Annex 5

Training needs analysis of trainers and teachers from the vocational education sector
Introduction

In order to apply the adapted model for training trainers and teachers working in the vocational education sector, a research was conducted to identify the knowledge and competences, as well as the training needs of a wider group of professionals. Taking into consideration the wide variety of representatives of this sector, as well as the wide variety of formats of education, and the lack of national centralized policy in the field, we approached the research goals using a strategy of pre-selection of the representatives of the main target groups to participate in the research:

- We met representatives of the National Agency for Vocational Education and Training (http://www.navet.government.bg). After clarification of the goals and contents of our project, we received a list of e-mails of teachers in the secondary vocational education, who a) actively participate in project activities within Leonardo and other national and international programmes and projects; b) use technologies in their teaching practice. The list contains 86 teachers in different subject areas in different professional and vocational profiles.

- We invited the members of the national association of the university lecturers in the field of e-learning or other active users of electronic or distance learning who train teachers and trainers to participate in a survey (an online questionnaire) – the number of people invited to take place in the research was 147.

- We contacted the National and Regional vocational training centres and lifelong learning centers and invited 27 of their trainers to take part in the same survey. The target group of these trainers consists of people working in small or medium businesses, teachers from the vocational schools, and unemployed with the goal of supporting them to enter the labour market.

- We invited the members of the Bulgarian Forum of Trainers (http://bgtrainers.com). 25 of their members gave us their e-mails and declared their willingness to take part in the survey.

- Teachers in the professional schools who study on Sofia University vocational training programmes.

Therefore the questionnaire was sent to 366 people, 120 of whom have filled it in, 30 of these have not completed it. The response rate is 30%.

The distribution of the respondents with regards of their professions and occupations is as follows: teachers in the field of vocational training – 47.4%, university lecturers in e-learning centers – 17%, teacher trainers – 25%, teaching support staff – 0.9%, other – 28.6%. Among the latter there are 5 headmasters, 5 executive headmasters, a training manager, an executive director, a manager, 2 specialists responsible for computer labs, a small business manager in a company, etc. (Fig.1)

The majority of the respondents (93,8%) declare that they have access to the Internet at their homes, 88,4% of the respondents have access from the educational institution as well, and 27,2% of them have marked that they use the Internet from other places as well. See fig.2

---

Figure 1

Figure 2
The Internet is used mostly for the following purposes (fig.3):

- For the education/training they lead (preparation and realization of the teaching and learning process, assessment of the students, university students, or adult trainees with whom they work) – 89,3%.
- For self-education - 89,3%
- Common goal – online newspapers, magazines, journals - 61,6%

The open question answers of the respondents prove that they use the Internet for other purposes such as: different types of reference, research purposes, information from the site of the Regional Educational Inspectorate – Sofia, Ministry of Education, Youth and Science and other institutions, which are related to education, for the purposes of management activities, for communication with colleagues and friends, for entertainment, for work on projects – Leonardo da Vinci, Comenius, advertisements for calls for Operational Programmes.

The percentage of the respondents who currently use ICT in their practice for teaching and learning in their subject areas is high (81,3%). Notably, there is a significant increase in the number of the people who have started using technology just recently. Only 35,7% of the respondents had used ICT in the past.

