Guide to High-Reliability Organizing (HRO): 1, Scholarship, Words, and Clichés

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Abstract:

The gap between theory and practice is a liminal space with its own logic and language. To introduce HRO to a program, we can remove select words that interfere with thought. Replacement words from organization members will soon initiate the "HRO mindset." Terminating clichés, a method used in brainwashing is unnecessary for thinking and discussions. Therefore, they can easily be removed. These few changes can bring HRO into an organization or system with minimal effort.

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Introduction:

An organization's introduction or development of High Reliability seems to follow approaches that change the system or bring conformity to the workforce. Paradoxically, HRO characteristics support rapid system adaptation during a forcing function or abrupt change and initiative plus conformity rather than sole reliance on conformity. When we view events as occurring between theory and practice, a liminal space, the individual becomes visible. Increasing the individual's capability can appear to be the more involved method of change. Using "plain language," identifying "never" words, and removing thought-terminating clichés can readily initiate change toward HRO.

HRO and safety can be introduced as a DIY project –Do It Yourself. In this series of Neonatology Today articles, we will discuss some of the problems preventing the achievement of high reliability and some readily incorporated approaches for change.

The Problem:

Theories and models are part of our understanding of science. Theorizing is conceptual, explanatory, and interpretive (1). In practice, however, information is imperfect, changes, and conflicts with other information. Time becomes a measure. The future branches are becoming open to influence and change (2). What is reliable is the practitioner's skill at observation. "We can place our highest hopes in observations…The kind of knowledge supported only by observations and has not yet been proved must be carefully distinguished from the truth; it is gained by induction," Leonhard Euler (3). This is the world of practice – able to probe and then evaluate the responses of each probe.

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The problem is operating within the gap between theory and practice – the application of abstract thought in a contextual situation.

The Gap Between Theory and Practice

Scientific theory and rationality assume discrete a priori themes and concepts outside the human mind (4, 5). Operators in the field develop their logic of practice built upon contextual relations entwined with people and work (6). The absence of practice within theory is how theoreticians see theory-making as themes regarding a priori scientific assumptions. This is the *scientific subject domain* (5).

We do not recognize the liminal characteristics of the Theory-Practice Gap. The liminal zone described in anthropology is that space between a world we know and a world we do not, where our old rules no longer apply, yet we have not learned the new rules (7). We either do not belong or were created to pass through these temporary spaces. We do not have context. We cannot rely on learned concepts, policies, or rules. In this area of experience, we must engage the situation to leave, yet we do not know what works (8).

The liminality of the gap influences our academic approach to this gap and HRO. Accepting the liminal zone as an operational area for HRO supports a scholarly approach for transdisciplinary and interdisciplinary studies that bridge disciplines. Such an approach could cross levels of analysis to form integrative HRO as a science (9).

Practical Wisdom

We aim to make good choices. Such judgment can be a virtue when done for the community's good or vice when done for self-interest (10). We seek the ability to perceive what is required for the greater good regarding feeling, choice, and action in *particular situations*. Practical Wisdom is an intellectual virtue or characteristic that is "bound up with action, accompanied by reason, and concerned with things good and bad for a human being" Aristotle, *Nicomachean Ethics* 1140b5-7 (11).

We no longer consider context or contingent facts when we privilege either theory. When we privilege practice, we ignore accumulated, measured knowledge. We risk making decisions out of self-interest, favoring our personal beliefs for theory or practice. Our beliefs become refractory to disconfirming evidence –scrutinizes information that conflicts with those beliefs and ready acceptance of supporting information. This is motivated reasoning (12).

The Academician

The academician is affiliated with a university, pursuing knowledge for one's purpose and gaining mastery over a singular domain. Academicians abstract from the particulars of a chosen topic and move the abstracted particulars to a theoretical construct based on how they categorize that knowledge. This gives a more general way of considering and understanding the topic (1).

