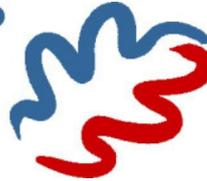




**LEONARDO DA VINCI**

**E-WOOD**



**E-WOOD**

**Electronically based Education for the WOOD technology branch**

**October 2006 – March 2009**

# **Final evaluation report**

**May 2009**

**Arbeit und Leben Bielefeld e.V. DGB / VHS**

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## **1 About the project – excerpts from the application**

### **1.1 Background:**

During the last 10 years, the world trade with furniture has been more than doubled, and the increased globalisation also contributes to the increased trade. This means, that the home market is extended and that the competition at the world market gets tougher. One of Europe's competition parameters is increasingly education and increased competences. As the woodworking and furniture industry is already characterized by a lower educational level than other trades it is now facing large threats. This project will meet the need for modern, continuously adjusted ICT-based and individually adapted learning modules, which can be used by vocational training teachers and the many hundred thousands of short-time educated workers within the European furniture industry.

### **1.2 Idea**

The E-Wood project was designed to be a development as well as a practical project with the objective of applying electronic and internet based forms of learning for the vocational training within the European furniture and woodworking industry. The project furthermore refers to a former LEONARDO project – DEWEBAS. DEWEBAS works with larger transparency and credit between the different countries' education programmes for the wood and furniture industry, and forms the basis of a comparison between different countries' formal and informal competences. E-Wood aims at a close connection to this project and aims at an automated and individualised accreditation of competences.

#### **The rationale of E-wood is**

- to provide and implement systematic learning within companies and to enable them more flexibility with respect to training
- to provide supplementary training tools for SME
- to enable access to qualification for unskilled workers
- to fulfil requirements for common EU demand for machines and safety equipments
- to create training instruments that correspond to DEWEBAS and the respective training needs

### **1.3 Main purpose**

This E-Wood project is in line with the Bologna declaration from 1999, the Barcelona conclusion from 2002, and is particularly addressing the objectives of the Copenhagen declaration from November 2002. The project will contribute to improving transparency, quality and transfer of credit in national vocational education and training systems within the European furniture industry. Furthermore, it will establish recognition of non-formal competences.

- The project develops a flexible e-learning concept, which is built on open source and with learning modules packed in Scorm-standard that can be included in a LCMS-system, which makes the product usable in the planning of a lifelong learning course and in planning of flexible teaching modules at VET institutions.
- The product can be fit into the Europass and will ensure a larger degree of mobility.
- As far as possible, the project is built on self-learning and self-assessment.
- In this way, pupils and workers can acquire recognised education programmes at their own pace and with a larger degree of independence of time and space.
- Short-time educated, unskilled people and pupils will in this way get an opportunity to obtain formal recognition for acquired knowledge and non-formal competences, and the product will also ensure a flexible access to supplementary training.
- The project will also ensure that schools can have adjusted learning courses without always having to invest in new machines.
- A strong cooperation with the machine suppliers in Europe will ensure better and continuously adjusted learning concepts, which will improve the competitive power of the SMEs.

In the EU, there is already a project, the DEWEBAS, no. 2004-DK/04/B/F/PP-145-408, which works with larger transparency and credit between the different countries' education programmes for the wood and furniture industry, and forms the basis of a comparison between different countries' formal and informal competences. Experiences from this project already show a mutual interest in making common, more flexible and adjusted learning modules, and that to a great extent, the same needs must be met in different countries. The DEWEBAS has made visible and has registered each sub competence that the companies may use for mapping their desired profile. This E-wood project makes use of these already identified competences because it aims at producing corresponding Learning Objects. If a company for instance lacks qualifications or competences within the CNC-area, the com-

pany will be able to check an already existing data base to see which competences/Learning Objects they need and then piece them together in an individually adjusted education and training course. Part of the data base that was developed in the DEWEBAS-project forms the basis of this new project, E-wood, which will in an e-learning concept develop Learning Objects/part competences, which may be tested by a school or a test centre in order to formally recognise them.

**The target group is:**

- in general the 90.000 furniture producing companies (SME) in the EU
- the VET (Vocational Education Training) institutions, including students and employees

#### **1.4 Contents**

1. The E-Wood project will take a wide range of sub-competences from a data base, where the competences have already been registered, and transparency has been established within different education programmes in different EU-countries.
2. These sub-competences will be gathered into learning modules and will be packed in a Scorm-standard, which will ensure that each user can choose a textual, a visual or a verbal access to the learning material.
3. Test and evaluation will consider the chosen learning style.
4. An accomplished test will be registered and recognised in the DEWEBAS data base and will be included in the user's total education plan or supplementary training course.

#### **1.5 Organisation and valorisation**

- The project will be organised with leading vocational schools in five of the most important countries within the European furniture industry, who cover together the necessary main competences for the development work.
- The most important machine suppliers of the industry also participate in the development work and are sparring partners for the schools together with companies.
- A valorisation management team will be established, which will consist of the project's overall coordinator, the participating organisations and both parties of the Social Dialogue in Europe. They also form the steering committee behind the project.
- One representative from each of the five schools will work as the national coordinator and communicate to the overall coordinator.
- The whole network will in various ways contribute in the test phases and in dissemination and valorisation. Apart from the project website [www.e-wood.org](http://www.e-wood.org), dissemination of the project will happen via newsletters and a large open European final conference, and the whole network will participate in seminars and conferences about the issue. Links will be made from the websites of the whole network to the project website with the e-learning modules.
- The parties of the Social Dialogue will ensure that the project and the offers for learning will continuously be maintained and deeply rooted within the companies of the member countries via their national partner organisations.
- The project will ensure that there is a range of concrete modules to show companies how to provide time and space for their employees to use the learning modules in their own qualification phase.

#### **1.6 Partners**

The development group consists of four vocational schools from Denmark, Germany, Finland and Italy. A Czech partner is participating as a "sleeping partner".

1. Skive Technical Institute, Denmark
2. Berufskolleg Beckum, Germany
3. IPSIA Antonio Mattioni, Italy
4. Koulutuskeskus Salpaus, Finland
5. Stredni skola umelecka a remeslna, Czech Republic

Additionally a Steering Committee was established consisting of organisations operating on European or national level.

- The CEI-Bois
- The EFBWW
- TIB Træ Industri Byg, Denmark
- Traeets uddannelser, Denmark
- Snedkerfagets faellesudvalg, Denmark

Furthermore departments of the ministerial level respectively of high trade union level were involved.

