

# Learning Waves from Google

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## Abstract

The purpose of this paper is to report on emerging technologies, especially those who are considering collaboration technologies. In 2009, there were a number of technologies with special implications on the educational environment. Such technology was launched in 2009 by Google and it is called Google Wave. Google Wave is a much hyped new Internet-based communications and collaboration platform.

**Keywords:** e-learning, collaboration, technologies, API

## 1. Introduction

Collaboration is a form of electronic communication in which individuals work on the same documents or processes over a period of time. The Web is considered one of the first examples of collaboration in the digital age, and today, collaboration is often discussed in the context of Electronic Content Management Systems (ECM) and other content-rich social computing tools. When applied to technologies development, collaboration often has a focus on user-centered design and rapid prototyping, with a strong people-orientation. Common functionalities include Wikis, interactive message boards, social bookmarking, electronic negotiation and collaborative filtering. This paper will examine the topic from only one viewpoint and this is education.

As the scope of information and communication technology (ICT) rapidly increases and expands, its benefits form reliance in higher education upon related eLearning technologies. By integrating sophisticated computer software and networked technologies, eLearning provides academic institutions with a way of enhancing and enriching teaching performance of faculty and learning activities of students. The expanding use of eLearning technologies over the last two decades is illustrated using the three Web generations.

E-learning technologies continue to expand. Today, computer and Internet technologies are more integrated with professional, academic, and personal lives. Instructional designers have access to more and more new flexible technologies, as do learners have a multitude of choices. These technologies are opening ways for courses, seminars, discussion forums and other approaches to learning to be delivered online with innovative ways to interact with instructors and other students. The following are different learning technologies in use today. Various tools are used in e-learning environments: Electronic Portfolios (ePortfolios), Electronic Performance Support System (EPSS), Personal digital assistants (PDAs), MP3 Players, RSS, CD-ROM, Web sites, Web 2.0 tools, Discussion and bulletin boards, Collaborative software, e-mail, Blogs , Wiki , Chats, Computer aided testing and assessment, Educational animation, simulation, and games, Learning Management Systems (LMS), Podcasts or Google Wave.

In a nutshell, Google Wave is a new form of real-time communications. Google describes it as "equal parts conversation and document." We can describe Google Wave as "real-time email with a big dose of IM built-in" - although we noted that "this only describes a small part of what Wave can do." [1]

Google Wave is a product that helps users communicate and collaborate on the web. A "wave" is equal parts conversation and document, where users can almost instantly communicate and work together with richly formatted text, photos, videos, maps, and more. Google Wave is also a

platform with a rich set of open APIs that allow developers to embed waves in other web services and to build extensions that work inside waves.

Google Wave is a brand new technology that positions itself as the way Email would have been made if it were invented today. Imagine a combination between Email, IM, Twitter, Facebook, and Skype all bundled into one. Now imagine it being drag-and-drop easy, live-updated, and being constantly improved. Then throw on top of that an eager community of developers seeking ways to make it even easier to use and more powerful.

## 2. Wave in Class

After searching some public 'waves,' we came across an educational wave. Entitled 'Wave in Class,' this wave was started by Loren Baum (a self-described "collaborative learning enthusiast" and graduate student at Ben Gurion University) and Sam Boland (a Politics student and "Tech Enthusiast" at Occidental College, Los Angeles). [2]

The wave was started to explore concepts like "Collaborative Note Taking" and "Wave as a Debate Host." Nearly 100 people are included in the wave, ranging from teachers to PhD students to IT professionals to high school students.

This particular wave was framed at the start as being "a set of collaborative documents, supported by a chat." As a note-taking tool, Samuel Boland wrote that "there appears to be a concensus that will work as a note-taking tool, the only disagreement is over how to implement it." Options for note-taking include voluntary extra-curricular groups, rotating in-class groups and small in-class groups. [2]

A few users enthused later in the wave that "Google Wave combines a lot of the best features from different applications" - but with a real-time twist. It was noted that while Google Docs can be used to share notes and collaborate on assignments, with Google Wave students can *collaborate in real-time*. This could be important in education for things like note-taking, asking questions and collaborative projects. [1]

Another feature of Wave that would be useful for education purposes, according to this 100-person wave, is the play-back ability - "so instructors can see exactly who did what, and see the progression of ideas." [4]