Theory

Theories are commonly developed in relatively controlled settings or environments for objectivity. Theorizing with abstract information gleaned from the particulars of the circumstances is a form of proceduralization (13). The goal is to represent an "outside" view of the world, a dispassionate, objective representation disinterested in personal experience and practical concerns (14).

Two principles of classical logic also define concepts for scientific rationality: 1) *bivalence* is a statement that is either true or false, and 2) the *excluded middle* states that entities are discrete with distinct properties. The law of the excluded middle ensures that facts or concepts do not overlap. From facts, deductive reasoning guarantees the truth of the conclusion. Scientific rationality ensures theory's integrity by isolating theory from practice and context.

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Practice

Operators in the field have their logic of practice supported by diverse, non-classical logic (15). Practice does not follow the law of the excluded middle. In practice, nonlinear interactions generate unpredictable properties. They *emerge* from the combination of various characteristics of the source processes. Boundaries between these emergent properties are fuzzy and in flux, and they will overlap with properties from other principles and concepts. Interactions with and within the environment generate novel properties and new concepts. Such properties and concepts are imprecise and superimposed on and/or disconnected from other concepts. *Authentic practice, then, adjusts to the flux of circumstances* (14).

This does not mean we accept *all* practices as valid. We can look to "common sense" as a marker of good practice. The problem with using common sense is that everyone believes they have it – and they believe no one else does. We value the definable method of *practical common sense*. Numerous disciplines discuss common sense as an entity: high-risk occupations (16), philosophy (17, 18), science (19), psychiatry (20), psychology (21, 22), anthropology (23), sociology (24, 25), social psychology (26), logic (27), reasoning (28), artificial intelligence (29), and robotics (30).

Our *Neonatology Today* publications discuss common sense from an intimate connection with the environment, knowledge, and experience handed down, focusing on consequences from both action and inaction. This is the common sense for adaptation, a form of practical intelligence that better predicts success in everyday experiences if not real-world survival (21, 31-33). This common sense is experienced-based knowledge rather than rule-based (34). It supports continuous assessments and decisions to adjust to the conditions when unexpected situations occur. Common sense describes cultural knowledge and behaviors. Inquiry drives practical common sense. Overwhelmingly practical, common sense deals with a concrete situation on its terms (35).

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What practical common sense decision-making is not:

- We do not accept the equivalency of common sense with common knowledge. Common sense derives from shared knowledge, but our focus is solving the problem embedded within the environment (14).

- This level of problem-solving is above that of the participant having acquaintance but superficial or surface experience. Working in direct danger with responsibility for self and others is quite different from standing alongside. We must recognize the situational and environmental effects on mental performance, awareness, reasoning, and leadership (36-39).

- Our discussion also does not include the superficial approach that relies on cliché, cool words, slang, and efforts to maintain the image of knowledge.

Much of the academic criticism of common sense is directed at these categorizations of common sense. With time and distance from events, the visibility of practical common sense will rapidly decrease.

Conflict

The theory supports Benjamin Bloom's (40) cognitive domain of learning and Jen Rasmussen's (41) rule-based and knowledge-based frameworks. Conversely, practice is supported by the affective domain of learning developed by David Krathwohl [42] and incorporates Rasmussen's [41] skill- and knowledge-based

frameworks. Relying on theories as the core of practice leads to translating contingencies into more abstract normative statements (14). We can narrow the gap between theory and practice with informed practice. That is theory and scientific rationality *support* practice rather than *guide* practice (5, 14).

Too quickly, we experience conflict between reliance on theory versus contextual practice. The argument ends with someone calling out the "art and science of medicine." Medicine "is an art, based to an increasing extent on the medical sciences, but comprising much that remains outside the realm of any science" (42). The art of medicine and the science of medicine are two different levels of analysis. "Failure to identify levels of analysis … can create false debates," Scott A. MacDougall-Shackleton (43).