- Ministerstvo Skolstvi, Mladeze a Telovychovy CR, Czech Republic
- Bezirksregierung Münster EU-Geschäftsstelle, Germany
- IG Metall Vorstand, Germany
- The Danish trade committee of VET of Woodmachinists, Denmark
- The Danish Ministry of Education, Denmark
- Ministero dell'Istruzione dell Universita e della recerca, Italy

## 2 Evaluation tasks

The main tasks of the Evaluation partner "Arbeit und Leben, Germany" were:

### ongoing process evaluation of:

- planning, co-ordination and collaboration in the project and at workshops
- if start and structuring of the development of e-learning elements is done
- if website is established and working
- if communication and service by website is appropriate
- if user friendliness for partners exists
- if collaboration among partners concerning development of e-learning materials takes place
- if valorisation and dissemination strategies are planned and implemented
- if measure development is in relation to plans and time schedules

### looking upon developed modules

- if the developers check this material in order to meet the needs of the target groups
- if the developers check the material concerning attractiveness and readiness to application
- if the developers check the material concerning accessibility and user friendliness for end users
- if the project partners appropriately apply the E-WOOD – DEWEBAS connection: does it work and contribute positively (add value) to both projects

### general tasks

- consulting on project management
- participation in workshops
- interim report
- final evaluation report

In the course of the project the practical evaluation activities have been:

### monitoring activities

- participation in all workshops
- member of the steering committee
- participation in virtual project meetings
- regular monitoring of the E-Wood website concerning communication and collaboration
- regular monitoring of the E-Wood website concerning the state of the art of developed eLearning material
- testing of Learning Objects

### service activities

- summary of E-Wood by mind map structure
- summary of working packages by mind map structure
- monitoring of partners work and co-operation processes with an online questionnaire (preparation, implementation, analysis, presentation) in spring 2007
- moderation and documentation of aspects of communication, production, project management, general problems and open questions on the second workshop in Lahti in September 2007
- design of reporting structures for project partners
- joint development of a progress monitor reflecting the status of the Learning Objects in autumn 2007, installation in December 2007,
- development of a questionnaire for final users to test the Learning Objects
- final evaluation questionnaire
- regular contact to project management, provision of recommendations

### reporting activities

- questionnaire report on use of website March-April 2007
- interim report on "problems and explanations of delays" for coordinators June 2007
- interim report in October 2007
- "LEARNING OBJECTS progress meter"
- interim report in February 2008
- final evaluation report in May 2009

### 3 Working process

Basically co-operation among partners was stated to be good. The social atmosphere during workshops was very good and usually partners really enjoyed working together. Conflicts practically didn't occur.

Although, it has to be stated that too often, there were lacks in communication and partners did not keep to binding agreements.

For quite a long time, it was obvious to all of the partners that the production of Learning Objects was far behind schedule. The Danish project co-ordinator reacted and employed additional personnel for technical assistance who was committed and qualified. Still the developing partners often didn't reply to E-Mails or announcements on the web-platform, and quite rarely reported on problems or asked for assistance when problems occurred. Frequently partners didn't keep to binding agreements and did not deliver in time - without communicating on this and consequently causing delays in production.

Reasons were: Some partners lacked technical / IT skills and often project obligations interfered with teaching obligations. Basically, the internet platform was easy to handle but became slightly confusing towards the end of the project. Due to these reasons developing partners felt quite overstrained at times.

An innovative element was the implementation of virtual meetings via the internet platform. These discussions were quite successful if the relevant partners participated. But since the meetings could only take place in the evenings (teachers were busy with teaching during normal working hours) this sometimes interfered with family matters and not all of the partners could participate.

Unfortunately, some of the partners being destined for the steering committee or the ministry group did not become active in the course of the project.

#### ***Excerpts from the final evaluation questionnaire:***

**How do you assess the general way of co-operation in this project? (workshops, communication via internet platform, virtual meetings, collaboration in working groups, keeping of agreements and deadlines, ....) How satisfied are you with your own contribution?**

<b>DK, Skive Technical Institute (developer)</b>	<ul style="list-style-type: none"> <li>▪ The general spirit of cooperation was good; but in practice the job to do was probably much more difficult than originally thought and planned according to the 1<sup>st</sup> workshop in Beckum.</li> <li>▪ The communication at the working platform was lacking despite reminders and appeals from OC and evaluator. The platform was probably too difficult to navigate in.</li> <li>▪ Virtual meetings were good but too often partners were absent despite earlier agreements on date and time. It was difficult to keep the meetings targeted to concrete solutions.</li> <li>▪ Agreements and deadlines was not kept – probably because the work to do was more difficult than expected.</li> <li>▪ As responsible CO I think we tried a lot to keep the project on the track and have work done. I am not satisfied as it also is my responsibility that 'this lot' seemed in vain.</li> <li>▪ In the end I think we have had a good product and that the project has been a good learning experience for project partners.</li> </ul>
<b>I, IPSIA „A.Mattioni“ (developer)</b>	<ul style="list-style-type: none"> <li>▪ The way of co-operation was good until the middle of the project but in the second year, after the responsible for additional technical support left, contacts were more difficult even on the internet and the number of Los to be developed started to be considered enormous.</li> <li>▪ Deadlines were not respected because everyday school activity took lots of time and energy to members of the group.</li> </ul>
<b>GER, Berufskolleg Beckum (developer)</b>	<ul style="list-style-type: none"> <li>▪ Working with the platform was very innovative and generally very successful. It provided the project with an organised way of communication that accounted for the various needs, time schedules and progress of the respective partners. Communication via the platform was easy to learn and has helped</li> </ul>

