THE INFLUENCE OF FOREIGN LANGUAGE TEACHERS’ PECULIARITIES ON THEIR ICT-COMPETENCE TRAINING

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Abstract

The informatization of foreign language (FL) training in engineering universities depends on FL teachers’ readiness to create and use the highly effective means of training, based on the realization of unique functionalities and linguodidactic capabilities of information and communications technologies (ICT). It actualizes the development and improvement of teachers’ further training in the field of ICT taken as a system. We have studied foreign and Russian pedagogical literature and analysed different methodical systems of education in the field of specialists’ professional training, retraining and development. It has given us an opportunity to conclude that the most regulatory system’s components are purpose, content and principles of training. These components are the basis for continuous improvement of post diploma teachers’ further training in general and ICT training in particular.

The problem here to be stated that the process of ICT training of FL teachers in engineering universities as a system is influenced by the specific nature of adult education. The self-confidence of FL teachers to use ICT tools in their professional activity is influenced by this factor too. The teachers, being working people and being adults, have the specific psychological type, which is non-equal to students’ type. This specific type should be taken into consideration during the FL teachers’ post diploma training.

So, the main purpose of our study is to assess the possibility to raise the effectiveness of ICT training for FL teachers in engineering universities on condition that their psycho-educational peculiarities are taken into consideration.

The present paper deals with the following research objectives:

1. To make psycho-educational analyses of FL teachers working at engineering university.
2. To reveal the necessary methodical recommendations to take into account the FL teachers’ peculiarities during their ICT training.
3. To assess FL teachers’ self-confidence to create and use ICT-based means of training.

The theoretical considerations of the research build on existing knowledge in the fields of andragogics and adult education psychology. Theoretical methods included accumulating, summarizing and systemising of existing knowledge in the field of teachers’ post diploma education, etc. The practical effect of introducing the methodical recommendations was examined during the quasi-experiment in Ryazan State Radio Engineering University (Russian Federation). The qualitative and quantitative data collections were provided by the following empirical methods: observing, conversation, in-depth individual interviews as well as test-teaching of FL teachers and their questionnaire survey in the initial and final phases of test-teaching. The respondents were 35 women – teachers of English, German, French and Russian as Foreign language between 25 and 65 years of age.

Keywords: ICT-competence, foreign language teachers, psycho-educational peculiarities.

1 INTRODUCTION

The efficiency of language education is inseparably linked with the informatization of the educational process. The informatization of foreign language (FL) training in engineering universities depends on FL teachers’ readiness to create and use the highly effective means of training, based on the realization of unique functionalities and linguodidactic capabilities of information and communications technologies (ICT). It actualizes the development and improvement of teachers’ further training in the field of ICT taken as a system.
The information saturation of “Foreign Languages” as an academic discipline and deficit of contact FL lessons in non-philological universities necessitate critical evaluating, systemising and structuring of the educational content by FL educators.

We have studied foreign [1, 2, 3, 4] and Russian [5, 6, 7] pedagogical literature and analysed different methodical systems of education in the field of specialists’ professional training, retraining and development. It has given us an opportunity to conclude that the most regulatory system’s components are purpose, content and principles of training. These components are the basis for continuous improvement of post diploma teachers’ further training in general and ICT training in particular.

The problem here to be stated that the process of ICT training of FL teachers in engineering universities as a system is influenced by the specific nature of adult education. The self-confidence of FL teachers to use ICT tools in their professional activity is influenced by this factor too. The teachers, being working people and being adults, have the specific psychological type, which is non-equal to students’ type. This specific type should be taken into consideration during the FL teachers’ post diploma training.

So, the main purpose of our study is to assess the possibility to raise the effectiveness of ICT training for FL teachers in engineering universities on condition that their psycho-educational peculiarities are taken into consideration. The necessity for such an assessment lies in the fact that the formation of FL teachers’ readiness to use and create ICT-based means of FL training implies the study of the areas, known to FL teachers, and the absolutely new areas. Moreover, FL teachers may have positive as well as negative experience in the known areas of ICT usage.

