

THE APPROACH OF EDUCATION IN THE VIRTUAL SPACE

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Abstract

The main objective of this paper is to analyse some particular aspects on collaborative environment focusing on educational applications. Stating collaborative space, defining its own workspaces and sharing mechanisms become the most important tool in order to perform actors' actions and interactions. Consequently, the mutation produced in educational area is also drawn, concerning: learning procedures flexibility, learning objectives dynamic covering, evolving sensitive curriculars as feed-back Portfolio Method is used to customize the different states of evaluation in learning collaborative environment.

Key-words: *Lifelong Learning, Portfolio Method, collaborative space, education*

JEL Classification: I21

1. Collaborative environment

Combining computer networks and telecommunication had inspired a new application class focused on group activities support. Such an application may be used by individuals in order to mediate their interactions in performing collaborative actions. Designers are faced with new challenges: no space borders, teams' activities coordination, provide common view of shared sensitive information for entire team. Because a lot of this requirements are generic to any collaborative activity it's naturally to define basic generic services and building blocks in order to quickly develop specific solution covering a given area.

The main feature of a collaborative aspiration consist in: many players commit a suit of transactions in order to perform some common objectives. In a such approach, each player shares its own experience or information (part of), documents, databases, different computer application and so on. Such partners will exchange data entities and knowledge reaching common and individual objectives. Deploying this approach the implementation of new learning methods are needed. A new dimension – collaborative environment specific – has a large impact on the learning process (methods and methodologies) because of the essential collaborative nature of learning. An entire age face to face meeting was the appropriate way in communication. But sometime this become a strange barrier for acquirements. Technical statement of collaborative environment allows come back to the former definition of communication: not one

way information transfer, but peer to peer knowledge connections, giving up relevant tools for learning, in a dipper fashion.

Reusable service library

One of the most important challenge refers to re-building information systems and integrating them in collaborative environment keeping in use legacy applications. The usual approach is to expose specific aspects as services hosted in a library. Designing this services in a appropriate level of abstraction, OSI architecture low levels compliant it become possible to have different instance for different area, for heterogeneous software platforms, for different type of computers. Because of high level of costs reuse each slight of information, application, structure or hardware/software architecture became essential. Stating, designing and deploying collaborative services in educational area became effusive.

Information management: a service which enable actions on date for decision making, in any field, to be modelled and instantiated in order to process and record collaborative transaction.

Group communication: this service is used for synchronizing distributed member's interactions.

Team Management: service which enables team building, both for structured groups and ad-hoc groups. The main task should be: team structure's statement, the identity and roles for each partner, and actions allow for them to operate, to build the team and team decommissioning.

Process Management: this services operate over enterprise formalized (coded) rules, coming from different departments, being accomplished through repetitive usage and storage. This services provide support for ad-hoc process usage (using informal relationship and connections for usual task performance).

Infrastructure support: this sort of services states a basic level for connectivity and data transport protocols between computers (ensuring the efficiency, interoperability and location transparency in order to control access to critical resources). These are needed in order to have a real access control to the restricted resources, as well as to have an appropriate security level for data exchange.

Sharing information became an essential feature of collaboration. Information is transformed in an explicit knowledge, which allows making decision for team members, having a collaborative objective. This sort of information may be private (owned by an individual) or may be shared. In this way we state the concept of Information Space, which concern stored data containing information. The sort of information contained may be any type, meaning any storage facility for managed data: file names, databases and so on. People work usually with that public data in a private way. Working Information Spaces identification is needed to support group collaborative activity:

- personal Space – the information is owned by a group member, usual solely;
- group Space – the information is owned by the group, all group members share it; the information is available to each of them;

- organization Space – the information is owned by the organization (the reunion of different teams), being available to different groups belonging to the organization;

- project Space – the information is available to each organization involved in that project.

The applications working on data belonging to such spaces allow team members working in a collaborative way. The information used by application (and the resulting information) will be a data combination from different relevant Information Space. This is shown in figure below.

