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Vocational Training and the Workforce

- disability policy adapted for vocational training and work integration –

by

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Abstract:

Disability policies target a large and heterogeneous group of persons. According to an OECD study in the twenty countries studied, on average about 14% of the working-age population classify themselves as disabled. About one-third of the group of working-age disabled people are severely disabled. Persons with congenital disabilities form a minority of usually less than 10% of the entire group of working-age people with disabilities. Vocational rehabilitation and training is predominantly offered to people below age 45, thus partly explaining the age bias in the disability benefit programs. In this paper after a presentation of some disability policies and an example of a disability police oriented to learning Web-design, an example of a project is done aimed at development of vocational training models for small and medium-sized companies (SMEs). These models are social-oriented and based on e-Learning.

1. Disability policies

Disability policies target a large and heterogeneous group of persons. According to an OECD study in the twenty countries studied, on average about 14% of the working-age population classify themselves as disabled. About one-third of the group of working-age disabled people are severely disabled. Persons with congenital disabilities form a minority of usually less than 10% of the entire group of working-age people with disabilities. As one would expect, the prevalence of disability gradually increases with age: disability prevalence rates in the 50-64 age group are around 25%, but only 10% in the 20-49 age range. Some of this increase is explained by the fact that a large part of disabling conditions have a permanent character. The level of education also plays an important role: disability prevalence rates are significantly higher among groups with lower educational attainment, with an OECD average of 19%, compared to 11% among the better educated.

Disability policy, in general, faces twin but potentially contradictory goals. One is to ensure that disabled citizens are not excluded: that they are encouraged and empowered to participate as fully as possible in economic and social life, and in particular to engage in gainful employment, and that they are not ousted from the labor market too easily or too early. The other goal is to ensure that those who are or who become

disabled can benefit from income and security: that they are not denied the means to live decently because of disabilities that (may) restrict their earning potential. How to reconcile these twin goals has yet to be resolved.

There are indications that the assessment of disability and work capacity is becoming more difficult especially because many countries had to face the problem of population aging that also causes the reduction of the working capacity. The situation has gradually worsened with the widespread increase in the share of more difficult to diagnose diseases, such as new mental illnesses as well as many physical stress-related conditions like lower back pain. It is difficult not only to diagnose these disabilities and to assess their implications for work capacity but also to predict how these conditions may evolve in the future. The increasing proportion of people with mental or psychological problems among the recipient population is a major concern in many countries. Today, mental and psychological problems comprise around one-quarter or even one-third of the stock and flow of disability benefit recipients in most countries where such data are available. The younger the recipient population, the higher, by and large, is the share of recipients with mental conditions. This situation revealed by the ODC Study rise a question regarding the capabilities of the human resources in long-term employment.

Integrating the disability program into the retirement program, as was done in some countries, however, has disadvantages. It implicitly suggests that a disability benefit is a permanent pension payment, and it does so not only to the benefit applicant or recipient. For the pension insurance system itself, it will be difficult to operate an efficient disability program because two very different risks, disability and old age, are mixed up. Empirically, it is evident that countries with linked disability/old-age schemes have considerably older recipient population.

During the 1970s and 1980s, early retirement programs were introduced with the dual aim of alleviating the labor market problems of older workers. Those countries in which (early) retirement seems to play a very important role for people with disabilities as an alternative route for labor force exit, like Austria or Portugal, are also countries in which disability benefit recipients are overwhelmingly aged 45 and over. It seems that generous early retirement schemes pull older workers out of the labor market, without lowering the pressure on the disability benefit scheme. There appears to be a correlation between generous early retirement and (de facto) age profiling in the disability benefit regulations. This creates an early exit culture, which increases the burden on both the retirement and disability scheme.

In this context it is important to observe a certain imbalance in incentives. It is (at least moderately) disabled people who would potentially be in a position to "choose" between either a disability or an early retirement benefit - be it a free choice or employer-forced coercion. For people without measurable disability, who could not pass the medical test for a full disability benefit, the situation is very different. For this group, relative incentives between disability and early retirement programs in terms of benefit levels.