	<p>everybody in the project community to keep an eye on all sorts of conversations, even if one was not directly involved. Therefore we think that the use of the platform helped the project.</p> <ul style="list-style-type: none"> <li>▪ The LMS attached to the platform took some time getting used to but was workable as well. In the beginning this may have created a technical overhead, but as stated above, this did not hinder the project in the long run.</li> <li>▪ The virtual meetings introduced a new way of keeping project work together in between the workshops. They were at times more successful than on other days, depending on the availability of single partners. Sometimes they appeared to be difficult to schedule and when one could not take part, the structure of the conversation in the virtual meeting as displayed on the platform made it somewhat unusual to read up on what had happened.</li> <li>▪ The workshops themselves were very productive, due to the commitment of all partners, be they hosts or guests. Working in groups (steering committee and producers) was very effective and dedicated, as for example the discussion concerning the evaluation questionnaire showed in a very positive way.</li> </ul>
<b>FIN, Koulutuskeskus Salpaus (developer)</b>	<ul style="list-style-type: none"> <li>▪ The workshops were well arranged but I missed more concrete workshops. On my view, we could have achieved more and in less time had we spent time in practical working during the workshops.</li> <li>▪ Also, we would have saved time, had we realised the lack of our skills in good time and asked for help earlier. We were late in providing the LO's as we could not get the needed Flash programme in time and could not learn how to use it as it has not been used in our organisation before. It seems to me that there was a profound misunderstanding on the IT skills needed and possessed between the Danish coordinator and us, the Finnish partner. We did not even know what to ask for help. Fortunately we found a solution (the Danish coordinator took over to use the Flash instead of us).</li> <li>▪ The logic of the internet platform was a bit difficult to understand and remember. Also it seemed, that you could not be sure where to find the material you searched for.</li> <li>▪ The virtual meetings were difficult to participate as they were arranged late in the evening Finnish time. Also, it was not easy to follow the several discussion lines going on simultaneously.</li> <li>▪ However, the virtual platform proved to be very useful in two – to – two conversations between the Finns and the Danish, when we needed specific and detailed answers to our questions. Only, we should have thought of it a few months earlier to save the frustration on both parties.</li> </ul>
<b>CZ, Secondary School of art and handicraft Prague (sleeping partner)</b>	<ul style="list-style-type: none"> <li>▪ I think the cooperation was very good and the communication among partners too. As a "not-full-working" partner we didn't take part in all discussions</li> </ul>
<b>DK, Trade Committee of VET of Wood machinists</b>	<ul style="list-style-type: none"> <li>▪ It should/could be a good form for collaboration, but it's not easy when each member of the team have their daily work to do beside the project. But my impression is that the process of work has become better by the time.</li> </ul>
<b>DK, TIB</b>	<ul style="list-style-type: none"> <li>▪ I think the general way is okay, but because of my own situation as described earlier I find it difficult to come up with alternative suggestions.</li> </ul>
<b>GER, EU Service Center, Münster</b>	<ul style="list-style-type: none"> <li>▪ The workshops were productive and helped the project in adjusting its aims according to the circumstances in the different partners' countries.</li> <li>▪ In the course of the workshops the work in the steering committee progressed well.</li> <li>▪ The virtual meetings were a new way of communicating which took a while getting used to. It proved to be effective in keeping in touch with each other and helped the general availability of all parties involved in the project.</li> <li>▪ Deadlines and agreements were kept according to modified aims in the project.</li> </ul>

#### 4 Production Process

The production of the Learning Objects was a rather complex and time consuming process that had to be agreed with four European developing partners, each of them having different levels of IT-skills.

Although, there existed a template for Learning Objects provided by the Danish partners it took time before all partners could agree on common technical and pedagogical standards as well as on a standard for production processes. Additionally it took time until all partners had the sufficient IT-competences.

1. The story boards have been developed by the respective vocational schools, enriched with video and picture / photo material, being inserted in flash, packed as SCORM and uploaded to LMS.
2. On the LMS platform quality approval by the project partners has taken place. After being quality approved the Learning Objects were ready for translation into the respective national languages.
3. The translated story boards had to be inserted into flash again and had to be uploaded to the final platform.

This process was complex and required a high level of specific IT skills, close co-ordination and a lot of time.

The organisation of the quality approval process was difficult as well. It was not easy to discuss language problems, technical and safety problems and last but not least pedagogical problems via the internet platform. Such a procedure requires time and resources. Thus the final quality approval has taken place on a minimum level, but there didn't seem to be a more efficient solution.

Testing the Learning Objects was another task. Eventually this was mostly done by the Czech partner even testing was originally foreseen for all developing partners. There was a serious discussion what should have been done if important modifications would have been necessary. This would have required another complex procedure and partners didn't have the resources of taking efforts in large changes. Thus, the completed Learning Objects were quality approved in a more or less "generous" way.

It has to be stated that the technical discussions required so much time that there was hardly time left to lead profound discussions on pedagogical aspects and the needs of the final target groups – low / unskilled workers and students.

Besides there was no time to discuss about the future implementation of E-Learning within companies. E-Learning has to be implemented systematically within companies and human resources managers as well as workers have to be trained to get acquainted with E-Learning. This important prerequisite was definitely neglected in the beginning of the project – but due to time reasons.

In order to facilitate an easy overview on the production process in autumn 2007 evaluation and project management jointly developed and installed a so called “LO progress meter” on the web platform. This instrument was designed to provide an overview for all partners concerning the working status of LOs, the tasks having accomplished so far and the tasks still to be done. The developers were asked to regularly update it. This was considered to be a quite innovative aspect within the project.

The screenshot shows the 'German progress' page on the e-wood platform. The page header includes the e-wood logo and the tagline 'Electronically based Education for the WOOD technology branch'. The main content area is titled 'Home » Progress in LO' and 'German progress'. Below the title, there are 'view' and 'edit' buttons. The page indicates it was submitted by 'jenscbc' on 'Thu, 2007-12-20 13:23'. The main table lists five LOs, all with a 100% completion status. The table columns are: QA, % done, LO no., Responsible, Country, Start planned, and End planned.

QA	% done	LO no.	Responsible	Country	Start planned	End planned
	100	8_84_516_517_518_519_520	Peter Hinkel	DE	2007-12-20	2008-0
	100	8_85_521_522_523_524_525_526_527	Peter Hinkel	DE	2007-12-20	2008-0
	100	8_89_540_541_542	Peter Hinkel	DE	2007-12-20	2008-0
	100	8_83_513_514_515	Peter Hinkel	DE	2007-12-20	2008-0
	100	8_82_509_510_511_512	Peter Hinkel	DE	2007-12-20	2008-0

The “% done” status reflected the following criteria:

- 25% Storyboard
- 40% Material
  - Picture material (finished edited material)
  - Film material (finished edited material)
  - Quiz questions and material (finished edited material)
- 25% Inserted in flash
- 5% Upload to e-wood.org
- 5% packed as SCORM

## 5 Results and products

### 5.1 what could not be achieved:

- The total number of Learning Objects as being foreseen in the application could not be completed. All partners stated in the final evaluation questionnaire that this objective was too ambitious.
- Also, the total number of Learning Objects being agreed on with the project partners are still not completed. Some few Learning Objects have still to be produced and some translation work has still to be done. But all partners promised to deliver this work even after the deadline of the project.
- Especially, the link to the companies is more or less missing but for various reasons: In Denmark the companies being involved have not been the right addressees for the Learning Objects. Basically it was difficult to address companies since, for a long time, the website with the final Learning Objects was under construction and partners did not want to show incomplete products. Notably, the sleeping partner (Czech partner) was most active in building up contacts to enterprises and introducing the Learning Objects to them.

