

Impact Study - Electronic Capture and TOWES


TOWES assesses the essential skills of Reading Text, Document Use and Numeracy in working-age individuals. Each TOWES problem set is presented in two parts: a question page where the test-taker reads the question and provides a response, and a workplace document (eg. a manual or a form) from which the test-taker obtains the required information to respond to the question. A sample problem set is illustrated below.

Respirator Parts Problem

Look at the two pages from the air purifying respirator guide on the page opposite. ▶▶▶▶▶

Painters wear respirators to filter out dangerous vapours and particles.

Question 1 What is the catalog number and description of the part shown below?



Catalog number
Description

8.2. PREPARE FOR USE

- 1) Install a new pair of air-purifying elements.
- 2) Perform a fit check to make sure that components are functioning properly.

9. REPLACEMENT PARTS

COMPLETE ASSEMBLIES		
CATALOG NUMBER		DESCRIPTION
5500 SERIES	7700 SERIES	
5500-30S	7700-30S	Facepiece Assembly Complete, Small
5500-30M	7700-30M	Facepiece Assembly Complete, Medium
5500-30L	7700-30L	Facepiece Assembly Complete, Large

COMPONENTS (See Figure 1.1)			
ITEM	CATALOG NUMBER		DESCRIPTION
	5500 SERIES	7700 SERIES	
1	7700-16	7700-16	Inhalation Connector
2	7700-17	7700-17	Inhalation Valve
3	7700-18	7700-18	Exhalation Valve
4	7700-19	7700-19	Exhalation Valve Seat
5	7700-20	7700-20	Exhalation Valve Guard
6	5500-92	7700-92	Cradle Suspension System
7	5500-11S	7700-11S	Basic Facepiece, Small
7	5500-11M	7700-11M	Basic Facepiece, Medium
7	5500-11L	7700-11L	Basic Facepiece, Large

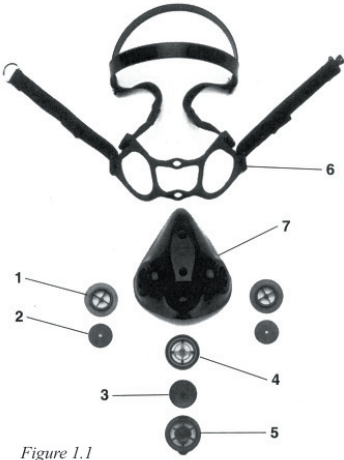


Figure 1.1

Test of Workplace Essential Skills 5

The purpose of this study was to examine the equivalency of TOWES administered on the original pencil-and-paper format compared to TOWES in an electronic format. In the latter format, the question/response sheets were provided to test-takers on computer in order to electronically capture their responses. The workplace documents for those in the electronic capture group were provided in both electronic and hard copy format, so that each test-taker could use their own preferred method to examine the source documents.

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A common version of TOWES, G2, was electronically administered to a group of 113 individuals (72 women and 41 men). The scores were matched with scores of an equal number of test-takers who complete the same test in its pencil-and-paper version. In the matching, particular attention was paid to the number of years of formal education, followed by age and gender if possible. Scores for the TOWES subscales for both groups were based on the percent of items answered correctly.

After finishing TOWES, the electronic capture group completed a survey asking questions about ease of use of the electronic version, preferred method of examining the source documents, and imagining taking the test entirely in a paper or traditional format.

Results indicated that the electronic capture group showed a slight preference for the electronic over the traditional presentation of the source documents and would slightly prefer taking the test electronically rather than in the traditional mode. In addition, most of them found the electronic capture easy to understand and use. The preponderance of the evidence suggests that TOWES questions can be presented and answers can be captured electronically without unduly penalizing test-takers.

These conclusions are quite conservative for several reasons. The first is that the two groups were not perfectly matched. In an ideal study, the same participants would take both the traditional and the electronic capture versions and thus serve as their own control. Second, individuals who took the test in the electronic capture study did so as volunteers with no consequences for their test performance. The individuals from the test bank group typically had taken the test as part of a training program or an employment selection process and thus were likely to be motivated to perform well. Finally, frequency of computer use was positively correlated with all three subscale scores for the electronic capture group. This was not unexpected, but did contribute to the heterogeneity of the electronic capture group on a highly relevant dimension.

The results support continued efforts to embark on electronic capture as an efficient way to administer TOWES. While doing so, the data should continue to be collected and assessed for equivalency. The results will assist TOWES administrators in making informed choices about the most appropriate situations for electronic capture.

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