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Science, the systematic knowledge of truth and facts often understood as objective and dispassionate, primarily organizes knowledge for understanding and prediction. Art, as its original structure, consists of the knowledge obtained through experience and is contextual, subjective, and organized for practical use. The normative, decontextualized structure of the science of medicine risks an impersonal relationship with the patient. On the other hand, the pragmatic and contextual nature of the art of medicine engenders personal relationships. Failure to develop "the intimate personal relationship between physician and patient accounts for much of his ineffectiveness in the care of patients" (42).

"And he shows me carefully, the valley where the two mountains of reason and emotion meet and twine their efforts together in winding streams that quietly defy your logic" (44). Vivienne, the author of that description, vividly describes the blending of facts and feelings generated in the debate of reason and belief. The Art of Medicine emerges when practical engagement combines the science and practice of medicine (45).

Nonetheless, we must remain aware that Evidence-Based Medicine, science, theories, and models are developed in relatively controlled settings or environments. Critical for translating to the patient's environment (social, physical, and economic) is knowledge of the research environment and the environment of practice (46). For reference, for 30 years, the conflict between theory and practice impeded high-altitude British climbers from reaching the summit of Mount Everest. "Predicting what would happen to the first human beings to climb that high [27,000 feet] was therefore literally a matter of life or death – here inaccurate models could kill" (47).

Scholar

A scholar has the qualities of learning, erudition, and character – a practical way of dealing with affairs. Scholars do not necessarily affiliate with a university.

Scholars pursue informed knowledge claims (1). For the scholar, "informed" is more than depth of information. While academicians less often go beyond their discipline to consider alternative ideas (13), the scholar pursues multiple domains and borrows from other contexts. When a theory explains a phenomenon in one context, the scholar evaluates if that theory gives insight into a similar phenomenon in another context. Scholars use conceptual blending, incorporating analogical dissonance, disanalogy, and counterfactual reasoning (48).

Scholars provide insights to extend understanding through a better or different way of thinking about something (48). On the other hand, academics construct a theory that makes sense to other academicians, such as how something can be understood or explained (1, 13). Even amongst academicians, theorizing is in the hands of 'leaders' who 'enlighten' practitioners (13).

This problem of privileged 'enlightened' academicians and theory is not new. During World War I, Germany used biochemistry to develop methods to manufacture explosives (due to the naval blockade). Carl Neuberg discovered a metabolic process that created two molecules (glycerol and pyruvate), each with three carbon atoms instead of two. Chemists could not understand the pathway to create glycerol, a three-carbon molecule. Neuberg, in 1913, proposed an equation where a molecule with one carbon would add to a molecule with two carbons.

His model produced glycerol for Germany's war production and formed the basis of productive research for two decades (49, 50). Neuberg, held in high esteem in the field of chemistry, was a co-founder of biochemistry and the editor of the leading chemical journal (51). His analysis, though, was wrong.

Gustav Embden identified a different reaction from Neuberg's. Fructose was split into two three-carbon sugars and then modified to the three-carbon glycerol. Neuburg was editor of the major biochemical journal, which delayed Embden publishing this result until 1933, and in a different journal.

Progress had been delayed by the persistence of many wrong leads and the influence of a well-respected researcher. Within six years of Embden's discovery, only one reaction was missing. However, that required ten more years of work because another well-respected researcher, Nobel laureate Otto Warburg, pronounced there was only one possibility for the reaction. This threw investigators off track (52).

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Words:

Words are how we think and how we communicate. One of the first things the authors do when entering an organization is to listen to the words used. Changing words is often an efficient way to

change thinking and attitudes.

Within the gap between theory and practice is a liminal space. Liminal spaces are far more common than we recognize. A medical student entering a clinic as a professional rather than a patient has entered a liminal space. Throughout medical education and residency, what was a liminal space becomes a place where work is done. While no longer a liminal space for the now healthcare professional, it remains liminal for the new, entering medical student. Left out in this discussion of liminality are our workspaces – the clinic, healthcare, and even illness, which are each liminal spaces for our patients and families.