#### *excerpts from the final evaluation questionnaire:*

#### **What about co-operation with enterprises of the wood and furniture industry in order to introduce the Learning Objects to them?**

<b>DK, Skive Technical Institute (developer)</b>	<ul style="list-style-type: none"> <li>▪ The company partners have been very little involved in the project. Most of them are machine producers and have delivered material to use for the LOs (multimedia sequences, pictures). Their crews are not obvious target groups for E-WOOD material.</li> <li>▪ We will introduce the LOs when we visit wood and furniture companies in connection with training agreements with their apprentices and when we have their employees on courses at school.</li> <li>▪ Further when we screen company competences using DEWEBAS we will also introduce E-WOOD as a tool for continued education.</li> </ul>
<b>I, IPSIA „A.Mattioni“ (developer)</b>	<ul style="list-style-type: none"> <li>▪ Co-operation with enterprises has been difficult as usual. We still have to introduce the project results to companies in the surrounding industrial area.</li> </ul>
<b>GER, Berufskolleg Beckum (developer)</b>	<ul style="list-style-type: none"> <li>▪ So far there has not been any cooperation with the wood and furniture industry.</li> <li>▪ However as there are regular meetings between teachers of our institution and trainers of the trade and industry, we plan to show the Learning Objects to trainers to introduce them to the project's results.</li> <li>▪ Furthermore we will show the project results to teachers from other schools in regular material exchanges.</li> <li>▪ Also the project's results will be presented on the school's website and thereby will be made available to a wider public in the woodworking industry.</li> </ul>
<b>FIN, Koulutuskeskus Salpaus (developer)</b>	<ul style="list-style-type: none"> <li>▪ Now that the website is almost ready we can start disseminating the site for wider public and to the enterprises of the trade.</li> <li>▪ Most important, we can use the material when arranging and giving further training for personnel of companies.</li> </ul>
<b>CZ, Secondary School of art and handicraft Prague (sleeping partner)</b>	<ul style="list-style-type: none"> <li>▪ We cooperate with about 50 enterprises and together are preparing courses for uneducated and low educated people – employees from the enterprises and for unemployed people.</li> <li>▪ In this education we will use the LOs too, both as part of courses at school and as part of home preparation.</li> </ul>
<b>DK, Trade Committee of VET of Wood machinists</b>	<ul style="list-style-type: none"> <li>▪ In future E-wood will have a close relationship to DEWEBAS and <a href="http://www.maskinkorekort.dk">www.maskinkorekort.dk</a> so it will certainly be used in education.</li> </ul>
<b>DK, TIB</b>	<ul style="list-style-type: none"> <li>▪ Haven't started yet, but we will do so. The financial crises had made it very difficult to do anything.</li> </ul>

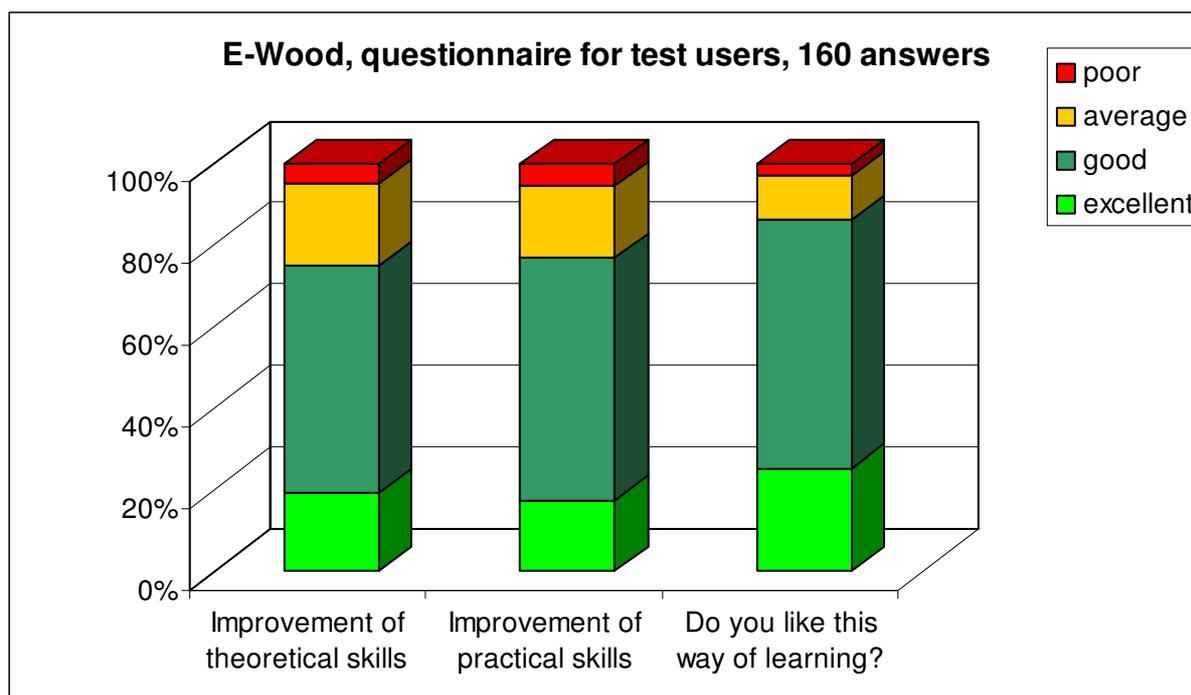
<b>EU Service Center, Münster, GER</b>	<ul style="list-style-type: none"> <li>▪ The main role of the EU Service Centre after the active lifetime of the project will be to disseminate the project's results.</li> <li>▪ The main target group for the EU Service Centre are Vocational Colleges and its personnel as well as other educational institutions. In the course of dissemination activities in this line. Enterprises may be addressed as well but this is not a primary objective.</li> </ul>
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- The objective "One year after termination of the project more than 30.000 employees and students will have used the modules" (stated in the application) will definitely not be realised.

**5.2 what has been achieved:**

- About 22 Learning Objects with 46 training quizzes have been produced and are mostly translated into five languages: English, Danish, German, Finish and Italian.
- Each Learning Object contains an additional feedback questionnaire in order to evaluate the quality of the Learning Objects concerning correction and improvement.
- These Learning Objects cover about **more than 101** sub competences of DEWEBAS.
- The Learning Objects are published on a website that will be continued after the end of the project: <http://www.wooddomain.dk>
- The quality of the Learning Objects was rated positively.

Altogether 169 test users filled out an electronic questionnaire on several Learning Objects. 93 % were test users from the Czech Republic. Nearly 80% of the test users were teachers.



