



Educating the Uneducated to Deliver on Safety Performance

*Designing safety communication for literacy, comprehension, language,
culture and the realities of the workforce*

*“Safety information has no protective value until it becomes human comprehension,
confident intervention and reliable behaviour.”*

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Safe Behavior By Design

Abstract

Organizations frequently claim that workers have been trained, procedures have been communicated and safety expectations have been clearly established. Yet incidents continue to reveal a persistent gap between information being delivered and information being understood, retained and applied.

This gap is often misdiagnosed as worker carelessness, resistance, complacency or lack of education. Such conclusions can be inaccurate and unfair. A worker may possess extensive practical knowledge while having limited formal education, limited literacy in the organization's operating language or difficulty interpreting technical documents.

The central issue is therefore not simply whether the organization provided information. It is whether the organization communicated that information in a form the intended workforce could understand and use.

This paper examines how literacy, language, cultural context, visual interpretation, numeracy and cognitive load influence safety performance. It argues that safety systems should be designed around the lowest reasonable level of comprehension within the workforce—not because workers are unintelligent, but because critical information must remain understandable under real operating conditions.

The paper proposes a shift from document-centred safety management to comprehension-centred safety management and presents a practical process for identifying communication barriers, redesigning information, verifying understanding and improving the system.

1. Introduction

The phrase “educating the uneducated” is intentionally provocative. It reflects an attitude that still exists within many organizations: management develops a system, presents the information and assumes that workers who fail to follow it must lack intelligence, motivation or discipline.

A more mature organization asks a different question: Did we design the information so that every person expected to act on it could understand it?

There is a fundamental difference between delivering information and creating understanding. A worker may attend an induction, sign an attendance sheet, complete a multiple-choice assessment and still leave without understanding the hazards that can kill them.

Safety performance does not improve because information has been distributed. It improves when people can recognize hazards, understand consequences, recall critical controls, make sound decisions and intervene when conditions change.

The purpose of this paper is not to lower safety standards. It is to improve the way those standards are communicated so that every worker has a reasonable opportunity to meet them.

2. The Problem with the Word “Uneducated”

Formal education and operational intelligence are not the same thing. A worker may have limited formal schooling yet possess exceptional mechanical awareness, strong spatial reasoning, detailed knowledge of local conditions and years of practical judgment.

Calling such a person uneducated overlooks knowledge developed through experience, observation, repetition and cultural learning. At the same time, organizations must not ignore genuine limitations in literacy or comprehension. Pretending every worker can interpret technical safety information at the same level is neither respectful nor safe.

The objective should not be to label individuals. The objective should be to identify the communication conditions necessary for them to work safely.

3. The Lowest Common Denominator

The term lowest common denominator can sound insulting when applied to people. Used correctly, however, it is not a judgment of human worth or intelligence. It is a design principle.

In safety communication, the lowest common denominator is the minimum level of language, literacy, knowledge and comprehension that can reasonably be expected across the intended audience.

Designing around this level means ensuring that the core message remains understandable to the person who may have the greatest difficulty interpreting it. It does not mean removing technical depth from management systems. It means separating complex governance from clear frontline instruction.

The design test should be simple: Can the least experienced or least literate authorized worker correctly explain and demonstrate the critical action?

4. Why Literacy Matters to Safety Performance

Low literacy does not automatically cause incidents. However, it can increase exposure when safety systems depend heavily on written material.

A worker with limited literacy may struggle with lengthy procedures, permit conditions, chemical information, emergency instructions, risk matrices, inspection forms, equipment manuals or digital reporting systems.

Workers may also hide their difficulty. They may nod during training, copy another person's answers, avoid speaking during group discussions or rely on co-workers to interpret instructions. This behaviour often reflects embarrassment or fear rather than indifference.

Translated information is not necessarily understood information. A technically correct translation may still fail because the words are unfamiliar, the concept has no direct local equivalent, the examples do not match the worker's experience or the worker does not feel safe admitting confusion.

5. Comprehension Is More Than Reading

A person may read a sentence aloud without understanding its meaning. Technical wording often hides the required action behind administrative language.

For example, "Personnel shall ensure that residual, stored and potential energy sources have been dissipated or otherwise controlled prior to commencing intervention activities" can be stated more directly: "Before touching the equipment, stop every energy source. Lock it. Release stored pressure, movement or electricity. Test that the equipment cannot start."

Comprehension requires the worker to connect the words with the actual equipment, hazard, consequence, control, signs of failure and required response. The burden of clarity belongs primarily to the communicator.

6. Language Is Only One Part of the Problem

Organizations often respond to communication problems by translating documents. Translation is valuable, but it is not a complete solution.

Language comprehension can be affected by regional dialect, pronunciation, technical vocabulary, local naming conventions, educational background, pace of speech, abbreviations and whether the translator understands the work.

