Annex 4

Training needs analysis of Sofia University staff
Analysis of the needs of training in the field of online learning: Sofia University teacher trainers

Introduction
The research aims at identifying the real needs of e-learning of the university lecturers working in teacher training programmes.

The first stage consisted of a massive survey of the self-assessment of the Sofia University academic staff of the level of their knowledge and skills in the field of online technology and their need for further development in this area. The University trains teachers for all educational levels: pre-school, primary, secondary, vocational, non-formal and lifelong education.

Methodology
The survey was conducted at two stages. The first stage a quantitative research was performed using a questionnaire as a tool. The second stage consisted of a semi-structured interview, a qualitative research.

- The questionnaire was offered to a wide variety of lecturers, academic staff at Sofia University, who are involved in training educators and teachers in order to identify their skills, competences, and needs in the field of e-learning.
- The second stage took part after a pre-selection\(^1\) of 8 lecturers among these who had completed the questionnaire, who would be trained using the PREEL model. They were interviewed by a semi-structured interview instrument.

As the research was carried out during the academic year, at a very busy period, the questionnaire was an online version, using specialized software - Survey Monkey.

Lecturers from thirteen faculties of Sofia University were invited to take part in this survey (see Fig. 1), among which there were:

- Faculty of Education, which delivers teacher certificate programmes;
- Faculty of Pre-School and Primary School Education, which delivers teacher training to teachers for the primary education;
- Department of in-service teacher training, which delivers teacher training programmes to teachers from all types of schools, vocational included, in order to reach higher qualification level;
- All of the other faculties presented have a Department of Methodology of teaching in the related subject areas. От останалите факултети всички имат катедри за методика на обучението по определени предмети.

The questionnaire was offered to 741 lecturers, of which responded 251 (30% response rate), of which 199 are completed.

\(^{1}\) See the Appendix: Selection Criteria
Fig 1

The respondents academic data are as follows: 66% - lecturers (course leaders), 42% - assistant lecturers, 3.7% - tutor in a distance learning course, 1.6% are experts and 2.6% fall into other categories such as two Vice Deans, one Head of Department, two part-time lecturers, two doctoral students. See Fig. 2.

My role in Sofia university is:

![Role distribution chart]

Figure 2

The analysis of the data collected from the Sofia University academic staff via the questionnaire led to the following main conclusions:
In order to research to what extent the lecturers use ICT in their teaching practice and what are their future intentions regarding the integration of the technologies in education, we asked them to mark which of the suggested statements on using ICT in education refer to them. The data collected (fig. 3) clearly showed that most of the respondents (82%) use ICT in teaching and learning in their practice. Half of the respondents stated their intention to continue the use of ICT in their future teaching practice. It must be noted that the percentage of the academic staff who had participated in research or project work related to technologies was low (24.1%).

![Figure 3](image)

It was extremely useful for us to investigate how the academic staff at Sofia University would evaluate their skills and competences regarding the use of ICT and e-learning. According to the data collected (see fig. 4) half of the respondents state that they have considerable experience in using ICT but do not define themselves as experts. Another large number of respondents define themselves as beginners in the field of using ICT and e-learning (39.6%), and only 10.4% of the respondents identify themselves as experts in the field.
Figure 4

From the analysis of the data, presented graphically on fig. 5, it becomes clear what are the main roles/functions, which the respondents had/have in the context of e-learning. These are as follows:

- 39.6% had been in the role of trainees;
- 28.3% designers of online learning materials;
- 17.8% had the role of course leaders of distance or blended course;
- 11.7% had been tutors of online activities;
- 9.6% designers of online activities;
- 7% administrative/support for online or blended learning;
- 31.3% other.

Figure 5

The understanding the respondents have about key terms related to ICT and e-learning can be seen at fig. 6. It becomes clear that the order of the key terms from best understood towards less understood is as follows:

- E-learning (87.8%);
- Portals (73.9%)
- Instant messaging / Chat (70.4%)
- Web conferences (62.6%).

More than half of the respondents had difficulties understanding notions related to e-learning such as:

- Social software (blogs, wikis)
- Virtual learning environments
- E-portfolio
- Instruments for online questionnaires
- Plagiarism detecting software (PDS).

Logically, these gaps in the knowledge the academic staff had were the main issue when designing training for developing competences in these fields.

![In the list below please mark these, which you understand (you may mark more than one term):](image-url)

*Figure 6*
In order to get deeper understanding regarding the knowledge and competences of the academic staff on working with diverse ICT in educational context, as well as the need of initiating and developing such knowledge and competences, we asked three interrelated questions. They relate to the following areas:

- The level of knowledge and competences of conducting a variety of activities which integrate technology;
- The level of applying these knowledge and competences in their teaching practice;
- The level of intention and willingness to further develop these knowledge and competences in the field of e-learning in future.

