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# Roles of teachers in e-learning: How to engage students & how to get free e-learning and the future

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## Abstract

In this paper a model of teachers' role in the e-learning system has been discussed. According to the model this paper provides pathways for teachers to create online courses that engage students into e-learning more effectively. More over in the second part of the model, this paper presents information for teachers about how to benefit from free tools to create lessons and applications for e-learning.

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*Keywords:* E-learning; active learning; motivation; feedback; FOSS.

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## 1. Introduction

In the information management systems human agents can be considered one of the most important factors that make system run more smoothly (Peterson & Peterson, 1988). In this manner role of teachers in the e-learning environments are very important. The questions “Does the importance of teacher decrease as the technology grows?” And “What is the role of teachers in e-learning systems” are very important to answer to estimate the productivity of systems (Johnson, 1991).

When we think about the role of the teacher in the learning environment it could be suggested that the importance of the teacher is growing. The educators' afford should be more intensive to adaptation of new learning environments should be an answer to this question. But there are some issues adapt these new learning environments. These issues of adapting to the environment are related to understand the concept and the work process of these environments. For example, administrators of the institutions can understand some basic concepts of e-learning such as how it works and where and why to benefit from it. However these decision makers will find themselves in the point of milestone to apply or not apply the concept in their institutions. More importantly, teachers also will be a point of a decision making when they need to teach any course in e learning (or blended). These decisions possibly would be about “How to put any course online with an effective way to engage students in

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to the learning?” and “What technologies and tools are available to implement the teaching (e-lessons or the materials for blended learning)?”

In this paper, we provide a basic model to help educators to answer these two questions and decide their teaching model. Figure 1 shows the summary of basic components of this model.

First part of this model explains “How to put any course online with an effective way to engage students in to the learning?” and the second part explains “What technologies and tools are available to implement the teaching (e-lessons or the materials for blended learning)?”

