

# Design for communities of practice: Eduforge

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Eduforge is a virtual collaborative learning and exploratory environment designed for the sharing of ideas, research outcomes, open source educational software, and tools within a community of learners and researchers. Eduforge encourages cross institutional collaboration among individuals within an independent environment outside the normal boundaries of organisational infrastructure and resources, and, therefore encourages Communities of Practice (CoPs) to develop. It is an open access resource allowing anyone with an interest in the exploration of teaching and learning to join the community.

**Keywords:** collaboration, tools, communities of practice, open access

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## Introduction

Within, and between, tertiary institutions, faculty members and academic managers learn through their participation in communities of people with whom they interact regularly. Research has shown, for example, that much of the skills and knowledge gained by educators comes from informal training: on the job mastery, discussion with colleagues and as members of professional Communities of Practice (CoPs). CoPs may be built around, for example, a special interest, a specific professional practice, or an individual project. CoPs are mostly informal and distinct from official organisational units. However, they are an integral part of an institution's, and a sector's, ability to know and learn.

Computer technology can be used to develop and enable CoPs. In particular, computer based systems on the Internet can be designed to host communities, to capture knowledge as it is generated and to deliver relevant knowledge when it is useful. **Eduforge** (<https://eduforge.org/>) provides an environment for collaborative educational open source software development and serves as a supportive space for CoPs to develop.

Eduforge was founded in January 2004 as part of the New Zealand Open Source Virtual Learning Environment (NZOSVLE) project. The NZOSVLE is a major collaborative education project funded by the New Zealand Tertiary Education Commission (TEC). The project's goals are to develop and deliver an open source infrastructure for e-learning to its 13 consortium members, which comprise polytechnics, universities, and a private training organisation. The consortium members are successfully using the Eduforge project support and communication environment to help them with their software evaluation, feedback gathering, communication, and resource sharing. There are currently 29 projects hosted on Eduforge, and 280 members registered (visitors to the site can view the public project pages, but must register to fully participate. Once registered, Eduforge members can request to join individual projects hosted on the site.) The software developed will also be made available on Eduforge under the General Public Licence (GPL) for members of the community and the greater public.

## The Eduforge environment

There are essentially three areas of interest on Eduforge: the collaborative and project management environment, the repository of open source software applications (and related source links) and the explorative "hands on" area for online learning and teaching tools. This paper is primarily concerned with the first of these areas: the collaborative and project management environment.

### Collaborative and project management environment

The Eduforge collaborative environment is comprised of two parts. The first part is a general area for the Eduforge community to contribute and share ideas using a suite of collaborative tools, including forums.

The second part of the Eduforge environment consists of project specific tools. For each registered project, the Project Administrator is provided with the flexibility to turn on or off a suite of online tools and features to support the project. Some of the key tools and features are:

- Creating a personalised Project Homepage
- Forums
- Mailing lists using email
- Documents – document repository for publishing
- Survey – basic survey tools for gathering feedback or response
- News – post news for the project or for the Eduforge community
- Blog – journal for private or public use
- CVS – Current Version System for source files management and tracking
- Wiki Pages – server software that allows users to collaboratively create and edit Web page content using any Web browser.

Eduforge requires every project to be registered. Registration ensures that the project is categorised within a structure that provides visibility and functionality on Eduforge. Project management within Eduforge provides a structure that consists of projects, subprojects and tasks. Each member may be assigned and prioritised to a specific task with “start” and “end” dates.

### **Creating communities of practice: Seven principles**

The ultimate success of a community of practice (CoP) will be determined by the people who populate it. Management, commitment, relevance, trust and mutual interdependence are all key indicators of success. While technology alone cannot build or sustain the community, an environment such as Eduforge can provide a platform and tools to enhance community development.

Wenger, McDermott and Snyder (2002) have identified seven key design principles for creating effective Communities of Practice that are “alive”, or, in short, self sustaining. These principles relate specifically to community management, and they reflect the fact that the ultimate success of CoPs will be determined by the people who populate them. They suggest that designers of a community need to:

1. Design for evolution.
2. Open a dialogue between inside and outside perspectives.
3. Invite different levels of participation.
4. Develop both public and private community spaces.
5. Focus on value.
6. Combine familiarity and excitement.
7. Create a rhythm for the community.

Eduforge supports the seven principles above (particularly the first four), in that it provides an environment where managers and members of CoPs can create, build and sustain a vibrant, self supporting community group. This paper will look at each of these principles in turn.