When medical students or patients are in these liminal zones, they are in the gap between theory (medical science) and practice (their studies or home environment, respectively). The words we use influence the meaning they give to their experience. In a scholarly fashion, we can use accessible but accurate words from diverse domains that can bring comfort, understanding, and a drive to learn. "Dr. Google" is not invincible.

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Rather than sensemaking or sense-giving, excessively technical, abstract or decontextualized terms and phrases contribute to misconstrual and miscommunication (54). While these approaches may develop into teaching, they can make surmountable problems become insurmountable in a liminal space.

Our choice of words and how we use them can reduce or increase the liminal apprehension felt by those who come to us for help when they cannot help themselves. The phrase, "We help people when they cannot help themselves," was the guiding principle for the fire department. When one of the authors (DvS) served on a fire rescue ambulance, firefighters naturally understood their workplace was a liminal space for fire victims, which was reflected in how firefighters treated them. It is embedded in the culture. We, in healthcare, should do no less. Leaving children, patients, and students in the liminality of our workspace does not advance medical treatment, education, or trust.

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Scholarship and leadership for liminal spaces encompass subordinates' points of view, such as mutual sense giving. The subordinate's framing supports common sensemaking and sense-giving reciprocity with the leader, particularly in liminal situations (54). The leader, through meaning-giving, helps subordinates learn of the impact of adverse consequences and inherent moral implications of decisions and actions taken during an unstable event

(55). The leader increases performance by choosing words, modeling, and sharing sensemaking and meaning-making (56). The individual's resilience emerges when veterans remain engaged with novices past the resolution of events. The presence of veterans can contribute to the internalization of words and terms while reframing events for healthier mental consolidation of the experience (36). *Meaning giving* can reduce the effects of stress that may develop into post-traumatic stress (54).

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Neuroanatomy of Words

The academic background of the Neonatologist supports the routine use of abstract thought. Operations with uncertainty or adversity in a liminal environment demand accurate, concrete descriptions (8, 57). This has neuroanatomic consequences. The *sensorimotor neural network* processes sentences with concrete nouns, words, and abstract words but prefers concrete terms. The *linguistic system* preferentially processes abstract nouns and verbs (58). For motor versus visual *abstract* words, *motor abstract* words will activate motor areas while visual abstract words elicit higher visual area activity (59). Concrete, active words facilitate action, while abstract words generate thinking. This seems prudent until one realizes the brain's response to stress is to constrain executive functions and impair abstract thought (38). During an emergency, abstract words send messages to areas of the brain impaired by stress.

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Operators in dangerous contexts use concrete nouns for description and emphasize action verbs for communication. Recent neuroscience findings support this behavior. Action words and motor action, noted above, share common cortical representations. Action verbs, more so than concrete nouns, affect overt motor performance dependent on timing. An action verb will interfere with a reaching movement in progress within 200 msec. The exact words processed *before* movement will *assist* the movement (60). This action, fortunately, is category-specific. A quick shout to move a hand causes hands to move, not random body parts. The category-specific, functional linking of language and motor action in the left hemispheric cortical systems link arm and leg actions with processing specific kinds of words. The two systems interact to produce meaningful information about language and

action (61-63).

The cerebellum and motor cortex also influence cognition. Executive and higher-level cognitive cortical functions draw upon interactions with cerebellar motor functions (64-66). High-level knowledge is grounded in sensory and motor experience (64). This shapes the motor system on anticipation and provides information for the meaning of potential action (63, 67). We rely on reciprocal feedback with the environment (36). We think by acting (68), and our choice of words will influence both thought and action.

How Can I Know What I Think?

Captain Chesley Sullenberger has been especially eloquent on how understanding actions come to us *after* the event.