On the other hand, women are generally under-represented on insurance and over-represented on means-tested benefit programs. This is not the case in some schemes with individual entitlement for the entire disabled population, in which women below age 45 have much higher inflow rates than men.

Mental and psychological problems are responsible for between one-quarter and one-third of disability benefit receipt levels, and for a considerable portion of the increase in those levels.

Vocational rehabilitation and training is predominantly offered to people below age 45, thus partly explaining the age bias in the disability benefit program, but sheltered and supported-type employment programs also tend to benefit mostly young severely disabled people. While the approach to vocational rehabilitation and training differs markedly between countries, this type of intervention is usually used too little, and often initiated too late. More can be done to involve the employers in this process. The average per capita cost for vocational rehabilitation and training is low compared to the average cost of a disability benefit. Provided that such intervention secures permanent employment, investments should pay off within a short period. Societies need to change the way they think about disability and those affected by it. The term "disabled" should no longer be equated with "unable to work". Disability should be recognized as a condition but it should be distinct from eligibility for, and receipt of, benefits, just as it should not automatically be treated as an obstacle to work.

Many societies have to design individual work/benefit packages so these work/benefit packages could cover all the cases mentioned above including people who are suffering from mental diseases but who can perform

activities that are needed on the labor market. Merely looking after the financial needs of disabled people through cash benefits is insufficient; this would still leave many excluded from the labor market and sometimes even from society more generally. Therefore, each disabled person should be entitled to a "participation package" adapted to individual needs and capacities. This package could contain rehabilitation and vocational training, job search support, work elements from a wide range of forms of employment (regular, part-time, subsidized, sheltered) and benefits in cash or in kind.

In more than one-third of the countries, policy is based on a mandatory employment quota, usually written down in a special act on employing or promoting the employment of disabled people. According to such regulations, employers are obliged to have a certain proportion of disabled people among their staff: 7% of the workforce in Italy, 6% in France and Poland, 5% in Germany, 4% in Austria, 3% in Turkey and 2% in Korea and Spain. In all countries these quotas relate to both the public and the private sector, but only apply to employers with a certain number of employees - the minimum being 300 employees in Korea, 50 employees in Spain and Turkey, and 15-25 employees elsewhere. Some countries allow for double or even triple counting of severely disabled people.

Vocational rehabilitation and training can in many cases be critical to achieve or secure employment. A person becoming disabled may, even after completion of the medical rehabilitation process, not be able to continue to work in the previous occupation. This person may need additional vocational counseling and training, ranging from smaller interventions, including, for instance, initial needs assessment, to training of several years (e.g. a full university curriculum).⁷ Similarly, a disabled person trying to enter the labor market for the first time may need additional vocational training at an adult age. Countries have very different approaches to satisfying these needs, and large variation exists as to how often, at what stage of the process, and with how much financial input such interventions occur.

A most important issue is the timing of vocational intervention. Even if the need for intervention becomes apparent at an early stage of the sickness process, vocational measures would typically be launched at a rather late stage. There are a few countries, most importantly Sweden and Germany, in which vocational intervention starts early and is implemented promptly.

2. Accessible Web-design and End-users

Learning web-design can be a part of the vocational training especially because by acquiring this kind of skills the disabled people can be involved into the very process of creating accessible web pages for disabled users. Therefore the end user can be involved in the creation and the decision making process also. For many Flash designers, the single greatest challenge to understanding accessibility is how to best appreciate the experience of people with disabilities. A web designer's inherent talent is an ability to perceive the world in a unique visual way. The skill of the web designer allows him/her to view, conceptualize and translate visual information into layout and graphics. To understand accessibility and implement it in practice is to ask designers to set their visual skills aside. The first thing to do when addressing accessibility is to step outside of our frame of reference and consider the perspective of users with disabilities. By default, text objects in a Flash movie are read by screen readers. Screen readers are also able to identify buttons and movie clips with attached scripts. Screen readers, however, cannot look at a graphic element on the screen and determine its meaning. It is up to the designer to assign a text description of any graphic or animated elements in a Flash movie. This information can be assigned via either the accessibility panel or Action-Script. The following set of key concepts provides designers with the fundamentals to understanding what makes an accessible control in a Flash movie.