Organizations should involve experienced workers, local supervisors and competent translators in validating terminology. Workers should be asked what they call the equipment, how they would explain the hazard to a new worker and whether the symbol means what management believes it means.

7. Cultural Comprehension

Safety messages do not enter a cultural vacuum. Workers interpret information through existing beliefs concerning authority, seniority, masculinity, risk, fate, loyalty, age, discipline, group identity and production expectations.

In some cultures, questioning a supervisor may be considered disrespectful. In others, admitting that an instruction was not understood may cause embarrassment. A technically sound stop-work policy may therefore fail if the culture punishes those who challenge authority.

Effective safety education must address both knowledge and permission. Workers need to know the hazard, the control, how to recognize failure, that they are authorized to intervene and that the organization will support them when they do.

8. The Role of Visual Communication

Visual communication can help overcome language and literacy barriers, but only when visuals are designed carefully.

Useful safety visuals include photographs of actual site conditions, simplified diagrams, colour-coded isolation maps, before-and-after examples, step-by-step sequences, critical-control icons, short videos, demonstrations and physical models.

Visuals should show the required action, not merely decorate the document. Poor visuals can create new confusion through clutter, tiny text, abstract symbols, inaccurate equipment, incorrect body positioning or culturally unfamiliar imagery.

Every important visual should be field-tested. Workers should explain what they believe the image means before it is formally adopted.

9. Plain Language Is a Control

Plain language is sometimes dismissed as oversimplification. In reality, it is a form of risk control because it removes unnecessary barriers between the hazard and the required action.

Effective plain-language safety communication uses short sentences, familiar words, active voice, concrete verbs, consistent terminology, visible headings, limited abbreviations and practical examples.

Plain language does not remove accountability. It makes accountability clearer.

10. Numeracy and Risk Communication

Safety systems often assume that workers and supervisors understand numbers in the same way. This assumption may be wrong.

Workers may have difficulty interpreting percentages, probability, exposure limits, load capacities, gas readings, slope ratios, risk matrices, equipment tolerances and unit conversions.

Where a number controls life-critical work, the organization must verify that users understand both the number and the decision it supports. Numerical information should be linked to practical examples, limits, visual references and clear stop conditions.

11. Cognitive Load and the Working Environment

Even highly educated workers can fail to process complex information under difficult conditions. Comprehension decreases under fatigue, heat, noise, time pressure, stress, poor lighting, interruptions and production conflict.

A procedure that appears understandable in an office may become unusable beside loud equipment, in heavy rain or during a night shift.

The closer the worker comes to high-consequence exposure, the simpler and more immediate the critical information should become.

12. The Failure of Attendance-Based Training

Many organizations measure training through attendance. The system records who attended, how long the session lasted, who signed the form and whether a test was completed. These measures confirm participation. They do not necessarily confirm competence.

A signed attendance sheet does not prove that a worker can identify the hazard, explain the control, recognize an abnormal condition, perform the task, stop the work or respond correctly when the plan changes.

Training should not be considered complete until understanding can be demonstrated through teach-back, demonstration, scenario testing, peer explanation and field verification.

13. Designing for the Least Experienced Worker

A strong safety system should remain usable by a worker who is new to the site, unfamiliar with the equipment, working in a second language, hesitant to ask questions and under moderate time pressure.

The least experienced worker should not be used as an excuse to reduce competence requirements. Rather, the system should deliberately develop competence through simple initial instruction, supervised practice, repetition, demonstration, coaching, progressive authorization and reassessment.

14. The Supervisor as the Critical Translator

Supervisors frequently serve as the final link between organizational systems and workforce action. They translate policies into tasks.

A supervisor must be able to explain the work simply, identify uncertainty, invite questions without embarrassment, demonstrate critical controls, adapt examples to the crew and verify understanding.

Supervisors should not merely read procedures aloud. They should convert the procedure into a conversation about what can go wrong, what prevents the serious event, who owns each control, how it will be verified and what change would require the work to stop.

15. Respect, Dignity and Psychological Safety

Workers with limited literacy may have spent years hiding it. Public reading exercises, complicated written tests or impatient corrections can humiliate people.

Safety education must protect dignity through private assessment, demonstration-based verification, audio and visual materials, verbal responses, competent mentoring and a strict rejection of ridicule.

Respect improves openness. Openness reveals uncertainty. Revealed uncertainty can be corrected before it becomes exposure.

16. From Information Transfer to Behavioural Capability

Traditional training often follows a transfer model: the organization has information, the trainer presents it and the worker receives it.

A stronger model focuses on behavioural capability. The organization identifies the action required and designs learning that enables the worker to perform that action reliably.

The real measure of safety education is not what the instructor said. It is what the worker can do afterward.