> "During a crisis there is not time to think about each specific bit of knowledge or experience that we depend on to make sense of imperfect information and ambiguity. But having those resources immediately accessible in our minds, we use them in a conceptual decision-making process to frame the decision. We essentially quickly come up with a paradigm of how to solve the problem. It is after the fact that we retrospectively begin to attribute specific reasons for the decisions that we made."
>
> Capt. Chesley "Sully" Sullenberger (personal communication)

Sensemaking and the meaning we give experience is to think backward to explain one's actions. Karl Weick's 'sensemaking recipe applies to liminal events: "*How can I know what I think until I see what I say*?" (69). We can distinguish the neuroscience of his recipe.

I cannot know what I think until I act. Intention cannot cause our actions because conscious intention occurs *after* preparatory brain activity in the frontal and parietal brain areas (70). It would make sense that purposive action derives from intention, which would mediate between cognitive desires and purposive motor behavior. Rather than mediating, the two distinct brain operations, cognitive intention, and motor behavior, must coordinate. This is the "Interface Problem," which is made difficult because of the importance of motor representations in creating purposive behavior (71).

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The subjective experience of conscious intention often contains two components: a sense of urge, or being about to move, and a reference forward to the goal object or event [22]. Our perceptions help us recognize whether a response was due to our actions, giving us a sense of agency (70). Without action, we do not gain a sense of agency.

Actions create what we think, which continuously changes until we finish acting. During our *behavioral* interactions with the environment, our brain specifies desirable actions as the environment changes (72). Continuous, bottom-up feedback for sensorimotor control detects prediction errors through the motor system, updating ongoing action. This feedback enhances or cancels some sensorimotor signals. Self-generated cancellation as a motor function also explains why we cannot tickle ourselves. It is due to the sensory feedback through the motor system (73). Alternative actions

continue to be mentally processed (72). This may extend to language comprehension, social cognition (74), and interpreting sensory signals (75). This makes our intention visible to ourselves.

Words to use in the gap between theory and practice or for a liminal experience are not our routine words. Meaningful and accurate words can come from the leader and veteran or poor performers and outsiders. Expensive training can be lost with two sentences: "I know that is what they taught you. Let me tell you how it works." With good words, the right words, what we teach and what works are identical.

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Words Make Safety

Leaders and veterans are vital for bringing novices safely into the healthcare environment. Veterans in dangerous contexts (for example, underground miners and high-rise ironworkers) believe "Ignorance and lack of skill resulted in injuries" (76). A fearful worker will not act correctly, may act rashly, put self-protection over group protection, prioritize his emotions, and neglect or avoid his responsibilities (77). The novice will flounder without the "guidance and wisdom" of experienced miners (76). Prosocial empathy increases group affinity and reduces stress responses and fear reactions through oxytocin systems (78-80).

Not possessing the requisite knowledge and skills results in poor performance and injury. The focus on training and the apprentice period is to develop qualified members. Miners believed the veteran miner must guide and teach the novice miner. The new miner would learn to work in a way that avoids accidents, recognizes potential danger, and learns how to respond to such situations (76). Journeyman ironworkers told apprentices how to act by having them think out their tasks and ensure their coworkers do the same. The journeyman would present situations, even if not the apprentice's job. The apprentice would then interpret the proper actions as "part of the process of sharing this perspective about fear and threatening coworkers" (77). The US Marine Corps sees recruit training as developmental and positive despite the high personal demands. Drill Instructors are present to help, not harass the recruit (81-83).

Words make for safety and effective operations.

The Use of Words

Abstract or ambiguous words impair learning and operations. The application of abstract thought to a contextual situation is *never* a close match. "Ambiguity may lead us to construct a world that, while supported by evidence, is not true. This is the danger of ambiguity – we select evidence and interpretations for their plausibility, but later events show we were wrong" (84). Words or labels can cut out information, constrain thought and action, and even stop the activity.

Words communicate but also define and reveal information. Words from other disciplines or domains can reveal new perspectives and often do not have persuasive qualities.

Never words

These are words we have found to stop thinking or can be used for harm. Instituting this program can be rapid and is often readily accepted.

Need, Requires, Requirement, Must

- It forces more accurate descriptions, draws out physiology discussions, and induces discussion of alternatives.

