Instant Activities

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What are instant activities?

These Instant Activities are just what the name says. Instant Activities, engaging the student with the content. They are basic drag and drop style online inter-activities that can be made in minutes. Suitable for formative assessment, self evaluations etc. They use Macromedia Flash, but you don't need to know anything about Flash as your content is contained separately as text.

Where did they come from?

The idea for instant activities grew from the need to provide drag and drop style activities that were basic enough for almost anyone to edit.

I was asked to create some images for a drag and drop activity made with the course-builder extension for Dreamweaver. The aim of this particular activity was to match up a sentence with its appropriate category by dragging it to a "hot-spot" area. The dragable sentences and hot-spots were images, so making any changes to the activity involved creating new images using a program such as Fireworks or Paintshop Pro.

This sounds simple enough, but knowing that the course designer was likely to change her mind several times before publishing the course, I looked for a way of passing the responsiblility of editing to someone with more patience, or better still back to the tutor. I therefore needed a way of using text boxes instead of images and putting that text in a form that was easy to get to and change.

I decided to see if something could be developed in Macromedia Flash, and came upon a way of storing the sentences in the HTML page and sending them to the Flash file using JavaScript. This was the beginning of Instant Activities.

Not only was this method quicker to edit it was also a significantly smaller download. 10Kb as opposed the original of over 60Kb including several gifs and an external JavaScript file.

Since then I have developed a number of other activites using the same principle of separating the content from the presentation, a theme that is encouraged in Web development.

These activities are available free at www.elearning.ac.nz/ia/

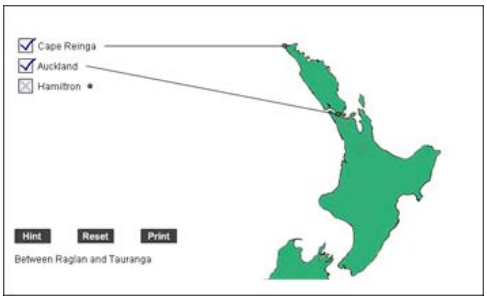
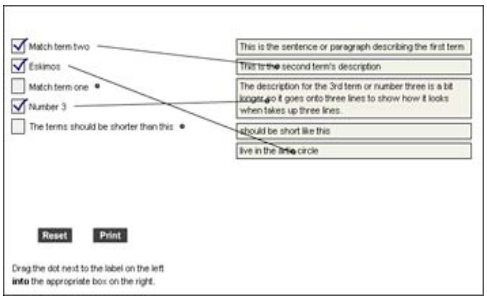
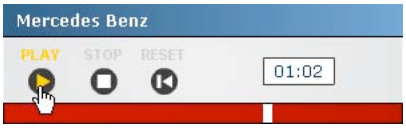


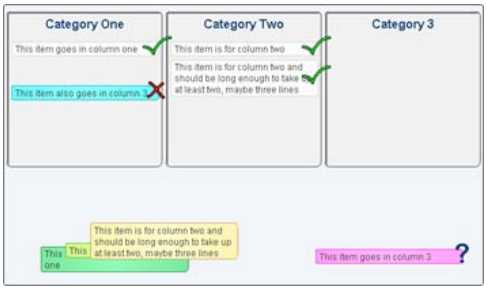
Image Labeller



Matching Pairs



MP3 Player



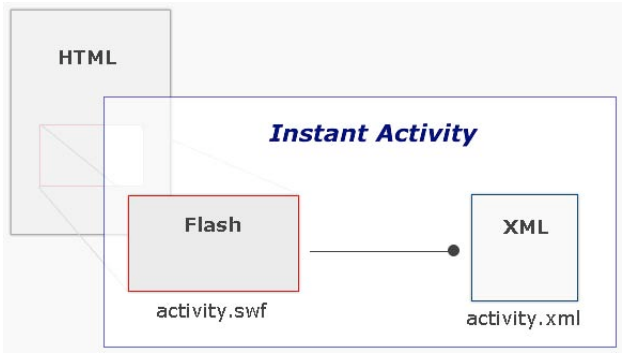
Categories

Recently the Instant Activities have been redeveloped, so that the content is stored as a separate XML file rather than inside the HTML. The reasons for doing this and the associated issues are discussed later in the Development Issues section.

Each Instant Activity is made up of at least two files:

- an XML file (activity.xml). This file contains your content.
- a Flash file (activity.swf). This is known as the intelligent agent.

These two files sit inside an HTML file.



How do I use them?

To use an Instant Activity browse to www.elearning.ac.nz/ia/ and download the appropriate file(s). You will also find step by step instructions for each activity which you can download or print.

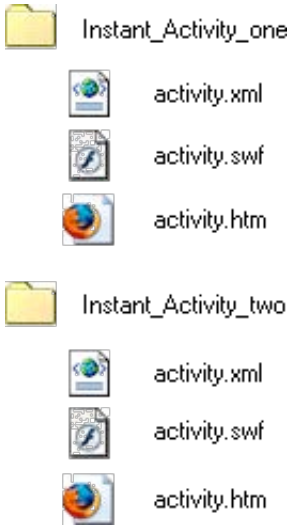
The only file you need to edit is the XML file as this contains the data for your instant activity. This is easily done with a text editor such as Notepad or Simple Text, you can even use Microsoft Word. Follow the instructions on how to edit the XML file for your activity. Some activites have extra content files such as images or audio files, the location of these files is also specified in the XML.

