Evaluation response: Standard A

Instrument-specific standards

Design and development
The student work has the following characteristics:

- **comprehensive** and **discerning analysis** of early childhood client needs and purpose to inform the design plan of the interactive learning object
- **thorough** and **systematic synthesis** of information to design an interactive learning object
- **comprehensive development** and **thorough testing** of components to refine the interactive learning object.

Implementation and evaluation
The student work has the following characteristics:

- **use** of a **variety** of **complex** technical skills and resources to **present** an **efficient** and **effective** interactive learning object
- **discerning** and **thorough evaluation** of the interactive learning object against the defined criteria, using CIPP.

Student response — Standard A

<table>
<thead>
<tr>
<th>Comments</th>
<th>PEER FEEDBACK</th>
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<td>The following feedback was completed by&lt;br&gt;&lt;br&gt;1. <strong>How effective are the graphics in the Learning Object?</strong>&lt;br&gt;The graphics are very effective in the learning object. A number of the graphics, like the flowers, are interactive, which would be appealing to the target audience.&lt;br&gt;&lt;br&gt;2. <strong>Does the sound help to tell you what to do? Is this useful?</strong>&lt;br&gt;The sound is very useful. It is in good time with the game, and helps to explain the tasks, along with the text. The different voices also add to the character’s identity.&lt;br&gt;&lt;br&gt;3. <strong>Does the LO teach you anything and is the topic appropriate for preschool-aged children?</strong>&lt;br&gt;The topic and content in the learning object are very effective and age-appropriate to preschoolers. The math is not too complex, and would be understandable to the target audience.&lt;br&gt;&lt;br&gt;4. <strong>Is the subject matter relevant?</strong>&lt;br&gt;The subject matter is definitely relevant. The learning object includes math-based games which provide an educational challenge to five year old children. The numerous mini games within the learning object would keep the player interested and engaged.</td>
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CIPP EVALUATION

Context
Completing the design and development phases within the constraints of the Brisbane Girls Grammar School (BGGS) environment had a largely positive impact on the project as a whole.

Working within the school’s Information and Technology Studies (ITS) program provided constant access to the technical support offered by the ITS teachers. Their constant assistance in overcoming ActionScript errors in Adobe Flash CS4 ( ), alongside their prior knowledge of the program made work appreciably easier. The only downside to this constant support was the teachers’ lack of availability during class time. As numerous students were constantly seeking assistance, the ITS staff could obviously not come to the aid of every student, every lesson. To help counteract this issue, the ITS teachers also made themselves available after school hours and during lunch breaks. With this extra assistance, there were no real drawbacks present in the development of the interactive learning object.

Input
Various physical resources impacted on the development of the project, as a variety of software programs were required in order for its completion. While the project was compiled using Flash, numerous other programs were used for other elements of the production phase. All graphics were developed using Adobe Illustrator CS4 ( ), and sound was generated through recording and editing downloaded sounds in Audacity 1.3 ( ). While there were clearly no technological restraints in the BGGS context, due to the size of this project I needed to work on the development phase at home as well as at school. To solve this problem in order to complete the task, I downloaded a 30 day trial version of Adobe Flash CS5.5 to my desktop computer at home. This proved to be extremely useful in the development of the learning object, as class time was not enough to complete the many aspects I had outlined in my design. Using Flash proved to not be problematic until the final weeks of development. As the Learning Object contained so many high quality graphics, sounds and other elements, Flash was unable to cope with such large file sizes and consequently started to unexpectedly crash. This only happened approximately four times, but through saving regularly and reducing the size of any graphics before importing them, I was able to lessen the damage and frequency of these crashes.
Comments

**comprehensive development and thorough testing** of components to refine the interactive learning object

**discerning and thorough evaluation** of the interactive learning object against the defined criteria, using CIPP

Processes

During this project, planning proved to be very useful as it gave a reference point as to what should be created and when. Due to the constraint of time availability, I did have to deviate from my original plans of animated tutorials. While I clearly outlined in the storyboard included in the Design Phase that before each mini game within the learning object, animated tutorials would demonstrate how each game was played, I could not include these. Instead, I created simple, written instructions, along with a verbal guide, to explain how each game is played prior to providing the game itself. An example of these revised instructions can be seen in Figure 1.