- Labels – the flash content has to have this characteristic in order for the screen reader to relay the information to the user.
- Role – also the designer has to describe the role of the flash content within the web-site
- State – it has to be specified the state of the flash content (on/off)
- Structure – the designer has to define the structure of the flash content in order to make it accessible for the final disabled user.

Developers creating accessible Flash must meet the following minimum requirements:

- Macromedia Flash Player 6 or later
- Windows 98, 2000 or XP
- Microsoft Internet Explorer 5 or later
- Screen readers:
 - GW Micro Window Eyes 4.2 or later

- Freedom Scientific JAWS 4.5, 6.1 or later
- IBM Home Page Reader 3.04
- Dolphin HAL 6.50
- KDS PC Talker (Japan)

The release of Macromedia Flash MX and Flash Player 6 marked the first accessible versions of the Flash platform. This version of the player serves as a minimum requirement for accessible Flash content.

Here's how rich media content is passed from the web page to the screen reader. Flash uses Microsoft Active Accessibility (MSAA) to deliver information about Flash movies to screen readers and other assistive technologies. MSAA operates as the go between for the Flash player and the screen reader. The Macromedia Flash Player creates a list of objects on the screen and records them on the MSAA "data tree". The screen reader will then read this list as it encounters Flash content. As changes are made to the screen, the MSAA data tree is updated. Changes to the movie prompt the screen reader to return to the top of the movie and commence reading through the list again. By default, text objects in a Flash movie are read by screen readers. Screen readers are also able to identify buttons and movie clips with attached scripts. Screen readers, however, cannot look at a graphic element on the screen and determine its meaning. It is up to the designer to assign a text description of any graphic or animated elements in a Flash movie. This information can be assigned via either the accessibility panel or ActionScript. Some properties, such as "Make Child Objects Accessible" or ".forcesimple" have no counterpart in HTML. Designers will need to rely on information in this document as well as information found on the Macromedia Accessibility Resource Center to learn more about these properties and the associated techniques. Screen readers and MSAA shape the experience of Flash content for users with visual disabilities in ways that are often quite unfamiliar to sighted designers. Given that screen readers always start from the top of the movie and can only read one thing at a time, there are some complex forms of Flash content that simply cannot be made accessible. For example, many simulations require users to attend to several objects at the same time. Decisions must be made based on multiple factors and relayed back to the simulation quickly. This type of multitasking activity may be easy to do in the real world for someone who is blind, but can pose a real challenge while using a screen reader. (Regan, 2005, [5])

Macromedia Flash allows authors to create these types of controls. Also, others technologies such as SVG and Ajax have generated interest in the last couple of years because they allow the creation of accessible web pages for disabled users.

Text equivalents should be provided for an entire movie in cases where the movie can be conveyed using a single text equivalent. Examples of this include movies that show a simple animation, banner ads or complex movies that cannot otherwise be made accessible. The text equivalent should be placed in the name field. It is generally advisable to make the contents of the name field short and focused in order to describe the function of the movie. The description field can be used for longer descriptions. However, be aware that both JAWS and Window Eyes read this content automatically rather than upon user request. As a result, long descriptions used in this field can result in a tedious listening experience. In cases where a single text equivalent is used for an entire movie, the child objects of the movie should be made inaccessible. This will prevent animations within the movie from causing frequent updates to the screen reader. It will also facilitate automated testing of the content for accessibility.

