

Community Model Specification

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Author(s):	Carlos Vaz de Carvalho, Paula Escudeiro, Ivo Santos, Alexandra Baldaque
Partner(s) contributing :	ISEP, all the partners

Executive Summary

This report relates to work package 3 - specification, design and development of the Community of Practice (CoP). It addresses conceptual aspects (organization in special interests Groups, access policies, coordination, etc.) but also the technical aspects related with the underlying technical platform.

This is not a static report. On one side, it will be used as basis to write articles to disseminate ICTWays and through that process it is expected that the report itself will be improved. On the other side, it is also expected that during the execution of work package 4 – community of practice, several improvements are added to the platform and the report gets improved as well.

The design and specification were decided through collaborative work between all the partner and external experts, mainly during meetings and events.

These cover the main aspects of the field of the use of ICT to teach Sciences. On the other side, the question of language is an important one. At this stage it was decided to adopt a single language (English) but if there is an identified need for that, other languages will be supported.

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1. Collaboration model

A community of practice (CoP) is a “group of people who share a craft and/or a profession. The group can evolve naturally because of the members' common interest in a particular domain or area, or it can be created specifically with the goal of gaining knowledge related to their field” [1]. It is through the process of sharing information and experiences with the group that the members learn from each other, and have an opportunity to develop themselves personally and professionally. As such, a community of practice is often organically created, with as many objectives as members of that community. Typical activities engaged inside a community of practice relate to problem solving; information request; experience seeking; asset reuse; coordination and synergy; development discussion and knowledge mapping [2].

One of the most famous examples of such community happened within the Xerox company, where co-workers spontaneously organized a kind of internal support group and knowledge base, making common problem solving easier for other colleagues [3].

Wenger describes the evolution of a CoP as the result of the following factors [1]:

- Mutual Engagement: Firstly, through participation in the community, members establish norms and build collaborative relationships; this is termed mutual engagement. These relationships are the ties that bind the members of the community together as a social entity.
- Joint Enterprise: Secondly, through their interactions, they create a shared understanding of what binds them together; this is termed the joint enterprise. The joint enterprise is (re)negotiated by its members and is sometimes referred to as the 'domain' of the community.
- Shared Repertoire: Finally, as part of its practice, the community produces a set of communal resources, which is termed their shared repertoire; this is used in the pursuit of their joint enterprise and can include both literal and symbolic meanings.

This evolution, still according to Wenger, leads to the following structural characteristics:

- Domain: A domain of knowledge creates common ground, inspires members to participate, guides their learning and gives meaning to their actions.
- Community: The notion of a community creates the social fabric for that learning. A strong community fosters interactions and encourages the willingness to share ideas.
- Practice: While the domain provides the general area of interest for the community, the practice is the specific focus around which the community develops shares and maintains its core of knowledge.

Other authors also mention as fundamental factors:

- Social presence: the management of a community of practice often faces many barriers that inhibit individuals from engaging in knowledge exchange. Some of the reasons for these barriers are egos and personal attacks, large overwhelming CoP's, and time constraints [4]. Thus communicating with others within a community of practice involves creating social presence.
- Motivation: the will to share knowledge is critical to success in communities of practice. It is known that members are driven to become active participants in a CoP when they view knowledge as meant for the public good, a moral obligation and/or as a community interest [5]. Members of a community of practice can also be motivated to participate by using methods such as tangible returns (promotion, raises or bonuses), intangible returns (reputation, self-esteem) and community interest (exchange of practice related knowledge, interaction).
- Collaboration: collaboration is essential to ensure that communities of practice thrive. More seasoned colleagues and a higher educational level tend to foster a more collaborative culture [6].

Community membership is defined by the knowledge of the members. It is a social structure which widely promotes informal learning [8]. This term is an umbrella for all activities that somehow lead to the acquisition of knowledge and competences but happening outside schools or other training institutions (which are referred to as the formal system) [7]. The range of informal learning contexts is considerable and can be

broken into different levels of learner awareness. Learning by socialization, for instance, is obviously not as intentional and systematic as self-driven learning [8].

The widespread access to the internet popularized a new paradigm, often referred to as the web 2.0. Amongst other things the web 2.0 is characterized by giving more emphasis to the relationships established between users and focusing on the diversity of content generated by each user. To support this, there was also a technical shift in the background by creating new collaboration tools (such as wikis) [9]. This evolution in the information technology field made it very interesting for the creation of virtual communities of practice [10]. Members are no longer restricted to being in the same physical space or even time zone to engage in common activities. Furthermore, the new tools available to use through the internet allow for easier organization and consumption of the shared repository.

