

Evaluating Motivation and Affective Aspects of Educational Software

Julie Marshall and Ray Adams

Middlesex University, School of Computing Science, Trent Park, Bramley Road,
London, N14 9YX

Abstract. A sample of seven users aged 8 and 11 in schools in north London, UK were asked to complete a set task called “snap” based upon the topic of sound. Descriptions of sounds (pitch/volume) were to be matched with examples of sounds made. The users completed this task on Espresso Educational Software which teaches and tests all children aged 11 or below the entire national curriculum. Individually, whilst being video recorded, the users have evaluated their own performance and their opinions of this software. The qualitative results show that the children who were excited had more fun playing the game. There was no correlation between users’ system-evaluation and users’ self-evaluation as six out of seven children performed well even when some thought the game was difficult. All users were motivated to use snap on Espresso because of its perception of being a fun game which was sometimes causing high affect in anticipation. All the children were new to this task yet enjoyed playing the game, were comfortable using a computer and said they enjoyed a challenge.

1 Introduction and Aim

The discovery of motivational and affective factors of educational software usage is important to this study because these factors effect how widely recommended or frequently software is used. As the perception of using a computer changes from being an exciting treat to a commodity with exciting software and computers are becoming a part of everyday life, we run the risk of becoming reliant upon machines in order to achieve our work. Lee, Luchini et al (2004) prove that education is more effective when learning is enjoyable, through traditional or technological methods.

Children are highly emotive but not always motivated with activities so the use of a computer will be enough of an inspiration to achieve the task set.

2 The Educational Software – Espresso

Espresso is an online educational digital library, is widely used across the London boroughs and is a popular choice with teachers. The children enjoy the fun interactive multimedia as a method of learning and the teachers are able to test the child’s understanding of both their work and online content using Espresso’s activity and feedback modules. These modules supply the teacher with statistics on which to gauge the child’s progression.

3 Methods

Observations were completed using a video recorder and mini disk recorder. This method was chosen to capture the emotional effects of the educational software usage. A classroom assistant and videographer were also present. Expressions and reactions were recorded to determine when a child was motivated. Interviews were taken whereby users answered a series of questions, one interviewer to one child. This method was chosen to capture their rating of their performance and the software. This rating was compared with the observed behaviour to match results in each performance.

4 Results

Child numbers 10 and 11 were female twins aged 8 who were rivals as they were competing for a better score than the other. They both found the task tricky but child 10 said she did quite well whereas child 11 said she performed badly but scored well receiving 7 and 5 out of 8 respectively.

Child 5: 7/8, 1 smile

Child 9: 8/8 0 smiles

Child 6: 7/8, 5 smiles

Child 10: 7/8, 3 smiles

Child 7: 6/8, 0 smiles

Child 11: 5/8, 6 smiles

Child 8: 3/8, 5 smiles

The child with a happier disposition smiled more regardless of whether they performed well but they all enjoyed the game. The children who smiled least during the game were concentrating the most as they thought scoring was the most important factor. They were competing on points rather than enjoying the game.

4.1 Qualitative Table of Results

Child no#	Emotion/personality	Motivation	Performance
5	Uncomfortable, not smiling, blank expression	Wanted to complete the task and leave quickly. Game was not fun, nor related to school work.	7/8 confident on PC, hard on herself as it was difficult
6	Confident, happy, excited, smiles with every question, fidgets	Excitable, unfocused in attention, wanted to complete the task but took 3rd attempt to get it	7/8 confident and quick on PC, enjoyed the task, did alright as 3 rd go
7	Fidgets, didn't smile, complacent	Interested in playing game, likes to do things that are fun, but not fun	6/8 found game easy and he did ok
8	Embarrassed, smiling, shy	Wanted to play the game and do well	3/8 thought it was easy but did badly
9	Comfortable, talkative, concentrated	Wide eyed during the game, exciting, easy, fun, useful, smiled when correct answer given	8/8 couldn't believe it, was scared at first, but surprised
10	Happy, smiling, shy, fidgeting, concentrated	Excited about the game, happy, big smiles, had fun, smiled when correct	7/8 on 2 nd go, it was tricky but did quite good
11	Happy, shy,	Excited about the game, happy to do	5/8 needed help,

	smiling when instructions	except when needing	it, smiling when right, disappointed when wrong, likes ICT	unsure, thought she did badly
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4.2 Correlations in Results

All of the children detailed in table 4.1 were capable of using the PC efficiently; they were all motivated to play the game and all performed well except one. No children from the sample had played the game prior to the testing. The less comfortable children were unemotive, whereas the happier children were facially expressive and excited. There was no correlation between how easy/difficult the game was perceived with their score.

The excited children needed more than one chance to view the game before they understood and could play. The happier children were realistic with their performance whereas the less comfortable children were less happy with their performance.

5 Conclusion

Discoveries made were that children are not all as excitable as expected and that this frame of mind hindered their concentration on understanding the task as quickly as those less emotive but that their performance was generally the same regardless. Emotive, highly motivated children with no inhibition had more fun during this test and were not emotionally restricted by the pressure of performance in front of a video camera. Once relaxed and confident later in the interviewing stage, laughter was also enjoyed by the persons interviewing and working the video camera while the children were testing the software. Those children with expectation in their performance felt that they performed badly even when they performed just as well as all the other children so nervous anticipation does not help positive self-perception.

Questions that should be asked are for students' interests and motivations; body language should be read; ability of students should be gauged; the topic should be related to their interests, motivations and abilities. The experience of learning should be made to be fun, exciting and memorable. Pictures, sounds, video clips and stories should be used to inspire creative thoughts and capture those thoughts regardless of form.

6 References

- [Late breaking result papers: More than just fun and games: assessing the value of educational video games in the classroom](#) , Jeremy Lee, Kathleen Luchini, Benjamin Michael, Cathie Norris, Elliot Soloway, April 2004
- Anderson, J. R., Bothell, D., Lebiere, C. & Matessa, M. (1998). An integrated theory of list memory. *Journal of Memory and Language*, 38, 341-380