‘Crazy Creatures’

**Rich Internet Applications Project Report**

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https://github.com/javiros/crazycreature.git

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Notes on using Crazy Creatures

It is recommended that for a full experience of Crazy Creatures that the game should be played in Mozilla Firefox. This is only because the cookie function works best with it.

The opening file is ‘intro.html’

Sound must be on!



Fig1: *intro.html*

Introduction

Project Scope

‘Crazy Creatures’ is a short and simple game for young children, ages 4 to 6. There are five stages and then a bonus. The prime objective is helping children develop their natural love of animals, test what animals they recognize and maybe learning the animal’s a name and even how it is spelt.

Along the way there are questions from various categories, some of which are related to animals. Some of the questions may be a challenge to the very young but along with adult help a solution can be explained. If playing ‘Crazy Creatures’ by themselves, simple elimination will guide a child to the correct answer and a new fact or word may be learned.

Fun is an important feature of a game when accommodating goals such as encouraging progress and learning, and Crazy Creatures is a lot of fun. (see Appendix with children’s feedback.)

Children are increasingly computer savvy, especially the very young. Natural curiosity and eagerness needs to be fed. As a game Crazy Creatures builds on children’s expectations of computers to be fun and interactive.

Many online games for the very young have a small interface (usually 600 x 350px), with not too much happening. Crazy Creatures makes great use of a full screen, whether on a desktop screen or a tablet the gaming experience is immersive.

Some games online (for example those on bbc.co.uk at cBeebies) have a voiceover for the few instructions at the start of the game and at each round. Crazy Creatures has written instructions in as few words as possible usually found in the top right corner.

Product Features

A visual and aural splendor! The intention from the start was that the game would be really fun to play, along with making some learning very enjoyable. The term ‘edutainment’ is used to describe the merging of learning or education along with some fun and entertainment. There are countless examples of ‘edutainment’ in today’s classrooms, in children’s books on TV programs and of course children’s gaming. It is a term that could also be applied to Crazy Creatures.

‘Crazy Creatures’ has a lot of colour, sound and movement to keep the player’s attention. Each stage is distinct from the others, creatures on the sides dance up and down, more creatures appear on the sides in a game of catch me if you can. Palm trees appear to grow and sway to the jungle drums as the game progresses.

The game begins by asking the player to insert their name, already creatures are arriving out of the sides of the main play area. The player may find moving the mouse about the screen causes certain things to happen.

See Fig 1:intro.html

Stages

The first two stages are questions with multiple choice answers. The wrong answers are very obvious and as an easy intro to the game a young child should be amused that anyone would think a tiger is anything other than an animal. A simple confidence boost to start with. The task is to make a Crazy Creature and to achieve this the child must answer 3 questions per creature. A correct answer will reveal a body part, a wrong one will bring up ‘Try Again’. Each time the answers are reordered. As the stages are completed the Creatures bounce and make a sound as if coming to life. While enhancing the effect of ‘making’ a creature this also creates a sense of character for each.

As the progress is made the player can see green ticks beside the stages. Instruction is provided in the top right corner. At bottom there are seven question marks, these ‘badges’ will be filled with the creatures as we play. A shuffle movement on the badges at the start of each stage gives a sense of personality to the creatures and encourages the player to fill all the badges.

A child will enjoy seeing their collection grow. Giving a sense of progress.



Fig 2: Stage One. *crazy\_creatures\_1.html*

Almost every stage has a timer, 60 seconds for each question of Stages One and Two, 15 seconds for Stage Three, 10 seconds for Stage Four and no timer on the last two. A score is updated as progress is made with a top score by game end of 2000.



Fig 3: Stage Two. *crazy\_creatures\_2.html*

Stage Three is a change from the previous and asks the player to guess what the slowly revealed animal might be. The black and white fur maybe a big clue but given the choices presented it could be either.



Fig 4: Stage Three. *crazy\_creatures\_3.html*

Stage Four is easy, the player can make a guess on what creature the broken pieces presented may make if pieced back together. The player will be encouraged as a sense of achievement grows.



Fig 5: Stage Four. *crazy\_creatures\_4.html*

Stage Five introduces a different sort of challenge with a simple jigsaw game. By dragging pieces the player can create three creatures but in the appropriate places only. A fun test on animal recognition and also matching shapes and colours. The child is also seeing the name of the animal underneath.



Fig 6: Stage Five. *crazy\_creatures\_5.html*

Bonus

With the surprise of three monkeys announcing bonus points the player is brought to the Bonus Stage. Here the large buttons randomly bring up a head, a middle, or feet. The fun sounds and unexpected resulting combinations are a winner. The creatures here are new to the player. There may be a determined effort to correctly complete a creature in full, but otherwise just enjoyment.