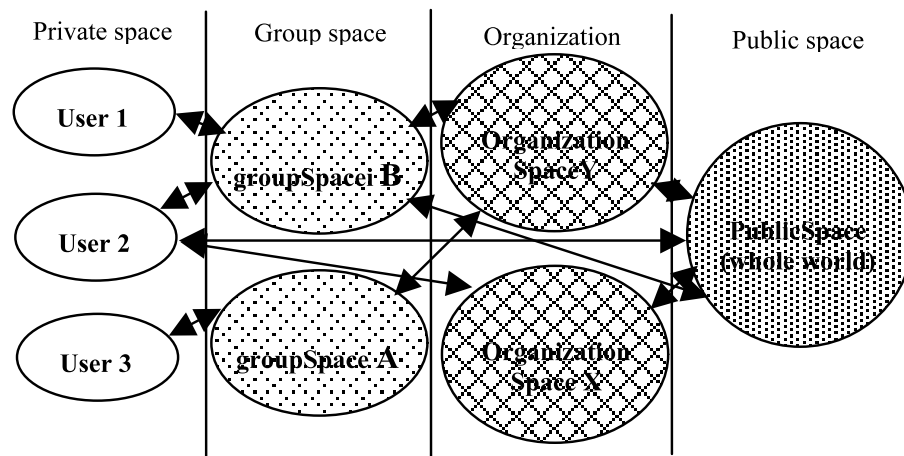


Fig. 1. *Information scope and communication template*

Information management services enable: members’ access to such spaces and information identification conflicts. Typically, this services must be able to: create, delete, modify, search, update, transfer and authenticate. In behalf of these, some validation service for information management should work: information modelling and information mapping.

Sating collaborative space and its referred services open a new way to think educational process. A new environment is born defining working space for each player involved:

The student will have:

- his or her own working private space;
- a shared space – fellows and teacher (optional);
- a shared space – stating only teacher-student relationship;
- a public space – the student publish the activities results here.

The teacher will manage:

- his or her own working private space;
- student shared spaces, defining access rights for each student;
- a shared space – collaboration with other teachers;
- a public space – containing activities result published.

Teachers’ community:

- a shared space – with the participation of each member of teachers’ group;

- a shared space – between different teachers’ groups;
- a public space – containing activities result published.

In the same way, it will be structured shared spaces, common and collaborative, for faculty, university, social community (town, county, etc.) level, having a specific granularity of views.

These spaces allow interaction on all the levels and granularities in order to accomplish the objectives of social community, university, faculty, individual, etc.

Such a structure allows in an operational way defining and redefining politics, strategies and immediate actions having a strong and effective feed-back, assessable, automatically conveyed to each cell of the system.

It’s important to define all services, at each granularity level, publishing measured results and pointing out non-standards compliance behaviour, in order to accomplish such a functionality. More, the portability of appraisable results and activities on heterogeneous hardware and software platforms and business environment become really a necessity.

Of course, the heterogeneous environments, the different approach and authentication methods become a challenge for evaluation. Obviously, there are more approaches in evaluation methods. We focus our research on Portfolio Method because of a high level of portability assured.

e-portfolio

A e-portfolio is a container, heterogeneous as format, and containing different types of information concerning subject’s activities:

- about digital and non-digital work papers created by subject (or with subject’s participation);
- about other activities where the subject was involved;
- the competencies accomplished by subject;
- about subject’s bias;
- assessment notes issued by any actor involved, reflections or simply evaluations;
- about the results on all tests’ performance;
- contextual information supporting results’ interpretation;
- integration in informational context;
- about e-portfolio authoring and intellectual property.

Generally speaking, e-portfolio service and, especially, the needed storage are not the e-portfolio subject.

Based on objectives of use, there are stated different sort of e-Portfolios:

- **Assessment e-Portfolio** – are used to demonstrate achievement to some authority by relating evidences within the e-Portfolio to performance standard defined by the authority. Rubrics are commonly used to score assessment portfolios.

- **Presentation e-Portfolio** – are used to evidence learning or achievement to an audience in a persuasive way. Presentation e-Portfolios often contain instructions about how their contents should be depicted. This type is frequently used to demonstrate professional qualifications.