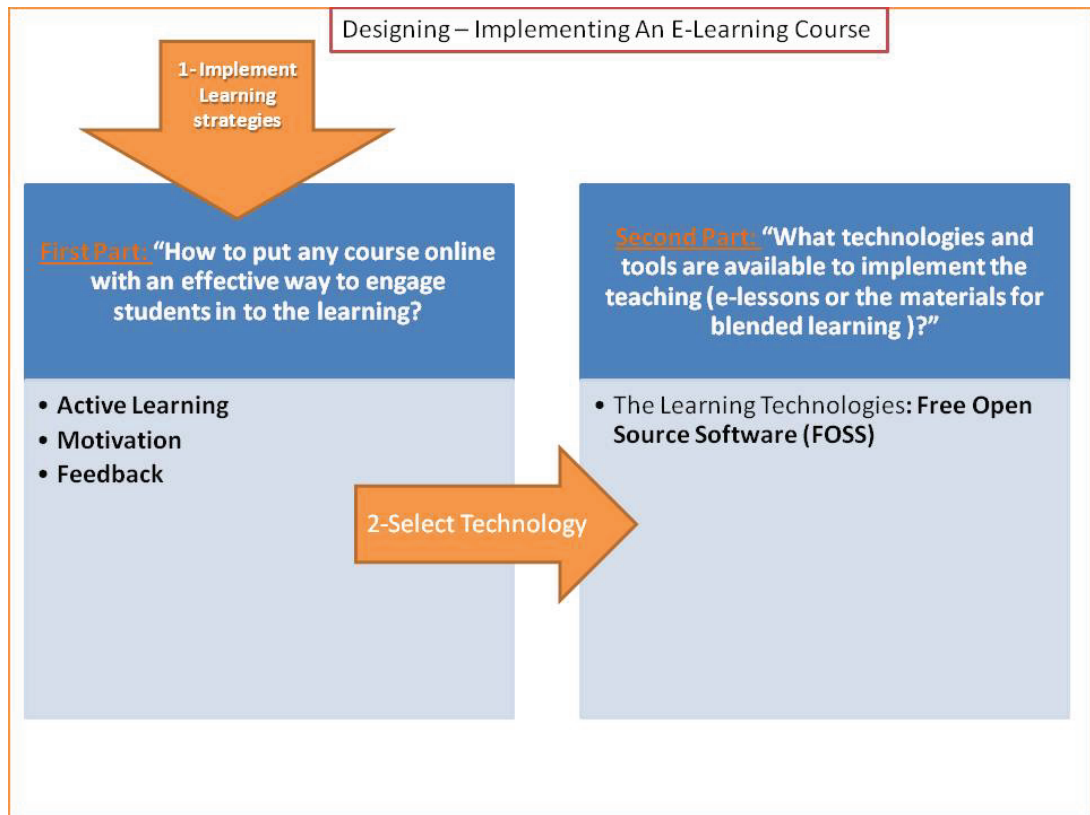


Figure 1. Model for Designing and Implementing an E-Learning Course

### 1.1. First Part: “How to put any course online with an effective way to engage students in to the learning?”

In this model in first part there are issues about deciding learning strategies of e learning. This part covers three issues to implement an e-learning program: Active learning, motivation and feedback.

After understanding the first part of model in this paper, teachers can have general ideas how to build their own teaching in e-learning environments and how to put their lesson effectively. These ideas are very general and can be used as a base template.

#### 1.1.1. Active Learning

The issue of making students to have a role actively in their learning and participate covers how to engage students into their learning progress. Active learning strategies shortly suggest putting students into the center of their learning. As the e-learning suggest a way of self regulated activities the active learning strategies may be very helpful because the students are responsible into their learning and they get involved into the teaching rather than

just receiving simple lectures such as tutorials or presentations. Active learning strategies are and how to put them in action are covered in the rest of the paper.

### *1.1.2. Motivation*

After the active learning strategies employed there are another issue of making students to have positive attitudes to the lessons and the learning activities. In the e-learning as long as the most of the students will be at a distance the motivational factors get more importance to make them to be connected into the lesson material. In this case motivational issues need to be covered. So in this paper the issue of motivation and how to engage motivational strategies in e-learning has been covered.

### *1.1.3. Feedback*

Feedback is the most important factor of any kind of communication, especially in learning. While designing and implementing learning activities teachers need to be very aware of providing good feedback. In distance learning (also e-learning) the feedback has more importance because the lack of face to face interaction. Therefore in designing – teaching a learning activity teacher need to understand the importance of feedback and how to use it properly. As the third and final issue in the first part of this paper we discovered the issues – ideas about feedback in learning.

## *1.2. Second Part: “What technologies and tools are available to implement the teaching?”*

### *1.2.1. Free Open Source Software*

In the second part of the paper we investigate the tools and applications to run lessons online. The free and open source software philosophy is discussed in this second part. As decision maker teachers also need to become familiar to the existing technologies. There are several commercial tools readily available. Also there are totally free tools to consider. The quality, ownership value, validity and reliability of open source software are sometimes fuzzy for the teachers therefore this issue covered in this part.

### *1.3. Conclusion*

In the conclusion section of the paper the future predictions about the technology and its ongoing way has been discussed. The growing technologies and readily available solutions also discussed in this ending part.

## **2. First Part: “How to put any course online with an effective way to engage students in to the learning?”**

### *2.1. Active Learning*

A student-centered approach is more likely a teaching methodology and instructional activities involving students in doing things and thinking about what they are doing. The learner-centered instruction attempts to engage students in activities that support knowledge constructions through media use, but which are not designed to control learning. In this model, learners use media to investigate and to think. This type of learning activity can lead to it being described as active learning (Bonwell, & Eison, 1991). Some of the strategies promoting active learning in the classroom are as follows:

- Students are involved in more than listening.
- Less emphasis is placed on transmitting information and more on developing
- Students' skills.
- Students are engaged in activities (e.g., reading, discussing, and writing).
- Greater emphasis is placed on students' exploration of their own attitudes and values.

Also the key principles of active learning suggested by Barnes (1989) are as follows:

- Purposive: the task is seen by the learner as relevant to his/her concerns;
- Reflective: the learner reflects on the meaning of what is being learnt;
- Negotiated: the teacher and learner negotiate the goals and methods of learning;
- Critical: the learner appreciates different ways of interpreting learning;
- Complex: the learning tasks reflect real life complexity;
- Situation-driven: the learning tasks arise out of the needs of the situation;
- Engaged: the learning activities reflect real life tasks.