Generally there was a very positive judgement on the Learning Objects. About 65% indicated that the learning modules helped to improve their theoretical skills in an excellent or a good way. This was quite similar concerning the improvement of the practical skills. About 80% of the test users liked this way of learning and more than 80% indicated that they would continue with this way of learning.

**So altogether this could be considered as quite a success!**

All developing partners are planning to use the Learning Objects as an additional teaching element for their courses at vocational schools and appreciated particularly the chance to use it as a bilingual teaching instrument. Originally, this effect was not intended in the application but turned out as a very useful additional benefit.

In Denmark the Learning Objects will be an integral part of the training for the machine driving license.

**excerpts from the final evaluation questionnaire:**

**Do you already apply the project results within in your own institution or are you planning to do so?**

<b>DK, Skive Technical Institute (developer)</b>	<ul style="list-style-type: none"> <li>▪ We will promote the results stronger from now but have been told by colleagues that this material is good for trainees that have poor reading abilities. We expect the Danish LOs to be incorporated in a common use of DEWEBAS: <a href="http://www.dewebas.org/">http://www.dewebas.org/</a> ,</li> <li>▪ Machine driving license: <a href="http://www.maskinkorkortet.dk/">http://www.maskinkorkortet.dk/</a> and E-WOOD: <a href="http://www.e-wood.org/">http://www.e-wood.org/</a> - The Machine driving license is obligatory for all trainees who shall use machines in workshops at Danish VETs. The e-learning at <a href="http://www.e-wood.org/">http://www.e-wood.org/</a> is good background learning material for this and may therefore be expected to have a wide use little by little.</li> </ul>
<b>I, IPSIA „A.Mattioni“ (developer)</b>	<ul style="list-style-type: none"> <li>▪ We are planning to use the Los with adult students of English in the evening courses at our school especially during English lessons: the Los will be a good tool for teaching English, for approaching ICT and of course for learning about woodworking machinery</li> </ul>
<b>GER, Berufskolleg Beckum (developer)</b>	<ul style="list-style-type: none"> <li>▪ Learning Objects developed within the project have already been used in classes of the dual system. They have been used as teaching material in the widest sense, i.e. providing information or as self-assessment.</li> <li>▪ There is the intention of some material being used in classes which lead up to 10<sup>th</sup> year graduations and basic vocational training.</li> </ul>
<b>FIN, Koulutuskeskus Salpaus (developer)</b>	<ul style="list-style-type: none"> <li>▪ We are planning to apply the LO's. We are developing e-learning methods to be used in adult education in wood technology where e-learning has not been used before.</li> <li>▪ Also, the material is usable in language learning.</li> </ul>
<b>CZ, Secondary School of art and handicraft Prague (sleeping partner)</b>	<ul style="list-style-type: none"> <li>▪ We are planning to use the LOs in school education – both in professional subjects (technology, material, machines) and in language preparation (English and German versions).</li> <li>▪ We already tried to do that and the teaching in classes was very successful.</li> </ul>
<b>DK, TIB</b>	<ul style="list-style-type: none"> <li>▪ In DK we are planning to use the LO. We already have an E-learning system about health and safety – Machinery drivers license. – <a href="http://www.maskinkorkortet.dk/">www.maskinkorkortet.dk</a> The new LO will be implemented in this system, as soon as the time allows us to do so.</li> </ul>

- Each Learning Object contains a test which can lead to a registration of acquired competences in DEWEBAS. Users can decide individually if they want to get their competencies acquired by the Learning Objects registered on DEWEBAS.
- Project partners have promised to promote the project results and to inform enterprises after the termination of the project – thus sustainability can be assured.

**excerpts from the final evaluation questionnaire:**

**Within the context of final evaluation activities the partners have been asked what they would state as the particular success of the E-Wood project:**

Altogether the partners are quite satisfied with the results of the project.

<b>DK, Skive Technical Institute (developer)</b>	<ul style="list-style-type: none"> <li>▪ The partnership started with very different development competences. Despite this it developed 22 LOs including a lot of sub competences which is now available in 5 languages worldwide free to use by anybody at any time they wish.</li> <li>▪ Using the test connected with each LO the competences learned in the learning process can be registered in DEWEBAS.</li> <li>▪ With all the difficulties considered I find this a success if related to resources granted. No doubt we have become better to estimate how much time and technical talent is needed for this kind of production. No doubt developers have developed a lot together during the process.</li> </ul>
<b>I, IPSIA „A.Mattioni“ (developer)</b>	<ul style="list-style-type: none"> <li>▪ I think the amount of material produced can be considered a success.</li> <li>▪ The quality has to be improved.</li> </ul>
<b>GER, Berufskolleg Beckum (developer)</b>	<ul style="list-style-type: none"> <li>▪ Generally we see the project in a positive light. At the moment it is a bit early to rate its success as not all material has been used in class and/or revised (see above). In a project relating to teaching material this appears to be quite normal, in particular because teaching is a dynamic process and so is the creation of corresponding material.</li> <li>▪ The use of multimedia learning proved to be difficult in terms of the production of the material, yet it was interesting and left an impression of having been involved in future oriented learning and teaching (with respect to flexibility in paying attention to the individual learner's needs and trying to account for them with material).</li> </ul>
<b>FIN, Koulutuskeskus Salpaus (developer)</b>	<ul style="list-style-type: none"> <li>▪ The particular success of the project is the e-learning material in several languages. It can serve as learning material in native language but is also usable in studying foreign languages.</li> <li>▪ We are quite satisfied but hope to be able to complete the existing material with the missing translated parts.</li> </ul>
<b>DK, Trade Committee of VET of Wood machinists</b>	<ul style="list-style-type: none"> <li>▪ The particular success of the E-Wood project has been the transverse cooperation about e-learning.</li> </ul>
<b>EU Service Center, Münster, GER</b>	<ul style="list-style-type: none"> <li>▪ Generally the project is seen as rather successful. While it became apparent from an early stage on that technicalities slowed work down, a strong effort was made by material producers to meet first the application's aims and then the changed aims set up in the meetings following the kick-off conference.</li> <li>▪ Likewise the steering committee reflected on the progress of the Learning Objects and its member contributed each to their respective best knowledge in order to help the project's result.</li> </ul>

**The rationale of E-wood was:**

- to provide and implement systematic learning within companies and to enable them more flexibility with respect to training
- to provide supplementary training tools for SME
- to enable access to qualification for unskilled workers
- to fulfil requirements for common EU demands for machines and safety equipments
- to create training instruments that correspond to DEWEBAS and the respective training needs

The rationale of E-Wood could not be achieved completely – but the basis could be set. Some parts of the implementation have still to be achieved.

