

“eBig3”: a new triple screen approach for the next generation of lifelong learning

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Abstract: In this report we want to map out our progress on design science research project ETM that creates a new approach to lifelong learning by the smart integration of the popular technologies Internet, mobile phones, and television [1,2,3]. By studying the results of the target group behaviour as they simultaneously use of these technologies, we designed the learning approach eBig3 that is based on user usage patterns. The evaluation of the initial delivery of the courses confirms the interest of the target group and their commitment to continue-on to pass the courses.

Key-Words: e-Learning, t-learning, m-learning, eBig3-learning

1 Introduction

Recent years have seen the upsurge of numerous non-profit e-learning projects.

They aim to distribute e-learning content as open-courseware. The common feature of open courseware projects are treatment of e-content as publications [4]. In these approaches study support

is limited to e-formats and tutor availability. These restrictions discourage e-learning participants and contribute to the high drop-out rate that these programs experience.

Currently only 5% Europeans are using eLearning. Data varies from country to country with Latvia at 7% and Lithuania at 8%. It is much less

than Internet users in Europe. Yet in 2009, 60 % of European citizens aged 16-74 years were regular internet users [5]. This data indicates the growing need for more advanced approaches to Technology Enhanced Learning that would engage user involvement and commitment.

2 Problem Formulation

Our study of the behaviour of the lifelong learning target group indicates that 70% of the respondents are using TV and mobile phones simultaneously at least once a day, while 80% of the respondents use the computer and mobile phone simultaneously, and 50% use TV and mobile phone simultaneously.

These results indicated to us that a new approach to lifelong learning based on integrated e-learning, t-learning and m-learning (ETM) was needed. We called the new approach eBig3 to indicate that it combines for complementary use three widely accessible technologies [1, 2, 3].

Our intention was to create m-learning component complimentary to e-learning courseware that provides more user-friendly registration, more access to user support while applying e-resources and courses in a new dynamic way. The synergetic integration of technologies allowed us to create an e-learning approach that was markedly more accessible and encouraging to users than traditional formats.

Table 1. Comparison of eBig3 learning approaches to traditional e-learning approaches

Type	eCourses	eBig3 courses
Content	eContent in Moodle or similar virtual environment (VLE)	e-content t-content m-content
Registration	VLE registration procedure	Sending a brief SMS in following format: eBig3 name family name course number
eContent delivery	Similar to traditional eCourses	
Face-to-face seminars	Similar to blended Learning approaches	
Final assessment submission and evaluation	Similar to traditional eCourses	
Study support	Support in VLE, and emails, face to face seminars.	Support in VLE, and emails, seminars. Sending smart SMS selected from m-content in learning delivery context

Our study highlights the difference between traditional eLearning and the eBig3 approach. The main differences we find were.

Registering in a traditional Virtual Learning Environment is clumsy. It is high threshold for many eLearning beginners and quick users. Another problem is that there is no secure place for keeping log-ins; and as a result they are often lost. Learners many times drop-out because of lost logins.

In addition, study support in traditional format is unsystematic and time consuming. We were able to ensure successful study support in the various municipalities where the e-courses were delivered when we were able to find a highly motivated local individual who felt committed to high performance course delivery [6, 7]. Such an individual organized the study groups and provided on-going supervision, and generally helped to maintain a positive attitude towards the courses. The teachers were responsible for organizing the face-to-face seminars and learning support as well as the grading of course projects and exercises. Support was delivered via the Internet and in some cases telephone and depended entirely upon the willingness of the teachers, their commitment, time restrictions, and working styles.

3 Problem Solution

To solve the typical problems of the traditional e-Learning approach (Figure 1-A), we designed the new eBig3 approach and supporting software (Figure 2-A).

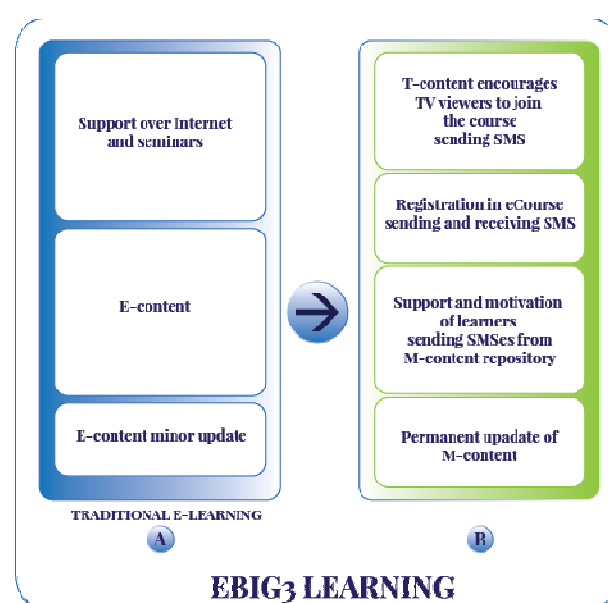


Fig.1 Schematic diagram of a traditional eLearning

approach (A), and new eBig3 learning approach (A and B). Content of supporting SMS is based on users activity in e-content.