## 2.2. Motivation:

Motivation directly affects the way people learn (Weiner, 1985; Corpus et al., 2009) as they put emotional investment – interest to achieve a task in their learning process. In many articles the importance of the motivation is highlighted that the success (Deci, Koestner, & Ryan, 1999; Deci, Koestner, & Ryan, 2001; Pintrich, 2003; Entwistle & Thompson, 1979; Schmidt, Stephen, Zdzinski & Ballard, 2006; Siebert et al., 2006) of a learning program or the students is closely related with motivation of the students. Therefore the motivational factors should be considered in e-learning course design (Keller & Suzuki, 2005; Cocea & Weibelzahl, 2006). The ARCS motivational model (Keller & Burkman, 1993) provides a systematic approach in the design of the instruction (online learning systems also). According to the ARCS model there are four components that need to be satisfied in order to construct a learning system, including e-learning applications, which can motivate learners. These four components are as follows:

A - Attention  
 R - Relevance  
 C - Confidence  
 S – Satisfaction

Using these four component based ARCS model in our e-learning lectures and design is the another important question. Keller asserts that (2004) the ARCS model is valid enough to use in various kinds of e-learning strategies. Also there are studies showed that the ARCS model is very useful to improve e-learning programs (Chyung, Winiecki, & Fenner 1999; Suzuki & Keller, 2006).

### 2.2.1. Motivational Strategies for e-Learning:

#### 2.2.1.1. Attention Strategies

When students work in distance they could have attention problems therefore the presentation of the material should make students focused in to the information. The lectures should maintain the attention at an optimal level. The strategies to catch attention can be listed as follows (Keller & Burkman, 1993, Picar, 2004):

- Stimulating Perception
- Give incongruity and conflict
- Using different types of examples to demonstrate a concept
- Using humor
- Using inquiry
- Requiring participation (Active Learning – Use of Interactive materials – multimedia)

### 2.2.1.2. *Relevance Strategies*

The lecture – system should give opportunities to students finding the lesson material relevant to their goals. Also the system or the lesson design should draw a general picture of the concept and tell them why they are taking these materials in their syllabus and show them what is important for them in the lesson. The strategies are as follows (Keller&Burkman, 1993):

- Give lecture – contents that present familiarity (track of course history – user profile tracking)
- Orient the goals of the students according to lesson or vice versa
- Show them examples of more experienced students
- Present the worth of finishing the class
- Show the future usefulness of the course
- Match their needs with the course (Learning Style Matching Using Data Mining)
- Show role models.

### 2.2.1.3. *Confidence Strategies*

The students need to feel confident after they finished the class. The confidence strategies in an e –learning program should focus learner performance. The students feel confident when they successfully complete the assigned learning tasks in the e-learning system. The system should follow the student learning process closely and match the difficulties – levels of learning tasks according to their performance. The strategies are as follows (Keller&Burkman, 1993; Picar, 2004):

- Monitoring the learning requirements (Record keeping)
- Matching the difficulty (Adaptive learning strategies )
- Knowing the expectation of students and try to satisfy those
- Defining – announcing the success criteria (Using announcement tools)
- Presenting tools for goal setting – scheduling (Using calendar – event announcements)
- Providing immediate feedback (Use e-mail- discussion boards)

### 2.2.1.4. *Satisfaction Strategies:*

As the results of the learning activities in the e-learning system the students should feel the satisfaction in their learning. The designers – instructors can enhance satisfaction of students with following these strategies (Keller&Burkman,1993; Picar, 2004):

- Provide unexpected rewards (such as games)
- Implement positive outcomes (Give results – feedbacks immediate)
- Avoid negative punishments
- Scheduling – matching the course according to the students expectations
- Transfer knowledge into real world settings (Use simulations)
- Be fair in the test results

## 2.2.2. *Design of an Intelligent (Such as an LMS) Web Based System That Detects the ARCS*

Web based software can be developed to satisfy several user needs in motivational setting by taking account the components of ARCS. In this web system – or e-learning system - the design of a simple course module should have following specifications (Keller&Suzuki, 2004; Shellnut, Savage, & Knowlton, 1998; Perrin, 2005; Chen&Chen, 2006; Ardito et.al, 2004):

- The system should group the motivational tasks
- The system should detect – analyze users motivational aspects
- The system should allow to create objectives that enhance users motivation