The present paper deals with the following research objectives:

1. To make psycho-educational analyses of FL teachers at engineering university.
2. To reveal the necessary methodical recommendations to take into account the FL teachers’ peculiarities during their ICT-competence training.
3. To assess FL teachers’ self-confidence to create and use ICT-based means of training.

2 METHODOLOGY

The methodology of the research was determined by the overall purpose of the study. This study sought to prove that taking the individual peculiarities of FL teachers, including their sex, job, age, place of residence, etc., into account influences positively on their ICT-competence training. Methods to be able to reach the research objectives included theoretical and practical ones.

2.1 Theoretical methods

The theoretical considerations build on existing knowledge in the fields of andragogics and adult education psychology [8, 9, 10, 11, 12, 13, 14, 15, 16].

Theoretical methods included accumulating, summarizing and systemising of existing knowledge in the field of teachers’ post diploma education, adult education, ICT-competence training, etc. [17, 18, 19].

The specific features of adult education were studied by S. I. Zmeev. In addition to the well-known general didactic principles (scientificity, visibility, accessibility, consciousness and activity, etc.) S.I Zmeev distinguished the androgogic principles of learning. These principles, unlike the former, regulate the activities of a learner, but not a trainer [12]: priority of self-instructed learning, joint activities of learners and trainers, reliance on the learners’ experience, individualization of learning, systematic learning, context learning, actualization of learning outcomes, electrivity of learning, development of educational needs, consciousness of activity. These principles along with the others pedagogical principles are widely used in Russian post diploma educational system.

Then, we carried out a quasi-experiment and by means of data collection instruments proved our viewpoint. The participants were surveyed before and after test-teaching. The Questionnaire Survey, made up by the author for FL teachers of engineering universities, was used.
2.2 Practical methods

The qualitative and quantitative data collections were provided by the following empirical methods: observing, conversation, in-depth individual interviews as well as test-teaching of FL teachers and their close-ended questionnaire survey at the beginning and at the end of the test-teaching. The data validity was proven by statistical methods with the help of statistical program package STADIA; electronic worksheets, statistical characteristics by means of distribution-free test chi-square $\chi^2$ and the bar-graphs were done.

2.2.1 Place

The practical effect of introducing of the methodical recommendations was examined during the quasi-experiment in Federal State Budget Educational Institution of Higher Education Ryazan State Radio Engineering University, Russian Federation (RSREU, RF). It was held at optional classes for the FL teachers.

2.2.2 Participants

The respondents were 36 women – teachers of English, German, French and Russian as Foreign language between 25 and 65 years of age. All FL teachers were the specialists in FL training for science and engineering students and in the translation of scientific and technical literature. The participants of the quasi-experiment were divided into two equal-sized groups: control (18) and experimental (18) ones.

3 RESULTS

3.1 Theoretical considerations

3.1.1 Foreign language teachers’ peculiarities influencing on their ICT-competence training

Having assumed the methodology mentioned above, we conducted a psychological and pedagogical analysis of the specific features of ICT-competence training of FL teachers working at engineering universities.

From now on we assume that those learners are specialists in the field of vocationally-oriented FL training in engineering universities and in the translation of technical literature. A.N. Leontyev wrote: “Any subject activity answer to the need, always externalized in the motive ...” [20]. It means that a FL teacher, being a working adult, evaluates the knowledge gained, correlating it to the practical requirements which are relevant to his or her professional teaching and professional translation activities. Only in this case, this educational and cognitive activity can be considered as active and focused. If FL teachers have sustainable motivation, they will achieve more objectives than in any earlier period of their lives, all other things being equal. That is, the content and presentation of phenomena to study in the field of FL training informatization should harmonize with the methodology of FL training and the questions of technical literature translation. Consequently, all the above mentioned determine the maximum orientation of ICT-competence training for FL teachers on their professional activities as well as on their personal preferences and interests as much as possible.

