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Capturing the Range of Learning: Implications for Disaster Health in a Resource Constrained Future

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Abstract

Building and maintaining necessary disaster-related learning by health professionals, amidst an environment of resource constraint, is challenging. This article suggests the value of Coombs and Ahmed's three interrelated "modes of education" (formal, nonformal, and informal) in considering disaster health learning and linkages to performance. Implications of this conceptualization are: drawing on the full range of formal, nonformal, and informal modes, fostering learning outside of classes and training sessions, appropriately encouraging informal means to facilitate learning, and including questions about the mode of learning in evaluation. As resources for disaster health education and training become more constrained, resilience is increased if we focus on what learning is necessary to achieve performance, and then facilitate multiple paths to that learning, including informal learning options which are less resource intensive. Thus, the development of competent disaster health professionals is less vulnerable to the vicissitudes of budget and time.

As we speak with our partners, it is clear that resource constraint is a matter of discussion and concern within the disaster medicine and public health community. This issue is illustrated by the title of the February 2012 Public Health Preparedness Summit, "Regroup, Refocus, Refresh: Sustaining Preparedness in an Economic Crisis."[1] Competent performance by health professionals prior to, during, and after disaster events can reduce morbidity and mortality and strengthen the health security of the nation. Consequently, one focus of concern is building and maintaining the necessary disaster-related learning by health professionals amidst limited resources. Finding ways to achieve needed learning within a resource constrained environment enhances resilience for the disaster health workforce.

In the health professions, learning has been largely viewed as occurring in either an education or training setting. Much debate occurs around this dualistic view, especially when new knowledge or programs must be institutionalized in the professional health workforce. It is not our intent to define education or training within the realm of disaster health knowledge. Rather, this paper argues that such a bifurcated view of education *or* training does not offer the full range of options presented by another perspective. A learning perspective that is more inclusive of the adult experience may be particularly timely in our emerging era of dwindling preparedness resources. As resources become scarce, leaders become more focused on learning outcomes and the performance effects of the learning intervention.

The inclusive perspective in Coombs and Ahmed's three interrelated "modes of education" (formal, nonformal, and informal)[2,3] provides a useful way of understanding vectors through which learning for performance[4] takes place. Their conceptualization avoids a narrow focus on completion of training sessions, and illuminates additional paths to achieve necessary learning. Formal education refers to the familiar educational system of schools and grade levels, including university. In formal education, grades are given and degrees are granted.[3] Nonformal education, by contrast is "organized, systematic, educational activity"[2, p. 8] but takes place outside of the usual school system. Examples of nonformal education would include educational programs in the community, training in the workplace, and continuing professional education programs. Informal education "is the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment"[2, p. 8] and would include speaking with colleagues and reading journals and other reference materials.

Mode	**Definition**	**Disaster Health Examples**
Formal	the familiar educational system of schools and grade levels, including university	professional degree programs
Nonformal	"organized, systematic, educational activity"[2, p. 8] but takes place outside of the usual school system	continuing professional education programs, workplace training
Informal	"the lifelong process by which every person acquires and accumulates knowledge, skills, attitudes and insights from daily experiences and exposure to the environment"[2, p. 8]	speaking with colleagues; reading journals, lessons learned and after action reports; experience with actual disasters; participating in drills, exercises, hotwashes

Table 1. Coombs and Ahmed's three interrelated "modes of education" (formal, nonformal, and informal)[2,3] with disaster health examples

Table 1 provides examples of these three modes in the disaster health field. The modes are interrelated, and a case could be made that a drill conducted in the workplace with a specific educational intent might be nonformal rather than informal. Rather than providing a strict classification scheme, the value of Coombs and Ahmed's typology is in reminding us that all three forms of education are at play over the course of an individual's career. In particular, it

helps us to remember that much learning occurs through informal means, which has been described empirically.[5] From a performance perspective, *the mode through which the learning occurs is not as important as that it occurs*. Thus, it is critical to overtly value all three modes of learning, especially for disaster health and particularly when resources are increasingly constrained.

Figure 1 illustrates these paths to disaster health learning for performance. Education and training efforts that result in learning are an approach to enhance performance.[4] Performance during exercises and actual disaster events can indicate prior learning by health professionals, suggest needs for additional learning, and serve as informal learning for future performance. Performance is itself a source of learning via a connection back through the informal mode. Learning related to disasters may also have benefits in the day-to-day performance of health professionals, as indicated by the dashed arrow. For example, it is logical to propose that interpersonal and planning skills learned in a disaster preparedness context may offer benefit to performance in more routine contexts as well.