- The system should support – implement motivational strategies (listed above)
- The system should filter and choose best motivational strategies for different users
- The system should support creation – storage and delivery of motivational work flows and objectives. (Also integrate those within the lesson modules.)
- The system report – evaluate motivational results after each learning sessions
- The system should support the online communication (e-mail, IM, Video Conf.)
- The system should provide HELP options to enhance more user satisfaction
- The system should match usability factors
- The content visuals should be readable easily (screen design)
- The system should include interactive tools of learning
- The system support self regulated learning tools
- The system flow should support the guided sequence of steps in each lesson

The online learning system can help educators to implement more educational teaching strategies however the instructors also need to be conscious about the need of monitoring their students' performance – motivation levels also. Within the help of ARCS model strategies the e-learning tools can be more beneficial to students to keep them interested – attended to the class.

### 2.3. *Feedbacks:*

Feedbacks are the one of the most valuable tools in the e-learning systems because they allow us monitoring and improving the performance of the students in several ways. In designing of information systems, feedback also has an important role where it helps us to understand whether the targeted receiver (or the learner) fully got the message (Nevio, 2002). According to the Shannon's Communication theory (Shannon, 1949) the targeted recipient should receive the message and encode it fully in order to act in the communication. On the other hand the sender also has to be sure the message has been sent correctly by observing the recipient's interpretation which also returned to the sender (Shramm, 1954). Also in the communication, the message sender should acts as the recipient as a result of this respond of the receiver; which called feedback. Therefore feedback has a potential for measuring or detecting the communication errors. Practically, those communication errors help us to provide guidance to the students if we can catch them. To find errors, the action or the objective must be known exactly. These errors help us to monitor whether there is a gap between what should be happening. On the other hand, it is a difficult process to find communication errors without getting any feedback from the students.

Also there is a great chance to learn from those communication failures because it helps learners to see their conditions and understanding about the concept. In real life situations also those failures should be used as an opportunity that goes through success. Manz (2002) describe failures as opportunities with these words: "Usually, failure or success is almost entirely in the eye of the beholder... Failure is very often a misperception about the difference between what exists and goes unnoticed (such as growth and learning when we fall short of reaching a goal) and what is realized later (longer term success)."

Most of the times students can make so many mistakes when they are new to the concepts and trying to discover that concept by themselves. In that cases, the best thing can be done is to show them quickly what the mistakes are and let them to have enough time and guidance to improve their performance in those parts that they had problems. In general, if you give students a space to work on their ideas, the chance to experience their mistakes you also should give them the chance to fail. There are several learning activities that can be used that let the students to work on their ideas and have a chance of failure. In those activities the main roles of the teachers are to monitor students, catch their mistakes, let them to know their mistakes and give them guidance to correct their mistakes. Discussions boards with brain storming sessions, cooperative learning, worked examples, class projects - research and in class activities in active learning are the cases where the instructor can provide a good way to let their students to have some mistakes freely and provide guidance to improve them using performance related feedbacks. In those cases the feedback can be given immediately before waiting until the figuring that the students have some problems or they don't get the ideas in the lesson. Also to have those immediate feedbacks, the teachers should monitor students' activity by observing or asking some questions to let an on demand clarification.

In discussion forms students can generate ideas freely and talk about those ideas. These discussions should start with a brain storming session where all the students can present their ideas freely. Then they can discuss those ideas

and evaluate each other's ideas. In that case they can have further discovery in certain ideas also. The teacher also can lead those discussions to make student to generate a final goal or idea about the topic and also she can guide them to gain further understanding about the ideas.

Similarly to the in discussions, the students can also have some activities in groups where they provide feedback for one another about their work. The teacher can also monitor the groups' works by monitoring their activities regularly. If the teacher wants she can also has an inference to those groups' activities to correct something and give feedback and guidance.

Active learning in the class is also a good way to provide students to engage their own learning where we can also have performance related feedback. Similar to in class projects and research, in active learning students are required to take action in the class by actively participating. For example they can participate lectures by taking notes, posing questions, involving role playing or games. In those performances the teacher or the learning system can monitor the activities and can provide feedback.

