

## **Discussion Paper #2**

### **Competency-Based Training and Assessment**

#### **Issue**

The goal of this discussion paper is to present the idea of competency-based training and assessment (CBTA) as a potential option for training persons who handles, offers for transport, transports or imports dangerous goods. It is not an exhaustive narrative on CBTA but rather a high level synopsis aimed to support discussion and debate on the feasibility of developing a transportation of dangerous goods (TDG) CBTA program.

#### **Background**

CBTA is not a new concept; its roots can be traced to the efforts in the 1960s in the United States to reform teacher education and training.<sup>1</sup> Since then, the concept has been exported, adopted, and adapted to meet the training requirements of industry.

The CBTA concept is performance and standards-based and is related to realistic workplace practices. By focusing on the result of the training, CBTA ensures that persons are equipped with the skills and knowledge specific to their industry. From a practical perspective, CBTA focuses on what a person can do rather than the courses taken, and it measures a person's achievement against an industry or workplace benchmark rather than a person's achievement relative to others in a group.

The idea of 'competency' is central to CBTA. According to an Australian definition, found in their qualifications framework, competency is the "specification of knowledge and skill and the application of these within the workplace to the standard or performance required"<sup>2</sup>. Inherent in this definition is the transferability of learned skills, knowledge, and behaviours to new situations and environments. These behaviours help describe the competency and affect the performance of the task. By extension, a competency standard that is used to assess persons defines the major skill area(s) of an industry and relates to realistic workplace activities.

Assessing what an individual has learned is an important element of CBTA. Without assessment, there is no way to know what competencies a person has and if the training would enable them to enter and succeed in the workplace. With the CBTA concept, assessment is a process that involves the collection of evidence and judgments about a person's performance against established competency standards. To assist with this process, assessments often include measurement criteria to lessen subjectivity and heighten performance outputs.

---

<sup>1</sup> UMUC Centre for Innovation in Learning and Student Success, pg 1.

<sup>2</sup> National Training Reform – Australian Qualifications Framework.

The CBTA concept recognizes that people learn at different rates, therefore the training activities are centred on the learner and their particular needs. As a result, CBTA is self-paced with opportunities for feedback and has performance improvement built into the learning plan. The training becomes more of a coaching program whereby learners can work toward mastering the skills, behaviours, and knowledge needed for their jobs. Assessment, which is not a one-size-fits-all test, will occur only when learners are ready to have their knowledge and skills assessed.

### **CBTA and the Transportation of Dangerous Goods**

In Australia, the *Model Subordinate Law on the Transport of Dangerous Goods by Road or Rail 2007*, as referenced in the Australian Dangerous Goods Code 7.3, states that a person who is responsible for management or control of a task related to dangerous goods must not employ, engage or permit someone else to perform the task if the other person has not received, or is not receiving, appropriate instruction and training so as to be in accordance with the Code and the subordinate law. All training and testing must ensure that a person has the skills and knowledge to perform the task safely.

There are many training courses available that pertain to the transportation of dangerous goods ranging from the most basic course which covers the skills and knowledge required to prepare for the transport of dangerous goods (checking the dangerous goods load; assessing vehicle suitability to transport the intended load; checking emergency procedures and equipment; evaluating documented route plan) to advanced courses related to licensing, legislative, regulatory or certification requirements of the current Australian Dangerous Goods Code. The training is designed according to the competency required and desired behaviours of individuals who want to work in the industry.

The International Civil Aviation Organization (ICAO) provides another example for the implementation of the CBTA concept with regard to the transportation of dangerous goods. ICAO has drafted a number of related documents including guidance material, a generic competency framework, a template for determining the level of knowledge for each function, as well as proposed amendments to the training provisions in Chapter 4 of Part 1 of the Technical Instructions. The idea behind the new provisions is to ensure that employees are trained to perform their dangerous-goods related functions competently. Employers remain responsible for establishing and maintaining a dangerous goods training programme; however the type of training and assessment to be administered may be based on the CBTA model.

ICAO's guidance material and generic competency framework documents are helpful in understanding the requirements needed to adopt the CBTA model for TDG training writ large. Collectively, these two documents outline the expectations and responsibilities for all involved in the adoption of CBTA (employer, instructor, trainee and the regulator) and clarifies the skills required to safely work with and handle dangerous goods. In addition, these templates may help standardize the training programs offered and by default create a skilled workforce with portable training.

### **Potential Option**

Transport Canada is considering the development and adoption of the CBTA concept for the transportation of dangerous goods. This could be structured as an introduction to the transport of dangerous goods and would cover the training requirements currently listed in Part 6 of the TDG Regulations. All of the requirements would be tied to a competency or competencies required of persons to safely do their tasks. These competencies would be developed in conjunction with industry to ensure that the training and assessment meet the needs of industry.

The generic competency framework developed by ICAO can be used as an example of how to structure a Canadian TDG competency framework, with a focus on competencies that apply regardless of mode of transports (air, marine, rail and road) or degree of responsibility. The initial and on-going assessments would be structured to ensure that the theoretical knowledge of how to do something is demonstrated by the skills and behaviours that are developed throughout the training. Employers would retain the discretion to refer their employees for in-depth or specific training should the job require it.