



When Research Becomes Action: Transforming Classrooms, Farms and Communities

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Abstract

Educational and extension problems are often treated as though one solution can be transferred from one setting to another. In reality, weak classroom participation, poor learning outcomes, limited uptake of farm innovations and exclusion of marginal groups are shaped by local histories, relationships and resources. Action research offers a disciplined way to study such problems while working to improve them. Practitioners and stakeholders jointly define an issue, plan a change, act, observe the results and reflect before beginning another cycle. Rooted in Kurt Lewin's work in the 1940s and later participatory traditions, the approach is now used in education, agricultural extension, health and community development. Recent studies suggest that it can improve learning and professional practice, although practitioner authorship, the use of multiple research cycles and evidence of wider impact remain limited. This article explains what distinguishes action research and presents a rigorous framework based on co-ownership, mixed evidence, reflexivity, ethics and honest reporting.

Keywords: Action Research, Agricultural Extension, Participatory Research, Reflective Practice

Introduction

Large education systems are expected to respond to problems that are at once global and intensely local. The 2024/2025 Global Education Monitoring Report estimated that 251 million children and young people remained out of school, even though 110 million more were attending school than in 2015. At the same time, the world is projected to need about 44 million additional primary and secondary teachers by 2030. These figures describe the scale of the challenge, but they do not tell a teacher why girls in one class hesitate to speak, why students misunderstand one scientific concept, or why a well-funded training programme fades after the first month. Agricultural extension faces a similar difficulty. A recommendation may be technically sound and still remain unused because it arrives at the wrong time, ignores labour constraints, demands cash that farmers do not have, or excludes the people who actually perform the work. In such settings, improvement cannot depend only on transferring expert knowledge. It requires a method

through which people can investigate their own situation, test a manageable change and learn from the consequences. Action research provides that method. It brings inquiry into the place where action occurs: the classroom, farm school, village institution, training centre or organisations.

What Makes Action Research Different?

The term "action research" is often attributed to Kurt Lewin, who discussed it in his 1946 work on minority problems as a spiral of steps, each involving planning, action and fact-finding about the result of the action. The refinements to the original concept that have emerged since then provide clarity in the notion of people with a stake in the problem, who are more than mere data providers, becoming actively involved in defining the research question, interpreting and acting on the findings. Current participatory action research (PAR) puts a strong emphasis on the validity of experiential knowledge and on the relationships of power that impact research (Cornish *et al.*, 2023).

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In common shorthand, the process is described as “plan-act-observe-reflect” as a cyclical process. However, in reality it is messier. Complex problems usually start from a state of ambiguity and varying perceptions among stakeholders as to what the problem really is. After one cycle of planning and acting, the evidence gathered may indicate that the initial diagnosis of the problem was only partially correct. This

may lead to a revised definition of the problem, which may or may not involve doing the same intervention, but on a bigger scale. This adaptability to changing situations is what makes action research a valuable tool to address complex social problems. The main differences between conventional research and action research are summarised in table 1.

Table 1: How action research differs from conventional research

Dimension	Conventional research (typical)	Action research
Primary purpose	Explain, compare or generalize	Improve a situated practice while generating knowledge
Role of participants	Usually, respondents or research participants	Partners or co-researchers, with influence over decisions
Design	Often fixed before fieldwork begins	Iterative and revised in response to evidence
Researcher position	Seeks distance and control	Works inside the change process and practices reflexivity
Evidence	Collected mainly to answer a predefined question	Collected before, during and after action to guide the next cycle
Main product	Findings, theory or recommendations	Changed practice, local capability and transferable learning
Quality emphasis	Validity, reliability and generalizability	Credibility plus outcome, process, democratic and catalytic validity

The Action-Reflection Cycle

A workable cycle does not start with choosing an intervention, but with a group of people co-defining what the problem is, who experiences it, who benefits from the current state of affairs and who is excluded from the conversation. The group then plans what realistic actions can be taken, decides beforehand what would count as an improvement, carries out the plan on a manageable scale, observes the intended and unintended consequences and reflects on the results together. As illustrated in figure 1, the process moves through six connected stages: co-defining the problem, planning, acting, observing, reflecting and adapting and sharing the learning before the next cycle begins. The plan is then revised, the learning is shared and another cycle begins. One cycle of action research may resolve a minor procedural problem, but more complex problems will usually require several cycles.