Other activities where students can have feedbacks are tests, inquiry, guided inquiry and scaffolding. In those activities, however the teacher cannot monitor the whole ongoing progress to give immediate constructive feedbacks. They can just give formative feedbacks according to end results of the students. For example in mastery learning tests provide some results for students to have a corrective instruction and give chance them to retest; but it is so hard to detect the exact nature of the problem such as a misunderstanding of a student in a solution part of the problem which leads wrong results in the test.

Another issue in the learning, it is sometimes difficult to find good feedbacks. Especially when the students develop a certain skill and get experienced. Sometimes teachers think that the learners are good enough to find their own mistakes; if they get experienced in their learning. So in that cases, to have a good help seeking and self monitoring ability will be very helpful to those students. Before seeking any help the learners should be aware they need help because of they have a problem in their performances. According to Sadler (1989), to detect a mistake or a problem the learner has to have an understanding of the standard, compare his current level of performance according to these standards, and plan - get correct actions to fill the gap. This type of a learning also considered as a self regulated leaning where students compare their performance against a standard (Kitsantas, & Zimmerman, 1998; Clearly & Zimmerman, 2001) According to the several studies frequent self-evaluation produced positive results regardless of the type of goal adopted (Kitsantas, Reiser & Doster, 2004).

Usage of e- learning systems can be very useful for those self regulated students. In such a learning environment it is possible to have some feedback and support students learning process. In e- learning environment , self regulated learners also can monitor their performance within observing their actions in the system also following the feedbacks provided by the system which are called The Intelligent Tutoring System, Computer Assisted Instruction , Computer Based Instruction , Web Based System etc.

In such an e- learning environment students can get immediate feedbacks according to their performance within several computer managed activities such as drill /practice, problem solving, games, simulations, tutorials and online lectures. In those activities students can engage several cooperative learning opportunities to have peer feedback such as in online discussions with instant messaging or forums, online games, Wikis and online simulations.

Also the computers can give the opportunity to follow classical class activities in a local network or a web environment where a feedback mechanism can be provided by the teacher, by the system itself or mixed. These activities are virtual classes, online collaborative projects and E-portfolios.

### *2.3.1. Feedbacks in E-Learning Environments*

First of all the in the e-learning environments where students have to follow classes themselves, there is a disadvantage of having immediate feedbacks. In those systems the instructor can give you immediate feedback only in instant messaging or video conferencing sessions. Other feedbacks such as posting a feedback to your response / answer or e-mailing etc .are almost asynchronous and therefore they are always coming after when the students perform actions. In immediate feedback students have a chance to see their mistake quickly because they can have an opportunity to discover their incorrect action just looking backward. If the students get feedback late than the actions they could have some problems to remember their previous thoughts and actions in the past. They cannot rely on their long term memory easily because it is very hard to discover the thoughts in the past exactly. So when instructor says there is something wrong and asks to explain something in detail to make it clear the students will have some problem to remember those previous thoughts to correct. Also in form discussions; rather than instant messaging; it is sometimes hard to follow the concepts and flow of discussion because the students have to check

the posting regularly. If students cannot remember the previous entries to reply a posted question they will miss the flow of the discussions easily. On the other hand, as long as the instructor cannot follow the students progress and performance he just can give formative feedbacks according to students performance outcomes but the instructor also have time to read all the post and evaluate these posts carefully in his free time.

In discussion forms, students also have some good feedback from his peers because they can have time to think on the responses and time to construct a good question or feedback.

The most important disadvantages of those e- learning environments are lacking of physical presence and body language such as face to face interaction and eye contact. Body language is a good communication tool where student respond and make assumptions about the signals or feedbacks given in the class when they are interacting with the instructor. Also instructor can give feedbacks for the steps in the responded assignment if he can have a clue for those steps.