- "Needs oxygen" becomes replaced by an accurate description of the situation, "Oxygen saturation on room air was 83%," or a treatment-response dyad, "5 lpm oxygen raises the saturation to 90%."

- A less challenging way for a subordinate to suggest treatment is "Needs fluid bolus" versus "Would/could benefit from fluids."

Just

- Diminishes the person.
- Medical students often self-introduce on rounds as "I'm just the student." One of the authors (DvS) would then introduce the team to the student: "She is just the resident," "He is just the patient," and "I am just the attending." No one is "just" anything.

Why

- "Why" answers tend to be abstract, linear, and simplified.

- Do we ever know why we do something?

- Use what and how.

Denies

- Do we believe the patient has the complaint but is denying it?

Comply, Compliance

- We do not learn what impairs their ability to follow through.

"Good"

- Is 85% oxygen saturation "good"?

- The rate and direction of change are not included in the description.

- Cyanotic heart disease or chronic hypoxemia may have elevated hemoglobin to compensate.

- Recovery from ARDS – the patient may have spent some time with saturations in the high 70% range.

- Removing "good" feels like an assault on a person's judgment or evaluation skills and is one of the more difficult words to remove. However, once removed, discussions readily become about physiology and response to treatment.

Patient Advocate

- We are all patient advocates.

Hard or Difficult

- The person does not know how to do it.

Good words

These are generally words and terms that staff find protective. "Did you give the treatment?" Before one of the authors (DvS) introduced "pending," staff felt in trouble if the treatment had not

been given. With "pending," they could answer, and if the supervisor wanted to know the reason, that discussion could then be held.

- Pending

- Benefit from

- Action and response as a description (what I did then what happened)

- Knowledge and experience (NOT opinion or I think)

- "How can I help?" Takes a person out of the amygdala

Language:

Accuracy and Precision

Ready fire aim

Precision is a measure of reduced variance necessary for hardware's smooth functioning or operations in a white-noise environment. Error marks values exceeding what can be accepted. Accuracy is proximity to the desired value or state and will improve with feedback. Accuracy works well for moving targets. White noise environments with a Gaussian distribution more heavily rely on precision, while red or pink environments, in the absence of the Gaussian distribution, rely on accuracy [Table 1] (85).

Table 1: Precision versus Accuracy

Precision	Accuracy
Hardware	Human behavior
Assures our understanding	Extends our understanding
Applicable to white noise Gaussian distribution ("Six Sigma")	Applicable for red and pink noise Power distribution
Error identifies a structural defect.	Error generates information Error ensures safety by identifying boundaries of knowledge and performance.
Identified by feedback Short feedback only Long feedback contains too many factors	Improved by feedback Incorporates long, delayed, indirect feedback loops
	Failure as negative feedback keeps you grounded.
Assures homeostasis	Supports allostasis
Uncovers structural errors	Uncovers flux in the environment Uncovers system impairments Uncovers performance decrements
Improved by moving offline	Can be improved in real-time
Supports certitude, motivated reasoning, the hedgehog, and narcissism	Creates doubt, the fox, and psychological grounding

Table developed with Ian van Stralen.

Concrete Nouns, Action Verbs

The brain's response to stress constrains executive functions and impairs abstract thought. Abstract words send messages to areas

of the brain impaired by stress. During an emergency, we use concrete nouns for description and emphasize action verbs for communication.

"Motor cognition comes from the coupling of perception and action. The sensorimotor neural network processes sentences with concrete nouns, words, and abstract words but prefers concrete terms (58). Motor abstract words will activate motor areas, while visual abstract words elicit higher visual area activity (59). Concrete, active words facilitate action, while abstract words tend to generate thinking, a problem in a stressful situation."