Within the application, it was stated that the parties of social dialogue should take a leading role with respect to sustainability. “The parties of the Social Dialogue will ensure that the project and the offers for learning will continuously be maintained and deeply rooted within the companies of the member countries via their national partner organisations.”

This would assure sustainability if this objective would be further supported.

## 6 Valorisation and dissemination

Due to the delay in producing Learning Objects and a rather small number of accomplished Learning Objects by the end of 2007, it was difficult to start the valorisation and dissemination process at an early stage of the project e.g. to address companies (final beneficiaries) or partners of social dialogue (partners for valorisation strategy). The production of Learning Objects was an initial step. Since this step was behind schedule, a number of consequent steps were also delayed and for quite a long time there was nothing to present to the public.

In the further course of the project, it turned out that the timetable planned in Italy, April 2008 could not be kept as foreseen. Due to these circumstances the temporary website with the Learning Objects was still under construction. Not all Learning Objects were uploaded in all agreed languages, translation was still missing in parts and the link to DEWEBAS not yet working. Consequently, most partners decided that the website / the Learning Objects could not be presented to companies or to other partners.

Yet a number of valorisation activities did take place in the meantime, mainly by the Danish partner. A final valorisation conference that was scheduled for Brussels was shifted to be a final meeting for developers and held in Denmark in February 2009. Since the temporary website was not completed and under construction it was decided that major dissemination and valorisation activities should start after the termination of the project (from April 2009). So far, mainly the Danish partner introduced the website in conferences or to important stakeholders within Denmark.

But all partners promised to support valorisation activities even after the termination of the project. A valorisation plan was set up by the Danish co-ordinator but eventually an overall valorisation strategy being agreed on by all partners was not implemented. This would have certainly been very helpful for the project.

### *excerpts from the final evaluation questionnaire:*

**Please list up the activities that your institution / organisation has already undertaken with regards to dissemination and valorisation up to now respectively which activities are planned for the future?**

<b>DK, Skive Technical Institute (developer)</b>	<ul style="list-style-type: none"> <li>▪ We have introduced DEWEBAS and E-WOOD by mail to new international connections in Turkey, Italy, Ireland, France, Czech Republic, Finland, China, Vietnam, Germany, Norway, Sweden.</li> <li>▪ Old collaborators in Finland and Denmark have also been introduced to the sites. In all meetings in new projects: COMPEDA, FACILICODE, WOODPORT and seminars in Denmark we have brought brochures from the E-WOOD project and told about the work done. We will continue this dissemination and hope to be able to do it even more efficiently when we get more experience in our own use of the material.</li> <li>▪ We will introduce the LOs when we visit wood and furniture companies in connection with training agreements with their apprentices and when we have their employees on courses at the school. Further when we screen company competences using DEWEBAS we will also introduce E-WOOD as a tool for continued education.</li> <li>▪ We will promote the results stronger from now but have been told by colleagues that this material is good for trainees that have poor reading abilities.</li> <li>▪ We expect the Danish LOs to be incorporated in a common use of DEWEBAS: <a href="http://www.dewebas.org/">http://www.dewebas.org/</a> , Machine driving license: <a href="http://www.maskinkorekort.dk/">http://www.maskinkorekort.dk/</a> and E-WOOD: <a href="http://www.e-wood.org/">http://www.e-wood.org/</a> .</li> <li>▪ The Machine driving license is obligatory for all trainees who shall use machines in workshops at Danish VETs. The e-learning at <a href="http://www.e-wood.org/">http://www.e-wood.org/</a> is good background learning material for this and may therefore be expected to have a wide use little by little.</li> <li>▪ We introduce the E-WOOD project to educational ambassadors from companies working with educational planning.</li> </ul>
<b>I, IPSIA „A.Mattioni“ (developer)</b>	<ul style="list-style-type: none"> <li>▪ The project has been disseminated through articles in the regional newspapers, during exhibitions at school and outside.</li> <li>▪ We are planning to give information about the project results in a website organized by the administrations of three municipalities of the province of Udine: San</li> </ul>

	Giovanni, Corno di Rosazzo and Manzano ( <a href="http://www.ilnostrocomune.com">www.ilnostrocomune.com</a> )
<b>GER, Berufskolleg Beckum (developer)</b>	<ul style="list-style-type: none"> <li>▪ The project is mentioned on the school's internet homepage.</li> <li>▪ Also, since Beckum conducted the kick-off workshop, there has been a press article which covered this event.</li> <li>▪ The staff responsible for public relations and press contacts in the Vocational College Beckum is currently writing press releases about the project work and its result. We are in trying to have these article published in the local press and in subject related magazines of the woodworking industry.</li> <li>▪ Valorisation of the project results will mainly take place in our school and in networks as mentioned in the answer to the question concerning "cooperation with enterprises". The use of the material can, for example, lead to some of it being restructured or changed.</li> </ul>
<b>FIN, Koulutuskeskus Salpaus (developer)</b>	<ul style="list-style-type: none"> <li>▪ We have disseminated information about the on-going work to the Lahti University of Applied Sciences / Wood technology.</li> <li>▪ Since the work has been still going on and the site is not yet quite ready, we did not want to disseminate it in full effort. On our view, disseminating an incomplete process to possible end users may have a discouraging effect. It is much better to disseminate a website that is ready. The problem was that the website was nearly ready at the end of the project.</li> <li>▪ What comes to valorisation, the best method on our view is to take it in use and use it within all wood related training whether the participants are full-time students or company personnel.</li> <li>▪ We have also a lot of connections to other colleges in Finland and can let them know and use the site as well. This information will be disseminated within our normal co-operation with the college teachers.</li> <li>▪ We have also made a link to the open website from our own website, but we hope that the translations will be completed and the project website maintained despite of the project ending.</li> </ul>
<b>CZ, Secondary School of art and handicraft Prague (sleeping partner)</b>	<p>now:</p> <ul style="list-style-type: none"> <li>▪ information about E-WOOD and LOs in preparing the courses, mainly in cooperation with enterprises</li> </ul> <p>future:</p> <ul style="list-style-type: none"> <li>▪ using in education</li> <li>▪ information to schools which offers education in the same branch</li> <li>▪ information to enterprises which collaborate with our partners</li> </ul>
<b>DK, Trade Committee of VET of Wood machinists</b>	<ul style="list-style-type: none"> <li>▪ In future E-wood will have a close relationship to Dewebas and <a href="http://www.maskinkorekort.dk">www.maskinkorekort.dk</a> so it will certainly be used in education.</li> </ul>
<b>DK, TIB</b>	<ul style="list-style-type: none"> <li>▪ As soon as we have implemented the results of E-wood, we will disseminate that way with brochures ect.</li> </ul>
<b>EU Service Center, Münster, GER</b>	<ul style="list-style-type: none"> <li>▪ As for valorisation, this is not an objective of the EU Service Centre in the course of this partnership since we do not use the Learning Objects ourselves in any way.</li> <li>▪ So far the EU Service centre has reported the project and its own involvement on the EU Service Centre's Internet site.</li> <li>▪ For further dissemination purposes the EU Service Centre will make use of its wide national network of vocational training institutions.</li> </ul>

## 7 Additional project benefits

Apart from the intended objectives of the project application there were some additional benefits for the project partners, notably: the improvement of IT-skills, language skills, experiences with European projects, getting to know each others teaching work and improving mobility.

