture of a different plant and an unfamiliar herbivore, along with a brief account of what it eats. If a pupil reproduces the direction of the arrow and explains the transfer of food, the response provides evidence beyond recall of the first example. If the arrow is correct but the explanation concerns geographical proximity, the teacher has identified a misconception hidden by the diagram. Using an unfamiliar

example need not impose unfamiliar vocabulary. The task should supply the names and information needed to reason about the relationship.

Assessment can also address scientific process. Indonesian work on culture-integrated project assessment used performance evidence alongside measures of scientific attitudes (Parmiti et al., 2021). A teacher in Pacitan might give separate feedback on whether a pupil recorded a feature accurately, compared like with like and justified a conclusion. Combining these in one mark for an attractive poster makes diagnosis difficult. A carefully drawn picture without a justified claim and a rough sketch with a precise inference call for different feedback. The drawings also have a role beyond formal assessment. A review of arts-based activities in natural settings examined connections with nature and wellbeing (Moula et al., 2022). Its findings give grounds to consider expressive tasks, while keeping biological accuracy a separate criterion when accuracy is the lesson objective.

Access, representation and teaching conditions

The region supplies possible resources, but schools mediate pupils' access. A teacher with a suitable garden near the classroom can revisit a plant with little preparation. A trip to the coast demands coordination and might leave little time for a second observation. Work with primary-school teachers on green schoolyards documents practical and pedagogical barriers even where the setting is close (van Dijk-Wesselius et al., 2020). Research on school greenness and academic performance also distinguishes characteristics of the school environment from evidence about a particular lesson (Browning & Rigolon, 2019; Kuo, Browning, Sachdeva, et al., 2018). The availability of a green space gives no indication of which pupils use it, what they examine or whether a teacher helps them explain what they see.

Photographs, short recordings and printed sequences offer ways of sharing evidence across schools with different access. A photograph should include enough context to let pupils judge scale and location. A short recording of a keeper should indicate whether the speaker is describing a regular practice or an unusual event. Printed images allow a pupil to point to evidence and compare records without needing a device at home. A live observation offers a different opportunity: pupils can change their viewing position or investigate something the teacher did not anticipate. Schools can choose the representation according to the question. Comparing feeding relationships needs reliable information about food sources. Investigating how the viewing position changes what is visible benefits from an object pupils can approach.

Inclusion depends partly on what the class accepts as a contribution. A pupil unable to walk across uneven ground should still have access to the same evidence and the same intellectual problem as classmates. A shared image or observation brought back to the classroom could support a common discussion, provided pupils who remained in class also have the opportunity to question how the record was made. Similarly, pupils without family connections to agriculture should receive the background needed to interpret a keeper's account. A home assignment that assumes access to a farm would measure family circumstances alongside science. A school-provided example gives teachers greater control over what evidence every pupil receives.

Environmental awareness and the limits of inference

Learning the name of a local organism, feeling attached to its habitat and taking action to protect it are different outcomes. A meta-analysis of environmental education in children and adolescents distinguishes knowledge, attitudes, intentions and behaviour (van de Wetering et al., 2022). Research on nature connection likewise separates its relationship with environmental behaviour from the problems involved in measuring behaviour itself (Lange & Dewitte, 2019; Mackay & Schmitt, 2019). In Pacitan, a pupil might explain a habitat accurately while having few opportunities to take part in conservation. Another might participate in a clean-up without

understanding a particular food relationship. An assessment should specify which outcome it addresses and give the pupil a fair opportunity to demonstrate it.

A field journal offers one way of retaining experiences a factual test misses. Research on residential environmental programmes has combined journals with survey measures of children's connection to nature (Talebpour et al., 2020). Intervention studies and work on pathways to nature connection also examine experiences beyond learning names or facts (Barrable & Booth, 2020; Lumber et al., 2017). For a short Pacitan lesson, pupils might choose one feature they want to revisit and explain why. The response would tell the teacher something about their attention or interest. A follow-up question about the same feature could examine whether they remembered or revised their explanation. Teachers would then have distinct records of an affective response and a biological claim.

