

Discussion of the National Emergency Medical Services Education Standards Use of the Terms *Breadth* and *Depth*

The National Emergency Medical Services Education Standards [*Standards*] are comprised of four components: competencies, knowledge needed to achieve entry-level competency, clinical behaviors/judgments, and educational infrastructure (NHTSA, 2009). The NEMSES use the terms *breadth* and *depth* to describe various degrees of knowledge and detail a “student needs to learn in a particular competency” (NHTSA, 2009, p. 9) Breadth refers to the number of topics or issues. Depth refers to the amount of detail about a particular topic.

The *Standards* include the following assumption: higher licensure (or certification) levels incorporate all information from lower levels with students needing to build upon previous knowledge as they progress from lower to higher levels. As students progress through the different licensure levels, they will need broader and deeper understanding of the material in order to achieve entry-level competency; they will require more depth and breadth of knowledge within a given competency. The terms used in the *Standards* to describe increasing breadth are *simple*, *foundational*, and *comprehensive*. The terms used to describe increasing depth are *simple*, *fundamental*, and *complex*.

Depth

As stated above, depth refers to the amount of detail a student needs to know about a particular topic. The terms used to describe increasing depth are “*simple*, *fundamental*, and *complex*” (NHTSA, 2009, p. 9). Again, these terms are subjective. The definition of *simple* is as above; *fundamental* and *complex* are defined below.

Simple - “elementary; plain”

Application to the *Standards*: A simple breadth and depth provides the medical professional with a baseline from which they can assess and treat basic emergencies, including the initial treatment of immediate life threats.

Fundamental - “A leading or primary principle, ...which serves as the groundwork of a system; essential part”

Application to the *Standards*: A fundamental depth provides the additional detail on given topics to provide a solid foundation for patient care. This level of depth allows a medical professional to move past the basics of recognizing and treating immediate life threats and assess and treat more complicated medical emergencies.

Complex - “Consisting of interconnected or interwoven parts; composite”

Application to the *Standards*: A complex depth provides the greatest level of detail for any given topic. Included within the concept of a complex depth is also the interrelation of varied topics and the ability to integrate the full scope of knowledge in planning and implementing patient care plans.

Breadth

Breadth of knowledge refers to the number of topics included or covered within a particular competency. The terms used to describe the degree of breadth required for the various licensure levels are "*simple, foundational, and comprehensive*" (NHTSA, 2009, p. 9). These terms, defined below, are somewhat subjective.

Simple - "elementary; plain"

Application to the Standards: A simple breadth and depth provides the medical professional with a baseline from which they can assess and treat basic emergencies, including the initial treatment of immediate life threats.

Foundational - "[Of] the fundamental principle on which something is founded; basis"

Application to the Standards: A foundational breadth covers the number of topics needed to reasonably assess and treat a majority of medical emergencies, building on the simple breadth to expand the medical professional's knowledge beyond the treatment of only immediate life threats.

Comprehensive - "Including much; comprising many things; having a wide scope or a full view"

Application to the Standards: A comprehensive breadth covers the greatest number of topics allowing an emergency medical professional to fully assess a patient and determine both what the patient's emergency is and how best to treat it.

Instructional Guidelines

NHTSA published Instructional Guidelines (IGs) for each licensure level in conjunction with the *Standards*. These guides provide outlines of the cognitive content that a program should deliver at each licensure level. A comparison of the material related to a specific competency contained in the IGs at different licensure levels clearly illustrates the increasing breadth and depth of required student learning expected at each level.

Four Principles from Cognitive Psychology

In an article in *Common Knowledge*, Hirsch (2001a) refers to four principles from research in cognitive psychology related to how people learn that shows the importance of incorporating both depth and breadth in education. These four principles are:

1. The ability to learn something new is not primarily a general, formal skill. For example, learning something new in EMS depends upon the knowledge a person already has concerning EMS.
2. General ability to learn is highly correlated with general knowledge. Learning ability depends chiefly on having relevant prior knowledge.
3. The best way to learn a subject is to learn its general principles and study an ample number of diverse examples that illustrate those principles. Students should study a broad range of examples, but studying too many is a waste of time.
4. Broad knowledge is the best entrée to deep knowledge. After students gain a broad context by developing a sense of the whole domain, they can mentally fit the various parts that follow into that whole and make sense of them.

Hirsch (2001b) also says, “We cannot gain deep understanding without having broad factual knowledge” (“Four principles” sect.) He goes on to say, “Because competence and ability to learn are correlated with broad knowledge, we can infer that we should teach a broad range of subjects” (“Four principles” sect.).

References

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