To provide a text equivalent using ActionScript, a new object must be created for each instance and then the accessibility information is assigned. Once the name value has been assigned, the accessibility objects must be updated. This is done once for all objects when a change is made. It is not necessary to update each instance of the object. Notice the sample code below includes a line to create the new object for the entire movie. Next, the value is assigned for the name property and then the child objects are made inaccessible using the forcesimple property.

A complete list of the ActionScript properties is shown below with the corresponding fields on the accessibility panel.

```
_root._accProps = new Object();
_root._accProps.name = "name of the object";
_root._accProps.forcesimple = true;
Accessibility.updateProperties();
```

This language can be read by screen readers therefore disabled people (especially blind or partially sighted people) can learn it and then use it in order for them to create accessible web-page content. For deaf, or people with hearing impairments this language script can prove a very useful tool also because they also can be involved into web-design creation as both designers and end-users.

By using this approach a directly accessible products will be created that allow a person with a disability to operate all on-screen controls and access all content without relying on assistive technology at the end stage of the vocational training process. The designers will use features that enlarge all controls and on-screen text. The designers will evolve together with the end-users.

Also, for people who cannot operate a key-board or a mouse, a basic speech recognition system can work very well in web design especially if the user knows the programming language needed for using the Action Script. The free CVoiceControl (which stands for Console Voice Control) started its life as KVoiceControl (KDE Voice Control). It is a basic speech recognition system that allows a user to execute Linux commands by using spoken commands. Therefore a CVoiceControl replaces KVoiceControl. The software includes a microphone level configuration utility, a vocabulary "model editor" for adding new commands and utterances, and the speech recognition system. CVoiceControl is an excellent starting point for experienced users looking to get started in ASR. It is not the most user-friendly system, but once it has been trained correctly, it can be very helpful. This Voice Recognition System can be used in the design of accessible web pages under Linux system using StarOffice 5.0., or Open Office or the Mozilla browser editor called Composer which is imbedded within the browser itself. The Composer has also HTML Source Editor that can be accessed and which allows the web-designer to edit a web-page by following the well known steps as it follows into the next html coding scheme generated within the Mozilla Composer:

```
<html>
<head> (which is the header of the page)
<meta content="text/html; charset=ISO-8859-1" - which will allow the search engine to
identify the page on the Internet
http-equiv="content-type"> - which represents the content of the page as it is viewed by a Search
Engine
<title></title> - title of the web-page
</head>
<body> - the main body of a web-page
<br> - break insertion within the body of the web-page
</body> - - the main body of a web-page which follows after the break
</html>
```

The HTML language can be learned by disabled users with the assistance of web-designer and they can use it afterwards to create better web-pages that respond to the special needs of the disabled people. They will learn how to design accessible web-pages relying very little on accessible technology. They will learn how to adapt themselves to the existing technology.

3. Social-oriented vocational training for SMEs based on e-Learning

In the last ten years many countries have known the process of population aging, therefore within the various organizations are old employees who are suffering for various disabilities related with age and work conditions as poor sight or deafness. Therefore more and more enterprises have to make the environment accessible for their aging workers. As a result of the accessible making process the workers have to be trained in order for them to be able to use the accessible tools. Also, SMEs as well as other type of enterprises have to adapt to the changes in the active work force.

Some of these aspects will be considered within the ongoing e-Learning project SIMPEL and the Grundvigt project BASKI.

The SIMPEL Project proposes a new concept of vocational training concept that should take into consideration the problem of the aging workforce that confronts itself with disabilities and based on e-

Learning. The vocational training offered by the SIMPEL Project responds both to the needs of the workforce and to the needs of the employers even before a non-working period is established - in which a disabled employee cannot work anymore due to his/hers disability. During this project we propose a vocational training that will take place within SMEs, in the benefit of the workers, before the process of early retirement starts due to disability.

The use of e-Learning in a social sense means not only telling the people that the Internet and the new technologies are important but showing it too in a practical manner. Digital inclusion means more than showing people how to surf the web or to send e-mail. The e-Learning can be used in working life (corporate training sector) having a main advantage in supporting elimination of the border between working and learning. It means that learning can be better integrated in the working life.