When Fig. 1 (A) is compared to Fig. 1 (B) it shows that eBig3 has a number of advantages over the traditional e-learning approach:

- The t-content encourages viewers to join the course by simply sending an SMS while watching their TV.
- It is possible to register for an eCourse by sending and receiving a confirmation SMS;
- Support and motivational messages (SMSes) are sent from the m-content repository.

We designed the eBig3 prototype to evaluate the new approach in a real lifelong learning environment in Latvia and Lithuania. The prototype consisted of 3 courses: Basic Business, Telework, and Professional Communication. Information about the eBig3 courses were made available on the eBig3 web page www.ebig3.eu.

Latvian Regional Television (TV7) broadcasted motivating videos of the three courses that exhibited the course contents, but not the courses themselves. Yet the video themselves had an educational value. They were intended to stir popular interest which they did to a remarkable degree. At the same time, viewers were encouraged to join the courses by making available a SMS function where all they had to do to sign up for a course was to send an SMS to an assigned mobile phone number giving the following information: eBig3, name, family name and course number.

Moreover, course information and joining instructions were presented on web page www.eBig3.eu and flyers were distributed in selected municipalities.

The scale of course advertising was similar to other regional development projects.

In eBig3 learning registration is easy and user-friendly: learners receive a login after sending SMS requiring basic information: "eBig3 name family CourseNumber". A lost login is easy to recover by simply sending an SMS to: "eBig3 password".

Figure 2 represents the steady growth of eBig3 users in the first week of course delivery.

The strong user response surprised the designers of the eBig3 approach (Figure 2-1). The steady growth of around 20 new users a day in the Latvian speaking community was more rapid than experienced with previous, traditional e-courses that had required on-line registration (Figure 2-3). This increase, however, was only too times less than for

Open Courseware, the European Computer Driver's License course that offered content video and did not require any registration (Figure 2-2).

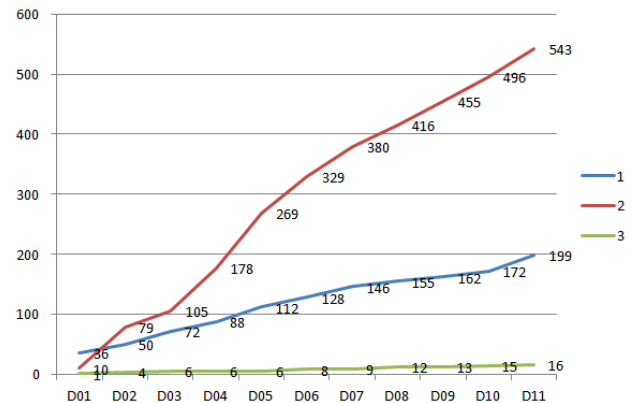


Fig. 2 Open access users number increase for first 12 days: 1 – eBig3, 2 - Open Courseware the European Computer Driver's License course that offered content video and did not require any registration, 3 - traditional e-courses that had required on-line registration.

The eBig3 SMS support system is one of the key features of the approach. Our concept is to send regular selected SMSes from the m-content repository that are in addition to the traditional means of support as used in blended learning situations such as seminars, e-mails and the phone. In eBig3 we offer four types of SMSes:

- Congratulatory SMS to participants after they join the course;
- Motivational SMS for participants who ceased being active after joining the course;
- Content related SMS for participants learning content of a selected course unit;
- Organisational SMS that offer information on seminars and other organisational issues.

The decision to send a SMS is made by the course administrator or m-tutor. Moreover, the m-tutor has the right to create and send new SMSes. These are then stored in the m-content repository and help to develop and enrich it while at the same time refining eBig3 responsiveness to users.

The present system was designed to address two stumbling blocks in the delivery of traditional eLearning/blended learning courses: the intricacies of initial registration and the loss of participant motivation that has led to an unacceptably high drop-out rate.

The initial eBig3 pilot demonstrated better usability [8] and a high rate of interest from the

target group as well as the designers. In addition, many new suggestions were made for new content development.

The summary of user-beginner responses to eBig3 are presented in Figure 3 and Figure 4.

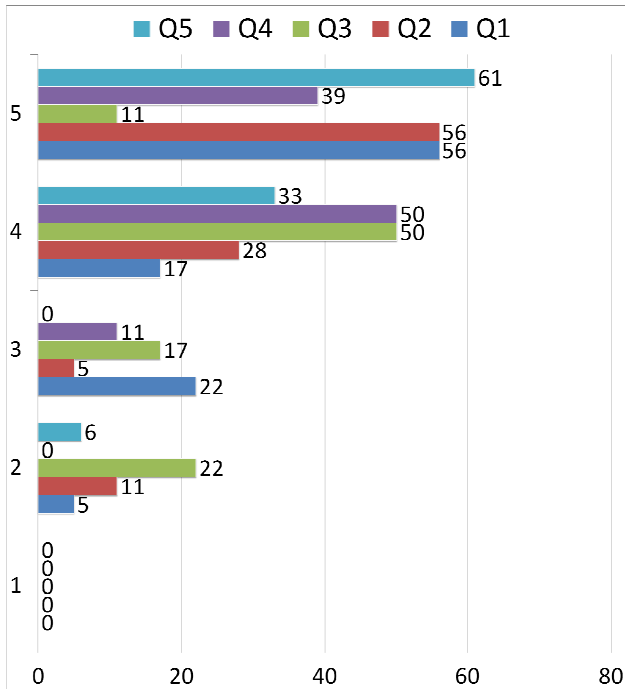


Fig.3 Study of user responses to eBig3 learning approach and t-component

Statements used in Q1 through Q5 were as follows:

