Introducing Live Microblogging:  
How Single Presentations Can Be Enhanced by the Mass

Martin Ebner

Abstract
Web 2.0 technologies pervade our daily life as well as educational settings. A fairly new approach is communication through so called microblogging channels. Mobile devices with Internet access can be used to send short messages from a microblog. Combined with social network environments, applications such as Twitter, Jaiku, Pownce, and Plurk enrich our ways of communication. At Graz University of Technology (TU Graz) some research work has been done to investigate using microblogging tools to improve face-to-face lectures. The study described in this paper took place at a large international conference on e-learning, where a Twitter channel was established for discussion among the participants of the conference and those from outside. This stream was also used to “tweet” (post on Twitter) statements during the keynote presentations. By viewing the tweet-channel via an additional projector, the audience was able to follow the live-blogging session synchronously to the ongoing speech.

Key words
Microblogging, m-learning, e-learning, e-learning 2.0, cloud computing, technology-enhanced learning, informal learning

Introduction
"Our students have changed radically. Today’s students are no longer the people our educational system was designed to teach."
Marc Prensky (2001)

As Mark Weiser wrote, “The most profound technologies are those that disappear. They weave themselves into the fabric of everyday life until they are indistinguishable from it” (Weiser, 1991).

Nowadays Web 2.0 applications pervade our everyday life and change our way of working with the Internet (O’Reilly, 2005). The average user of the Internet has become a powerful component of the web: The user is the content anywhere anytime. In other words, if there is an Internet access, the dream of Tim Berners-Lee (1989) that anyone can contribute to the WorldWideWeb has come true. These innovations have had a great impact on e-learning. Stephen Downes coined the term e-Learning 2.0 in 2005 and described the use of Web 2.0 technologies for learning purposes. The expression “A³” (anytime, anywhere, anybody) including interaction (Preece, Sharp, & Rogers, 2002) as well as communication possibilities becomes a reality more and more.

Web 2.0 applications are used increasingly in higher education. Weblogs (Luca & McLoughlin, 2005; Farmer & Bartlett-Bragg, 2005), wikis (Augar, Raitman, & Zhou, 2005; Caddick, 2006), and podcasts (Evans, 2007; Towned, 2005) influence the daily lecturing and learning process and reveal the potential of a more active approach (Ebner, 2007).

One the one side, the use of Web 2.0 technology helps overcome the barriers of publishing content on the World Wide Web in principle; on the other side, the infrastructure increases steadily. Today’s connections to the Internet in West European countries are fast, fail-
safe, and no longer expensive. Statistical data\textsuperscript{9, 10} indicate that nearly the whole population of the European Union has access to the web. From this point of view, it is only a matter of time before the whole population will be actively using the Internet. By getting more and more familiar with technologies through appropriate infrastructure, learners of tomorrow will deal with the Internet in a different way.

As Internet technologies and education move closer and closer, the result will be ubiquitous learning: u-Learning. A driving force in digital learning will be mobility, as has been claimed since the early years of online learning. Learning from anywhere used to be restricted to places with internet access via personal computers. Now mobile devices like the N-serie of Nokia or the iPhone have WiFi capabilities and internet access is just restricted to the range of the mobile network. Thus, the basement has been established for mobile learning (m-learning) to become possible for the masses. Motiwalla (2007) points out that mobile computing devices have become ubiquitous on today’s college campuses and influence the daily behavior of higher education. A study at TU Graz found that every first-year student owns at least a mobile phone—about 20% with WiFi and about 15% already using the Internet on their mobile devices (Ebner et al., 2008).

Beside the increasing technical component a look must be taken at Gartner’s Hype Cycle\textsuperscript{11} for emerging technologies. two terms seem to be especially interesting in the context of mobile learning: “cloud-computing” and “microblogging.” Cloud-computing refers to Internet-based developments that help manage our daily processes. The cloud (a metaphor for the Internet) stores and distributes applications on different places (servers) for the users without their deeper understanding. Microblogging should be seen as a new communication possibility that allows communicating with many people simultaneously.

This paper concentrates on microblogging. After a short introduction to m-learning in general the term microblogging is explained. A study is presented on how microblogging can enrich presentations by doing it live.

**M-Learning**

M-learning environments enhance e-learning solutions, which have their main advantage in the independence of location and time (Holzinger, Nischelwitzer, & Meisenbergre, 2005). Even more, the use of mobile technologies can enhance motivation, which is vital for learning processes (Holzinger, 1997) as well as explicit didactical use. Also, Traxler (2007) mentioned the importance of m-learning:

Looking at mobile learning in a wider context, we have to recognise that mobile, personal, and wireless devices are now radically transforming societal notions of discourse and knowledge, and are responsible for new forms of art, employment,
language, commerce, deprivation, and crime, as well as learning. With increased popular access to information and knowledge anywhere, anytime, the role of education, perhaps especially formal education, is challenged and the relationships between education, society, and technology are now more dynamic than ever.