– **Learning e-Portfolios** – are used to document, guide, and advance learning over time. They often have a prominent reflective component and may be used to promote meta-cognition, to plan learning, or for the integration of diverse learning experiences. Learning e-Portfolio most often is developed in formal curricular context.

– **Personal Development e-Portfolio** – is defined as “a structured and supported process undertaken by an individual to reflect upon their own learning, performances and/or achievement and to plan their personal, educational and career development. This could include a learning e-Portfolio, but goes beyond that.

– **Multiple owners’ e-Portfolios** – are used to allow more than one individual to participate in the development of content and presentation.

– **Working e-Portfolio** – combine elements of all the proceeding types. They often include multiple views, each of which may be analogous to an assessment, presentation, learning, or development e-Portfolio.

In an historical view the five degrees of e-Portfolio maturation are defined mainly based on portability degree and the interaction between the main factors involved in creation, certification and simply use of e-Portfolio.

Level 1 – Scrapbook – These portfolios are simply collections of selected assignments completed in a course or awards they received along the way, having different presentation forms, unstructured. These portfolios are not a usual tool and is difficult to assess the real student performances evolution (even for a specific assessor).

Level 2 – Curriculum Vitae – These sort of portfolios are traditional too, containing both student’s personal data and the performances connected to a given curricular area. Curricula are in this case a natural and formal framework which allow performance criteria to be defined and, therefore, a formal and procedural assessment of accomplished tasks. Many concerned parts are manual edited, having a low degree of portability.

Level 3 – The organization able to support such a portfolio needs to have very clear defined curricula requirements or to be compliant with standards defined by an formal authority against which the evaluation should be done. Such a portfolio is build from examples stored in a database. The database access is controlled by creator (student) and refers individuals whose feed-back are summative or formative for published documents, influencing student’s evolution. The portability depends a little bit on platform, but is limited to technical aspects.

Level 4 – This sort of portfolio is similarly with the previous one, inside adding some important features for infrastructure needed: including portals referring performed activities, some tools for mentor (coach, teacher) – student connection, feedback from mentor (coach, teacher) processing, making possible to assign and reassign tasks, re-formulate at all or partial a previous approach. The added value due to the organization is relevant and consists in a strong functional infrastructure (technical, educational, informational, available analysis, access control, networking etc.). The portability is platform independent including some criteria accepted by both organization and social environment.

Level 5 – This type of portfolio adds features in order to authenticate activities and certificate competencies and ability. The organization proofs by itself or by a recognized body the evaluations and reports concerning authenticated activities,

objectives accomplished. These proof a inserted in a way (directly, by a portal, by a database of organization, by references, etc.) into portfolio content. To be effective, the credibility of organization is significant. Here are involved the executed policies of organization, the accurate evaluation of results and the impact due to the organization in social environment. The portability is at the highest level.

Starting with the Level 3 it is possible to reuse information contained in portfolio. At Level 3 the certification authority is limited to the Faculty level where results on courses and practice are accepted and recognized, covering a curricular area. At Level 4 the information is available at University level ensuring the portability over University's space. At Level 5 the portfolio aims to be an integration tool between student, organization and society. Of course, the organization itself needs to have such a portfolio, needs to positively respond to relevant requirements as: a strong infrastructure in order to ensure the informational portability, at faculty, university and society level, to be able to certificate performances against relevant accepted standards (ensuring professional portability) etc.

As example we will use the results developed in Grundtvig PELLEA project, no. 110510-CP-1-2003-1 DK-Grundtvig – G1: Portfolio Evaluation in Lifelong Learning improving Employability for Adult Learner.

Learning process

Portfolio based evaluation method involve two main actors: student in one side and in another teacher (coach, mentor, tutor). The relation between the both sides is based on collaboration and it become obvious that student is guided and assisted by teacher in order to develop competencies.

Portfolio based evaluation methodology means a suite of documents published by student being commented by fellows and teacher in order to assess the progress performed by student in a new competence development.

The development competences process is an interactive complex one. The teacher's role refers: monitoring, guiding and assessing not only the student's activity but the whole learning process. The role of the student essentially consists in reflection and progress.