### **3. Second Part: “What technologies and tools are available to implement the teaching?”**

#### *3.1. Free Open Source Software (FOSS) & eLearning*

Free Open Source Software (FOSS) is software which is liberally licensed to grant the right of users to study, change, and improve its design through the availability of its source code (FreeOpenSoftware.Org). The FOSS means that you can obtain the software free also you can change and distribute the software. Also the FOSS philosophy requires a software (or technology) to be free to deliver, modify and customize without any license payment. Because the software ownership is free and liberate it provides many opportunities especially to cut the cost back and distribute – modify easily (Wheeler, 2007). The usage of FOSS is mostly beneficial to the developing countries because it provides affordable know – how knowledge and easy technology adaptation (Zhao& Reisman, 1992). The FOSS is also easy to develop any kind of software (including eLearning system and tools according to Bazaar Model (Raymond, 2009).In Bazaar Model anticipate that the FOSS need to be a development project that is globally distributed within the communities of developers where they communicate and work in parallel on the Internet. The developers also shows the signs of strong communities ( where they are also learners) by working in peers, relying on peer review for their code debugging, making requirement analysis lists, using schedules and getting help from experienced professional coders in the community (Swan, 2002).

The FOSS idea also could be used in e learning development. The usage of FOSS in e-learning is also depends on some standards defined by several organization (ISO, 1999; IEEE, 2009; CEN/ISSS WSLT; 2009) so it is also (if developed in standards) reliable and valid as other commercial e-learning software. In order to use FOSS in our e-learning project the project managers or decision makers need to know the attributes of the FOSS to consider it as an alternate. Some of the attributes of the FOSS are as follows (Coppola& Neelley, 2004):

- The implementation of FOSS is free there is no license cost. Also there is no additional cost for the additional users.
- The open source license give the change to use , modify, and redistribute freely
- The control of the property – ownership of the FOSS is equal between the consumers and the developer or commercial providers.
- FOSS provides rapid and diverse innovation ways because it is developed by a large community of programmers.
- FOSS will always be developing or using if it is useful and beneficial to community. The FOSS is rapidly adapted by the community therefore if it is used a lot it is also safe to live long time. There is no chance of failure like commercial software where the vendors always have the risk of getting out of business.
- FOSS is secure and reliable. Because FOSS projects mostly follow open standards (ISO, 1999; IEEE, 2009; CEN/ISSS WSLT; 2009) .Also when the program is developing there is a peer review (including academic and scientific community) therefore the program is checked regularly. Also the user of the FOSS is always providing feedback so if there is a problem it is detected more quickly than the traditional commercial software.
- Generally (not necessarily) the FOSS supports larger spectrum of operating system and platforms Therefore adaptation of the FOSS is easier. Also if FOSS doesn't support a specific platform it is very easy



to convert re- code and redistribute it with little modification to make it available to work with that specific platform.

### 3.1.1. Use of FOSS in eLearning

#### 3.1.1.1. Determining the Learning Path:

In design of e-learning, before selecting any technology platform the learning methodology (a path) should be considered. While defining the learning path, the objects, services, learning resource, activities of one learning unit should be listed. According to Tuparova and Tuparov (Tuparova & Tuparov, 2006) these can be form up as follows: Learning object – according to the IEEE LTSC definition – “any entity, digital or non-digital, which can be used, re-used or referenced during technology supported learning” (IEEE, 2002). A learning object can be:

- Text,
- Audio or video,
- Graphic,
- Multimedia presentation or simulation,
- Test or test item

Service - The system provided item such as:

- Discussion forum,
- Email,
- Chat room
- Audio or video conference,
- Wiki,

Learning resource - can be any learning object or service.

Activities- The specific action carried by the students and instructor in the system using several services to ensure the learning objects. The activities should be the followings:

- Documentations for reading, simulations, multimedia materials, tutorials;
- Audio/video lecture;
- Notes collection with special digital tools- note, journal;
- On- line discussions;
- Simulation or application software;
- Assignments
- Tests

Learning unit – Defined as whether the representation of a course, or any kind of earning or teaching event (Kooper, 2005). It could also be a module, a chapter, a theme cluster of learning objectives or prerequisite items .After the learning path elements has been defined and listed the path of the learning could be determined. The sequence of the activities mainly shows the direction of the learning path. The adaptive learning systems (Paramythis, A., & Reisinger, 2004) also could be a way of defining a student learning path. In this case the learning styles, level and the success are the main factors to find the learning path.