Furthermore, the percentage of the trainers in the vocational sector who intend to use technologies in future for the purposes of teaching and training is close to the percentage showed by the university lecturers regarding the same question, and 63,4% declare that they intend to use ICT in future. Similarly to the responses of the university lecturers, few of the respondents of this target group had participated in scientific research related to ICT (22,3%) See Fig.4. It should be taken into consideration that the inclusion of university lecturers and trainers of the vocational sector in scientific research in the field of integrating ICT in education and e-learning will enhance their knowledge and competences in teaching and training.
The results of the survey shows that almost half of the responding trainers of the vocational sphere (47.8%), similarly to the university lecturers, claim that they have significant experience in the field of e-learning without considering themselves experts in the field. Slightly higher is the percentage of the people who consider themselves experts in using ICT in e-learning (17.4%), and the beginners are (34.8%). The figures below (fig.5 and fig.6) show that there are similar results for the university lecturers investigated during the first training needs analysis.
The answers of the respondents give important information about the roles which they had in the process of e-learning. The comparison between the two graphs below show that much more of the trainers in the vocational sector had participated in e-learning training as trainees (67%), while the university lecturers trained are about half less (39.6%). E-learning tutors were 23.9% of the respondents, 13.8% were designers of online activities, and 16.5% had administrative/maintenance functions in the process of e-learning. Almost equal is the number of online learning materials between the two groups of respondents (33%). See Fig. 7 and Fig. 8.
To sum up, the lecturers in E-Learning centres and the trainers in the vocational sector of education are actively involved in activities related to e-learning, playing different roles. At the same time, the different roles which they have refer to the diverse experience, knowledge and competences in the field. Some of the respondents have acquired experience such as: design of e-learning activities, design of materials for computer assessment of competences, development of presentation with students for competition participation, etc.

It was important to identify whether there was a difference in the understanding of the key notions related to e-learning between the two target groups.

Among the most well known notions among the trainers in the vocational sector there were: e-learning – 90.8%; instant messaging/Chat rooms – 70.6%; portals – 68.8%; e-portfolio – 57.08 (fig. 9).

At the same time among the less known terms were plagiarism detecting software – 20.2%; digital repositories – 28.4%. More than half of the respondents didn’t recognise notions such as online questionnaires, social software, virtual learning environments, course kit.

Close to these numbers are the results received from the university lecturers regarding notions such as e-learning and instant messaging. University lecturers are better acquaintant with web conferences, which is logical. As for the plagiarism detecting software and digital repositories as notions, they are equally not recognised by 70-80% of the respondents.
It could be concluded that the best known terms within both target groups are those which could be related to the everyday use of technology, mainly out of the e-learning context. Notions related to the essence and advantages of e-learning are less recognized—such as virtual learning environments, social software, e-learning course package (SCORM), tools for online questionnaires, etc.

In the context of the whole research, interest has been raised by the answers of the vocational sector trainers on the question to what extent they were able to conduct key e-learning related activities and their applicability to their current and future practice. At skills level more than half of the respondents could use audio-visual technologies to a great extent for their teaching practice. These were identified as presentations primarily.

As a response to the above question negative answers dominate. This could be interpreted as an insignificant amount of skills for conducting activities such as design of e-learning materials for online education, realization and support of online education and discussions with the trainees, planning activities for virtual learning environments, integration of e-learning elements in traditional courses, selection of materials for online learning (in a virtual learning environment), design of computer assisted assessment.

About half of the respondents stated that they were not able to conduct and support online learning activities, online discussions with trainees, and design computer assisted assessment. See Table 1

The data clearly show that the vocational education trainers use the technologies but do not have the competence to integrate them in e-learning courses. Therefore a gap has been identified which required further training in the field.
Table 1

<table>
<thead>
<tr>
<th>To what extent can you conduct the following activities</th>
<th>To a very large extent</th>
<th>To a large extent</th>
<th>To a small extent</th>
<th>I am not able to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design of computer assisted assessment</td>
<td>5,4</td>
<td>20,7</td>
<td>37</td>
<td>37</td>
</tr>
<tr>
<td>Design of instructions for online learning</td>
<td>7,6</td>
<td>18,5</td>
<td>32,6</td>
<td>41,3</td>
</tr>
<tr>
<td>Conducting and supporting online activities and discussions with the trainees</td>
<td>15,2</td>
<td>22,8</td>
<td>43,5</td>
<td>18,5</td>
</tr>
<tr>
<td>Use of audio visual media for teaching and learning</td>
<td>32,6</td>
<td>39,1</td>
<td>23,9</td>
<td>4,3</td>
</tr>
<tr>
<td>Design of online learning materials (in a virtual learning environment)</td>
<td>16,3</td>
<td>22,8</td>
<td>45,7</td>
<td>15,2</td>
</tr>
<tr>
<td>Selection of materials for use in online education (in a virtual learning environment)</td>
<td>23,9</td>
<td>26,1</td>
<td>34,8</td>
<td>15,2</td>
</tr>
<tr>
<td>Integrating e-learning elements in traditional courses</td>
<td>15,2</td>
<td>37</td>
<td>39,1</td>
<td>8,7</td>
</tr>
<tr>
<td>Planning activities in a virtual learning environment</td>
<td>8,7</td>
<td>28,3</td>
<td>42,4</td>
<td>20,7</td>
</tr>
</tbody>
</table>