*excerpts from the final evaluation questionnaire:*

**What kind of positive or additional benefits did the project have**

▪ **on your personal level (e.g. improvement of skills) - on your institutional level**

<b>DK, Skive Technical Institute (developer)</b>	<ul style="list-style-type: none"> <li>▪ It has been a human enrichment to meet very nice, dedicated people from different countries, different cultures. And to see the countries in which we held workshops: Beckum in Germany, Salpaus in Finland and Cividale in Italy.</li> <li>▪ Our school has found partners which we will be able to use for exchanging students.</li> <li>▪ It is important to notice that we tried new features to make cooperation better:             <ul style="list-style-type: none"> <li>○ Virtual meetings on development</li> <li>○ Virtual status of production on the website so everybody could follow exactly how far partners were compared to their planned work</li> <li>○ And more....</li> </ul> </li> </ul>
<b>I, IPSIA „A.Mattioni“ (developer)</b>	<ul style="list-style-type: none"> <li>▪ At personal level: improvement of ICT skills (for example through taking part in virtual meetings on the internet), improvement of translation skills (technical words linked with the woodworking sector) and teaching skills.</li> <li>▪ At institutional level: experience in European Leonardo projects, contact with vocational schools in Europe</li> </ul>
<b>GER, Berufskolleg Beckum (developer)</b>	<ul style="list-style-type: none"> <li>▪ In both the personal level for all teachers involved and the institutional level the transnational cooperation was very beneficial.</li> <li>▪ Seeing networking, teaching, organizational structures and cooperating with partners from abroad provides an insight on the work others do and the way they do it. At the same time it leads to a reflection of one's own job, organization and way to work.</li> <li>▪ Furthermore the project leads to an extended readiness in some of our teaching staff to attempt further mobility projects or the taking part in partnership programs. Seeing how interesting and in some respects easy it can be to collaborate with partners from abroad has had a very positive influence.</li> <li>▪ A minor effect, but not to be neglected, was the chance for some of the staff to reactivate their use of English (as a foreign language).</li> </ul>
<b>FIN, Koulutuskeskus Salpaus (developer)</b>	<ul style="list-style-type: none"> <li>▪ Personal level: Increased IT – skills and language skills.</li> <li>▪ Institutional level: New e-learning material to build an e-learning system on to better serve the needs of the local working life.</li> </ul>
<b>CZ, Secondary School of art and handicraft Prague (sleeping partner)</b>	<p>my personal level</p> <ul style="list-style-type: none"> <li>- improving the skills in wood-working area (as facts and more – in English)</li> <li>- gaining experiences in international project</li> <li>- gaining friends</li> </ul> <p>institutional level</p> <ul style="list-style-type: none"> <li>- cooperation with foreign schools in wood-working branch</li> <li>- rich learning and teaching materials</li> <li>- teachers and students motivation for learning foreign languages</li> </ul>
<b>EU Service Center, Münster, GER</b>	<ul style="list-style-type: none"> <li>▪ Like previous pilot projects in which the EU Service Centre had taken part, this project involved a lot of discussion and repeated planning and restructuring. In this respect working in this project increased our practice in diplomatic conversation and compromise.</li> <li>▪ Moreover the project work provided new contacts to international partners or strengthened those already existent.</li> <li>▪ Working with an interactive platform showed a new way to keep up to date with the development in the project.</li> </ul>

## 8 Problems – lessons learned

### Why was it so difficult to produce the Learning Objects and why was it so difficult to apply the modules in vocational schools and companies?

First of all it has to be stated very clearly that this project was a very complex one. Five European partners were in charge of developing and producing a joint product. This task wasn't part of their regular professional duties and they had to integrate the project work into their daily teaching obligations.

#### *excerpts from the final evaluation questionnaire:*

#### **Finally – according to your experiences with E-Wood – how would you describe your “lessons learned” at the end of the project? What would be your recommendations?**

<b>DK, Skive Technical Institute (developer)</b>	<ul style="list-style-type: none"> <li>▪ It is important to make a realistic estimate of what actually can be made in a project. If you have too high ambitions you may drag a bag of frustrations after you through the rest of the project. And this in itself is counter productive!</li> <li>▪ It is important to make sure that the objects to reach is understood by everybody.</li> <li>▪ It is important that the difference of capability is not too big. (there were times in this project where some developers felt frustrated because they could not find out how to do it).</li> <li>▪ It is important that managers at the schools secure participants in projects enough coherent time to develop and produce. Too short work periods with this kind of work is waste of time.</li> <li>▪ It is important to create an atmosphere where participants feel free to communicate that there are things they need help to. (evaluator tried several times without much success to examine why deadlines were overrun, work not done, to be able with coordinator to put more efforts at the right place).</li> </ul>
<b>I, IPSIA „A.Mattioni“ (developer)</b>	<ul style="list-style-type: none"> <li>▪ Maybe the objectives were too ambitious: less products, more quality would be good.</li> </ul>
<b>GER, Berufskolleg Beckum (developer)</b>	<ul style="list-style-type: none"> <li>▪ In general we strike a positive balance of this project.</li> <li>▪ However, due to the technical difficulties mentioned above, one of the lessons learned is that time management could have been better at times.</li> <li>▪ Looking back it seems that more time would have been needed to plan the work load that had to be accomplished. Probably it would have been a project in itself to plan some aspects of this project.</li> </ul>
<b>FIN, Koulutuskeskus Salpaus (developer)</b>	<ul style="list-style-type: none"> <li>▪ In the planning phase of a project, you can never ask too many questions; is this project really feasible, do the partners really have the skills needed, is the amount of work realistic when taking into account that the project work is usually something extra that has been given to you to do apart from teaching.</li> <li>▪ In managing a project, good communication skills and good human management skills are needed. Never give up your good spirits, because to success a project needs esprit de corps, a good atmosphere between the project partners. A good atmosphere makes you want to work harder because of your friends.</li> </ul>
<b>EU Service Center, Münster, GER</b>	<ul style="list-style-type: none"> <li>▪ Lessons learned: transnational projects need to be carried out with more flexibility due to the project inherent dynamics of international teams.</li> </ul>

**project application:** To start with a common understanding of the project, the objectives of the project application should really be clear to every partner and all partners should agree and be committed to these objectives. If it becomes clear at an early stage that objectives are too ambitious, the objectives should be jointly modified. Partners should check in the beginning if objectives are realistic otherwise they will get frustrated in the course of the project. Objectives should be checked, discussed and optionally modified throughout the whole project period. An important factor is also the allocation of resources. Very often this allocation is not clear to partners and a general overview on resources is not existing available. A simple instrument to summarize and illustrate objectives and work packages could be mind maps. In the beginning of the project, the full meaning of the objectives were probably not clear to the partners and the workload was deeply underestimated.