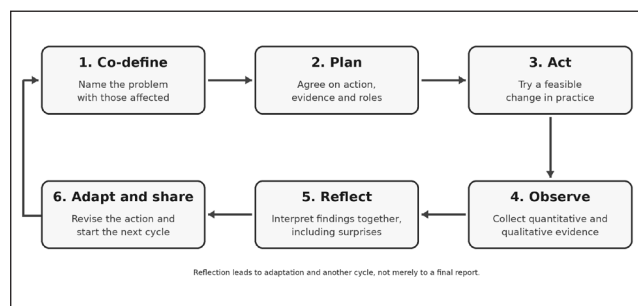


Figure 1: A practical action research cycle [Source: Authors' conceptualization]

Where Action Research Can Transform Practice

1. Classrooms and Teacher Learning

Teachers constantly make small professional judgements:

whether to change the sequence of a lesson, group students differently, use local examples, provide feedback through audio rather than written comments, or give quieter learners a protected way to contribute. Action research turns such adjustments into systematic inquiry. A teacher may begin with a focused question, “Will structured peer explanation improve students’ understanding of photosynthesis?” - collect a short baseline task, introduce the strategy, observe participation, examine student work and discuss the experience with learners. The value lies not only in the final score but also in understanding which students benefited, under what conditions and why.

A 2024 systematic review examined 33 action research studies in primary science education. Most reported positive effects on children’s learning, but the authors also argued for stronger attention to the quality of action plans and to outcome, process and democratic validity (Kamarudin and Mat Noor, 2024). Another review, covering 63 articles in ten leading science education journals, found a more uncomfortable pattern: only three articles were authored or co-authored by science teachers and almost none pursued political or emancipatory aims (Feldman et al., 2025). In other words, action research is frequently praised as practitioner-led, yet practitioners remain under-represented in the published record.

The impact can extend beyond one classroom. A study showed that teacher action research may influence colleagues, school routines and wider professional networks. Evidence from a study found that a *Theory of Change* helped teachers think more critically about intended outcomes and assumptions, although demonstrating impact remained difficult. These studies point to a sensible conclusion: action research becomes more powerful when schools provide

time for inquiry, peer dialogue and documentation rather than expecting an isolated teacher to do everything after working hours.

2. Agricultural Education and Extension

Agricultural extension offers an excellent opportunity for such an approach given that farmers' decisions are place-based and season-bound. Farmer Field Schools, implemented in more than 90 countries, focus on learning based on field observation, experimentation, discussion and decision making rather than on transfer of information from "top down". This approach in practice is very similar to action research: farmers and facilitators identify production problems, experiment with solutions, record results and adjust practice and so on.

Several recent studies documents promise and challenges. In Ethiopia, a dairy project found that 51 participants experienced action research as relevant and as a platform for learning but the authors concluded that it requires limited scope, planning, monitoring and documentation (Ayantunde *et al.*, 2024). In Tanzania, a study of 607 small farms found that action research and soil fertility management was associated with higher farmgate calories protein and minerals. Let me stress again that this was an observational model-based analysis so this is an association and not participation alone causing the gains.

India brings some practical examples. A study in Kerala covering 3 Grama Panchayats and 90 coconut farmers, extension agents, organisations, women self-help groups, etc. found that participatory demonstrations and farm schools improved the participant's knowledge and allowed for reciprocal learning about disease tolerant seedlings and coconut management (Anithakumari *et al.*, 2023). In Aligarh (UP), a study tested wall-magazines, farm schools and a combination of the two with 200 farmers and found the biggest gains when farm schools were supported by wall-magazines. The upshot, simple communication tool can be leveraged for extension enhancement when tested in the field.

A Practical Blueprint for a Rigorous Study

Drawing upon the preceding evidence, the following steps provide an author-developed framework that may be adapted to educational and extension settings. Action research does not need a complicated statistical design, but it does need a defensible trail from problem to evidence to decision. The following blueprint can be adapted for a classroom, an extension programme or a community institution.

1. Start with a Problem that People Recognize: Replace broad topics such as "poor adoption" or "weak participation" with a bounded question. Specify the group, practice, place and period. Ask stakeholders whether the problem matters to them and whether the proposed inquiry could create a real benefit.

2. Build a Small Inquiry Group: Include people who hold different forms of knowledge: practitioners, learners or farmers, field staff, local leaders and, where useful, a

methodological adviser. Agree on roles, decision rules and how credit will be shared.

3. Record the Starting Situation: Collect a modest baseline before changing practice. Depending on the question, this may include attendance, short tests, farm records, observation notes, photographs, costs, time use, interviews or a participatory map. Baseline evidence prevents every later change from being attributed to the intervention.

4. Choose one Feasible Action: A small intervention is easier to study than a package of many changes. Define what will be done, by whom, for how long and with what resources. Write down the assumptions: why should this action work here?

5. Use More than one Source of Evidence: Combine a quantitative indicator with qualitative evidence whenever possible. Test scores or adoption counts can show whether change occurred; interviews, diaries and observations can help explain how and for whom it occurred. Include evidence that contradicts the preferred story.

6. Reflect with Participants, not only about Them: Return preliminary findings to the group. Ask what appears convincing, what is missing and whether some people experienced the action differently. This stage often reveals hidden labour, access or power issues that an external researcher would overlook.

