ReSearchNow – Playful App for Participation and Engagement in (Design) Education

Marije ten Brink
Brinka / HvA
Amsterdam
marije@brinka.nl
m.ten.brink@hva.nl

ABSTRACT

The mobile app ReSearchNow stimulates alert observation and abstract thinking. The pilot version is used in (design) education, offering students a richer learning experience. Students are triggered to participate and add content to the app, inside and outside the classroom and during and outside scheduled study timetables. Students engage in topics related to the study program via the app and are motivated to add content by playful interaction and principles of game play.

The usage of and feedback on the pilot version of ReSearchNow by a group of ± 180 students makes clear that ReSearchNow has potential to grow. The majority of the students agreed with the statements: 'The app helped me to engage in the study assignment' and 'Using the app was a enjoyable way to engage in my study'.

Author Keywords

Social; interactive tools; education; participation; playful interaction; game play; serious games; sharing; co-creation; association; meaning

ACM Classification Keywords

K.3.1 [Computers and Education]: Computer Uses in Education---collaborative learning; K.8.0 [Personal Computing]: General---Games; H.5.0 [Information Interfaces and Presentations (HCI)]: General; H.3.1 [Information Storage and Retrieval]: Content Analysis and Indexing; H.3.3 [Information Storage and Retrieval]: Information Search and Retrieval; H.2.8 [Database Management]: Database Applications---image databases.

General terms

Design, Experimentation

INTRODUCTION

Interactive (mobile) tools are used more and more in an educational context. Often they serve as a means to support or improve communication between student and tutor, for

example by using blogs to deliver study results or a Facebook group to share updates and interesting facts. These tools offer support, but are not aiming on deepening knowledge of a specific curriculum.

Also, digital educational content is made to suit a specific student population, for example a module to learn a foreign language. In a step-by-step approach the student is guided through an educational module. These kind of applications offer deepening of specific knowledge, but miss out on interaction and dynamics with the content itself and are not employable for other or broader contexts. The same is true of MOOC's (Massive Open Online Courses).

I am interested in developing and applying interactive tools in an educational setting to improve participation and involvement of students with the content of curricula, by using playful interaction and principles of game play.

EDUCATIONAL VALUE

The educational value of ReSearchNow lies in the ability of students to associate an image to a textual concept. This transformation from text to image requires abstract thinking and creativity; within a restricted time frame the student has to form a mental model of the concept and scan his environment for visual clues that link to that model. In (design) education 'learn to observe' and abstract thinking are crucial skills for all students. This includes the ability to assess (design) work of fellow students and understand the relation of the work to the intentions of the maker. Being immersed in translation and association of text to image and vice versa is at the core of ReSearchNow.

The app ReSearchNow involves students in- and outside the classroom. Since the notifications arrive on different moments every day, students will not always be in the classroom or even at the University. This 'flipped classroom' principle is under study a lot the past few years [1], because of its potential to involve students more and deeper with educational content and focus.

ReSearchNow is used individually, but results in co-creation with fellow students. Seeing how others visually associate a textual concept can be inspiring and infor-mative. Using the app in a smaller community of people recognizing each other, such as students in a (design) educational setting, adds personal meaning and makes peer-to-peer assessment possible.

ReSearchNow (the tool) itself is also object of study. While experiencing the tool on a daily basis students are invited to

think about ways to make the tool more relevant, playful and/or usable, or to come up with ways to distribute the content of ReSearchNow via existing or novel media channels in new contexts.

SOCIAL CONSTRUCTIVISM

Constructivism suggests that learning is the process of adjusting our own understanding of the world around us through reflection on our experiences [2]. The world cannot be known directly, but rather by the construction imposed on it by the mind. The concept of constructivism is relevant to ReSearchNow, but within the overall con-structivist family, there is the position of the social constructivists that is especially interesting in relation to ReSearchNow. Social constructivists recognize that influen-ces on individual construction are derived from and preceded by social relationships. Constructivism posits a highly individualistic approach without reference to social interaction, contexts, and discourses, while social con-structivists move to more social explanations [3].

ADDED VALUE OF GAME PLAY

Grasser, Chipman, Leeming and Biedenbach [4] list in their paper 'Deep learning, emotions and games' a total of eight suggestions that indicate why games are succesful psychologically. Five of them apply to ReSearchNow:

1. Arousal of interest, Challenge and Fantasy

Arousal of interest in a specific concept is the very aim of ReSearchNow, by offering students a tool to visually research the meaning of that concept. This feature is *endogenous* to the app, rather than just a frivolous aspect of it that is *exogenous* to the concept.

2. Play

ResearchNow has the potential of integrating study and play. The app appeals to identity, imagination and self, while at the same time doesn't look similar to formal education.