Fig 7: Bonus Stage. *crazy\_creatures\_6.html*

 

Fig 8: Some resulting combinations on Bonus Stage. *crazy\_creatures\_6.html*

The Bonus Stage also allows the player to return back to the beginning or if they prefer to select from the list of stages on the right. A sense of creating a small world is important, an environment the child could enjoy and want to experience again.

Score

The score is displayed prominently in a green box on the right side. Big number points of 100 are awarded for each correct answer and together with a further 300 bonus points at the end of stage five, the player has collected 2000 points by game end.

How is this achieved? The scoring system is maintained using JQuery functions and variables. The scoring information is stored in a variable and it is updated along the different stages every time the user gives a correct answer. The score is also linked to the display of images, questions and sounds. For instance, questions and answers are stored in an array; the score is use to tell the browser which question and what set of answers to display.

Dependencies

The JQuery library is used to achieve the desired behaviors.

AJAX is also utilized to display the game in a seamless continuum from stage one to finish.

The AJAX functionality has been sourced from:

https://moodle.ncirl.ie

The game has been tested and displays well in the following browsers: Google Chrome, Mozilla Firefox, Opera and IE.

With the addition of the cookie, optimum performance is offered by Mozilla Firefox, which has no issues in dealing with the cookie. In comparison Google Chrome does not allow for the cookie to be in operation as such and the user experiences the game without their name appearing.

The Google fonts library is used for supply of the following fonts: Autour, Happy Monkey and Nunito.

System Features

Cookie

The system incorporates a cookie which is established in the introduction stage, this is a simple cookie to accept text box information in this instance the player’s name.

With this in place the game has become more than a stateless challenge, it provides some personality which will remember the player throughout the course of the game and provide a cheerful message as the player progresses.

The cookie in place was the second of the cookies trialed and provides a more pleasant user experience than the first cookie tested. The first cookie relied on a window prompt for user input rather than a text box and also did not allow a new user name to be entered unless the cookies had been cleared.

JQuery Library

JQuery delivers all the animation effects throughout the stages. Although the functions are similar they vary from stage to stage so for clarity and easy access if any alteration was required, each is in its own file.

For the badges and the palm trees, the ‘shake’ effect was used, with variation on the time and amount of shakes. This function is on document ready so no interaction from the player is necessary other than loading the page.

For the bouncing side creatures, the ‘bounce’ effect was used, depending on mouseover by the player, again with variation on the time and the amount of bounces.

For the heads appearing at the sides ‘slide’ was used from the JQuery UI library. The appearances are controlled by delay, with direction either right or left and for show and hide at varying speeds. The creatures hiding is triggered by a player’s mouseover.

For the Bonus Stage, selection of the various head, middle and feet parts occurs on click on the red button div. An array of eleven possibilities is provided for each part’s selection.

For Stage Five with the jigsaws, ‘droppable’ was used from the JQuery UI library on selected elements, meaning that they accept being dropped on by ‘draggable’ elements. It was specified which draggable elements each will accept. The score increments on each correct match. A specified score happening will display the bonus hidden div. The Next Stage buttons are also functioning in this manner.

Design

Fonts provided as default by browsers were found to be limiting, except for the use of the often derided Comic Sans. Links to the Google fonts library allowed for some variety here. Autour, Happy Monkey and Nunito are used prominently.

The Crazy Creatures themselves are all created specifically for the project.

Sound

The jungle drums load on document ready for each stage.

Sounds for the Crazy Creatures depend on increments in the score.

The sounds were sourced at :

<http://www.wavsource.com/animals/animals.htm>

<http://soundjax.com/bubbling-1.html>

http://www.soundjay.com/button-sounds-1.html

Random

The bonus stage is using code for generating random selections found here :

<http://www.markinns.com/articles/full/simple_two_line_image_randomiser_script_with_jquery>

The changing of the order of answers on each ‘Try Again’ for Stages One and Two is generated with code found here:

<http://codereview.stackexchange.com/questions/11948/randomize-a-jquery-object-list>

Application Development

The initial idea was to create an interactive quiz for children based on the idea of rotating cubes (weather cube style).

After carefully researching the idea and implementation methodology, it was discovered that the rotating movement of the intended cubes would have been a difficult effect to achieve.

JQuery and JS were preferred to excessive use of HTML 5 and CSS3.