![Figure 1. Instructions for Fred's Game](image1)

In this game, drag and drop the number of flowers Fred asks for into his basket.

As well as this, I was also unable to include the animation I initially proposed in the storyboard due to time constraints. An example of this was instead of having Fred the Fox swish his tail, I had to settle for more simple key frame animation of Fred blinking, as can be seen below:

![Figure 2. Fred Blinking through Key Frame Animation](image2)
Despite these minor alterations, the developing process was reasonably effective and efficient. With the constant availability of ITS support, I was able to overcome any ActionScript errors with relative ease, and through consistent use of the Flash trial at home, I was able to deliver the final product within the required time frame.

**Product**

Some of the basic features used in the development of the learning object include:
- Motion Tweens
- Drawing Tablet
- Scenes
- Buttons
- Movie Clips

Some of the advanced features used in the development of the learning object include:
- ActionScript 2.0
- Key Frame Animation
- Motion Paths

Overall I was extremely pleased with the high quality graphics of the finished product. The functionality of the learning object is only hindered through the second mini game, hosted by Bella the Butterfly. The aim of this game was to drag and place the numbered butterflies in order from least to most across the flowers (refer to Figure 3.).

![Figure 3. Bella’s Game.](image)

The issue with this game was that the drop zone on the flowers for some of the butterflies was not big enough, resulting in the butterflies bouncing back to their original position despite being placed on the correct flower. Due to the time constraint of the project this particular issue was made a low priority, and was unfortunately not able to be fixed before submission. I feel that this error may cause confusion with children playing the game, and cost the learning object of consistently well functioning games.
Despite this, I feel that the rest of the completed interactive learning object was very functional and simple to both understand and use. All buttons included in the learning object were clearly described by both text and voiceover, making the learning object very easy to navigate. As well as this, the learning object follows a guided learner control format, meaning that the learning object navigates itself through allowing the story to play out automatically, while letting the child play the games in between each section of narration. I feel this increases the ease of functionality of the learning object, as when navigation wasn’t automated, its use was clearly demonstrated.

Overall, the product is well suited to the age group of 5 to 6 years and provides a method of teaching children numeracy in an entertaining and unique way.

**CHILD OBSERVATION**

The four children who played my learning were actually only four years old. As my learning object was aimed primarily at six year olds, the children I observed had significantly more trouble engaging with the game than I had anticipated. Only one out of the four children I observed had used a computer before and the remaining three could not use a mouse whatsoever. This made it extremely difficult to assess the effectiveness of my learning object, but nevertheless I identified various weaknesses in my project through observation.

I found I had to give extra guided instruction for every activity within the learning object. While the children did not understand the instruction provided before each game, when I explained the game through pointing to different parts of the screen they instantly understood. As these children could not read, sound acted as an integral aspect of my learning object, but it was almost impossible to hear it over the noise of the childcare centre. I believe that if these children were in a quiet environment when playing my learning object they would have understood the verbal instruction, and not needed my extra assistance to play the games.

However, especially for four year olds, I feel that my explanation through pointing to the computer screen was much more effective than my blocks of instructional text before each game. Therefore, my learning object would have benefitted far more from an animated tutorial, showing the child exactly how to play each game, rather than having the voice read out instructions prior to even revealing the layout of each game.

Despite these setbacks, the children were captivated by the animation of Ollie and the story of his quest to find his mother. I feel that in this way, creating a lesson learner control game over a guided learner control game was a strong positive aspect of my learning object. The fun story and animations of the owls in the forest engaged the children in a way that I feel a simple menu could not have.