A 'wave' is a group conversation with lots of added functionality. There's work waves, product waves, party waves - waves allow you to do whatever with whoever, whenever. It works, in pretty much real time, because it's all in the cloud. You can also have 'Learning Waves'. Waves are hosted conversations combine email, messenger and social networking and media sharing - faster, more like real F2F group conversation with playback, drag and drop from desktop to browser. [4]

It pulls in mobile, blogs, Twitter, aggregates conversations, allows group editing, docs can include wave conversations (hide & show), spell checks as you type, creates links as you type, polls, supports multilingual and has real time translation in 40 languages. APIs allow you to use and extend these services. So that's it, an open source, browser-based, personal communication and collaboration tool - Google Wave. The productivity improvements in all forms of human endeavour are phenomenal.

## 3. Learning Waves

The creation of e-learning content should be quicker and cheaper. The design, development and delivery can all benefit from Wave as a productivity tool. You can get the design done with designers, managers in real time, or at least much faster than the traditional methods, even with people who speak different languages. User-tested development can be very quick and debugging and testing much faster.

Wave could be used to teach and learn in groups. Think of a 'wave' as a learning experience, a 'learning wave'. A 'Learning Wave' can allow any combination of teacher(s) and student(s) to [3]:

- step back and forth through content
- pull in/share resources
- pull in links
- provide live feedback
- poll the group
- assess the group
- teach in multiple languages (translates in real time)

The potential of Google Wave is still pretty amazing, but the implementation of it so far is not there. We list in the following several possible implementations:

1. Curriculum planning
2. Departmental communications
3. Intercampus
4. Plan parent conferences with multiple teachers and multiple schedules
5. Share links to web resources
6. Campus improvement planning
7. Schoolwide calendar/scheduling
8. Faculty meeting follow-up
9. Teacher appraisal sign-ups
10. To-do lists
11. Keep information current between work, cell, and home
12. School newspaper/newsletter article development
13. Local newspaper publicity article development
14. Twitter-like communication between faculty without the Twitter-like time drain
15. Share lesson plans with substitutes/administrators/department chairs/other teachers.

Besides the school-related uses, we can detect some others:

1. Collaborative book study
2. Group blogging
3. List of music educators
4. Storing favorite web resources in one central searchable location (the archive is an amazing feature of Gmail)

This new classroom technologies found their applicability by:

- *Replace wikis* - a lot of teachers out there use wikis, and they are useful. One nice feature of Google Wave is that it allows a combination of public as well as private communication within a wave.
- *Playback* - the playback function of Google Wave is useful in that it allows you to see step-by-step what has happened in the development of the wave. This can also come in handy for the teacher to see how well groups are working together and how much participation is going on.
- *Group work* - One of the huge advantages to Google Wave is that each person in the wave can edit things at the same time. We've all been in groups where one person writes, another person thinks, and the other people sleep. Everyone could be assigned a specific role and work on the same project together.
- *Teacher involvement* - each group would be set up by the teacher and each wave would include the teacher as well as the students in the group. If an individual student has a complaint for the teacher, he can simply private message the teacher, explain the problem, and then the teacher can view the playback and see that the other students may not be working as hard. Tattling has never been this simple!
- *Publishing (Embedding)* - After a project is completed, it can be embedded into a website or Facebook group page or anything else. There are even plugins to embed waves into blog posts (at least for WordPress and Blogger).

Some of the Google Wave extensions or plugins we would like to see come together that I believe will help in the areas of education, support, and collaboration are:

- video communication
- audio communication
- screencasting
- project management
- scheduling
- time tracking

Google Wave will speed up communication and make communication more interactive, real, and more clear. Along with the change in the internet will come a major change in education and business.

#### **4. Conclusion**

We can conclude that one major issue that online education has is real time collaboration. Education institutions are communities to collaborate and learn from one another. People often times say the major weaknesses of online education is that you don't learn some of the same team building skills and social skills that normal students do that get a traditional on campus degree. Depending on what career you are looking into and training for, that face to face collaboration may be important. Most collaboration now a days is either done through a digital medium or documented through some type of a digital medium. Google Wave is going to help make real time, online, cross platform collaboration a reality. It's going to take the elements of many different applications that have been separate from one another and bring them together. It will allow the extending of other applications through the Google Wave interface.

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