1) Level of knowledge and competences of the academic staff of conducting a variety of activities which integrate technology in the traditional education:

The data analysis showed that the academic staff use ICT primarily for the following activities:
- Finding teaching resources on the Internet;
- Supporting students in searching for information on the Internet;
- Use of e-mail in student-lecturer communication;
- Use of audio-visual media for teaching and learning.

Expectedly, these were also the activities most performed by the academic staff in their teaching practice.

Among the less known technologies which were also less used accordingly were: almost half of the respondents named the computer-based assessment and online assessment (43.9%); support of online discussions with the students (43.9%); conducting and support of online discussions with the students (42.4%); use of the computer for teaching simulations and games (42%); integration of elements of e-learning in traditional courses (40.5%); designing learning materials for distance learning (40.5%).

According to the respondents, among the less popular applications of technologies in educational context were respectively: work with software for visualization (software for processing images, graphs, etc.) (35.6%); using ICT for designing computer-based learning materials (34.1%).

Notably, a large number of the lecturers cannot cope at all with:
- Designing websites (even if not complex) – (51.2%);
- Design online activities and discussions– (44.4%).

The areas of allocation of technologies in teaching and learning listed above were defined as learning contents in the training of the academic staff at Sofia University.
Table 1

<table>
<thead>
<tr>
<th>To what extent you can conduct the following activities?</th>
<th>To very large extent</th>
<th>To large extent</th>
<th>To little extent</th>
<th>I am not able to</th>
</tr>
</thead>
<tbody>
<tr>
<td>Use the Internet for finding teaching resources</td>
<td>53,7</td>
<td>34,1</td>
<td>9,8</td>
<td>2,4</td>
</tr>
<tr>
<td>Support the students in finding information on the Internet</td>
<td>39</td>
<td>46,8</td>
<td>12,2</td>
<td>2</td>
</tr>
<tr>
<td>Designing non-complex websites</td>
<td>8,8</td>
<td>16,1</td>
<td>23,9</td>
<td>51,2</td>
</tr>
<tr>
<td>Designing online activities and discussions</td>
<td>4,4</td>
<td>16,6</td>
<td>34,6</td>
<td>44,4</td>
</tr>
<tr>
<td>Conducting and supporting online discussions with the students</td>
<td>9,8</td>
<td>25,4</td>
<td>42,4</td>
<td>22,4</td>
</tr>
<tr>
<td>Using the computer for educational simulations and games</td>
<td>13,2</td>
<td>23,4</td>
<td>42</td>
<td>21,5</td>
</tr>
<tr>
<td>Working with visualizing tools – software for processing graphs, images, etc. (mind maps, image/diagram editing)</td>
<td>20</td>
<td>26,8</td>
<td>35,6</td>
<td>17,6</td>
</tr>
<tr>
<td>Using audio-visual media for teaching and learning</td>
<td>34,6</td>
<td>36,1</td>
<td>23,9</td>
<td>5,4</td>
</tr>
<tr>
<td>Designing learning materials for distance learning</td>
<td>15,6</td>
<td>23,9</td>
<td>40,5</td>
<td>20</td>
</tr>
<tr>
<td>Integrating elements of e-learning in traditional courses</td>
<td>16,6</td>
<td>31,7</td>
<td>40,5</td>
<td>11,2</td>
</tr>
<tr>
<td>Using e-mail for communication with the students</td>
<td>65,4</td>
<td>25,4</td>
<td>8,3</td>
<td>1</td>
</tr>
<tr>
<td>Design of web-based learning materials</td>
<td>23,4</td>
<td>30,7</td>
<td>34,1</td>
<td>11,7</td>
</tr>
<tr>
<td>Use of computer-based/online assessment</td>
<td>8,8</td>
<td>12,7</td>
<td>43,9</td>
<td>34,6</td>
</tr>
</tbody>
</table>

2) The level of applying these knowledge and competences in the academic staff teaching practice:

One of the goals of the survey was to identify not only the knowledge and skills the academic staff possess in the field of e-learning, but also the extent to which they apply these knowledge and skills in their teaching practice. It is well known that in order to use the technologies in teaching it is not enough to have the knowledge and skills. What is also needed is institutional support, the availability of suitable software and infrastructure, methodological knowledge, etc.

The research data show (fig. 7) that there is no mismatch between the existing knowledge and competences and their application in the teaching practice. This fact can be interpreted as follows: according to the respondents, the most important factor for integrating technologies in the teaching practice is their knowledge and competences. 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 status quo is that e-learning exists only within the 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.

Figure 7

3) The level of willingness and intentions to acquire knowledge and competences in the field of e-learning in future.