We refer a model for learning process having five stages:

- 1) enrolment;
- 2) initial Assessment;
- 3) assignment;
- 4) final Assessment;
- 5) presentation.

During learning process arise both legacy educational feature and new features virtual space specific.

Virtual space work as a specific toolkit available to all the actors involved. The semantic side of educational process is human specific. It is a measure of acceptance of educational needs in knowledge based society. The learning process need to fill, the gap between professional requirements and personal competencies and abilities covering a main need both for potential learners and society. We try to define the new

image of teacher based on legacy experience and having a new view about the new context, focused on quick changing needs.

Essay on mentor definition

We remember that the mentor is a rudder, managing learning process. The mentor assess the actual competences, make the assignments in a dynamic way for learner, evaluate in each stage the performances and continues this iterative process until the new required competence is reached. Is someone alike a teacher but more and more. The new image of a teacher as a mentor is stated by European Commission mentioning that e-learning need new models for teacher and formatters highlight the role of mentor to support learners in the age of new technologies. European Commission state: “Traditional academic mission consisting in knowledge transfer from an undoubted expert point of view is inadequate in an open, flexible learning space supported by IT&C. Teachers and tutors need to be focused on cooperative building of knowledge in order to perform eLearning“ (Attwell 2003). The learner is collaborative involved in this role conferring the initial semantics of concept (for instance: Academos)

Services type

As mentor, the teacher plays this role on several distinct directions. The cardinality of role is due to many factors as: personality of learner, previous competencies, organization resources, infrastructure ensured etc. Its mentor’s ability to be addressed as model by learner, as a personal reference model able to offer that that learner attempt (knowledge, behavior, social position, dialog, collaboration). The learner perceives the teacher as a coach, guide, or somebody able to manage portfolio area. More specifically, a mentor need to support the learner to focus on his/her personal aspiration and to well define the objectives by sharing knowledge, competencies, attitudes, abilities needed to reach the final educational target.

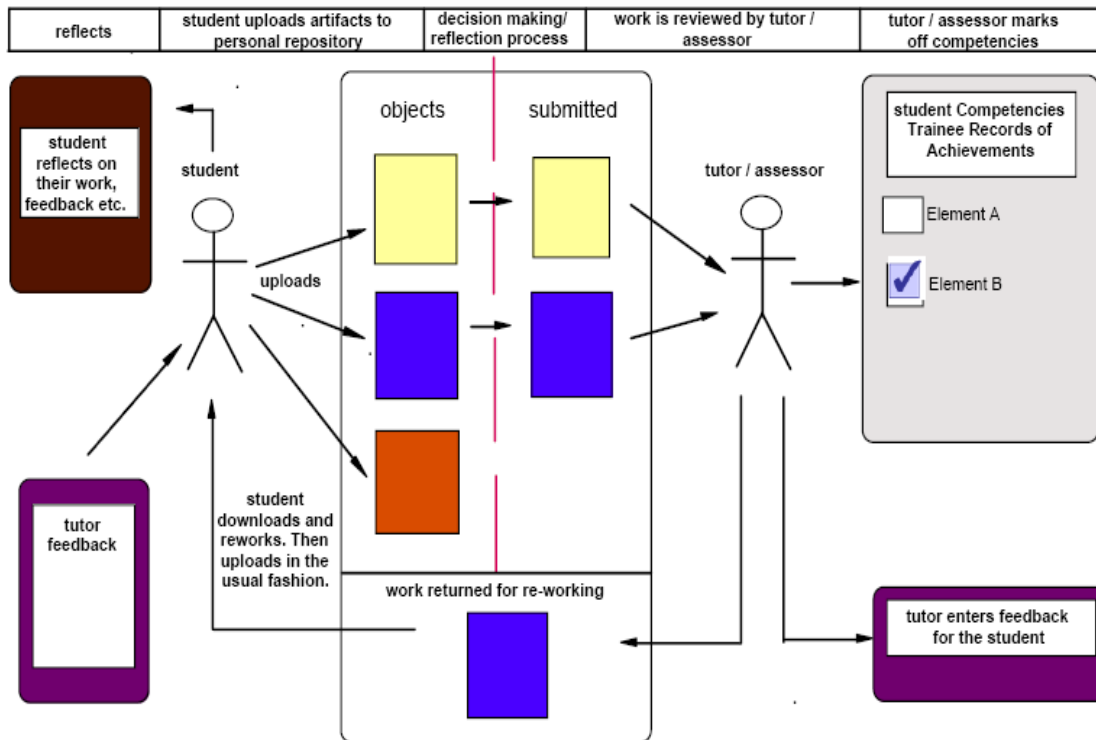
The mentor will support the learners to: define their weakness and strength, stating competencies needed, making a good action plan, a good schedule in order to manage organizational aspect. Over formal and professional communication the emotional support is important.

