Designing culturally appropriate games by drawing on Indian mythology

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Ravi Bhoraskar(1), Sreechand Tavva(2), Anshul Chaurasia(3), Matthew Kam(4)

Abstract:
Low Literacy levels hinder economic empowerment in India.Competency in a language such as english is important[1].Learning games have been shown to be an appropriate solution to solving the problem of poor literacy.Cellphone games can be used to serve this purpose[2]. A large number of cellphone games already exist in the market, but most of them are not educative, and very few are targeted at a specified demographic. In this paper, we explore whether the presence of a storyline based upon Indian mythology would make the educational game more compelling for the child. We essentially ask two questions: whether a mythology based game is more fun for the child and whether the child gains more out of such a game. So far, we have created a game for teaching Oral to Written competency of English, conducted rudimentary playtesting and designed a method for field-testing. In this poster, we present our results so far.

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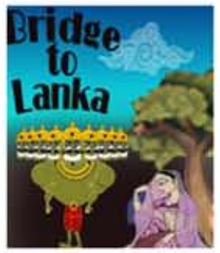

Start screen designed to depict point of timeline in story

1 Constraints

When *playing a game based on mythology, the kids "...think about the connections...between mythological figures and popular culture superheroes, and the connections of all of them to history and society*."[3]. Our challenge was using this curious nature of children to impart to them our educational goals. However, having a mythology based storyline also put a number of constraints upon us, which are as follows:

a.Characters development is restricted, as child knows the nature, behaviour and powers of the characters.

b.Uncertainty regarding the ending cannot be used to make the game interesting, since the storyline is fixed, and in all probability, the child knows the end already.

c.Fun elements have to be added such that they do not distort the storyline, otherwise the child may be left feeling confused about the story after playing the game.

2 Game design

a. Game Objective: The aim of the game is to build the bridge to Lanka and help king Rama save Sita, before time runs out. In order to get a brick to build this bridge, the player must correctly identify a word, which is spoken out aloud. He must then correctly position the brick on the bridge, by rotation and movement.

b. Game Mechanics: The user presses the left and right soft-keys to choose the word spoken. The brick then appears. He uses the arrow keys to move it on the screen, and the 5 button on the num pad to rotate it. The next word appears on placing each brick correctly. The game ends when the time is over, or the entire bridge is complete, or if there exists a path from one end to the other, though all the bricks have not been placed. In this case the player gets a lower score.

c. Game Feedback: The user gets a micro-feedback about the correctness of the word he chose, since he is immediately rewarded with a brick upon choosing the correct word. Also he gets a positive or negative feedback regarding his speed, by whether or not he is able to complete the game within time.

d. Motivational Elements: The major motivational element is the storyline, since the player feels empathy towards the characters and he wants them to win[4]. The presence of a time limit and the presence of a micro-feedback also act as motivating elements.

End Screen

3 Preliminary Usability Analysis

When compared with Nielsen's Usability Heuristics[4], our game satisfies several out of them.

1. Visibility of system status The user can always see how much time is left to finish, and also what portion of the bridge has been completed. Hence he always knows what state the game is at any given moment.

2. Match between system and the real world We have tried to keep the game aesthetics and storyline as close as possible to the original story of the Ramayana, so that the player can associate with the characters.

4 Testing

We conducted an extensive playtesting with the game being played by close to 20 designers and developers. We got valuable insight into how people think about and play our game. The results that we got from playtesting are as follows.

The player realizes the storyline and the context of our game in the Ramayana, merely by looking at the splash screen and the general layout of the game. Hence, we do not need a more explicit narration of the storyline using animations or cutscenes. This suits us well, because we are developing the game on a mobile platform with limited computing capability. No explicit controls screen is required, as the players intuitively grasp the key-combinations which our game uses. A reason for this could be that they have played games before which have similar key combinations.

We have designed a method for field testing as well. It would involve creating two versions of the game: with and without the mythological storyline. We would then divide the target population into two random sample groups, each of which would be given one of the versions of the game. We would then test which game the children had more fun in, using the amount of time the child played the game as a parameter. We would also test the educational gain using a post-test. This would help to answer the two essential research questions.

5 Future work

a. Testing the game in the field.
b. Reiterating on the design, based on the feedback from the field tests.
c. Incorporating other stages of learning - frontloading and noticing - into the game.

References
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Affliations:
1. Indian Institute of Technology, Bombay, Imdia
2. Avanthi Institute of Engineering, Vishakhapatnam, India
3. Dhirubhai Ambani Institute of Information and Communication Technology, Gujrat, India
4. HCII, Carnegie Mellon University, USA