After having clarified the self-evaluation of the skills the respondents declared in the target fields and technologies, we investigated on extent to which they could use these into their practice. It should be noted that more than half of the vocational sector trainers apply their skills in using audio visual technologies in their teaching. The same conclusion could be made regarding the design of e-learning materials. Interestingly, the number of the trainers who “integrate e-learning elements in the traditional learning context” are much more than those who believe that they have the skills for it. The conclusion made was that the respondents did not have a clear idea of some of the concepts.

The data received from this survey (fig.10) show that a significant percentage of the respondents do not apply key activities related to e-learning in the courses they currently lead, namely:

- Design of instructions for online learning – 71%
- Planning of activities for virtual learning environments – 63,4%
- Conducting and supporting online activities and discussions with the trainees – 52,7%
- Selection of materials for use in online education (in a virtual learning environment) – 51,6%
Figure 10

The above said defines the existence of a gap in these areas and lack of knowledge and skills. Bearing in mind this gap, it was important to diagnose the existence (or lack) of willingness and intention in the respondents to further develop in the area of e-learning. These we have identified by analyzing the answers to the following question: Do you plan to develop your competences in these areas in the future?

The data in the figure 11 show that the vocational sector trainers have a desire to further invest in their development in all listed fields of e-learning. The most significant results achieved the following five:

- Use of audio visual media for teaching and learning as well as integrating e-learning elements in traditional courses – 92,5%
- Conducting and supporting online learning and discussions with the trainees – 90,3%
- Design of online learning materials (in a virtual learning environment) – 89,2%
- Selection of materials for use in online education (in a virtual learning environment) - 87,1%

1. design of computer assisted assessment
2. Design of instructions for online learning
3. Conducting and supporting online activities and discussions with the trainees
4. Use of audio visual media for teaching and learning
5. Design of online learning materials (in a virtual learning environment)
6. Selection of materials for use in online education (in a virtual learning environment)
7. integrating e-learning elements in traditional courses
8. Planning activities in a virtual learning environment
1. design of computer assisted assessment
2. design of online education instructions
3. Conducting and supporting online learning and discussions with the trainees
4. Use of audio visual media for teaching and learning
5. Design of online learning materials (in a virtual learning environment)
6. Selection of materials for use in online education (in a virtual learning environment)
7. Integrating e-learning elements in traditional courses
8. Planning activities in a virtual learning environment

**Figure 11**

The comparative analysis of the data received from the two surveys of the needs analysis of the target groups show that they have significant gaps in their knowledge, skills and competences regarding the design, planning and realization of online learning. At the same time the respondents demonstrate positive attitudes towards such training and plan to develop their competences in conducting typical for the e-learning activities such as: Conducting and supporting online learning and discussions with the trainees; Use of audio visual media for teaching and learning. This proves the need for well organized and targeted training aiming at more effective and active use of the ICT affordances and the e-learning.

It was important for us to identify which technical skills the trainers possess regarding the more advanced online technologies and based on them learning activities. According to the analysis (fig. 12) a small number of them can:

- work with visualization tools (mind maps, редактиране на изображения/диаграми) – 39,8%
- tools for conference communication (FirstClass)/ discussion boards - 39,8%
- Use of professional virtual networks (Linked, Academia, Trusted Opinion etc) – 33,3%
- tools for online questionnaires/ tests (SurveyMonkey, HotPotatoes, QuestionMark, etc) -33,3%
- upload and sharing of audio visual learning resources (Slideshare, Vimeo, Teachertube, Flikr, Picassa etc) -32,3%.