### 3.1.2. Teaching/learning strategies for FOSS

First of all, the teachers using the FOSS philosophy can take an active role in the creating of the content and they also can be the main root of determining students’ needs. Teachers can detect what are the needs of their students and they can communicate with several developers in the community to fulfill these needs to modify existing FOSS. The easy modification of FOSS can match these needs in the end. As the teachers can participate in the design and development process of FOSS by subscribing mailing lists of products. They also become a part of community therefore they can meet other teachers in the world and they can be a part of a learning community and they can

have active roles in the social networks. Also this mailing list can be open to the students so the need of them can be listen in the first place. Usage of FOSS also help students to understand the ethical issues (Floridi, 2004) and they can be more responsible to the digital rights (Wolfgang, Bauer & Kettmann, 2008) because using the FOSS decrease software piracy (Hartley, 2008; IPF, 2004).

Using FOSS tools is more beneficial to students and teachers to reconsider to delivery of the materials. Teachers can give more home projects to students because the students can have the same software used in school freely so they can work at home and create materials by themselves. This also can be implementing in the e-learning model because the teacher can be sure she that the required software is not issue to implement projects. Also as the need to come school labs. Reduces the more distance learning opportunity is ensured. There is a greater benefit for the active learning and the switch to FOSS (Lin & Zini, 2006) has more opportunities and create flexible learning environment such as creating dynamic and socially complex processes of collaborative learning.

In short, when considering the usage of these FOSS related strategies the teachers has a great role where they make decisions about selecting the appropriate tools for learning and designing the learning (both traditional or e-learning). The teacher also need to be aware of strategies of active learning and motivation (see the related parts in this paper) in online learning environments. She can also need to know the available tools and technologies of FOSS in order to use them in teaching. The most beneficial part of the FOSS is that it can be specific to the learners needs also in the design of the learning the FOSS can be very easy to modify. The involvement of the teachers into the FOSS community can ensure the quality of the work and learning to see the real needs, success of learning using these technologies and the experience of learners and teachers.

### 3.1.3. FOSS and Available Tools for e-Learning

There are tools for FOSS both for designing e-learning materials. In the design there are FOSS tools such as graphics, video – audio files, animation etc. In the e-learning management there are FOSS based LMS tools also.

#### 3.1.3.1. Tools for Designing Learning Materials:

**Audio Recording:** Audacity (<http://audacity.sourceforge.net/>) is a free audio editor and recorder. Teachers can record audio, convert tapes and records into a digital file, edit MP3 files, mix sounds together and change the sounds dynamics in the recordings with that tool. This tool also can be used to record an MP3 file to be used in the podcasting.

**Program Image Editing:** The GNU Image Manipulation Program (<http://www.gimp.org/>) is a photo editing tool. Teachers can use this tool to create – edit graphics and photo file for their lessons. They create and modify many of the known digital photo file.

**Screen Recording:** Most of the e-learning lessons may need some screen recording because teachers need to show something to the students in their desktops. Wink (<http://www.debugmode.com/wink/>) is a very good tool to achieve this purpose. Also with screen recording teachers can have tutorial and presentation on how to use software applications. Using Wink teachers can capture screen shots, add some labels to the video and have a step by step FLASH based tutorials.

**Web Content Design – Development:** Teachers need to publish some content online and they need to embed this into the web system. The use of HTML and XML languages is the old way of doing that. Use of applications to create web content is easier than learning these languages. eXe (<http://exelearning.org/>) is FOSS applications that help teachers to create, edit, format web content, package and export resources in IMS Content Package, SCORM 1.2, or IMS Common Cartridge formats. Also myUdutu (<http://www.myudutu.com/myudutu/login.aspx>) is FOSS tools that help teachers to have SCORM compliant e-learning courses. myUdutu give the opportunity to have collaboration online, stencil based editing, WSIWYG (What You See Is What You Get) and templates – built in scenarios.

#### 3.1.3.2. LMS Tools:

LMS tools (is very similar to the Km and CMS) use specialized tools – services for the instruction. LMS (Roqueta, 2008) has the (almost) all the application required for administration and course delivery. An instructor an LMS) to manage courses, deliver - share information by creating, editing, storing several instructional media online over internet. There are several LMS project developed under the mentality of FOSS. These are as follows:

**Moodle:** Moodle (<http://moodle.org/>) is designed to help teachers to create almost any kind of online courses. According to Moore (Moore, 2005) one of the main advantages of Moodle over other systems is a strong grounding in social constructionist pedagogy. As the Moodle is a FOSS anyone can freely use or modify it. The Moodle can run any kind of servers hosting the PHP engine (Unix, Linux, Windows, and Mac OS X). The Moodle also uses database support (which is costly to get a license also) freely on MySQL and PostgreSQL. Also Moodle can use commercial databases such as Oracle, Access, Interbase, ODBC and others. It can support over 40 languages (most of them are also developing countries languages). The available tools and modules of Moodle are design tools, site management, user management, course management, assignment module, chat module, choice module, forum module, journal module, quiz module, resource module and survey module.