The main objectives of the project SIMPEL are the analysis, structuring, dissemination and valorization of successful training implementations based on e-Learning in forms of training models for SMEs taking into consideration social aspects. The training approaches are life-long-learning oriented and differentiated according to the target group concerned. The models are developed for groups of SMEs having similar profiles.

The models will be tested within seminars with SMEs managers, staff, SMEs trainers and consultants. A special activity of SIMPEL will be dedicated to disabled workers from a such group who need to have access to web-content on day to day bases. It is planned to organize special cooperative training sessions for aging disabled staff and experts from web-design organizations.

The main methods of work in the project are case studies that will be conducted within various SMEs, expert reports, a Website in different languages, publications and conferences/workshops, a BSCW server, for the communication between the project partners, a Model-based virtual room for the communication with external evaluators and within the networks used within SIMPEL.

Expected results:

- Structured results of e-Learning projects aimed at SMEs,
- Sustainable models of e-Learning in SMEs and guidelines,
- Valorization and implementation plans for them,
- Multilingual Website in different languages containing project results, conference papers, e-Learning models ("best practice"), external and internal evaluation reports.

The e-Learning model presented within the SIMPEL Project is based on a network and the quality of education provided by this type of education depends by the quality of all the components of the network even if we take into account the human or the technological part of the network.

This is an important social and economic aspect because most people with disabilities of working age in Europe are out of the labor market and heavily dependent on disability benefits or often employed in low-skilled and low-paid jobs due to their poor basic education.

One suitable solution for SMEs is to build communities of practices +supported by virtual distributed learning environments to share knowledge, to apply best practices in technology-enhanced learning and to develop business-oriented models of e-Learning for them. Such forms of co-operation could stimulate new experiments, new actions and new directions for learning.

"Communities of practice are formed by people who engage in a process of collective learning in a shared domain of human endeavor.."(Wenger, 2004)

They trace their roots to constructivism (Palloff al., 1999) involving open-ended questions, learning in social and physical context's of real-world problems and using collaboration. and cognitive tools.

A community of practice is characterized by:

- a shared domain of interest of its members, a commitment of them to this domain and a shared competence that distinguishes members from other people,
- the community means members interact around common actions and ideas,
- the practice means members of a community are practitioners with different levels of expertise and they develop a shared repertoire of resources.

A growing number of associations are seeking such ways to focus on learning through reflection on practice because they need to offer high-value learning activities.

Communities of practice are voluntary and so they have to create interactions that make them alive, attractive and engaging for members. New technologies like the Internet extend the interactions within communities of practices beyond geographical limitations and make possible the building of virtual ones.

Learning in these kinds of distributed environments present numerous challenges. Some of them include building trust and common ground, coordinating the communication and work activities within the distributed environment and controlling the discussions.

Some specific problems, which emerge in distributed learning environments, are the following:

- Social presence: because of the limited communication channels it is rather difficult to know always who is the learning partner, what he or she does and where he or she is. A method of increasing the social presence is to structure the learning environment in virtual rooms and to build in guarantees of trusted or reliable member identities.
- Cognitive orientation: often it is difficult to understand what subject is discussed and what the structure of the learning material is. The development of a well established learning community that uses the environment, which can facilitate these understanding problems. (Covey, 1989), (Hamburg et al., 2002).
- Communication and plots that usually go off smoothly in “face to face” situations sometimes can split in a distributed learning environment. The carrying out of learning protocols within the use of learning environment could be a solution in such a case.

In order to solve these problems meeting are priory arranged between disabled workers from a SMEs and flash developers who work in other enterprises and who are part of this program in order for them to discuss problems that appear during the knowledge transfer process between them and the SMEs workers.