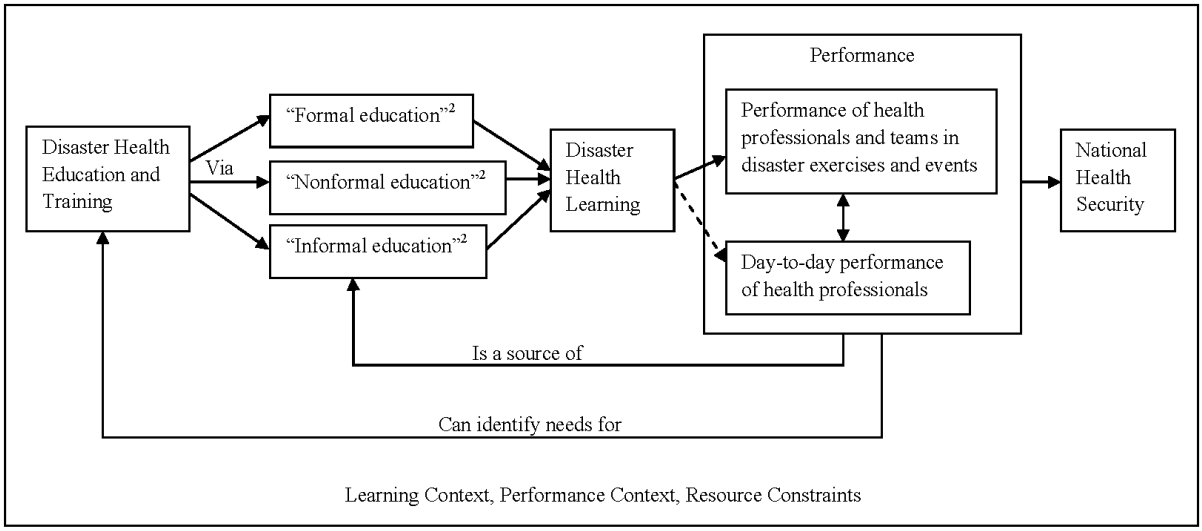

Figure 1. Paths to Disaster Health Learning for Performance

Thinking of these three modes through which learning can take place suggests the following four implications for the disaster health community. First, as a community we should draw on the full range of formal, nonformal, and informal modes to achieve the necessary disaster health learning and performance. Second, those in educational or leadership positions should foster learning outside of classes and training sessions (e.g., capturing and sharing learning from experience, providing online and hard-copy resource materials, encouraging mentoring conversations, keeping a learning journal). Training courses are not the only way to resolve learning needs. Third, in areas other than required certifications and mandated training, when limited time and financial resources constrain more programmatic education and training efforts in disaster health, we can encourage informal means to facilitate learning. We can provide resources and structures to enable informal disaster health learning that is integrated with, rather than separate from, health professionals' day jobs.

Finally, evaluation should assess learner performance. Evaluation should also include how learning for the performance occurred. A question such as "How did you learn to do that?" inquires about the mode or modes through which learning for a particular performance took place. The follow up "How can we bring that same learning to others?" gathers opinions of how that learning could be replicated. These two questions provide insight into the learning process for particular performance, which can inform efforts to promote similar learning for others such that the competency and capability of the disaster health workforce is enhanced. Such questions do not replace evaluation of a particular training event (i.e. "What did you learn from the training session?") but rather provide suggestions on how to draw from the full range of modes to promote learning for performance.

For example, suppose an organization needs to enhance performance in some components of disaster preparedness. Typically, the organization would develop or purchase a program of training courses to teach the knowledge and skills necessary for achieving the preparedness performance targets. In this case though, there are little time or financial resources available. The organization feels stuck. However, other options exist. For instance, organizational leaders could identify which of their current personnel have the knowledge and skills necessary and ask them to informally share their knowledge with colleagues. The success of this learning effort will be in the preparedness performance by personnel. Evaluation should include asking those individuals how they learned what to do. Future preparedness efforts should work to replicate that learning with other staff, and maintain it among all personnel. Learning should emphasize practicing within a scope of care.

Emphasizing a range of modes to enable disaster health learning offers a learning countermeasure to resource constraint. As resources for disaster health education and training become more constrained, resilience is increased if we focus on what learning is necessary to achieve performance, and then facilitate multiple paths to that learning, including options which are less resource intensive. Thus, the development of competent disaster health professionals is less vulnerable to the vicissitudes of budget and time.

We are not aware of empirical studies which assess how use of informal learning for disaster health preparedness and response amidst resource constraint translates to performance. This area should be a priority for future research. We encourage the disaster health community, and other elements of the medical education community experiencing resource constraint, to explore how a full palette of learning modes can open up formerly "invisible"[5 p. 659] learning options. When financial or time resource limitations constrain some approaches, other paths can emerge.

References

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