

Reusing multimedia resources in assessment items – practices and impact

**Muriel Foulonneau, Eric Ras, Thibaud
Latour**

Tudor Research Centre

Abstract

Paper and pencil tests have always included external resources as part of items (e.g., a dossier to read before answering questions, a picture to illustrate the question, a chart to read and interpret...). With the development of computer-based assessment, items can use new types of multimedia resources (such as videos and animated representations). They can offer new display options. Overall, more and more items, complex or not, also include multimedia resources (see for example Uiterwijk, 2005; Parshall et al., 2000, p. 130). Hornke et al. (2006) even suggest that the current innovations in test items are related to the inclusion multimedia resources in test, rather than new constructs for instance. This topic is therefore critical to the evolution of computer-based assessment.

This raises questions related to the current practices (which type of multimedia resources are selected when composing a test item?), to the opportunity to include a multimedia resource (what is the impact? Is it the same when including a text or a picture? What role does it play in the item?), and the source of the multimedia resources used (which repositories and digital libraries held relevant resources? Are their interface well adapted? Can they be integrated with the test composition environments?).

Our objective is to understand how external resources from different types of databases and digital library systems can be used to support the learning process and the composition of assessment items. We reviewed the literature in assessment as well as other domains, including for instance education and marketing. We summarized the potential benefits expected, the associated risks (e.g., bias), and the

consequences on the selection of multimedia resources for the composition of assessment items.

In order to evaluate test composition practices and the potential impact they have, we reviewed the inclusion of multimedia resources in the PISA 2009 sample of items (OECD, 2009), i.e., 267 items in 3 domains: Reading, Mathematics, and Science. We considered in particular the types of resources (text, pictures, diagrams) and their role (supporting information, additional information ...) (Bejar et al., 2000; Suvorov, 2009). We show that for questions in the 3 domains, the types of multimedia resources are different and we illustrate the way in which the inclusion of a multimedia resource can impact on item difficulty.

We propose a framework to analyze a multimedia resource in an assessment item as well as a set of strategies to enhance their annotation and facilitate their reuse in the item composition process.

References

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