We cannot set aside the fact that the leading activity for teachers is labour activity. When an adult learner – in our case a university teacher – is involved in learning activity, he assumes the social and psychological role of a student. But learning is necessary for FL teachers to implement professional, rather educational activities. In addition, the psychologists indicate that the possibility of neoplasm is reduced after 35 years of old [8, 9, 10; 13; 14; 15, 16]. Thus, the contradictory behaviour is created – the higher intellectual activity and productivity in the labour activity is combined with the difficulties in the learning activity. The above-said dictates to minimize the purpose and content of ICT-competence training for covering only FL teachers’ pedagogical, scientific and translational activities.

It should be noted that FL teachers’ training as professional education comes to nothing more than social relations. So, it is very important to define the specific place of information activities in FL teachers’ professional, social, household, etc. activities to identify the needs, motives and learning objectives. “Any activity should be considered within the framework of social relations, and should be determined by the specific place of an individual within social relations” [20]. Thus, it is necessary to take into account the dependence of FL teachers’ educational activities on their marital status,
availability and number of children, the size of the settlement, the degree of its urbanization and the level of infrastructure development, including educational. In this regard, the preference should be given to distant or blended forms of further training.

Analysing the peculiarities of adults’ training, we emphasize that a university teacher of FL in his or her professional activities is an active and independent person. By all means do, the teacher will transfer this personal position in the process of learning, trying to determine the learning objectives and to evaluate the achievements. Thus, the FL teacher’s activity and independence in achieving the learning objectives, consciousness, strong will, perseverance, increased efficiency, thinking criticality and self-reliance, high learning potentials, the increasing role of derivative regulation provide an opportunity to increase the proportion of self-instructed work in learning.

We must acknowledge the dependence of the attention function development on the education level. Based on the results of the Russian psychologists, it can be concluded that the highest level of attention function development is found in focus groups with higher education, and the lowest – in focus groups with eight years of education [10; 11; 12]. The results obtained by B.G Ananyev [10] suggest that the analytic-synthetic thinking processes are determined by continuous learning rather than by age. The sex of a specialist affects the attention function significantly too. Thus, L. N. Fomenko notes that the female focus group has a higher level of attention development than the male focus group of the same age [8].

Yu. N. Kulyutkin indicates that the thinking in different focus groups of adults of the same age is uneven; it depends on the knowledge and skills accumulated in the process of labour and learning activities [11]. He also remarks that adults have steady indicators of stability and of attention switch and concentration. The logical memory of adults prevails over the mechanical one, the visual memory – over the auditory memory, the formal-logical thinking over the visual – figurative one. Adult people have highly developed verbal short-term and long-term memory and volitional memorization. FL teachers in engineering universities are mostly females who have a university degree (some of them have a scientific degree), they are erudite in innovative fields of science and engineering, etc. All these characteristics create the necessary prerequisites for successful ICT-competence training of FL teachers in a short period of time.

3.1.2 Methodical recommendations for ICT training of FL teachers in engineering universities

The psychological and pedagogical analysis of FL teachers peculiarities, including their most possible sex, age, place of work, professional activities, place of residence, level of education, altitude of intelligence, etc. enables us to make methodical recommendations for their successful ICT-competence training. The five methodical recommendations that emerge from the analysis are:

1 ICT-competence training of FL teachers should be based on their professional activities as well as should take into account their personal preferences and interests as much as possible.
2 The purpose and content of ICT-competence training of FL teachers need to be minimized and concretised to provide mainly FL teachers’ pedagogical, scientific and translational activities.
3 Distant or blended further learning is supposed to be the best forms for ICT-competence training of FL teachers.
4 The proportion of self-instructed work to contact hours in the course of ICT-competence training of FL teachers can be increased; the learning objectives being achieved and the educational content being mastered.
5 The course of ICT-competence training of FL teachers, working at engineering universities, are allowed to be organized in a short period of time without loss of performance quality.

3.2 Quasi-experiment

Taking into account the findings achieved in the theoretical considerations, we modified accordingly our traditional course “ICT in FL training for engineering students”, used for ICT-competence training of FL teachers in RSREU. Then, we started simultaneously the test-teaching in experimental and control groups. The test-teaching of the experimental group was performed in compliance with the methodical recommendations for successful ICT-competence training of FL teachers. The control group of FL teachers was trained under the traditional approach to ICT-competence training.
The FL teachers were surveyed with the help of the Questionnaire Survey (see Table 1) at the beginning of the test-teaching to assess their self confidence to create and to use ICT-based means of FL training. The Questionnaire Survey, made up by the author, depicts the content of the modified curriculum. After the end of the test-teaching these very FL teachers were surveyed again with the help of the same Questionnaire Survey.