**Objectives, resources and obstacles:** The objectives of the project application were very ambitious, probably unreachable with the resources being available.

In the application a considerable number of Learning Objects were promised but only limited resources have been available. The question is, if resources have been sufficient.

Obviously, the time for the production of Learning Objects was underestimated and time resources were not sufficient. A realistic time estimation only for the production phase was already considered to be about 13 hours for one module without testing and quality discussion. Taking into consideration the time resources being available for the project, it becomes obvious that the scheduled number of Learning Objects couldn't be accomplished.

Additionally there were serious problems with copy rights. Either the partners had to produce all material by themselves which would have been extremely time demanding, or they had to clear the copy rights which would also have been difficult and time demanding.

The production of Learning Objects is much easier and more professional if appropriate technology (like content systems) is available. Most of the partners didn't have the budget to afford this technology respectively the budget has been underestimated.

The Learning Objects had initially to be discussed internally in a quality group. Also here seemed to be a lack of personnel resources.

For time reasons, a pedagogical discussion has hardly taken place.

The Learning Objects had to be translated. Here was also a lack of resources (budget for professional translation) respectively know-how (language skills concerning the developers).

**lack of universal European standards:** It turned out that it was very difficult to agree on contents that reflected each partners national standards. Safety regulations and ways of production and processing are not equal in the different member states. It had to be agreed on minimum equal standards but this process was also time consuming. It should not be underestimated that it is rather difficult to develop "one fits for all" Learning Objects, and that sometimes it is almost impossible to agree on "universal European production processes or standards".

**lack of professional competences:** Another problem was, that in the beginning, not all of the partners had the necessary competences to produce the Learning Objects. Only the Danish partner was experienced in producing E-Learning modules. To all of the other developing partners this has been a new task which required time and resources for learning and qualification processes. All partners should state clearly if they have the necessary competences for product development. If competences are missing it should be stated clearly who is responsible to train the competences (project management or project partners) and if training of competences will need extra resources of the project or is a task of the partners. It should also be discussed if a lack of competences will affect the project schedule. In development projects it should be stated clearly which competences are mandatory right at the start of the project.

**lack of pilot modules / templates:** Although, there existed a template for the development of Learning Objects it turned out that it took time until every partner had the very idea of how to develop the Learning Objects. Quite a few resources were "wasted" until an agreement of common standards was developed. But this was also rooted in a lack of communication and in insufficient working conditions.

**insufficient working conditions:** In projects dealing with school staff it should be considered that project work very often interferes with teaching obligations and that project work very often has only the second priority. All project partners should guarantee that the school staff being involved has the resources and the working conditions to combine teaching obligations with project obligations.

**communication among partners:** Transnational development projects need extreme professional project management since they are highly complex. Professional tools should be used for communication. Communication should take place regularly and responsibilities should be named, including their responsibilities and duties. In the beginning it should be agreed on consequences if the communication tasks and responsibilities are not fulfilled. Regular project overviews providing information to all partners about the state of the art, should be done professionally.

Particularly in projects dealing with school staff it should be considered if project communication can take place at regular working hours. Very often this interferes with teaching obligations and is hardly possible. Communication within the evening hours is not accepted by all project partners since it interferes with family life.

In this project it turned out that some of the partners did not fulfil their communication duties. Problems were not actively reported by partners and it was difficult to find solutions if partners were not willing to communicate on their problems.

**web based communication:** Communication was mainly web based. Generally this was an adequate tool. But sometimes project partners didn't use this communication tool adequately or did not react to comments. In the course of the project the platform became slightly confusing because of too many articles and contributions and nobody really felt responsible in mastering the contents.

**role of project management and other coordinating functions:** In the beginning of a project the role of the project manager and the role of other coordinating parties should be discussed.

Very often there are two positions: the project manager as a moderator and facilitator who is mainly responsible for administration, finances and communication with national agencies etc. and who basically expects self-responsibility of the other partners - or the project manager with a strong leading and steering role who also takes responsibilities for the objectives of the project and who ties up the whole project.

If sub-coordinating functions are installed also the obligations and responsibilities of these functions should be settled in the beginning. If these positions are not clear in the beginning, partners will have different expectations in each others roles which will frequently lead to misunderstandings and mutual disappointment. The different roles and responsibilities could have been more clarified in the beginning of this project.

**breaking of obligations and agreements:** It should be discussed in the beginning of a project what will be the consequences if obligations and agreements are not kept respectively if they are broken or behind schedule. A "code of conduct" should be set up. Another instrument might be "payment for performance" instead of regular payment of instalments. First of all, the responsibilities of active reporting should be discussed. If project partners don't keep their obligations / deadlines it should be each project partners responsibility to report this actively to the project management and to make a proposal for alternative solutions. Very often this communication does not take place and project management has to figure out about the problems instead of being actively informed about them. In this project partners did not always indicate problems or kept to the jointly agreed schedule. This caused delays.

## 9 Summary

1. Objectives of the application could only be realised partly, since they seemed to be too ambitious.
2. Several project conditions have slowed down the production of Learning Objects.
3. A number of good quality Learning Objects are existing on a continuing web platform and can be used by the public (companies and VET institutions).
4. Some of the Learning Objects have still to be completed concerning translation.
5. The link to DEWEBAS is existing.
6. For various reasons it was difficult to introduce the Learning Objects to enterprises so far.
7. Project partners have promised to do this after the termination of the project.
8. Project partners have also promised to support further valorisation activities after the termination of the project.
9. Vocational schools will implement the Learning Objects for bilingual teaching.
10. Project partners enjoyed the project co-operation and gained additional benefits from the project, in particular ICT skills and in experiences in transnational co-operation.
11. Altogether the project partners rate the project as quite successful.