Conservation is a possible longer-term objective, but it calls for a locally meaningful outcome. A review of environmental education for conservation examined programmes whose designers connected educational activities to conservation goals (Ardoin et al., 2020). For a school investigating a cultivated area, an attainable objective might concern pupils' ability to explain why leaving a patch undisturbed helps preserve an observation site. A claim about ecological improvement would require an environmental measure over time. Pupil reports alone would not establish change in the organisms or their habitat. This boundary allows schools to recognise a worthwhile educational achievement without assigning pupils responsibility for ecological changes beyond their control.

Improving the evidence for the next decision

The most immediate measurement priority concerns the meaning of perceived need. Future questions could distinguish interest in learning from the environment, prior access to local sites and difficulty understanding biology through existing resources. A pupil with frequent opportunities to visit a farm might still struggle to interpret a feeding diagram. A pupil who understands the diagram might welcome a visit out of curiosity. Both might agree with a broad statement about local resources for different reasons. Discussing proposed items with a small group of pupils would help identify the vocabulary they use and whether a negatively phrased statement changes their interpretation of the question. Testing the wording before computing a new index would make the resulting score easier to interpret (Boateng et al., 2018; Flake & Fried, 2020).

A second priority is to record the link between a raw response and a reported total. For each statement, the scoring record should identify the intended direction of agreement and the treatment of an unanswered item. An anonymous table of response frequencies would show how many pupils selected each option. A worked calculation using an illustrative response would explain how the five-point scale is retained after averaging. A record of the number of pupils contributing at each school would help readers judge the influence of unequal group sizes. These details would support a future reanalysis while protecting pupils' identities. They would also let teachers identify a specific obstacle even if overall endorsement remained high.

Differences between pupils deserve investigation through questions the available sample can answer. Work with urban children found variation in nature connections and environmental behaviours with age and gender (Keith et al., 2021). Research across early childhood settings also illustrates how the age of participants shapes the evidence available about environmental education (Ardoin & Bowers, 2020). Neither result predicts which pupils in Pacitan favour a particular resource. A follow-up could begin with prior experience more directly related to the proposed activity, such as whether a child has previously observed the relevant organisms. Asking pupils to describe one encounter would give meaning to that measure. An expectation based solely on a demographic category would be a weaker guide to teaching.

For a classroom trial, a short sequence would give schools evidence at three points. Before teaching, pupils would attempt a simple explanation using a common image. During the lesson, a teacher would record whether groups found the evidence needed and where instructions caused difficulty. After teaching, pupils would answer a parallel question about another organism. The initial and final products would reveal which explanations changed. Observations during the activity would help interpret why a task succeeded or failed. If the aim were to attribute a change specifically to local content, a comparison lesson would also need comparable teaching time, difficulty and opportunities for discussion. Otherwise several features of the lesson would change together.

The first trial need not take place at the most distinctive site in the regency. A schoolyard plant offers a practical test of whether pupils can separate evidence of change from differences between individuals. Teachers could use the results to improve instructions before developing a coastal sequence that requires coordination between schools. A module tested elsewhere in Indonesia provides a precedent for examining learning outcomes after material development (Uslan et al., 2024). The contribution of a Pacitan trial would lie in tracing the decisions between initial endorsement and a usable local task. Reporting which observations children misunderstood, and how a revised resource addressed that problem, would be more informative than a second overall approval score.

CONCLUSION

The 150 participating sixth-grade pupils across 33 public elementary schools expressed high aggregate endorsement of using Pacitan's local resources in biology lessons. The reported index was 83.73%, and the result remained in the highest agreement band when rounding was postponed. The available data do not rank resources, identify individual preferences or measure learning gains. They support a specific next decision: develop a local task that asks pupils to explain a biological relationship, and test it with evidence of pupil reasoning. A coastal comparison, repeated observation of a plant or a model of cattle feeding offers a different route to that objective. Matching the setting to the question, documenting how pupils use the evidence and checking whether they can explain an unfamiliar example would turn a favourable survey response into a testable contribution to elementary science.

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