The analysis of the data collected shows (fig. 8) that the Sofia University lecturers would like to further develop in the areas stated above. Moreover, they express their deep interest in the following areas of applicability of ICT in education:

- Design of computer-based learning materials (89.3%);
- Using audio-visual media for teaching and learning (88.3%);
- Work with tools for visualization – software for processing images, graphs, etc. (82%);
- Designing learning materials for distance learning (79%);
- Use of the computer for educational simulations and games (73.2%);
- Conducting and support of online discussions with the students (70.7%);

These lead to a conclusion that the lecturers recognize the limitations of their knowledge and competences in the above areas and technologies and would like to deepen them.
considerably. This deepening should be in directions such as: transfer of a larger number of the learning activities online, enriching the variety of technologies, enlarging the proportion of the content which is in electronic format, etc.

1 Use of the Internet for finding resources for teaching
2 Support students in finding information on the Internet
3 Design of non-complex websites
4 Design of online activities and discussions
5 Conducting and support of online discussions with the students
6 Use of the computer for educational simulations and games
7 Work with tools for visualization – software for processing images, graphs, etc.– (mind maps, image/diagram editing)
8 Using audio-visual media for teaching and learning
9 Designing learning materials for distance learning
10 Integrating elements of e-learning in traditional courses
11 Using e-mail for communication with the students
12 Design of computer-based learning materials
13 Use of computer-based/online assessment

Figure 8

A separate part of the questions in the survey was dedicated to the cutting edge online technologies for education. The questions were given again in a form so as to allow differentiation between current knowledge and competences, the teaching practice, and the desire for future development in the area.

The respondents define their skills as good in the field of working with electronic journals (34.8%) and synchronous communication software (32.4%). Slightly more than half of the academic staff actively use electronic journals in their teaching practice (55.4%). (Fig.9)

The data show that most of the academic staff have no technical skills in working with:

- Plagiarism detecting software (PDS) (JISC’s Turnitin, others) - 78.9%
- Instruments for online survey (SurveyMonkey, HotPotatoes, QuestionMark, others) – 55.45%
- Wikis - 53.4%
Virtual learning environments (Blackboard, Moodle, WebCT, others)
Conference systems (FirstClass) / Discussion boards
ePortfolios
eJournals
Blogs
Wikis
Instruments for online questionnaires (SurveyMonkey, HotPotatoes, QuestionMark, others)
Plagiarism detecting software (PDS) (JISC’s Turnitin, others)
Authoring tools (such as FrontPage, Dreamweaver, CourseGenie, others)
Streaming audio and video
Tools for synchronous communication (such as MSN, AIM, ICQ, Skype, others)

Figure 9

A small number of the respondents currently use technologies such as electronic journals in their work (eJournals) – 55.4% and synchronous communication software (such as MSN, AIM, ICQ, Skype, others) - 39.6%.

In order to realize e-learning, the lecturers are supported by a variety of factors, with the highest priority being the existence of more time (61.3%), second highest priority has the existence of more resources (59.3%), and almost half of the respondents (48.7%) state that they need an organized training in order to implement online technologies in their teaching practice. A good number of the lecturers (39.2%) think that receiving the support by the university authorities and management is an important factor for improving their motivation in this field.

Figure 10

The figures above lead to a conclusion that the training offered to the University staff needs to be very flexible and personalized, open to permanent changes, resource based, blended – combining online support as well as face-to-face sessions.
The analysis of the data helps to identify the main gaps in knowledge and competences among the lecturers, as well as their attitudes and motivation to improve and further develop the existing ones. All this is a reliable source of information to guide the design of training courses in the field of e-learning. Apart from identifying the gaps and needs, it was extremely important to establish whether and how had been trained the lecturers so far, as well as what options and desire do they posses for attending further training.

Training of the lecturers

Regarding past training: most of the respondents stated that their knowledge and competences had been acquired through self-education– 62,3% (fig. 11)

![Figure 11](image_url)

In order to achieve quality in e-learning, self-education is far from enough. What is needed is systematic targeted training based on the existing experience and knowledge and based on the identified needs in the field.

Regarding the future training of lecturers at Sofia University in the field of e-learning, we investigated on their opportunities and preferences about the most suitable forms of training. As it can be seen in fig. 12, the most preferred by most of the lecturers are the following three:

- Short materials for self-education (short tutorials of the sort - "How to") – 67,3% ;
- online learning – 50,3%;
- Internet resources – 49,2%;
Conclusion

The analysis of the collected data reveals that the majority of the respondents was and is involved in variety of ways and modes in elearning. 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. This fact the University staff interpreted as follows: the most important factor for integrating technologies in the teaching practice is their knowledge and competences.

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.

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