**Sakai Project:** Sakai Project (<http://sakaiproject.org/portal>) is a community project founded by The University of Michigan, Indiana University, MIT, Stanford, the portal Consortium, and the Open Knowledge Initiative (OKI), Andrew W. Mellon Foundation and the Hewlett Foundation. Sakai has many tools to help to organize lessons with no knowledge of HTML. Lists of the teaching tools are announcements (sakai.announcements), assignments (sakai.assignment.grades), calendar summary (sakai.summary.calendar) - a synoptic tool for events created in the schedule tool, chat room (sakai.chat), drop box (sakai.dropbox), email archive (sakai.mailbox), forums (sakai.forums) - discussion forums, formerly part of "message center", gradebook (sakai.gradebook.tool), messages (sakai.messages) - for sending private messages, formerly included in "message center", news (sakai.news), post 'em (sakai.postem) - for quick uploading of feedback with an excel import, presentation (sakai.presentation), resources (sakai.resources), schedule (sakai.schedule), section info (sakai.sections), site info (sakai.siteinfo), syllabus (sakai.syllabus), tests & quizzes (sakai.samigo), web content (sakai.iframe) and wiki (sakai.rwiki). Additional to these tools Sakai has many administrator tools, e-portfolio tools, and other special tools.

**LAMS:** LAMS (<http://www.lamsinternational.com/>) is a new tool for designing, managing and delivering online collaborative learning activities. LAMS gives the opportunity to the teachers to create a visual learning environment with such activities as individual tasks, small group work and whole class activities. The LAMS Organization is an ongoing project by the Macquarie University in Sydney Australia. Also LAMS LAMS can be used as a standalone system or in combination with other learning management systems (LMS) such as Moodle, Sakai, LRS, WebCT and BlackBoard (LAMS Foundation, 2008). The available LAMS tools are assessment, branching, chat and forum, image gallery, journal, mindmap, scribe, shared resources, spreadsheet, survey, task list, voting and wiki.

#### 4. Conclusion

In this century the usage of communication and information processing software, production software are improved a lot. Also next generation of those tools won't be basic software running on digital devices only in computers or computer enabled devices such as cell phones, PDAs, personal music players or notebooks. The next generation of the digital world will include interaction within the entire environment where embedded devices will be more intelligent with instant and continuous connectivity to large networks like internet (Microsoft Research, 2009). Also these devices will let us to store large amount of data (Memories for Life Project, 2009) as much as we need which will let us to keep every moment and movements in our lives. In those cases we will be living in an environment where the information will be stored out of our brain. Also the information will be available instantly (Ambient Networks, 2006) when we need it and will be searched with several filtering mechanism that match human thinking by using semantic approaches (Hakia, 2009). Therefore we won't need to worry about to find specific information to attack a problem or make something in the work place. In those cases in the future, the path of instructional design should be reconsidered.

First of all, the students needs will be changed within changing life that technology will let us. Also the workplace needs also will be changed because of the available technology. The first thing we consider in future technology will be in the area of usage of information. Recall of facts and events will be useless because the on demand technology will let us to reach those. So in workplace that knowledge of having information will not be a wanted skill anymore. In that case the expertise of human will be valued as their ability to experience many ways of solution of a problem, creativity and critical thinking. In near future there won't be any super computers that can solve problems and create something. So in workplace there will be still a need for human workers for those skills. So analyzing and synthesis of information still will be a critical skill to survive in the world. Most importantly all of those future technologies will let us to increase the chances of developing new learning scenarios where we can include all of the senses into learning situation. That future context in the first place, we would like to implement a

system where students will be involving to the environment and practice their skills of analyzing and synthesis. Researchers would like to implement a classroom technology where students can interact and explore within in the environment.

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