Action words and motor actions share common cortical representations. Action verbs, more so than concrete nouns, affect overt motor performance dependent on timing. An action verb will interfere with a reaching movement in progress within 200 msec. The same words processed *before* movement will *assist* the movement (60). This action, fortunately, is category-specific. A quick shout to move a hand causes hands to move, not random body parts. The category-specific, functional linking of language and motor action in the left hemispheric cortical systems link arm and leg actions with processing specific kinds of words. The two systems interact to produce meaningful information about language and action (61-63).

Motor attention initiates action – we think by acting. Motor cognition comes from the coupling of perception and action. The *sensorimotor neural network* processes sentences with concrete nouns, words, and abstract words but prefers concrete terms (58). *Motor abstract* words will activate motor areas, while visual abstract words elicit higher visual area activity (59). Concrete, active words facilitate action, while abstract words tend to generate thinking, a problem in a stressful situation.

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Descriptions

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In the first years of the paramedic program, emergency physicians often did not know what equipment paramedics carried, their capabilities, or what actions they were authorized to take. Without a college education, the paramedics had difficulty with medical *terminology* (personal experience, DvS). The physician who trained the paramedics, Ron Stewart, MD, taught the paramedics to give articulate, objective, succinct descriptions.

When paramedics received orders that did not match their training or equipment, Stewart taught them to use medical *descriptions* rather than medical terminology. Then, they would increase the accuracy of their description, including the immediate environment around the patient. Persuasion or any manipulation of the patient's description was not allowed. This becomes a trait, changing disagreements into "dueling descriptions" that, rather than producing tension, produce ever-increasing accuracy.

Plain Language

Use "plain language." Avoid slang, jargon, or acronyms – particularly from another domain. Public safety services (law enforcement, fire fighting, and EMS) have long used plain language for radio communications (the method one of the authors (DvS) learned in the 1970s). In 1991, the Los Angeles City Fire Department's Radio Communication protocol "is that radio communications shall be composed of plain, commonly used English" (86).

In June 2007, the SAFECOM (**S**ecurity and **A**ssurance of **F**ederal **E**mergency **Com**munications) Emergency Response Council (ERC) agreed to encourage public safety practitioners to use plain language and common terminology to address public safety communications interoperability. The International Association of Fire Chiefs adopted this recommendation in 2008 (87).

- Clear and unambiguous radio transmissions are essential to situational awareness and integral to incident management.

- Plain language promotes greater clarity and understanding of emergency radio traffic among and between public safety agencies and political jurisdictions, thus contributing to effective interoperability.

In 2010, the Department of Homeland Security (88) adopted the definitions used by the National Incident Management System (NIMS):

- Plain language is communication that can be understood by the intended audience and meets the communicator's purpose.

- Common Terminology: normally used words and phrases—avoiding using different words/phrases for similar concepts, ensuring consistency, and allowing diverse incident management and support organizations to work together across various incident management functions and hazard scenarios.

"Unskilled, unprepared, and ill-equipped people are best advised to leave slippery slopes to those with the necessary experience"

Cliché

Thought terminating cliché.

Chinese Communists used it as one of their brainwashing methods (89). We cannot describe or argue against a metaphor or cliché. Examples include:

- Correlation and causation.

- Little knowledge is dangerous.

- Slippery slope

- "Got your back."

- The most important person is the patient.

Becoming a "slippery slope." The authors have traversed, ascended, and descended slippery slopes. This involves a good description of the slope and conditions and knowledge of the equipment and capabilities of those on the team. Unskilled, unprepared, and ill-equipped people are best advised to leave slippery slopes to those with the necessary experience – whether on a climb or as a cliché. This cliché may be the ultimate slippery slope.

Analogies

Analogies have greater applicability to support interpretation and reasoning when the comparison has plausibility, increased similarities, and correspondences between domains. Without analogical strength, the metaphors and analogies become thought-terminating cliches (89).

Often, someone unfamiliar with the field provides the analogy. For example, to learn stress, you must be put under stress.

Conclusion:

Removing a few words will change regular thinking and improve communication, particularly during confusing events. Removal of clichés from discussion will prevent individuals from terminating thinking by colleagues.

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