17. A Comprehension-Centred Safety Model

Organizations can apply a comprehension-centred model through seven connected stages that align directly with Figure 1: (1) identify the communication challenge; (2) understand the audience; (3) design and adapt the message; (4) deliver and engage; (5) verify understanding; (6) observe application in the real work environment; and (7) improve and sustain the system.

Process stage	Purpose
Stage 1 — Identify the communication challenge	Define what is not being understood, retained or applied and where the breakdown is occurring.
Stage 2 — Understand the audience	Assess languages, literacy, numeracy, technical familiarity, cultural context, work experience and confidence in asking questions.
Stage 3 — Design and adapt the message	Define the essential behaviour, remove unnecessary complexity, use plain language and select visuals that match the real task.
Stage 4 — Deliver and engage	Use multiple methods, real examples, demonstrations and worker participation rather than one-way presentation.
Stage 5 — Verify understanding	Use teach-back, task demonstration, scenario questions and observation. Never rely only on “Do you understand?”

Process stage	Purpose
Stage 6 — Observe application	Check whether the message survives real operating conditions and whether controls are applied correctly.
Stage 7 — Improve and sustain	Identify root causes of communication failure, redesign the message or method, reinforce learning and monitor effectiveness.

Each stage is connected. When a message is not understood or correctly applied, the organization should return to the specific barrier—language, literacy, complexity, culture, delivery method or work environment—redesign the communication, and verify it again before relying on it as a safety control. The integrated process diagram below illustrates this continuous loop.

EDUCATING THE UNEDUCATED TO DELIVER ON SAFETY PERFORMANCE

Understanding the Lowest Common Denominator When It Comes to Literacy, Comprehension, Language and Culture

Effective safety performance depends on whether people understand the risks, the controls and the actions required.

This requires designing communication around the lowest reasonable level of comprehension in the workforce and verifying understanding through demonstration, observation and feedback.