Traxler identified various categories of m-learning (Traxler, 2007):

- Technology-driven mobile learning
- Miniature but portable e-learning
- Connected classroom learning
- Informal, personalized, situated mobile learning
- Mobile training/performance support
- Remote/rural/development mobile learning

Mobile devices can be implemented in teaching and learning settings in a plurality of forms (Kukulska-Hulme & Traxler, 2005, p. 31)

- Connectivity for spontaneous communication and collaboration among learners
- Beaming of stored information from device to device
- Location-awareness, giving instant information about projects within sight
- Portable sound-recording and voice-recording
- Cameras for taking photos and making video clips

Bearing these aspects in mind, m-learning is not restricted to short messages or text lines on the screen. M-learning must be seen as enhancement and enlargement of the classroom. Learning on the move simply by providing thoughts, pictures, and so on will help support learning on demand and informal learning as well. Ally (2007) describes it as follows:

Because of the increasing use of mobile technologies in society and by the younger generation, learners will demand course materials be delivered on mobile technologies to be accessed from anywhere and at anytime. At the same time, today’s and tomorrow’s learners will be nomadic and continuously on the move. As learners move from one location to the next, they must be able to use the infrastructure in the different locations to access learning materials. Hence, learning materials must be designed for easy access by the nomadic learners using mobile technology regardless of where they are located and which network infrastructure they are using to access information.

Microblogging

One of the most important and still growing fields of Web 2.0 technologies is the weblog: A frequently updated website whose content is been created mostly by one person, consisting of data entries in reverse chronological order (Walker, 2005). A microblog can be seen as a weblog that is restricted to 140 signs per post but enhanced with social networking facilities. McFedries (2007) mentions that microblogs should be used for “posting short thoughts and ideas to a personal blog, particularly by using instant messaging software or a mobile phone.”
However, typical microblogging applications are providing the following features:

- A possibility to update the microblog with 140 characters for each entry
- A possibility to blog via mobile device, web interface, or even different desktop clients
- A social network consisting of followers (people who are reading one’s updates) as well as the possibility to follow anyone
- A possibility to send messages direct to follower (not public)
- A possibility to answer messages and discuss statements

Several applications support microblogs. The most famous ones are Twitter, Jaiku, Pownce, Plurk, and the open-source tool Identi.ca. Independent of the tool that is chosen, updated postings, ideas, opinions, or quick notifications are leading to a new kind of mobile working, today’s prime example of Mobile 2.0 (Griswold, 2007). Java et al. (2007) have pointed out that microblogging facilities can be used in three ways: information sharing, information seeking, and friendship-wide relationship. The power of microblogging can be summarized as the fastest mobile exchange with people of similar interests all over the world.

**Design of the Study**

At TU Graz several studies about the use of microblogging tools have been carried out to support teaching and learning processes in higher education. In a very early stage, an expert group of e-learning professionals exchanged their actual works, literature, and thoughts by using Jaiku (Ebner & Schiefner, 2008), and subsequently Jaiku was used to enhance a big lecture (Ebner & Maurer, 2008). Additional works investigating the use of microblogging tools in education (Grosseck & Holotescu, 2008) are pointing out the strengthening of communication in such a way.

In this paper the answer to following research question is addressed: “Can microblogging enhance a live event?” To investigate the possibilities, a Twitter stream was established during one of the biggest e-learning conferences: the ED-MEDIA 2008 in Vienna. The microblogging tool Twitter was chosen because it is the most used and well-known worldwide. A channel for administration purposes called ED-MEDIA was created, and all conference participants were invited to follow this account; in the end more than 100 users did so. Furthermore, the Twitter stream was projected at the main meeting point during coffee breaks using the desktop application TwitterCamp. To address the research question, the stream was projected on the wall during the keynotes of the conference. In this way the online conversation between all Twitterers was made visible to those who were not able to tweet among the audience.

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12 http://twitter.com (last visited: September 2008)
13 http://www.jaiku.com/ (last visited: September 2008)
14 http://pownce.com/ (last visited: September 2008)
15 http://www.plurk.com/ (last visited: September 2008)
16 http://identi.ca/ (last visited: September 2008)
18 http://twitter.com/edmedia (last visited: September 2008)
Furthermore all participants were invited to use the Hashtag #edmedia08, which could be tracked by the tool Twemes. The URL of Twemes extended by the Hashtag displayed all current tweets, bookmarked links at del.ici.ous, and photos at Flickr containing the Hashtag.

Figure 1
Installation in the Lecturing Room

Figure 1 shows the installation in the lecturing room; on the left side the presentation slide of the keynote is displayed and on the right the actual tweets of the people blogging about it.

The following section analyzes a segment of this live Twitter stream to point out how the participants were using this facility.

**Discussion**

In the keynote session about 150 people attended the presentation, which lasted about 45 minutes. The first tweet concerning the keynote was recognized 7:47 AM and the last one at 9:01 AM. The live blogging session thus stretched across 74 minutes.

