

User Group: Kaleidoscope
Case Study: Metacampus, users as validators

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1. Introduction and relevance of case study: user as validators

This report aims to present a case study which reflects the point of view of users as validators. This point of view provides the analytical basis for the elaboration of recommendations useful for the Kaleidoscope community and researchers.

According to the Users' Group, this approach has two main advantages:

- 1) it presents a gradual involvement of users, and it is therefore easier to be understood. Presenting case studies with different possibilities of users' involvement will show to KAL researchers what the different implications are, whereas going directly to the exemplification of users as stakeholders might not be so close to the researchers' perspective;
- 2) the 3 steps go also along with the plan of the UG going from users and researchers' workshop to dialogue in the users' conference to inputs to the research agenda.

The outcomes of the case studies will contribute to the elaboration of a set of tools which will be made available to KALEIDOSCOPE researchers (experts in Technology Enhanced Learning, TEL) to help them structuring their dialogue and negotiation with Users.

The case study chosen refers to the **Metacampus platform**¹, which is the result of an IST project (IST-2000-26314) that provided a user-friendly life-long learning portal assisting citizens select and purchase the learning resources that best fit their needs, preferences and profile.

Using its online portal, users are able to select, purchase and access resources best fitting their individual learning needs and career goals. Incorporating state-of-the-art features and services, METACAMPUS also presents educational content providers with a secure, standardised online marketplace in which to distribute services and products.

The result is a software platform for managing eLearning marketplaces and made up of various modules. The User Catalogue tracks personal interests, history and profile, while a second Learning Resources Catalogue stores learning resources. A "virtual tutor" – based on intelligent agent technology - makes a match between the two. It detects gaps in users' existing competencies versus their career targets and is able to recommend resources and training ranging from short training schemes in specific fields to courses that provide a final qualification.

With employment, and society as a whole, constantly changing, METACAMPUS provides a much-needed learning arena, meeting the needs of both lifelong learners and educational suppliers.

Now funded by the eTEN programme, the project Metacampus REAL² (eTEN 2003/1 510834) is continuing Metacampus activities.

¹ <http://www.metacampus-project.com/>

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2. Description of case study

In order to better appreciate the role played by the users as validators of Metacampus, it is important first of all to describe the Metacampus approach to validation. The Metacampus project conceived the **validation** as a part of the larger evaluation framework in which the evaluation of the prototype is the basis for improving the overall process of global project design and development. In this context the validation approach was based on a Formative and Summative approach supported by a multi-dimensional analysis. The 5 inter-related dimensions in the analysis are Pedagogy; Technological; Organisational/institutional; Economic; Cultural/linguistic.

2.1 Objects of validation

The objects of validation within Metacampus are listed below:

- *Marketplace*, i.e. the platform where the transactions between customers and sellers take place, and where the design is shown for the default user interface. The validation focused on functions related to Marketplace Information; Basket and Folder and E-Payment; Categories Management; Back-Office; and Questions and Suggestions.
- The *Training Consultant (TC)* which is created for selecting the learning resources from the Learning Resource Catalogue that best fits the user's needs, profile and requirements. Key here is the way the Training Consultant related the courses and the user's needs and preferences based on identifying knowledge gaps in the user's Competencies, distinguishing the user's initial competencies and those that the user wants to acquire.
- The *Learning Content Assembler (LCA)*, created for searching/complementing/helping to build learning resources and interoperations. Key elements of validation include: Searchability, Relevancy, Usability, Security, Cycle Time.
- The *Learning Resources Catalogue (LRC)* allows the specific search and retrieval of learning resources available in METACAMPUS. Three primary functions are to be validated: Free Browsing and Multicriteria Search and the Assisted Search.
- The *Authentication Broker* is the module in charge of granting security for the whole system. It focuses on certification and registration processes and on providing a single sign-on authentication platform for the Metacampus e-learning community. Key elements for validation include: Security, Reliability, Usability, Portability, Cycle Time, Capacity
- The *User Database (UDB)* which is created for storing and processing all the data on the users. It knows and manages, with interaction via the Training Consultant, the complete set of information on the user (such as personal history, characteristics, needs, language, etc..). Key elements for validation include: Usability, Searchability, Security, Capacity, Cycle Time
- The *E-payment system*, with regards to payments solutions and infos availability
- The *Learning Resources*, on the basis of specific principles set out in the framework of the CERFAD commission³

³ <http://www.regione.emilia-romagna.it/cerfad>

2.2 Key Variables

Key variables for validation have been identified at the external level, which relate to both buyers and sellers (the users of METACAMPUS) as well as at the internal level, where the internal performance of the system itself is validated. The following table summarises external and internal variables.

External What the buyer perceives	External What the seller perceives	Internal
Searchability	Quality	Capacity
Relevancy	Usability	Productivity
Usability	Reliability	Cycle time
Reliability	Portability	Conformance
Portability	Conformance to standards	Security
Conformance to standards	Security	Cost
Security	Cost	
Cost	Added value	
Quality		
Added value		

2.3 Involvement of users

The validation phase started in December 2002 and was concluded in July 2003. Three trials have been conducted following the development phases of the project: the first round trial was formulated as an internal exercise within the Metacampus partnership, the second round trial was organised by involving European experts and the third round trial was organised in four pilot sites (In Germany, Greece, Italy and Spain) with representatives of Learning Resources Providers (LRPs), intermediaries and Learning Citizens (LCs) as final users. The total number of validators was 93 (first round trial: n. 23; second round trials: n.6; third round trial n.64).

The **third trial** is the most relevant for Kaleidoscope. The third round trial was aimed at to validate the overall coherence and working of the system, from the real Learning Citizen and Learning Resource Providers' point of view. A group of approximately 20 end users, coming from different countries in Europe, Italy, Germany, Spain, Greece, France has been involved.