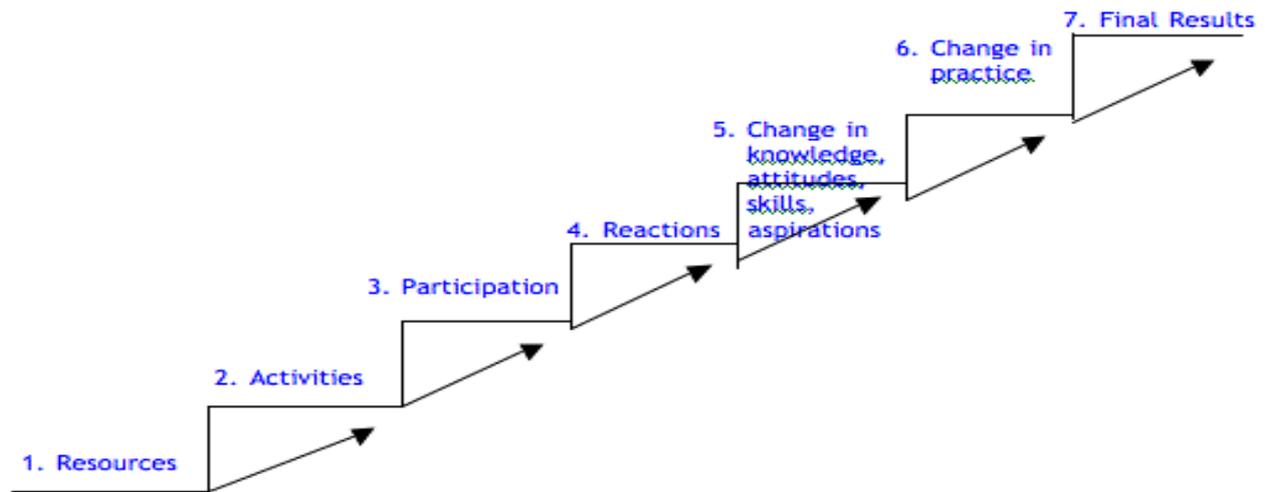
Besides of offering blend-learning solution we can build a learning community, which can offer also information, and social knowledge by adding simulated social scenarios to a common learning community. These social scenarios are based on the fact that the interactivity one of reasons because e-learning communities exists.

In order to establish the final effectiveness of the vocational training model proposed by the SIMPEL Project an evaluation system will be put in motion during the last stage of vocational training. The approach proposed to evaluate the effectiveness of e-learning strategies can be considered as a mix of the decision-making, goal-free, and expert evaluation models. More specifically, the evaluation approach is framed by Bennett's (1979) system of criteria for measuring programme impacts (Fig. 1). According to Bennett's systems of criteria, each hierarchy of impacts correspond to a hierarchy of evidence. That hierarchy of evidence includes the following aspects: (1) Human and financial resources; (2) Activities developed; (3) Participation; (4) Reactions; (5) Change of knowledge, attitudes, abilities, skills and aspirations; (6) Change of practice; and (7) Final results.

Since it is intended to be utilize this framework for measuring the effectiveness of e-learning strategies, it is considered appropriate to aggregate into three the last five stages of Bennett's hierarchy:

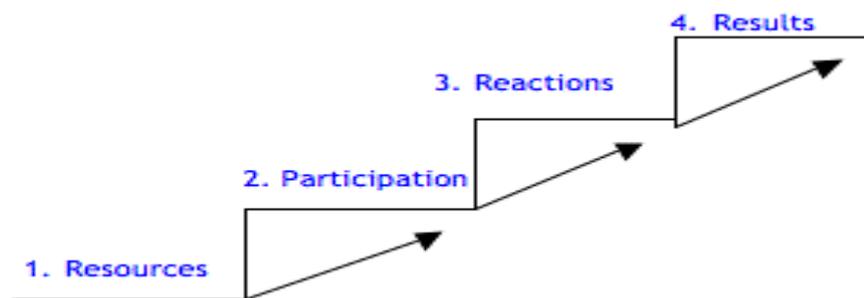
1. Participation (level 3);
2. Reactions (level 4);
3. Results (levels 5,6, and 7).