Table 1 shows all activities of the twitter stream during this time; 54 tweets were posted, which means 0.73 per minutes or 3 tweets every 4 minutes.

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Table 1
Tweets during the Keynote

<table>
<thead>
<tr>
<th>Number</th>
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<th>About Presentation</th>
<th>Discussion</th>
<th>Links</th>
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<td>Σ</td>
<td>54</td>
<td>12 (22%)</td>
<td>2 (4%)</td>
<td>17 (31%)</td>
<td>23 (43%)</td>
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</tbody>
</table>

Ten users made their contributions to the channel, with an average of more than 5 posts during the session. If a closer look is taken at the content of the tweets, four major categories can be pointed out:

- **Concerning the presentation:** These tweets had a strong relationship to the presentation. For example, the speaker was cited by the tweet: “great--everything you do is public”; “Don’t be ashamed of it, just make sure that’s really good #edmedia08.”
- **Discussion:** These are postings between two or more users. For example: “#edmedia08 @walthern you will find your presentation here . . .”
- **Links:** These contributions contain links to various resources. For example: “#edmedia08 peter currently talking about OpenLearn http://www.open.ac.uk/openlearn/home.php”
- **Comments:** The last category includes statements, mainly in reaction to the speaker’s presentation, but also feelings, thoughts, and opinions. For example: “#edmedia08 we often 'seem' to spend lots of time make things 'easier' for the student—but learning should be challenging—a contradiction.” It was interesting to notice that questions from outside also appear in the twitterstream.

Table 1 shows that nearly two-third of all tweets contained links or personal statements. Other findings included:

- **Archiving:** One-third of all contributions contained links to external resources. Videos, images, and webpages were published and in that way enhanced the speech. Interestingly, whenever the speaker pointed to a project or something similar, the hyperlink to that online resource popped up on the twitter stream a short time later posted by a tweeterer. Instant link sharing seemed to be one of the most interesting features of a live blogging tool. Afterward, many nonparticipants thanked contributors for this work, because of the archiving effect. All shared resources are still available on the web and can be retrieved at any time.
• **Comments:** The most important category was participants’ personal statements, comments, feelings, opinions, and thoughts. There was no real discussion, but seeing such comments in real time to the running presentation enhanced the words of the keynote speaker. This simple possibility turned the presentation into an interactive, highly attention-evoking act. It seemed there was not just one person speaking; the whole audience discussed and provided opinions. The previously hidden thoughts of the participants had been given a way to become visible and thus helped to deepen the presented subject.

Figure 2 shows a part of the twitter livestream during the session. Looking on this aspect of m-learning, it can be concluded that the tweets were sent from various devices (laptops as well as mobile phones) through different media (web interface as well as mobile client).

![Figure 2](Screenshot of the Livestream During the Keynote Presentation)

**Conclusion and Outlook**

This paper provides an example of how microblogging tools can be used to extend the traditional face-to-face presentation. It is imaginable that such an implementation can also be done in a usual lecturing room. Especially for the improvement of the learner-lecturer interaction in large
classrooms (cf. Bligh, 1971; Gleason, 1986), live blogging can help overcome the major problems of that venue, as enumerated by Anderson et al. (2003):

- Feedback lag: missing feedback of the learners
- Student apprehension: fear to ask, speak because of the huge lecture classes
- Single speaker paradigm: The only-one-speaker syndrome (learner-lecturer), leading to less active participation

Of course, a lot of research will be necessary to transfer the conference setting to the lecture room, but these first attempts show improved audience feedback and greater interactivity. Furthermore, a major challenge is to get lecturers themselves to comment on contributions and discuss them. In the future, we will motivate the speakers to do so and maybe also to give the presentation a complete new design.

A further step is also to get the World Wide Web more involved into the live event by providing more information for those who cannot attend. In the end it can be underlined that the use of mobile technology in combination with new web technologies leads to an enhancement of the live presentation. The thoughts of the participants make the event a more interactive one and the situation invites many people to offer their opinions. A kind of silent discussion presented additionally to a live presentation enriches the talk in a new and meaningful way.

Acknowledgments

We’d like to express our gratitude to the people who helped us implementing this new approach within a big conference. First, we sincerely thank Gary Marks and his team for giving us the chance to microblog during the keynotes. Very special thanks go to Mag. Walther Nagler and Thomas Billicsich for their technical help to establish the twitterstream in the conference room. I am equally indebted to the team of Social Learning as well as the whole team of AACE for their work in this context. Last but not least, thanks must go to all the other unnamed people who supported this new approach before, during, and after the project, especially to those who played an active part and sent lots of tweets during the conference.

References


**About the Author**

Martin Ebner
PhD, Head of Social Learning Department/Computer and Information Services
Graz University of Technology
Graz, Austria
martin.ebner@tugraz.at
http://www.martinebner.at

Major research interests: e-Learning, m-Learning, u-Learning, Use of Web 2.0 technologies for learning and teaching, technology enhanced learning