More than half of the respondents do not possess skills in:

- Use of plagiarism detecting software – 74,2%
- Creation of a wiki – 67,7%
- Authoring tools (such as FrontPage, Dreamweaver, Flash, CourseGenie, etc.) 59,1%
The trainers use few of these in their current practice, such as work with visualization tools (mind maps, editing images/graphs) (51.6%); software for synchronous communication (such as MSN, AIM, ICQ, Skype, etc (51.6%); upload and sharing of audio visual learning resources (Slideshare, Vimeo, Teachertube, Flikr, Picassa etc (39.8%).

Notably, the trainers (fig. 13) do not use in their practice efficiency proven technologies for online learning such as:

- Use of plagiarism detecting software – 91.4%
- Creation of a wiki – 86%
- Use of professional virtual networks (Linkedin, Academia, Trusted Opinion etc.) – 84.9%

**Figure 12**

Please consider the following pedagogical competences for using e-learning in your teaching activity.

**Figure 13**

In your teaching, are you currently performing this task/activity?
The trainers plan to further develop (see fig. 14) in the following areas:

- work with visualization tools (mind maps, edit images/diagrams) – 83,9%
- upload and sharing of audio visual learning resources (Slideshare, Vimeo, Teachertube, Flikr, Picassa etc) – 77,4%
- virtual learning environments (Blackboard, Moodle, WebCT, etc) – 74,2%

![Do you intend to further develop your abilities to carry out this task/activity](image)

**Figure 14**

In order to meet the needs of the trainers of training in the field of online technologies and their applicability in educational contexts, it was important to identify what other skills and competences would they like to acquire. The open question analysis leads to the following technologies and work with them: PowerPoint, virtual classrooms, work with tools such as whiteboard; virtual models, video films and 3D animation, work with Sakai and SNA when managing e-learning, work with software products, software for development and testing electronic systems, specialized software for programming machines and systems with CPUs, graphic software, methodological knowledge for implementing ICT.

Although the respondents show internal motivation for professional development in the field of e-learning, we tried to identify what other factors could motivate them further (see fig. 15). Among these appeared to be most important the following:

- Availability of resources – 64,4%
- Availability of time – 63,3%
- Availability of training – 60,0%
Similar are the results of the research on the motivating factors of the university lecturers. It could be concluded that time is among the most valuable resources among the lecturers, and the lack of time could be a serious obstacle before their professional development. Therefore when conducting training for the target group the factor time should be taken into serious consideration, the training should be flexible and an online form should be provided.

The comparative analysis between the two target groups aims at defining the difference between the participation in the use of ICT for learning and teaching. The results proved that the vocational sector trainers (fig. 16) had been involved in such training more 61.2%, while it was only 37.7% of the university lecturers to take part in such training (fig. 17). The main reason for this could be found in the fact that in Bulgaria have been conducted a number of such trainings for teachers. This could be viewed as a condition for a faster shift from traditional to online learning.

The results show again (fig. 18) that the three most preferred means of training for the vocational sector trainers correspond to these listed by the university lectures, fist of which came online learning – 72%, second – short self training tutorials – 68% and next – the Internet resources – 54%.
**Conclusion**

The analysis of the collected data from the training needs of in the vocational education sector leads to very similar conclusion to the ones from the analysis of the University staff training needs, namely:

- The majority of the respondents was and is involved in variety of ways and modes in elearning but most of them do not recognize themselves as experts in this field and acknowledge the necessity of further more systematic education.

- There is no mismatch between the existing knowledge and competences and those the respondents apply in the teaching practice.

- The technologies, as a whole, are used at a very superficial level, mainly for searching for information by students and lecturers, for presenting information, for student- lecturer communication via e-mail.

- Much less are technologies used for integrating e-learning activities in the traditional education and designing e-learning materials. The design of online activities and discussions, computer-based assessment, conducting and supporting online discussions with the students, the use of computer for educational simulations and games, and the design of learning materials for distance education were not among the well known applications of the technologies in educational context according to the respondent academic staff.

The above analysis leads to the conclusion that the current status of e-learning is limited to integrating technologies in traditional teaching and learning process and is regarded as supplementary with a relatively small role. The use of the full potential of the online technologies to change the learning and teaching is far from the desired level. This makes it imperative to design courses for training the academic staff in the field of using ICT in educational context.