In order to define the collaboration mechanism it’s important to share the common space in three slices:

- learner area – is owned by learners who have the entire access control. This area is used by learner to do homework, to reflect about, to store the information, to try anything about the subject, being both formal and informal;

- teacher&learner area – owned both by learner and teacher, the learner having a limited access rights. It’s the most important area. Here the communication and collaboration will take place. It’s a formal area; any essay will be assessed and the learner receive a feedback from teacher;

- teacher area – owned by the teacher. This is s the evaluation, monitoring and feedback trace area. It may be used for teacher evaluation and educational process performance assessment too.



Source: David Tosh, University of Edinburgh, “EUCEBS and the e-portfolio”, presentation made at the Seminar on e-portfolio, Regina, Canada, June 2004

Fig. 2. Overview of the learning process

Collaborative approach empower semantics of contextual communication between community’s actors, event the community is a small one, a state or an union. The entities conveyed are not information or knowledge but competencies and abilities. Each actors need to learn from each other. Ensuring a good functionality is not enough. It’s needed to have a flexible and efficient behavior and to perform this requirement it is necessary to learn.

Creating and maintaining a portfolio, especially on higher levels of maturation, allow to evaluate author’s (authors) activity following a many sort of criteria from the educational criteria to employer specific, from quantitative to qualitative, from individual instances to whole activity, functional and behavioral

It’s obvious that the organization’s role grows significant. Learning in virtual environment is enabled if and only if the organization is able to comply with defined, accepted and implemented standards. Standard poverty should lead to a poor social efficiency. The organization’s role concerns flexibility, that means that the student’s objectives math environment objectives, defined occupation fit market requirements, applied curricula meet the demand of occupation. A lot of opportunity arises due to this new approach both in educational field and business environment. The educational role becomes more and more important. Nobody have time enough to have an effective educational choice. Information amount is huge and personal and social needs refer competencies and abilities not separate information or knowledge. Learning is not enough. Efficient learning is a necessity.

Learning process integration

We drew some features for the two main actors: learner and mentor. We drew an evaluation model resulted from contextual dialog between learner and mentor. It is important to understand that this type of dialog is not insulated. Is not insulated because mentor him/herself may be a learner having his/her dialog with another mentor, faculty become a learner for university, university is a learner for environment and so on.

Such an approach takes advantage even if unforeseen regarding learning process integration. Learning about environment needs means understand them and translate these needs in educational process means integration.

A good evaluation process is essentially, because the complexity of student-mentor roles grows exponentially at each level in hierarchical tree. It is more and more difficult to manage functionality but is better to assess the results. Speeding evaluation process on different views about subject's activity and aggregate results may be efficient. Even if is a large amount of data processed is better to shift toward competencies and abilities evaluation rather than information and knowledge. This provide a great flexibility in learning process management being able to states finest granularity for learner's objectives, course's learning objectives, faculty strategies or university politics. It was already stated that the learning basic process running at low level (learner-mentor communication) can't be insulated but it is a part of real environment's life.

In this approach mentor's evaluation is focused on defining a learning strategy for student. In order to certificate the learner's performance it is necessary to have a defined authority doing that. In this way the learning process become more efficient, more objective embedding all levels performances (university, faculty, course, mentor, student). Measuring educational result by amount of resources deployed is not enough. Measuring effects due to education in real life is in turn o valuable reason. That is why contemporary Return of Education (ROE) is a frequently used criteria. ROE allows modelling, deploying and implementing educational policy architecture. We can define levels of such architecture:

- European;
- zonal;
- national;
- local;
- organizational;
- curricula;
- course;
- actors directly involved: learners and mentors.

