Chapter III

Assisting Cognitive Recall and Contextual Reuse by Creating a Self-Describing, Shareable Multimedia Object

Michael Verhaart, Eastern Institute of Technology, New Zealand

Kinshuk, Massey University, New Zealand

Abstract

Digital media elements, or digital assets, are used to illustrate things such as images, sounds, or events. As humans, we use many senses to assist our cognitive processes, and providing multiple representations will enhance our ability to store, recall, and synthesise the knowledge and information contained in the digital asset. This chapter introduces a model for a multimedia object, that allows multiple representations to be managed, and includes a structured metadata file describing the asset that captures the original context. Humans are capable of classifying and describing
millions of such objects, but recalling context and content often blurs over time. Computer systems provide us with a way to store electronic objects, and with a variety of representations and sufficient metadata they can be used to assist cognitive recall.

**Introduction**

With the large number of digital assets available on the Internet, it has become common practice to use and reuse these elements in many different contexts. A significant problem that occurs is that the original context and associated metadata gets lost. When the digital assets, such as images, sounds, or videos, are created, they have specific properties and they exist in a specific and describable context. Electronic elements have derived properties, such as a type and size, and can be automatically generated. If the element is part of a group, then common properties could be described and would include such things as the author, possibly the location, and maybe some contextual information such as the event. This metadata could be created in a template and automatically added to the description of an element. Annotated information that describes the element can also be attached to the metadata.

Humans are capable of classifying and describing millions of such objects. For example, for image, the scene information may be retained in short- or long-term memory, and for most individuals, the details will blur over time. Computer systems provide us with a way to store electronic objects, and with sufficient metadata, they can be used to aid in classifying, managing, searching, and reusing these objects in a variety of contexts whilst still retaining their original context.

This chapter describes a model that allows a digital asset to be described in its original context, captures ownership details and annotated metadata, and allows for multiple representations. As humans have variable memory capacities, the representation of a digital asset as a multimedia object will assist multiple cognitive processes by providing appropriate metadata and alternative representations.

The proposed metadata model is based on commonly used standards and utilises eXtensible Markup Language (XML). Standards included are the Semantic Web’s Resource Definition Framework (RDF), the Dublin Core (used by library systems), and vCard which is used to identify individuals.