#### **Design for evolution**

The community creates all of the content on Eduforge. Eduforge offers a raft of tools, which the community administrator is free to choose at any stage of the community development. A community may begin, for example, by using a Wiki. As the community grows and interests change, a forum might be employed, documents may be uploaded, and sub-projects may develop.

In addition, Eduforge is **modular**. As new technologies emerge they can be added to Eduforge (and adopted by the communities that inhabit Eduforge) without structural disruption. Eduforge is also **Open Source**. This allows communities with sufficient technical skills to develop the site as they see appropriate. Indeed, open and collaborative development of the software that supports Eduforge may encourage a stronger sense of community, as Tuomi (2001) suggests. (For more information on this topic, there are resources available on the Eduforge site about the benefits of free and open source software.)

## **Open a dialogue between inside and outside perspectives**

Wenger, McDermott and Snyder suggest that “...good community design brings information from outside the community into the dialogue about what the community could achieve.” Allowing and encouraging input and feedback from outside perspectives helps increase the vitality and value of a CoP.

Projects on Eduforge are open and public by default (although they can be made private), so there is great scope for peer and external review. Already in the Eduforge communities, there is evidence of people “popping into” projects, looking around, and making contributions. In addition, some of the documents created or collaborated on have become indexed by Google (<http://www.google.com>), allowing even greater access to Eduforge materials by people outside the community, and opening community discussions and artefacts to outside input.

## **Invite different levels of participation**

There is a comprehensive list of options for role allocation in Eduforge. Different roles have different levels of access. When members apply to join a particular project, they are encouraged to state which role they think applies to them. The project administrator then allocates official role status.

## **Develop both public and private community spaces**

Most communities on Eduforge are public. The community administrator has the option to make an entire project private, or to make certain portions within each project (for example, documents, forums or blogs) private.

## **Focus on value, combine familiarity and excitement, and create a rhythm for the community**

These are largely management principles and must be addressed by the leaders and/or participants of each individual community, rather than the space that they populate.

## **Which communities?**

The Eduforge community is in the process of establishing an open access support environment for innovation in education. Part of the vision is to create an environment that is robust enough to support large scale collaborative software development, but friendly enough to be used by non-programmers who want to collaborate on a range of projects.

Although Eduforge users were originally concentrated in the NZ tertiary sector, the collaborative, research, and development aspects of Eduforge has proven of equal value to international educators, primary and secondary schools and other types of educational organisations and groups. One of the most active communities, for example, has been developed to “(1) provide Helpdesk type support to FOSS [Free and Open Source Software] users who live and work in remote areas in developing nations and, (2) develop the technical and interpersonal skills of people who deliver the Helpdesk support.” Eduforge provides a platform for this group to communicate asynchronously, cross nationally, and utilising low bandwidth technology.

We are hopeful that the Eduforge platform will be seen as a high value infrastructure by international aid and development organisations running education projects. Given its focus on collaboration and low cost, Eduforge is particularly well suited to supporting educators interested in gaining value from open source software, open access learning materials, and other educationally focused projects. We also see opportunities for small and medium sized enterprises to leverage Eduforge to support industry based training and professional development activities.

Part of the Eduforge vision is tied into the belief that over time a community of creative and collaboratively oriented educational practitioners will help build a rich repository of resources, content, tools, and applications that can be easily accessed worldwide. We also see Eduforge as a link in a global network of virtual and physical education resources providing opportunities to a vast array of stakeholders in an increasingly integrated world.

Open access provides tremendous potential to have cross fertilisation of ideas when people with various expertises explore teaching and learning. Creative project teams may consist of educationalists, software developers, marketers, students, storytellers, scriptwriters etc. Our focus is to ensure that Eduforge achieves its low cost objectives while providing a robust and stable virtual environment for continuous use. Maintaining a low cost infrastructure will also help contribute to a long term sustainability plan ensuring that Eduforge can easily be self funded based on modest sponsorships from external funders and some appropriate project participants. A research plan is being developed to test usability, accessibility and effectiveness of the website and its tools.

## Conclusion

The success of Eduforge is very much dependent on the community of practice and knowledge network that it supports. We believe that by keeping the community “open”, we will be continuously surprised by the types of projects that take place on Eduforge. We are seeing exciting progress being made in projects ranging from XML editing and content management to a project about accessible electronic learning materials. As the communities in Eduforge have started to mature, we have witnessed a transition from users setting up discrete projects to users participating in a number of projects, sharing resources, exchanging ideas, and working together.

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