

# E-Learning and VoIP

## How Skype can revolutionize interactive E-Learning

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### What is Skype?

The original service, allows users of the Skype software to speak or message one another from their computers. Skype is a new peer-to-peer (p2p) internet service, from the developers of the Kazaa file-sharing service that provides free internet telephony. The main advantages of Skype are its availability for different platforms like Windows, Mac OS, Linux or Pocket PC. It supports conference calls with up to five participants, the possibility of text chats (Instant Messages; IM) and immediate file transfer. Interesting for include Skype in traditional (e-)learning structures is the option of calling traditional (POTS)-Phones via Skype-Gateways for a fee. Skype can be integrated into existing or future developed e-learning frameworks by using the Skype API.

Although Internet telephony, or Voice-over IP (VoIP), has existed for some time, Skype is the first to offer unlimited free calls between users – wherever they are in the world. This opens up some interesting opportunities for small businesses, but perhaps even more so for schools and colleges wishing to embark on foreign languages and cross-cultural projects.

Skype is somewhat different from traditional peer-to-peer services like Napster, Kazaa, Gnutella, Overnet and so on. Users in this p2p network aren't in it to share files; they are there to share conversation and to expand their social networks, through both its voice application and instant messenger function.

The Skype software is as well an answer to long-distance calls. Just as email and weblogs have opened up opportunities for low-cost textual communication around the world, Skype and other services like it could well begin to allow affordable worldwide calling.

The company, called Skype, is using the traditional dot-com business model of giving away the software to build a large user base, with intentions of charging for additional services, such as voicemail and the possibility to communicate with landline and mobile phones (SkypeIn and SkypeOut), too. Another reason for offering it as freeware is that by this the company has not to guarantee and maintain the infrastructure.

### Visions for using Skype in e-learning related fields

In his article *Skype-ing work* [3], Ben Williamson reflects the existing features of Skype and possible applications of this technology in the range of electronic assisted learning. In a school context one possible application could be to visit via Skype other classes all over the world in online videoconferences. This leads as well to the possibility to establish various cross-cultural projects, "virtual student exchange" programs, for instance.

Since Skype allows users to create a personal profile, an expert-network can be build up by finding the needed consultant or expert with the help of an intelligent profile search. This allows consulting experts on a certain problem. One step further is the search for other users with similar interests, so Skype might be a medium for an interesting cross-cultural exchange in which students are able to build up a social or theme-based network of peers from a variety of backgrounds and nationalities, eventually initiated by a course teacher or a e-learning project manager.

A great benefit of Skype is the availability of a published application-programming interface (API), which allows the integration into existing applications. Integrated into a collaborative work tool like BSCW [8] for example, one could see which users of the developing team are online available and discuss a problem with them in a conference.

### Language training with Skype

The main feature of Skype seems to be its world wide availability and internationality. Supporting language learning with Skype seems therefore to be a straight-forward application. Actually, there are already a couple of business proposals from which we want to mention two exemplarily:

The first at [6] is the possibility to book online Russian courses, which are realized using Skype. A native Russian speaking on-line tutor is always available; it is possible to get “individual lessons” as well as “virtual class”-lessons enhanced by Skype’s conference feature.

Another option is to use the Skype networks to establish international language tandems, like jive.com is offering this service at [7]. Using Skype as part of a modern foreign languages lesson might be easy to facilitate - just as long as schools have ample computers, broadband access and sets of headphones.

### **Learning approaches supported by Skype**

Actually, Skype can support the entire space of common known learning approaches: Providing interactive quizzes can be interpreted as a behaviorism learning where virtual classrooms are a step in the direction of objectivism. An interaction with information, like proposed by the cognitivism approach, can be established by distributed discussions and finally the creation of theme-based networks as proposed by [3] support a constructivistic way of learning.

In all these applications, Skype is the “glue”, the middleware connecting the users and transferring traditional learning approaches out of a limited space into a wide-ranged distributed learning environment.

### **Future steps**

According to Niklas Zennström [5], Skype will evolve in two directions: Firstly towards a more flexible and mobile access, using Skype application on mobile phones for instance. Second is the development in communication modes, making it possible to use collaboration features or videoconferencing with Skype. This feature is able to open another time more application domains to e-learning and e-working with Skype. A glimpse into the future, how videoconferencing over the Internet can look like, is available at [4].

### **Technical critics and general drawbacks**

Skype is a closed-source project, so no one can guarantee the lifelong free service, even if the developers assure in their documentation to provide the basic service always for free. Another drawback is the use of proprietary transmission protocols, the impossibility to verify encryption force makes it difficult to use in corporate learning sessions where maybe classified information must not be decrypted between the learning team leader and the team members. In addition, no one can test Skype application against distributing spyware, the developers of KaZaA which have distributed Skype as well are already a little bit dubious.

To rely on internet technology means relying on general internet drawbacks, too. The best-effort approach of the IP packet switching means for Skype that it can provide also only a best-effort service. To overcome with firewalls and NAT, Skype is using some clients as so called supernodes, which are switching the telephone calls of other users. This means, that you haven’t got anymore the total control over your applications’ resource consumption.

### **Conclusion**

In our opinion, Skype is a very interesting approach in distributed, communication-orientated e-learning. It is possible to extend the existing learning frameworks, where it cannot totally replace them because Skype is just acting as a middleware between the participators – teacher and learners for example. Nevertheless, using communication technologies of the next generation (e.g. videoconferencing or collaborative work, supported by Internet 2) enhance the applicability of Skype in e-learning environments.

### **Sources**

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