However, one of the main problems in communities of practice is also emphasized by their virtualization: according to a 2009 research, 43% of the European internet users were then considered as “non-participative” [11]. Regular participation throughout the community fabric is a common drawback of virtual communities of practice, especially on their early life. Therefore ways to promote the dynamics and the activity of the community are required to ensure it becomes alive and stays that way.

Common tools to support the Community of Practice:

- Blog
- Photos
- Photo Effects and Stickers
- Forum
- Chat
- Events
- Groups

- Custom 'Like' Buttons
- Video embeds
- Video uploads with branded player
- Music uploads with branded player
- Pages
- Add-ons
- Blog
- Photos
- Photo Effects and Stickers
- Forum
- Chat
- Events
- Groups
- Custom 'Like' Buttons
- Video embeds
- Video uploads with branded player
- Music uploads with branded player
- Pages
- Add-ons

References

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[7] European Union. (2013) European Commission, "Education and Learning". [Online]. http://ec.europa.eu/education/lifelong-learningpolicy/informal_en.htm

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2. Exemplary communities: TES Community

Main features

- Free Registration;
- Profile Page;
- Activity – List recent activities;
- Hotlist – Lists favorites
- Groups – Lists groups the user is in
- Friends – Other users with friendship status
- Resources – Resources shared by the community
- It is possible to enter an existing group;
- It is possible to create a new group:
- Groups must have a forum or a blog;
- A group could be set to Public, Open (any registered user) or Closed (requires group owners approval), or Private (owner's invite);
- Must belong to a subcategory, can have associated keywords;
- It is possible to search inside the community website, using filter(groups, blogs or forums);
- It is possible to add users as friends or follow them inside the community, and receiving notifications from their activities;
- It is possible to upload and share resources with other users - there is a specific upload page.

Main groups

- Career
 - Jobseekers
 - Pay and Conditions
 - Professional Development
 - Retired Teachers
 - Thinking about Teaching

- Location
 - England
 - International
 - Northern Ireland
 - Scotland
 - Wales
- Outside School
 - Accommodation
 - Baby and Toddler
 - Book Club
 - Cookery
 - Entertainment
 - Finances
 - Health and Wellbeing
 - Marketplace
 - Personal
 - Pregnancy
 - Sport
- Role
 - Facilities
 - Leadership
 - New\Trainee Teacher
 - Office and Administrative
 - Pastoral and Welfare
 - Support
 - Teaching and Lecturing
 - Unemployed
- Subject
 - Art and Design
 - Biology
 - Business Studies







- Careers
- Chemistry
- Citizenship
- Classics
- Community Languages
- Design and Technology
- Drama
- EAL/English as an additional language
- Early Years subjects
- Economics
- English
- Further Education Subjects
- General Studies
- Geography
- History
- ICT/Information Tecnology
- Internacional Bacculaureate
- International Primary Curriculum
- Mathematics
- Media Studies
- Modern Foreign Language
- Music
- Other Subjects
- Personal,Social and Health Education
- Philosophy
- Physical Education
- Physics
- Politics
- Psychology
- Religious Education
- Science

- ii. Sociology
 - Special Needs
- Topical
 - Events
 - News
 - Opinions
- Whole School
 - Assemblies
 - Assessment
 - Behaviour
 - Creative Curriculum
 - Ethnic Minority Achievement
 - Gifted and Talented
 - Health and Welfare
 - ICT Learning
 - Inclusion
 - Inspection
 - Outdoor Learning
 - Parents and Community
 - Personalized Learning
 - Pupil Voice
 - Rarely Cover
 - School Trips
 - Sustainability
 - Thinking Skills
- Workplace
 - Academies
 - Free Schools
 - Further Education
 - Higher Education
 - Independent

- International School
- Middle
- Nursery
- Primary
- Secondary
- Special Education
- Year Group

3. Requirements for the technological platform support

Currently, there are several tools available to support a social network. The main distinction is between commercial and open source solutions. The last option was selected because Virtual Campus has development experts that can configure an open source solution and develop a product that is close to a commercial one (which tend to have more functionalities). The following table, adapted from the original at the Blog FindBestWebHosting¹, shows the main characteristics of the prevalent social network support platforms.