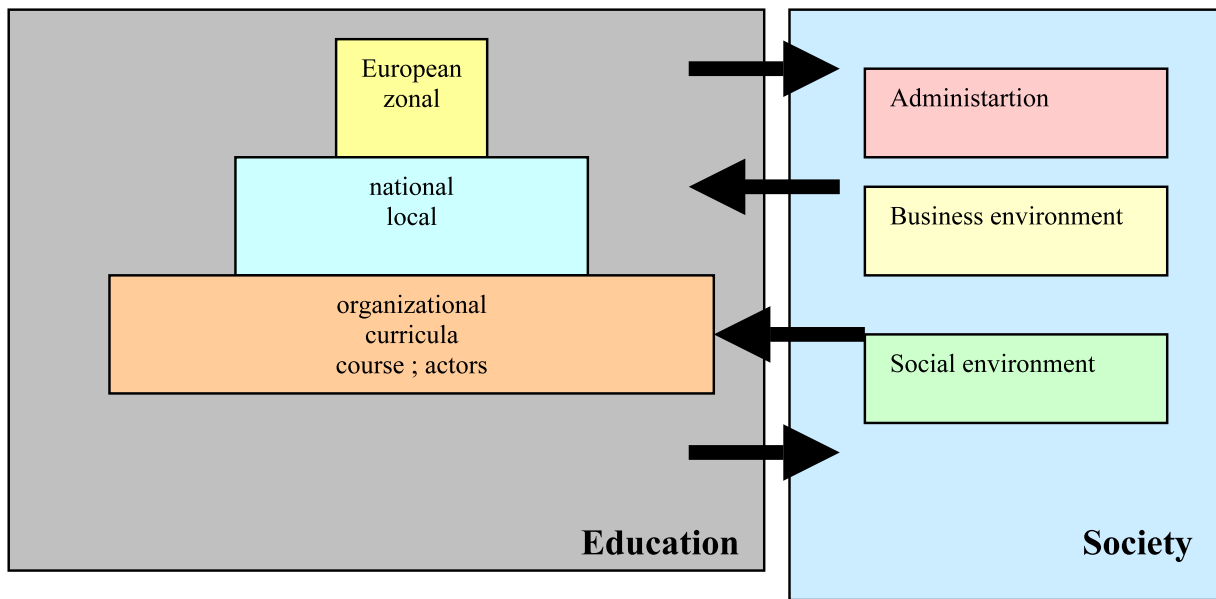


Fig. 3. *Learning process integration*

Now, we have a balance between the two approaches: society to education (top-down approach) and education to society (bottom-up approach). There is a permanent dialog between the two approaches. The society (administrations, social and business environment) asks competencies and education answer result in competent people. This life cycle becomes shorter and shorter.

Moving toward the new education's technologies is a necessity.

This integration itself allow managing effects, allow to effective assess student's competence level. Because of dynamic of technologies, because of the challenge of changes it is necessary to permanently upgrade competencies. That is why Lifelong learning concept is born. Collaborative approach coupled with virtual based learning process seems to be answer to change management.

Conclusion

The society is changed. The new sort of society named sometime Knowledge Based Society already reached a certain level of maturity. This approach regarding learning in new age is an integral part of Knowledge Based Society, as Lisbon declaration states. This main change influences new opportunity arising, determining new and unforeseen needs. It's difficult to perceive the whole society as jointed issues, but as a complex sum of all aggregate events. That is why education can't be disrupted from the new age technologies characterizing the extent and complexity for each component. The identified part of society needs, coupled with new technologies leads defining educational policy architecture.

Therefore, this approach is not (and can't be) an extension for traditional approach. It is different, even it use some experienced results, tools and attached methodologies. Reusing valuable results from past in a new approach, defining new relationships between actors and fills them with new semantics; structuring education in a well built architecture is a chance to face the Knowledge Based Society challenge.

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