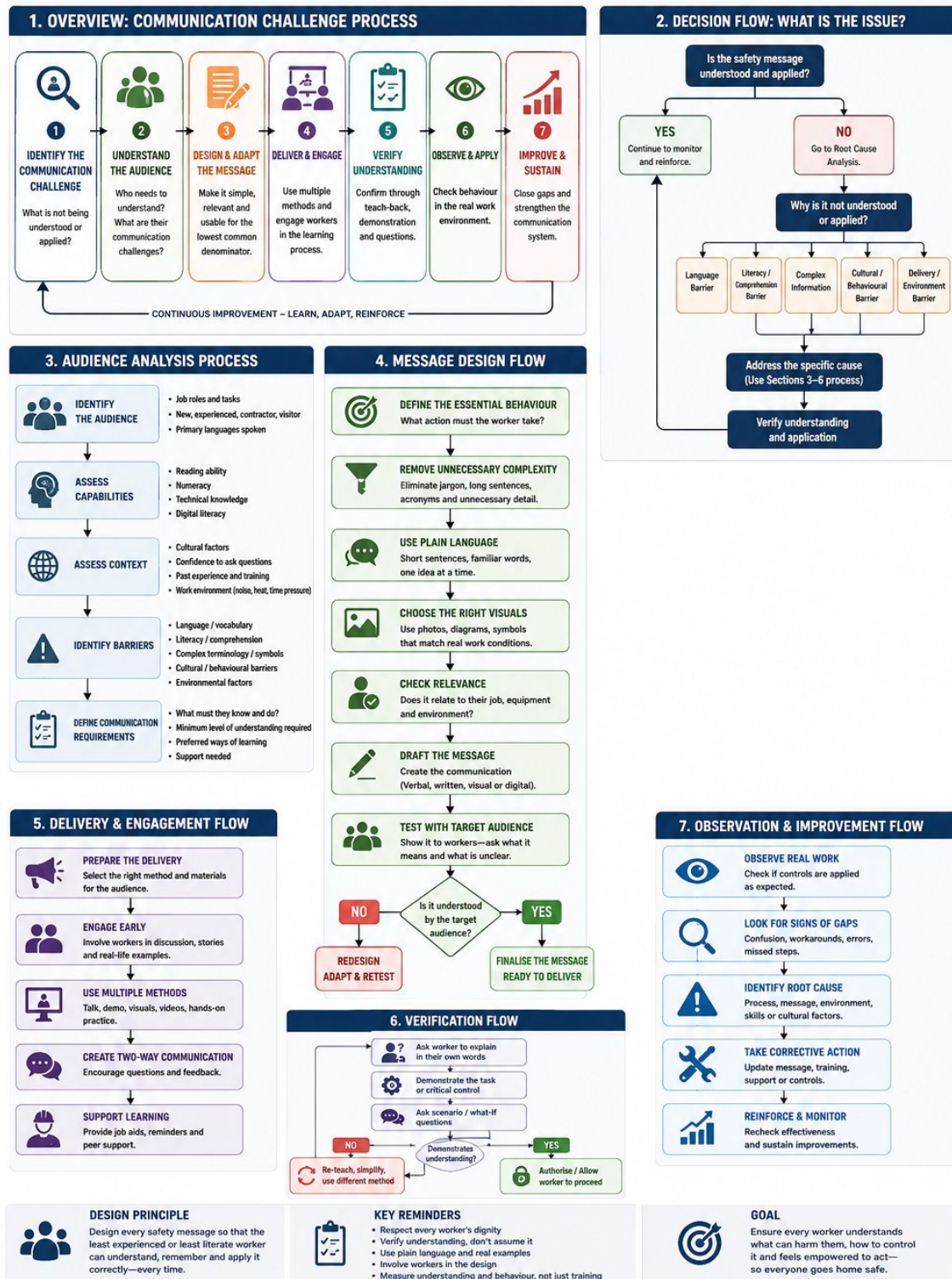


Figure 1. Communication Challenge Process: from barrier identification to verified understanding and continuous improvement.

18. Practical Design Standards

Organizations should establish minimum communication standards for frontline safety material.

Written material should use plain language, present one concept at a time, place actions before explanations, define technical terms, use large readable text and remain as short as reasonably possible.

Visual material should match site equipment, show correct body positioning and personal protective equipment, highlight the critical hazard, use consistent symbols and be tested with the intended audience.

Training should begin with what workers already know, use real work examples, include demonstration and practice, repeat critical messages and verify understanding in the field.

Procedures should distinguish between governance information, technical reference material, supervisor instructions and worker-facing critical steps.

19. High-Risk Work and Critical Controls

Comprehension becomes especially important when workers are exposed to fatal and serious injury hazards such as mobile equipment interaction, ground failure, electrical energy, suspended loads, confined spaces, work at height, hazardous substances, fire or stored mechanical energy.

Each critical control should answer six questions: What serious event does this prevent? What must be in place? Who confirms it? How is it verified? What does failure look like? What action is required if the control is absent?

A complicated checklist cannot compensate for a worker who does not understand why the control matters.

20. Leadership Accountability

Leaders often demand that workers comply with procedures while approving systems that workers cannot realistically understand.

Leadership accountability includes funding translation and visual communication, providing sufficient training time, reducing document complexity, developing supervisors, validating comprehension, involving workers in design and correcting production pressures.

Leaders should ask workers what can seriously injure them, which control prevents it, how they know the control is working and what would make them stop.

21. Performance Indicators for Comprehension

Organizations should measure communication effectiveness rather than relying only on training-completion rates.

Useful indicators include the percentage of workers who can identify task-specific critical controls, teach-back success, procedures simplified through worker review, supervisors trained in comprehension verification, observed application of controls and communication barriers reported by workers.

An increase in reported misunderstandings may initially indicate improvement because workers have become more willing to speak openly. Silence should never be mistaken for understanding.

22. What Organizations Must Stop Doing

Organizations should stop equating attendance with competence, treating signatures as proof of understanding, reading complex procedures aloud and calling it training, assuming translation guarantees comprehension, embarrassing workers who struggle to read and blaming individuals before reviewing communication design.

23. What Organizations Must Start Doing

Organizations should assess workforce communication needs, use plain language, simplify critical instructions, combine words with visuals and demonstrations, involve local workers in material development, verify learning through teach-back, assess competence in the field, train supervisors as communicators and treat comprehension as a critical control.

The goal is not to make safety childish. The goal is to make safety unmistakable.

24. Discussion: Who Is Actually Uneducated?

The title of this paper raises an uncomfortable question. When a qualified professional writes a procedure that most of the workforce cannot understand, who is uneducated?

When a manager assumes that a signature proves competence, who has failed to learn? When a supervisor repeats the same explanation after workers continue to misunderstand it, who has resisted change?

Education is not demonstrated by the complexity of the words used. It is demonstrated by the ability to help another person understand.

A mature safety organization does not demand that every worker learn to think like a safety professional. It requires safety professionals to learn how workers think, communicate and perform their work.

25. Conclusion

Safety performance depends on more than policies, procedures, training hours and compliance records. It depends on whether workers understand what can harm them, recognize the controls that protect them and feel able to act when those controls are missing.

Literacy, language, numeracy, culture, experience and cognitive load all influence that understanding.

Organizations should design critical safety communication around the lowest reasonable level of comprehension within the workforce. This principle does not diminish workers. It acknowledges the diversity of human capability and the responsibility of the organization to communicate effectively.

The strongest safety message is not the most technical. It is the message that reaches the worker, survives the working environment and produces the correct action when it matters.

The true challenge is therefore not educating the uneducated. It is educating organizations to communicate.

RECOMMENDED ORGANIZATIONAL PRINCIPLE

No worker should be exposed to a serious hazard based on information the organization has not confirmed they understand.

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