Figure 1 - Bennett's hierarchy of evidence – acceptance process



In addition to the aggregation of the last five of Bennett's levels, participation is conceptualized as a set of stakeholder interventions in each phase, aspect, and activity of the e-learning programme. Similarly, reactions are taken as the target individuals responses to each phase, aspect and activity of the e-learning programme. Taking these changes into consideration, Bennett's hierarchy as applied to evaluating the effectiveness of e-learning strategies can be transformed into a 4-level hierarchy of evidence: (1) Resources, (2) Participation, (3), Reactions, and (4) Results (in terms of acquired knowledge, skills, and behaviour) (Fig.2).

Figure 2 - Adapted from Bennett's hierarchy of evidence – acceptance process



A valorization process will be implemented during the project. This valorization will have two levels:

1. Valorization of the e-Learning models by discussing their adaptability and their implementation in SMEs at workshops for SMEs together with national SME organizations in each partner country,
2. Valorization of the models through the e-Learning networks where project partners are active members (D-ELAN in Ger-many, etc),

Two goals will be achieved by starting this two stages valorization process:

1. The SMEs managers will understand better the necessity of this project and they will support its implementation in their own organizations having a better understanding of the final results of this project. They would have accomplished the entire acceptance process, which is shown in Bennett's scheme presented above and therefore they will be willing to implement this project and support it until its final results will be achieved.
2. E-Learning networks will be started during this project in which many social human structures will be developed. First we will have the "knowledge network" formed by people who will share knowledge between companies, then we will have the "decision making network" formed by mangers who belong to different companies and who will learn how to share human and knowledge resources based on the principle of "good faith". We will have two human networks that will depend on one another. Last but not least we will have the computer network that is necessary in the e-learning. Therefore, we will have an integrated network system of e-Learning with a human factor that passed the entire process of acceptance mentioned above and who is willing to take part in this e-Learning process.

By helping their employees to learn web-design without relying too much on accessible technology the managers of the SMEs will reduce the cost of accessibility and will help their employees to learn how to adapt to a little accessible work environment which will allow them to be able to adapt faster to very different working conditions. They will be able to adapt to the society learning how to adapt their needs to a technologized environment which is designed to serve the needs of all (disabled or non-disabled).

In looking for a suitable platform to foster the building of our community of practice and to facilitate the processes of scenario- and model-building, the SIMPEL consortium decided on Moodle. The reasons for this decision are, that Moodle was developed with the explicit intention to support a social constructionist framework of education. Pedagogical and didactic considerations led the technological development and not – as in the case of the majority of learning platforms – the other way round. Consistent with this approach, the system includes a multitude of collaborative tools, such as forums, chat rooms, polls, wikis, workshops with peer-to-peer assessments, collaborative books and many more.

Figure3: The Use of Moodle in the Project SIMPEL



Moodle encourages collaborative work also by providing a differentiated group mode and the ability to network course leaders/trainers. In addition, the platform is extremely flexible and easy to use for beginners. At the same time, it is “scaleable” to accommodate complex learning and teaching scenarios. The market is paying its tribute to these advantages: Moodle is presently the fastest growing openSource LMS worldwide and it even has found entry in the world of SMEs.

4. Conclusions

In this paper we presented an attempt which supports the e-inclusion by understanding that digital divide is a

multidimensional phenomenon, which include many different drawbacks. Social-oriented training and learning how to develop technologies by end-disabled users are good policies to fight mental problems in this context.

Learning web-design for example can be a part of the vocational training especially because by acquiring this kind of skills the disabled people can be involved into the very process of creating accessible web pages for disabled users. Therefore the end user can be involved in the creation and the decision making process also. By helping their employees to learn web-design without relying too much on accessible technology the managers of the SMEs will reduce the cost of accessibility and will help their employees to learn how to adapt to a little accessible work environment which will allow them to be able to adapt faster to very different working conditions and to the society.

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