7. Decide the Next Action: Continue, modify or stop the intervention on the basis of evidence. State clearly what changed between cycles. A failed action can still produce useful knowledge when the reasons are examined honestly.

8. Share Learning in Usable Forms: A journal article is only one output. A classroom note, farmer meeting, illustrated leaflet, local-language audio message, field day or policy brief may be more useful to participants. Academic dissemination should not replace local feedback.

An Illustrative Extension Cycle

Consider an extension team that notices limited use of improved green-fodder practices among small dairy farmers. The immediate response may be to organise another training programme. Before deciding, the team consults women farmers, men farmers, livestock workers and local input suppliers separately. These discussions may reveal that farmers already know about the recommended practices. The more pressing difficulties could be inadequate irrigation, inconvenient training schedules and uncertainty about how the new fodder would fit existing feeding routines. The team may then test a small intervention in two villages. Short evening sessions could be linked with farmer-managed plots, supported by weekly voice messages in the local language. Evidence collected before and after the intervention may include participation by gender, establishment of fodder plots, yield, labour requirement and actual use in feeding. Milk yield may also be recorded where dependable records are available. Farmers' explanations would help show which parts of the intervention were useful and which created difficulty. Reflection may indicate that the voice messages helped, while access to seed had become the more immediate constraint. The next cycle would therefore

examine a community-based seed arrangement instead of repeating the same training. The intervention changes because the evidence points to a different problem. This is the practical logic of action research.

Keeping Action Research Scientific

The word “participatory” does not automatically make a study ethical or credible. Scientific quality depends on whether the inquiry produces trustworthy evidence and whether participation has real substance. Five questions are particularly useful.

1. *Outcome Validity*: Did the inquiry contribute to resolving the problem, or at least improve understanding of it?
2. *Process Validity*: Were the methods appropriate, systematic and capable of capturing the complexity of the situation?
3. *Democratic Validity*: Were relevant groups able to influence the question, interpretation and decisions, especially those with less institutional power?
4. *Catalytic Validity*: Did participation deepen people’s understanding and capacity to act?
5. *Dialogic Validity*: Were the reasoning and evidence examined critically by peers or other knowledgeable people?

Several practices strengthen these forms of validity. Keep an audit trail of meeting decisions, changes to the intervention and reasons for those changes. Use triangulation rather than depending on a single enthusiastic account. Where practical, compare baseline and follow-up measures, repeat observations or include a comparison group without pretending that a small local study is a randomized trial. Search for negative cases—participants or sites where the action did not work. Record the researcher’s dual role and possible interests in the outcome. Finally, distinguish between evidence, interpretation and hope. A locally successful cycle may offer a useful principle for other settings, but it does not justify universal claims.

Ethics, Ownership and Power

Action research often takes place within existing relationships: teacher and student, extension worker and farmer, supervisor and employee, university and village organisation. These relationships can make voluntary participation complicated. Consent should therefore be treated as an ongoing process, not a signature collected once. Participants need to know what data are being collected, how photographs or quotations may be used, whether they can withdraw and what practical risks may follow from criticism of an institution or programme (Cornish et al., 2023).

Ownership also matters. Who stores the data? Who decides which findings are published? Who is named as an author? Who receives the benefit if the project attracts recognition or funding? Participatory research can become tokenistic when local people do the labour of data collection but outsiders retain control over interpretation and credit. Honest negotiation of these questions is part of the method, not an administrative detail.

Common Traps and Better Alternatives

1. *All Action, Little Research*: Good intentions and busy activity are not enough. Define the question, baseline and evidence before intervention.
2. *A Ready-Made Solution Disguised as Participation*: Let stakeholders alter the problem definition and the action, otherwise, consultation becomes ceremonial.
3. *One Cycle followed by a Final Report*: Use reflection to change practice and document the next cycle, even if the article reports only the first two rounds.
4. *Only Success is Recorded*: Include resistance, uneven benefits, unexpected costs and actions that were stopped.
5. *Numbers without Explanation-or Stories without Checks*: Use mixed evidence and examine convergence as well as disagreement.
6. *Claims Beyond the Setting*: Offer transferable lessons with contextual detail instead of claiming universal generalisability.
7. *Participation without Protected Time*: Build reflection, documentation and feedback into institutional workload and project budgets.

Conclusion

Action research is most meaningful when it remains honest about its limits and serious about its purpose. A single study may not offer universal answers, but it can still produce valuable knowledge by helping teachers, extension professionals and communities understand a problem more clearly and improve practice through evidence. Its strength lies in the continuous movement between action and reflection, where interventions are tested, questioned and revised before they become routine. However, participation must be genuine, evidence must be credible and the findings must return to the people who helped create them. Action research loses its value when reflection becomes a formality or when stakeholders are treated only as sources of data. Conducted with methodological care and ethical responsibility, it does more than document existing conditions. It turns everyday practice into a space for disciplined learning, shared judgement and meaningful change.

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