- Q1 - I liked the option to join the course while watching the video;
- Q2 - Video is interesting way to motivate the viewer to join the course;
- Q3 - I could simultaneously watch the video and to write an SMS to join the course Writing was not obtrusive to watching TV;
- Q4 - I liked the fact that full materials (including videos) are available in e-learning environment and SMS are informing me on the progress;
- Q5 - SMSes are good way to inform student about course activities.

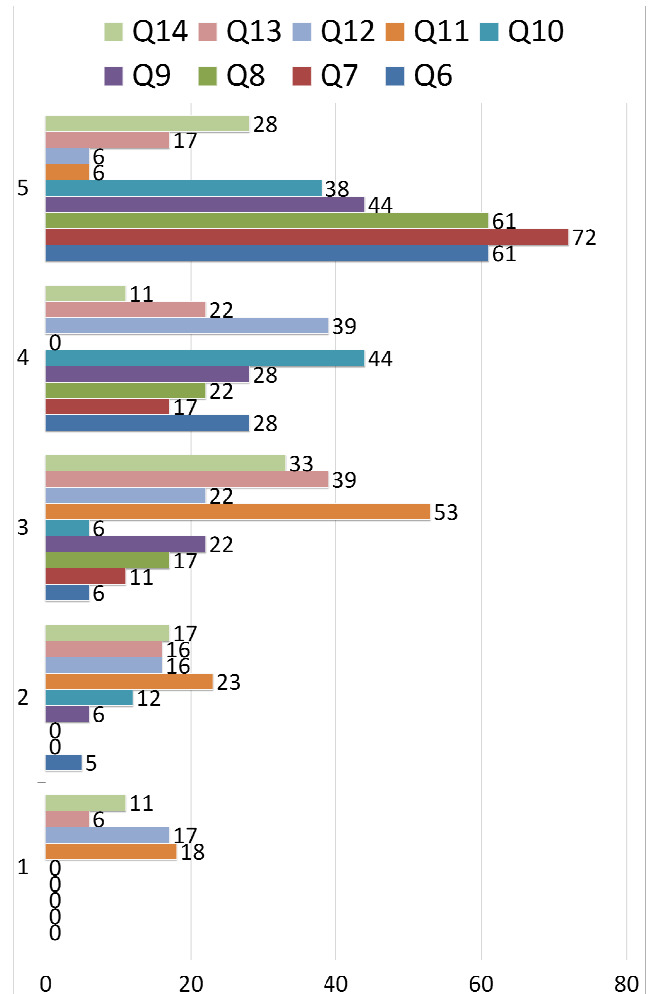


Fig.4 Study of users attitude towards eBig3-learning approach with the m-component

Statements used in Q6 through Q13 were as follows:

- Q6 - Registration to the course via SMS is convenient;
- Q7 - I was glad to receive immediate response SMS to my registration;
- Q8 - I'd like an option to renew a password using SMS in case I forget it;
- Q9 - I'd like to receive confirmation about my progress on the course in the form of SMS;
- Q10 - I'd like to receive a reminder if I did forget some task during the course;
- Q11 - I would prefer to answer with a SMS on the test questions;
- Q12 - I would receive instructions about acquiring the course in my own phone;

- Q13 - It would be convenient for me to view the course contents and learn using Smartphone;
- Q14 - I would like to watch course videos in my mobile phone.

The presentation of eBig3 from www.eBig3.eu will be discussed at the conference.

4 Conclusion

Deployment of popular IT/TV/Mobile skills can build a new, more efficient approach to the next generation lifelong learning technologically enhanced experiences.

The monitoring and study of knowledge flows in triple-screen ETM/eBig3 system in different learning settings demonstrated the increase of usability [8] and identified the most efficient sets of eBig3 approaches – easy registration and additional SMS support.

The eBig3 approach compared to traditional eLearning is better accepted by the target group. It is more visible, easier to join, more accessible, and generally has greater usability lifelong learning features than do traditional e-learning approaches. eBig3 opens up new learning perspectives and creates new challenges to technology enhanced learning research.

Acknowledgements

The research and writing of the paper was supported by a grant from the European Regional Development Fund (ERDF), "E-technologies in innovative knowledge source and flow systems (ETM)" Project Contract No. 2010/0222/2DP/2.1.1.1.0/10/APIA/VIAA/150 (RTU PVS ID 1534).

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