The data obtained during the FL teachers’ survey of the experimental and control groups are indicated in Fig. 1 and Fig. 2, Table 2 and Table 3. They show the efficiency of ICT-competence training in the experimental group.

The tables outline the number of FL teachers, attributed themselves to different levels of knowledge and skills formation in ten important fields of ICT usage in FL training. The control group is represented in parantheses. The comparative results of the survey before (Table 2) and after (Table 3) test-teaching can be found accordingly. The horizontal column shows the question number according to the Question Survey (Table 1). The vertical one presents the levels of knowledge and skills formation. The mean values of FL teachers, falling into each level, are given too.

<table>
<thead>
<tr>
<th>Table 1. Questionnaire Survey for Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Dear Teacher, please, assess your readiness to create and use ICT-based means of FL training in your professional activities!</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>№</th>
<th>I have knowledge and skills in the following fields</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Intensification of FL training by means of ICT</td>
</tr>
<tr>
<td>2.</td>
<td>Modelling of multilingual, socio-cultural, information and communications environment for language personality socialization</td>
</tr>
<tr>
<td>3.</td>
<td>Using of ICT for efficiency increase of FL teachers’ professional skills</td>
</tr>
<tr>
<td>4.</td>
<td>Determining of individual strategy of FL learning for every student by means of ICT</td>
</tr>
<tr>
<td>5.</td>
<td>Planning on using of ICT-based means of FL training according to the specificity of language education in engineering universities</td>
</tr>
<tr>
<td>6.</td>
<td>Usage of ICT-based means of FL training for speech activities development (reading, listening, speaking and writing)</td>
</tr>
<tr>
<td>7.</td>
<td>Realization of the laws and principles of FL training as methodical system of education by means of ICT</td>
</tr>
<tr>
<td>8.</td>
<td>Creation of ICT-based means of FL training by means of specially-purpose applications</td>
</tr>
<tr>
<td>9.</td>
<td>Creation of special students’ tutorials and teachers’ guides in ICT usage for contact and self-instructed lessons</td>
</tr>
<tr>
<td>10.</td>
<td>Modelling of vocationally-oriented foreign language training information interaction</td>
</tr>
</tbody>
</table>
Please, leave your comments on ICT usage in RSREU

Table 2. The results at the beginning of the test-teaching

<table>
<thead>
<tr>
<th>Question Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Mean Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
<td>0 (0)</td>
</tr>
<tr>
<td>Good</td>
<td>3 (3)</td>
<td>4 (3)</td>
<td>5 (4)</td>
<td>3 (4)</td>
<td>5 (4)</td>
<td>4 (4)</td>
<td>5 (5)</td>
<td>2 (3)</td>
<td>4 (4)</td>
<td>3 (4)</td>
<td>3.8 (3.8)</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>7 (8)</td>
<td>7 (8)</td>
<td>7 (8)</td>
<td>8 (7)</td>
<td>8 (9)</td>
<td>6 (7)</td>
<td>10 (9)</td>
<td>5 (6)</td>
<td>8 (9)</td>
<td>7.2 (7.6)</td>
<td></td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>8 (7)</td>
<td>7 (8)</td>
<td>6 (7)</td>
<td>7 (7)</td>
<td>8 (8)</td>
<td>6 (5)</td>
<td>7 (6)</td>
<td>6 (6)</td>
<td>9 (8)</td>
<td>7 (5)</td>
<td>7.1 (6.6)</td>
</tr>
</tbody>
</table>

