Application of microlearning technique and Twitter for educational purposes.

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Abstract. The current paper reviews the usage of social resource such as Twitter in microlearning technique for educational purposes. The problem is that most of instructors are unaware that with the help of social networks the students’ productivity can increase. The research is applied on CS205 Advanced Programming in C++ course at Suleyman Demirel University (Kazakhstan). The collected results show that in a modern world of emerging mobile technologies, we are as educators should improve the way of teaching by adding electronically supported learning methods. In this study, the significance of microlearning technique is proposed.

1. Introduction

Our world changes very quickly. This also affects our work and private life. One should admit the fact that everything around us constantly changes and at the same time should adapt to continually decreasing time intervals. The ability to learn and the speed of learning thereby become an elementary factor for individual quality of life.

Today people consider how to systematically use micro-sharing, made possible using tools like Twitter to connect with others. It allows to reach people’s desktops, laptops, and devices already in pockets without any dependency on local email servers or a phone tree. Because this is the beginning of the mobile era, where people will be able to communicate, work, share information; make easier their lives by using mobile devices in their pockets. [1]

As it is mentioned above, Twitter is a public micro-sharing network used all over the world which has become an integral part of people’s own professional practice or personal point of view. They use it to connect, share, and discover information far beyond any other networks. As a consequence, users finally start to understand that Twitter can be used for educational field as a micro-learning.

Twitter with its 140 character limitation is perfect for delivering short bytes of learning content – and for creating a community of learners around that content.
The main idea is following:

- A separate Twitter account was set up for this activity to send out the tweets to followers
- An example tweet looked like this

| Table 1. Example of a tweet |
|----------------------------|
| Introduction to Java. First steps. JDK installation. |
| [http://javafever.com/corejava/jdk-install-guide.html](http://javafever.com/corejava/jdk-install-guide.html) |

- Each tweet consists of:
  - a fact – an engaging statement that makes the learner to click through the link ("teaser")
  - a link – supporting short resource – a web page, image, video,...
- Each tweet can be scheduled. There are number of tools to do this. (Scheduling tweets, ...)

Ubiquitous technology can be usefully applied for microlearning because it can reach users throughout the day, when they have idle time. Users can look through and revise subscribed course's data while spending time in public transport, waiting in line, or in the brief transition periods between activities. Brief interactions allow users to chip away at a larger learning goal and may serve a priming role by repeatedly bringing the learning task to their attention; users may then be more mentally prepared to take advantage of richer learning opportunities, such as those that occur naturally during actual social events [2].

How much time does an average human-being spend in Twitter? How much time do we waste, how much do we use for self-development? According to statistics of International Network for Social Network Analysis (INSNA) our young generation lives in virtual world. They always stay connected. The aim of this research is to combine what they like and what they need. As far as Twitter is an online network service with elements of microlearning, it enables users to learn anywhere and anytime.

2. Methods

There is a CS205 Advanced Programming in C++ course in Suleyman Demirel University, which is mostly oriented on sophomore students. As an experimental tool Twitter was chosen to teach Advanced Programming in C++ with microlearning technique.

The main idea of connecting twitter with programming languages was to improve knowledge of students and prove that social network can be very useful in skillful hands of educators. As a learning method, microlearning was chosen.

Microlearning deals with relatively small learning units and short-term learning activities. Microlearning often interacts with microcontent, which generally occurs either in e-learning media or in microcontent structures such as weblog postings (Mosel 2005).

Microlearning can be a hypothesis about the time needed to solve a learning task, for example answering to a specific question, memorizing an information unit, or finding a needed resource (Masie 2006). The time range for solving a learning task can cover a span from few seconds (e.g. in mobile learning) up to 15 minutes or more. There is some relation to the term microteaching, which is an established practice in teacher education.

In order to collect data for this research, we interviewed sophomore students from different groups and faculties using questionnaires, which consisted of 7 questions.

The most important questions are specified below:

- Do you use twitter?
  a) Yes b) No

- What do you want to learn using microlearning approach?
  a) Foreign languages b) Programming languages
  c) Science (chemistry, biology, e.t.c) d) Other

- How much of your time would you spend for educational purposes while implementing Twitter and microlearning technique?
  a) 10-20 minutes b) 1 hour c) 2-3 hours d) more than 3 hours
The results of this questionnaire are provided below:

- Total number of students, who participated, is 77.
- Number of students, who use twitter is 32, don't use – 45
- Only 9 students want to learn programming language using Twitter.

The question concerned with time has shown the most interesting results:

- 19 students want to spend 10-20 minutes, 36 students - 1 hour and 16 students - 2 hours per day to learn using social media.

According to the results of this questionnaire, students are unwilling to learn programming language using Twitter or they don't know how to use social media for educational purposes.

Course materials were processed and compressed into more brief and comprehensive data. Later this data was uploaded to instructor's website and other web resources such as YouTube. As a next step, we prepared a list of tweets which corresponded to earlier prepared syllabus for Advanced Programming in C++ course. Each tweet consisted of a brief description and link to resource (See Table 1), where more detailed information is stored. In order to have tweets sent on specific time and date according to the syllabus, we used tweet scheduler to keep the data updated and sent regularly without instructor’s control. Students follow Twitter account, created for this experimental course, which enables getting messages and notifications anywhere, anytime on their mobile phones. This keeps students informed about which topic should be studied, revised and rehearsed.

3. Results

At the end of the term, we made a new questionnaire with 4 main questions for students, who took this course:

- How much time do you spend using Twitter per day?
  a) 10-20 min  b) 1 hour  c) >1 hour  d) 0 min.
- Did you enjoy application of Twitter for Advanced programming in C++ course?
  a) Yes  b) No  c) Other
- What are your suggestions to improve experimental course?
- How did Twitter and microlearning technique affect your performance? Explain, why?

Results are given below as shown in figure 1 and figure 2:

**Question 1: How much time do you spend using Twitter per day?**

![Figure 1](image)

**Figure 1. Results of answers for question 1**
Question 2: Did you enjoy the application of Twitter for Advanced Programming in C++ course?

![Pie chart showing percentages of responses to Question 2]

- Yes: 83%
- No: 4%
- Other: 13%

**Figure 2.** Percentage of answers for question 2

Also in suggestions and critics:
- Tweet more often
- Supplementary materials should be used
- Students suggested using this technique to learn other spheres.

The positive sides of this survey that were mentioned by students are:
- Easily download material provided within tweeted links
- Keep tracking of topics that student need
- Communication with collaborators (help of other students)
- Do not spend time for searching information

4. Conclusions
Students were able to access study material outside university. This data was compressed and sliced into small chunks of information. Students subscribed for mobile notifications, that allowed receiving tweets anytime and anywhere, which is the main principle of micro-learning.

Moreover, information is nested on students' phones and Twitter accounts, which they can easily access via Internet.

The mobile technology is spreading very fast. Each second the tons of bytes of information are created. There is a need for learning technique, such as micro-learning. This paper demonstrates a simple example how to use Twitter and microlearning technique for educational purposes, but enterprises can use this approach as well. There is a necessity for researching this field of study, which is not yet complete. Many sections are under work and will be expanded in future.

5. References
[1] Corner M 2008 Enterprise Micro-learning (New York: Pistachio)
[2] Beaudin J S, Intille S S, Morris M E 2011 MicroLearning on a Mobile Device (MIT Media Lab)
[3] Clarey J 2009 Microlearning presentation at LearnTrends (LearnTrends)
[4] Lindner M 2007 What is Microlearning? (Austria, Research Studios Austria)
[5] Hug T, Lindner M, Bruck P A 2005 Microcontent is Everywhere (Eds.)