Agile development

1. We created a non-functional HTML layout and built the functionality around it. Initially we took the wrong approach by having large amounts of repetition of HTML and CSS resources which resulted in unnecessary code being written.
2. After a Json and JQuery lecture we resorted to DRY the HTML code and make the site more interactive through JQuery.
3. The first bit of functionality came by developing a script that displayed the figure’s head after an answer was correctly answered.
4. We also wanted to add sound effects to the game but at that stage there were other issues that needed more attention i.e.: scoring, displaying questions and answers, so we moved forward and reverted back to the sound issue at later stage of the development.
5. Once the issue with displaying the images was resolved we moved into developing a scoring system that would allow us to:

* Display score on-screen
* Display next question
* Display the appropriate image
* Display the ‘next stage button’

1. Once the score gave us the basis of the functionality we moved on to link the different stages of the game.
2. From an initial stage of Q&A style we wanted to provide the user a different level of interaction so we decided to incorporate a jigsaw and mix n’ match style of play.
3. As we progressed with the code we tried to enhance the user experience by adding music, animated features such as background moving trees, hidden creatures that appear from the sides of the main container, bouncy creatures and background color changes.
4. All these features were implemented using JQuery and JS.
5. At this point we decided that the app needed live testing so we asked a number of children to play with it and give us feedback.
6. This proved to be a very beneficial step towards refining the user experience.

Some of the issues encountered were:

* Need of background music
* Predictability as answers always appeared in the same order.
* Lack of back ability to replay stage if desired.

There were also positives as described below:

* Highly entertaining game
* Entertaining questions
* Visually appealing
* Immersive gameplay

1. After reviewing the results of the test we decided to implement an number of changes such as:

* Answer randomization
* Background music
* Personalization (via cookies)
* Once game is finished the user can choose to replay entirely or select a specific stage.
* Added Ajax to add a seamless transition between stages.

Other

Benefits of the Crazy Creatures game

The game can help children develop their natural curiosity and abilities, fine motricity, coordination, lateral thinking. There are also benefits of developing computer skills, interface skills.

Ideas on further implementation

The game provides a general knowledge quiz for the young learner, for further implementation there would be the possibility to introduce specific learning topics such as a mathematics, geography or indeed any required schooling curriculum subject. This would only require the creation of new stages and the questions to be altered accordingly, with this scope Crazy Creatures offers a great educational tool to parents and teachers.

The game could also act as an aid for children with learning difficulties. Today many new technologies are helping children with poor reading or writing skills.

This is elaborated on by Margaret Kernan in ‘Play as a context for Early Learning and Development’ as commissioned by the National Council for Curriculum and Assessment, NCCA, in 2007.

*“Given the undeniably significant role technology plays in contemporary living, as well as its benefits to society as a whole, a measured and balanced approach to play and technology is advocated. Used appropriately with children, and not as a replacement to the firsthand, direct, multi-sensory experiences offered by other forms of play, technology has been demonstrated to enhance young children’s cognitive and social abilities (NAEYC, 1996). Assistive technology can also play an important role in the successful inclusion of young children with additional needs into ECCE settings as well as supporting their learning and development.”*

Appendixes

Appendix I

The game has been showcased and tested with two children of 5 years and a 4 years of age.

The testing’s purpose was to evaluate the following:

* Usability
* Level of entertainment
* Responses
* Interaction
* Level of difficulty

Usability

The game is easy to understand and play. Buttons, links and general orientation is clear and easy to follow. The flow of the game allows for a pleasant experience. Children seemed to specially like the sounds and caricatures moving/hiding to the sides of the game’s container.

Level of entertainment

The two children reacted in different ways to the game. The eldest child, who can read, had no issues at all with the early stages of the game (Q & A). The youngest child had a little difficulty as is not able to read, however with the help of an adult who read the questions and possible answers out loud. The child seemed to enjoy the questions and the game in general. The 60 seconds timer in stages one to 3 seemed appropriate for the children to complete the task in hand.

Responses: all levels were passed with different levels of ease. The eldest child particularly enjoyed finding the right answer to questions in Stages One to Three.

The youngest child preferred to play with the jigsaw style Stages Four, Five and the Bonus.

Interaction

The game allows for plenty of user interaction, not only the quiz or jigsaw part of it but in particular the many figures and caricatures moving around the sides of the screen.

The last 3 stages allows for plenty of user interaction and stimulates creativity.

Level of difficulty

As mentioned above, the youngest child demonstrated certain difficulty trying to play Stages One and Two (Q & A). However this was not a major issue as an adult helped the child by reading out the questions and answers. After playing a number of rounds, the eldest child found that the questions and answers were always displayed in the same order, making the game too predictable, this prompted the developers to randomize the order in which the answers are presented.

The youngest child found the latter part of the game more entertaining, whereas the eldest one enjoyed the whole game equally.

Conclusion

This test has been very positive as it allowed the developers to fine tune the application. At the time of the first test the application lacked background sounds and some of the visual effects were missing. As well as this the order or the answers was always the same, this being modified after the test.

Appendix 2

The game was also tested by a 10 year old child. The appearance, the ease of use and the fun sounds were commented on. The only complaint was the game needed more levels, although it was understood the game was designed with much younger children in mind.

# 

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