This phase has been organised and planned with great attention and accuracy, in particular, using well-defined criteria and by using specific ad-hoc tools. For the third round trial a semi-structured questionnaire and a focus group agenda were designed and administered. In the semi-structured questionnaires, the focus on *Test Case Scenarios* has helped the different validators to better understand how the system works in concrete and how the different functionalities are related in order to create a unique and coherent process which goes from entering the e-MarketPlace as anonymous to the process of buying resources; as well as to insert resources in the system by acting as learners resources provider.

Each pilot site partner/coordinator had the freedom to choose to conduct the testing at the distance or at the presence. During this phase the technical partners were at the disposal of the pilot site coordinators in order to solve specific technical problems.

3. Interesting elements, highlights and conclusions

The validation process undertaken by Metacampus, and in particular the third round trial, contributed to linking Metacampus's business idea, its Regional Approach, with the actual testing of the prototype and its services before real potential final users. The focus of the trials moved progressively from technical to more commercial, usability and pedagogical validations.

Some of the key lessons of the Metacampus validation experience are presented below:

- Foster the dialogue and support mechanisms so as to be sure that any citizens, despite their familiarity with new technologies, their background and educational levels and their personal characteristics can be fully accompanied by the system during the process.
- Ensure also that the theoretical framework and the rationale behind the dialogue (the relationship between resources, users and competencies) is sound and relevant
- Establish strong links with other recognised educational and training institutions
- Do not conceive just a system where learning resources are labelled and stored and can be easily retrieved by inserting keywords or by looking in an index, but provide personalized learning paths and helping the user to define the competence gaps and find out which competences can be useful for improving his/her personal profile. The personalized learning paths can be offered to the user by a Training Consultant that keep with the demands by real "learning citizens" who want, desire and need to continuously upgrade his/her competencies".
- Be aware of the current technological standards which allow the interoperability and compatibility and the possibility to import and export of learning resources. Despite the current procedures that many learning resources providers are still adopting, it will be necessary for them, if they want to enter and be successful in the virtual world, to address the issue of technical standard and metadata. Metacampus goes in the direction of supporting learning resources providers to get acquainted with new global way to describe learning resources, including their use in an e-learning environment.
- Focus on learners having different background, knowledge, experiences, learning styles and interests so to create a personal dialogue with the user and in helping the system to build meaningful learning opportunities.
- Address different issues such as: the usability of resources of different types (e.g. video, pictures, exercises) and the creation of truly tailor-made path for users by proposing complementary resources during the learning process.
- Define criteria which can be used not simply to assemble resources (due to the technical standard the problem is almost solved) but to create new learning resources which have an explicit didactic purpose (from a methodological point of view).

ANNEX: Metacampus Glossary

- **Authentication Broker:** Metacampus module that is in charge of granting security for the whole system, and is focused on certification and registration processes, providing the single sign-on authentication platform for system.
- **Basket:** virtual place where an end user puts the Learning Resources he has chosen but not yet bought. At the moment he buys, they are transferred to the Learning Resources Folder.
- **Content Provider:** institution that has resources without educational value itself, but that can offer these resources to Learning Resource Providers in order to create new Learning Resources.
- **End user:** people using Metacampus as a customer (See Prescripitor below).
- **E-Payment:** the system that allows the purchase of resources in Metacampus.
- **Learning Citizen:** people with a need to acquire or complement their knowledge and skills in a given domain. Examples of Learning Citizens could be individuals, employees, etc.
- **Learning Content Assembler** (formerly the Interoperation and Delivery Framework of Learning Resources). The module contains applications for building and complementing resources for use by SCORM-conformant Learning Management Systems.
- **Learning Resource:** a digital object with educational value. A file, a URL location or a LMS course can be Learning Resources. A book or a CD is not a LR (they are not handled by Metacampus).
- **Learning Resource Catalogue:** Metacampus module that consists of a data base that defines all the learning resources for the needs of the Training Consultant, the Learning Content Assembler, the Authentication Broker and Back Office.
- **Learning Resource Folder:** virtual place where Metacampus keeps the Learning Resources bought by an end user.
- **Learning Resource Provider:** organisation that grants permission to use their resources in exchange of a predefined fee or otherwise condition. For example publishers, editors, educational institutions, museums, cultural foundations, local administrations etc. They can be both Training Providers and Content Providers.
- **Metacampus:** Internet marketplace for the selection, purchase and delivery of those resources best fitting the customer's life-long learning needs (including competencies), preferences and profile.
- **Metacampus Operator:** people in charge of the function of Metacampus on a daily basis. There are several profiles: catalogue operator, customer operator, user database operator, data mining operator and provider operator.
- **Prescripitor:** a person or institution that pre-selects Learning Resources to some Learning Citizens and/or grants an amount of money to them, for example employment institutions or managers of human resources departments. (Not to be implemented in Prototype.)
- **Services Provider:** organisation that will offer non-material resources (i.e. technology, financing...) to Metacampus.

- **Stakeholder:** broadly defined as any actor with an interest in the outcomes, products and services developed by Metacampus.
- **Training Consultant:** Metacampus module that is charged with providing best-fitting resources to a given user. Its work is based on knowledge of the user (declared and inferred) and knowledge of the other modules in the system (LCA, LRC, AB) as well as on a solution searching strategy (embedded inference engine).
- **Training Consultant Expertise Data Base:** the static expertise in the Training Consultant database
- **Training Provider:** institution that has its resources specifically oriented to be used in an educational way, so their materials are already structurally ready for presentation.
- **User Data Base:** Metacampus module that deals with all information or operations related to End Users, such as one's preferences, needs, goals, competencies, and also stores these characteristics for data mining and clustering