3. Challenge and the Goldilocks Principle

Good games are not too hard or too easy, but just right (i.e. the Goldilocks principle) and at the zone of proximal development or at the brink of other zones of ability, cognition and emotion. In ReSearchNow the challenge is mainly set by peers through their ability to 'wow' a picture or not. Different levels of complexity and ambiguity of the daily notifications (the concepts) add another challenge to the experience.

4. Feedback

Peer-feedback on performance is the main motivational drive in ReSearchNow at this moment.

5. Types of interest

ReSearchNow has the potential to cater both situational interest – because of the immediate response being asked by the app, every day and within a certain time frame – as well as individual interest because of the personal ambition to create a recognizable and meaningful series of pictures.

HOW DOES RESEARCHNOW WORK?

ReSearchNow sends out a daily push notification with a meaningful word or concept. On a different moment every day somewhere between 8:00 AM and 22:00 PM students are prompted to make a picture of the topic-of-the-day and add it to the app. The time period to make a picture is restricted to one hour. After that time period it is not possible anymore to make a picture and the student has to wait for the next opportunity the next day. Pictures are added to the app immediately and they are visible to all other members of the student group. The pictures of all students together are grouped in a mosaic and form a collective photographic association, a shared visual view of a concept.

Students can 'wow' ('like') pictures of other students, making it possible for individuals to stand out from the rest and be recognized for it.

When tapping a picture in the mosaic the picture is shown in detail with automatic generated metadata: topic, name photographer, location, time and date. This metadata is tappable and leads the user to a new mosaic, revealing other visual patterns and meaning.

Future ideas evolve around: being involved in setting the topic-of-the-day, 'follow' fellow students with interesting content, adding tags or other content to increase the meaningfulness of the photo in relation to the concept, reaching other levels in the app by being the first to add a picture to a topic or by collecting the most 'wow's, battles between individual students or between groups. These are all examples of playful interaction and/or game mechanics, aiming on increasing participation, involvement and what Csikszentmihaly calls the *flow* experience [5].

STATUS, PILOT VERSION AND USER GROUP

The pilot version of ReSearchNow is launched on January 3rd 2014. A group of approximately 180 students of the study Communication and Multimedia Design (CMD) at the Amsterdam University of Applied Science (HvA) in Amsterdam, the Netherlands, started using the app in the 'Design for Interaction' mandatory course in the 3rd year of study. Additionally, a small group of tutors and other people interested were added to the user group.

ReSearchNow is developed as a 'webapp' in order to give all students, with all types of phones and tablets, the opportunity to work with the app, while at the same time keeping the time and money spent to an acceptable and realistic level. The technical implementation of the app is handled by three students in the program and an external front end developer. Notifications are dealt with via a third party app: Jeapie. The daily concepts can be defined and scheduled up front via a admin-environment.

The pilot version of ReSearchNow has basic functionalities and design and the implementation leaves room for improvement. For example: the log in procedure and the notifications via Jeapie were not optimal. Also the ability to upload your own profile picture and to have clear insight in

the amount of 'wow's' given and received were not implemented yet. Even so, the majority of the students agreed with the following statements: 'The app helped me to engage in the study assignment' (65%) and 'Using the app was an enjoyable way to engage in my study' (70%).

After the trial with the pilot version of ResearchNow a questionnaire is sent to all participating students. The questionnaire consists of four parts: Name, group and used phone or tablet (1); Handling the daily notifications (2); Adding content to the app (3); Agree/disagree with statements about the usage of the app. The outcome still has to be examined in detail.

CONCLUSION

After working with a pilot version of the app in January 2014 with a group of ± 180 students the question whether the use of ReSearchNow has motivated participation and engagement in the curriculum and therefore facilitates a richer learning experience can be answered with a modest 'yes'. Although the pilot version of ReSearchNow leaves room for improvement, the majority of the students agreed with the following statements: 'The app helped me to engage in the study assignment' (65%) and 'Using the app was an enjoyable way to engage in my study' (70%). This

gives reason, to believe that ReSearchNow has potential to grow. More research, prototyping and testing has to be done.

REFERENCES

1. Gray Wilson, Stephanie. A Method to Address the Challenges of an Undergraduate Statistics Course. In *Teaching of Psychology* 40, London: Sage (2013).

2. Akers, R. "Web Discussion Forums in Teaching and Learning", *The Technology Source Archives*, 1997. http://technologysource.org/article/web_discussion_forums_in_teaching_and_learning/ (accessed March 16, 2014).

3. Young, Richard A., Collin, A. Introduction: Constructivism and social constructionism in the career field. In *Journal of Vocational Behavior* 64, Elsevier (2004), 373-388.

4. Graesser, A., Chipman, P., Leeming, F. and Biedenbach, S. Deep learning and emotion in serious games. In *Serious Games: mechanisms and effects*, Routledge (2009), 83-102.

5. Csikszentmihalyi, Mihaly. *Beyond boredom and anxiety: experiencing flow in work and play.* San Francisco: Jossey-Bass Publishers (2000).