The Flash .swf cannot be changed, but you can modify the HTML file to suit your purpose. You should not change the name of either the Flash file or the XML file. Once you have customised the activity, save it, and upload it to your online learning server.

```
<categorise>
   <category name="Category One">
      <item text="This item goes in column one" />
      <item text="This item also goes in column one" />
   </category>
   <category name="Category Two">
      <item text="This item is for column two />
      <item text="This item is also for column two" />
      <item text="This item is for column two also " />
      <item text="This is another item for column two" />
   </category>
</categorise>
```

An example of categorise.xml.

If you wish to use multiple instant activites in the same site, they need to be kept in separate directories.



Traps for young players - Special characters <>"

There are some characters reserved by XML which if used in your text could cause unexpected results. These include quotation marks, less than and greater than symbols. To overcome this you can use code equivalents or entities. Entities always start with an ampersand (&) and end with a semi colon (;) When writing the content for your activity be sure to replace the special character with its code equivalent shown below.

Special Character	Entity
<	<
>	>
"	"

There are hundreds of entities. One for just about every character, those characters shown in the table must be used to prevent unexpected results. For a more comprehensive list of entities, including symbols such as copyright (©) refer to a reference such as the HTML, XHTML, and CSS Bible or the WDG's www.HTMLhelp.com

Development issues

The issues discussed here are for people interested in developing their own Intelligent Agents or interested in how they work. If you are only interested in using the Instant Activities you can happily ignore this section.

There are two ways of structuring the intelligent agents. With the data embedded in the HTML, or as a separate file. The advantage of embedding the data is that the activity becomes self contained. You could have several HTML files using the one Flash swf file. The disadvantage is finding where in the HTML file the information is. This was addressed in one version, where the data was stored in a form within the HTML page then passed to JavaScript. This made editing with a wysiwyg editor such as Macromedia Dreamweaver easier, as hidden form elements show up within the page, but editing in a text editor was more difficult as the data was further disguised.

Using JavaScript embedded within the HTML to store and pass the data to the Flash file relies on Netscape's LiveConnect technology and Microsoft's Active X controls. LiveConnect is not implemented in Mozilla or Mozilla Firefox and consequently the activity will not work in these browsers. (It does work in Netscape however). Netscape 4 requires an additional paramater swliveconnect=true to be set within the embed tag.

Another oddity is that Netscape 6.2 and later requires that no ID parameter be set within the embed tag.

Authoring is also a little more difficult using JavaScript. For the flash movie to recieve the content, JavaScript must be running, which means you need to preview the activity in a browser, losing the very useful de-bugging features of the authoring environment.

As a consequence of the limitations of using JavaScript mainly that it doesn't work in Mozilla (my currently preferred browser) I investigated other methods of achieving the same thing, and have now changed to using external XML files instead of embedded JavaScript.

The small trade off is that the JavaScript based method worked with Flash Player 4, released late 1999, so users with older machines were supported. The XML method requires Flash player 5 or later, released mid 2001. The good news is that the Flash player is free and a pretty small download, and comes preinstalled on many machines, so it isn't a big ask.

Player version	Date Released	Operating system support	Notes
Flash 4	Mid 1999	Mac OS 8 Windows 95	
Flash 5	Mid 2001	Mac OS 8.1 Windows 95	XML
Flash 6	Mid 2002	Mac OS 8.6 w Windows 95 Linux RedHat 7.3	XML, OOP Accessibility Support
Flash 7	End of 2003	Mac OS 9.x Windows 98 Linux RedHat 9 Solaris 8	XML, OOP Accessibility Support

Storing the data as a separate file has advantages of tidiness and ease of editing but each activity requires it's own HTML file, Flash file and data file. As the names of the Flash file and data file cannot be changed, each activity needs to be kept in a separate directory if several activities are used within the same site. Using XML also allows for the development of Instant Activity Builders: Online wysiwyg tools that will generate the XML file, meaning the user doesn't have to see the XML at all, making it easier for them and reducing the chance of errors.

Another option is to store the data in a text file. It has similar technical advantages to XML, however they are difficult to read, which is why I have not used them. But you can create a dynamic web page in a language such as PHP to create the text file on the fly.

To infinity and beyond

The next step involves a joint project with Whiterea Community Polytecnic to create a range of intelligent agents. This will produce a wider array of styles and technologies, expanding upon the existing Flash based activites.

Future Flash based intelligent agents will be developed for Flash 6. The rationale for this is that support for accessibility means activities are able to be created which can be read by screen readers to help people with visual impairments and the interface can be developed to be manipulated by keyboard as well as with the mouse increasing access for people with motor skill disabilities.

Flash 6 also includes a higher level of object orientated programming allowing a greater degree of customisation to be developed. There is a fine balance between customisation and simplicity.

The existing Instant Activities / Intelligent Agents will be updated to include different sizes and more options for the designer such as colours. The final improvement is to create Instant Activity builders so a tutor can create the activity online in a wysiwyg (What You See Is What You Get) environment and download the necessary files. This will make it much quicker and easier for tutors to create activities.