Category	BoonEx Dolphin 	ELGG 	Drupal 	Joomla 	Jcow 	phpFox 
License	CC-BY	Open source under the GPL 2.0	GPL 2.0	GPL 2.0	Creative Commons	Custom
Cost	Free, \$39, \$99, \$299	Free	Free	Free	Free, \$299	\$99, \$199, \$299
Source Code	✓	Freely available via stable releases and development SVN	✓	✓	✓	✓
Installation	Out of the box	Out of the box	Out of the box	Out of the box	-	Out of the box
Codebase	PHP, MySQL	PHP, MySQL/ PostgreSQL	PHP, MySQL	PHP, MySQL	PHP, MySQL	PHP, MySQL

¹ <http://www.findbestwebhosting.com/web-hosting-blog/index.php/6-top-social-networking-software-comparison>

RSS	✓	Blog/Files/Groups/users/tags	✓	✓	✓	✓
Forum	✓	✓ (via plugin)	✓	✓ (via component)	✓	✓
Blog	✓	✓	✓	✓	✓	✓
Media sharing (Image, Video, Audio)	✓	✓ (via Plugin)	Via Video Module	✓	✓	✓
Messaging	✓ (Text, Video)	✓	Module	✓	✓	✓
Event Calendar	✓	✓ (via plugin)	Module	✓ (via plugin)	Application	✓
Social Grouping	✓	✓	Module	✓ (via plugin)	✓	✓
Tagging	✓	✓	Module		✓	✓
Poll Generation/Tally	✓ (with sharing)	✓ (via plugin)	✓	✓		✓
Contact Management	✓	✓			✓	✓
Customizable	✓ (templates, page builders, database builders, open-source,	Extensible via plugins with a flexible API; skinnable; available in many languages	Module		✓	✓

	extensions, plugins)					
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This table and equivalent comparisons was used to select Elgg as the supporting tool. Elgg is more flexible and programmable than the other available platforms. Is has a drawback which is its susceptibility to spam messages.

Annex 1: Template for resource collection

Collection of Resources

Software applications to support the teaching of Science

Partner	Date
<i>Name of the partner</i>	

Title
<i>Title of the resource</i>
Summary (15 lines)
<i>Give a brief description of the objectives and functionalities of the resource</i>
Age / School Year / Area
<i>Is there a specific age target? Or education level? Or discipline?</i>

Entity
<i>Who created the resource?</i>
Link / Contact
<i>Where can one find the resource</i>
Characteristics
<i>Type of the resource: standalone application, web application, mobile application, etc...</i> <i>Technical requirements: O.S., specific devices, etc.</i> <i>Commercial or free?</i> <i>Is it to be used in the classroom (teacher tool) or autonomously by the student</i>
Language
<i>In which languages is the resource available</i>
Assessment
<i>Your own qualitative comments on the quality of the resource</i>

Annex 2: Template for report collection

Collection of Reports

on the use of ICT for teaching/learning Sciences in Basic, Secondary and Vocational Schools

Title
<i>Title of the report</i>
Summary (15 lines)
<i>Give a brief description of the report objectives and conclusions</i>
Entity
<i>Who produced/ordered the report?</i>
Age / School Year / Area /Technology
<i>Is there a specific age target? Or education level? Or discipline? Or technology</i>

Link / Contact
<i>Where can one find the report and/or a contact to the responsible person/entity for the report</i>
Year
<i>Which year was the report produced</i>
Language
<i>In which languages is the report available</i>
Comments
<i>Your own comments on the report (optional)</i>

Partner	Date
<i>Name of the partner</i>	

Annex 3: Template for best practice reporting

Best Practice

on the use of ICT for teaching/learning Sciences in basic, Secondary and Vocational Schools

Title
<i>Title of the best practice. If there isn't one, name it yourself</i>
Summary (10 lines)
<i>Give a brief description of the objectives, process and results of the best practice</i>
Discipline
<i>Which science field (be as specific as possible) was addressed?</i>
Age / School Year
<i>With which learners? How many?</i>
Teacher and school
<i>Who did it (teacher or group of teachers and where)</i>
Location (city, country)
<i>Which city and country.</i>
What makes this a best practice?
<i>What was the situation before?</i>

What technology was used? How was it used (pedagogical methodology)?

When did it happen? How was it evaluated and assessed? What are the quantifiable benefits?

What are the key lessons learned?

Has it been replicated by other teachers? To other disciplines? Is there information on how to replicate it?

Is there documentation? In which languages?

More information (link, web address, contacts, etc.)

Where can we find more information?

Photos

Are there photos available? Choose two or three more