Table 3. The results at the end of the test-teaching

<table>
<thead>
<tr>
<th>Question Number</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>Mean Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Levels</td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Excellent</td>
<td>13 (0)</td>
<td>12 (0)</td>
<td>12 (0)</td>
<td>13 (0)</td>
<td>14 (0)</td>
<td>13 (0)</td>
<td>11 (0)</td>
<td>12 (0)</td>
<td>14 (0)</td>
<td>12 (0)</td>
<td>12.6 (0)</td>
</tr>
<tr>
<td>Good</td>
<td>5 (5)</td>
<td>5 (3)</td>
<td>6 (5)</td>
<td>4 (4)</td>
<td>4 (4)</td>
<td>4 (4)</td>
<td>7 (7)</td>
<td>5 (3)</td>
<td>4 (4)</td>
<td>6 (5)</td>
<td>5.0 (4.4)</td>
</tr>
<tr>
<td>Satisfactory</td>
<td>0 (9)</td>
<td>1 (13)</td>
<td>0 (9)</td>
<td>1 (11)</td>
<td>0 (6)</td>
<td>1 (9)</td>
<td>0 (6)</td>
<td>1 (12)</td>
<td>0 (12)</td>
<td>0 (8)</td>
<td>1.0 (9.5)</td>
</tr>
<tr>
<td>Unsatisfactory</td>
<td>0 (4)</td>
<td>0 (2)</td>
<td>0 (4)</td>
<td>0 (3)</td>
<td>0 (8)</td>
<td>0 (5)</td>
<td>0 (5)</td>
<td>0 (3)</td>
<td>0 (2)</td>
<td>0 (5)</td>
<td>0.4 (1.1)</td>
</tr>
</tbody>
</table>

Leaving the comments during the second survey, the FL teachers mentioned that many commercial ready-made educational-purpose language resources do not meet the methodical and thematic requirements of FL training in engineering universities. They also noted the need for detailed special students’ tutorials and teachers’ guides, dedicated to ICT usage in practical classes and self-instructed work. That’s why the creation of ICT-based means of FL training by means of specially-purpose applications as well as tutorials and guides for their usage were included in the annual individual plans of the FL in RSREU.

For a visual representation of the efficiency of the methodical recommendations, taking into account the FL teachers’ psycho-educational peculiarities, the reader is referred to Fig. 1. It summarises all the data obtained to demonstrate the possibility to raise the effectiveness of ICT training for FL teachers in engineering universities on condition that their psycho-educational peculiarities are taken into consideration.

![Bar graph](image)

Fig. 1. The bar-graph of the mean value of foreign language teachers in control and experimental groups at the beginning of the test-teaching

The statistical comparison of the sampled data at the beginning of the test-teaching in accordance with chi-square $X^2$ shows that two samples refer to one general population and the differences between them are of random characters. The value of $X^2_{\text{empirical}} = 0.005988$, level of significance $= 0.9999$, degree of freedom $= 3$. 
The statistical comparison of the sampled data at the end of the test-teaching in accordance with chi-square $X^2$ shows that these samples don't refer to one general population and the differences between them are of random characters. The value of $X^2$ empirical = 23.62, level of significance = 3.407 E-5, degree of freedom = 3.

Thus, the possibility to raise the effectiveness of ICT-competence training for FL teachers in engineering universities on condition that their psycho-educational peculiarities are taken into consideration has been proved.

4 CONCLUSIONS

From the outcome of our investigation, it is possible to conclude that taking the individual peculiarities of learners, including their sex, job, age, place of residence, etc., into account influences positively on the efficiency of ICT-competence training.

This research was concerned with ICT-competence training for female FL teachers, working at engineering universities; however, the theoretical considerations and experimental results should be applicable also to many categories of learners in different fields of post-diploma education.

Although the results of the research concerning the ICT-competence training for FL teachers in engineering universities are far from conclusive, the research objectives have been achieved. The theoretical considerations have been proved practically in the quasi-experiment.

It is important to note that this very paper considers only the psycho-educational peculiarities of FL teachers as adult learners and the influence of these peculiarities on their ICT-competence training effectiveness. It is beyond our present purpose to describe the new curriculum content as well as methodical approaches to training. In our future papers we intend to concentrate on the block-module structure of the modified curriculum and some adapted training techniques.

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