

Alternatives in Adult Education

Dimitrina Kapitanova¹, Penka Dimitrova¹

Abstract

This elaboration aims to present the results of an educational research related to the formation of a language and mathematical competence of adults, studying in the conditions of places of detention.

The reasons for choosing the topic of the research are:

- *The need for approbation of technological and andragogical model for mastering of basic language and mathematical competence by adults.*
- *The understanding of the education as a condition for increase of social competence and development of skills for social incorporation.*

The topicality of the issue raised for research is determined by the needs of the practice. The mastering of language and mathematical competence by adults with gaps in education and training is essential both for their personal satisfaction and for their social adaptation and access to the labor market.

The object of the study is a sample of 22 women, studying in the school at the Women Prison in the City of Sliven, Bulgaria.

The subject of the study is measurement of the level of formation of language and mathematical competence by the adults as a result of the application of experimental technological model.

The researched women are aged 19 to 52, with different ethnic backgrounds (Bulgarian, Turkish, Roma).

The topicality of the problem of the study is determined by the increasing demands on the quality of education in Bulgarian language and Mathematics and by the absence of comprehensive training technology for bilingual adults in Bulgarian schools. [1] The implemented scientific-theoretical study of the problem of the individual linguistic and mathematical competence (ILMC), mainly in didactical and methodological aspect, allowed postulating that the construction of an original andragogical technological training model on the basis of a competency approach is possible. [2] It can be seen as an integrated conceptual technology for enhancement of the ILMC of adult learners by teaching Bulgarian language and Mathematics in primary classes, in penitentiary conditions.

The practical effectiveness of the constructed technology was tested through an empirical research.

The purpose of the empirical research is an experimental study of the applicability of the existing concept of competency-oriented training and the developed on this basis andragogical technological model for the formation of ILMC in adults during the initial stage of training in Bulgaria.

The main objective of the empirical research involves a set of **tasks**:

1. Determination of the variables that will be registered in the course of the empirical research and with which the impact of the theoretically justified andragogical model on the formation of ILMC in the learning process in Bulgarian language and Mathematics for adults will be established.
2. Development of a system of didactical materials (competency-oriented language and mathematical tasks) for practical implementation of the experimental model.
3. Formation of a sample of learners in terms of systematization for the different stages of the pedagogical experiment.
4. Construction of reliable research tools for diagnostics of the results of the approbation of the training andragogical model.
5. Analysis of the practical effectiveness of the applied andragogical model through mathematical – statistical processing of the data from the experiment.

The established training model is adapted to:

- The educational content in Bulgarian language and Mathematics for the primary stages of education in Bulgaria;
- The age features and characteristics of the learners;
- The conditions under which the training process is implemented;
- The desired (expected) results.

¹ Paisii Hilendarski Plovdiv University, Bulgaria

The situational tasks, in which the language and the mathematical competence of the learners can exist and can be developed at different levels, are adopted as **independent variables**, which are measured during the course of the experiment.

The value “productivity of the ILMC”, expressed in a number of correctly solved tasks at any level of the linguistic and the mathematical competence is defined as a **dependent variable** for the study of the ILMC. The criterion “applicability (transfer) of the knowledge and the skills”, decomposed to indicators corresponding to the educational standards in Bulgarian language and Mathematics for the initial stage of training, is adopted for quantification of the selected value.

The applicability (transfer) of the knowledge and the skills is implemented in two directions:

- Transfer into new educational and life situations (narrow transfer);
- Transfer in unconventional, but close to the learners, situations.

The constructed andragogical technological training model includes the fundamental modules of the curriculum in Bulgarian language and Mathematics for the first stage of schooling in Bulgaria and aims to provide:

- mastering of primary (basic) language and mathematical knowledge, skills and competencies;
- mastering of additional language and mathematical competencies consistent with the cognitive abilities, interest and needs of the students, accompanied by adequate training methods.

Three levels of competence are used as criteria for measuring the ILMC: (L-1); (L-2); (L-3). Each criterion is given specific parameters for evaluation of the ILMC of every learner, through cognitive tests for entry and output levels.

The level of competence of the learner is determined by the number of correctly solved tasks and the corresponding point score (from 0 to 100 points).

Through the statistical analysis of the results of the pedagogical experiment we are looking for the answer of the question *“What is the effect of the impact of the established andragogical training model on the basis of the competence approach (factor variable) on the ILMC (resultant variable) on the adult learners under penitentiary conditions through the training in Bulgarian language and Mathematics in the early stages of training and whether it is sustainable for people of different ages and ethnicity?”*

The results of the experimental work are recorded through the following diagnostic procedures: TEST-1, TEST-2, INQUIRY FORM-1 (IF-1), INQUIRY FORM-2 (IF-2), INQUIRY DATA FOR THE EXPERT, EXPERT FORM OF TEST-1(2)

The inquiry forms I and II are designed for the learners. They are filled out in the beginning and the end of the experiment. The main goal of IF-1 is to explore the demographic, family, social and educational status, as well as the educational and social expectations of the persons included in the experiment.

Through IF-2 the views of the learners are examined on the value and the prospects of the proposed training model.

One group of respondents – 22 women, studying in the primary classes of the school at the prison in the City of Sliven, was differentiated for the purposes of the research.

The age characteristic of the persons involved in the experiment is in the range 19 – 52 years of age, as the mean age is approximately 32. Ethnicity is as follows: 13.6% – Bulgarian, 63.6% – Roma and 22.7% – Turkish.

Criteria tests were used for diagnostic of ILMC of adult learners participating in the study (TEST-1 and TEST-2).

Both tests serve as a basic diagnostic *tool* to obtain objective, reliable and valid information needed for scientifically based analysis of the value “productivity of the ILMC” and the levels of its applicability. They are subjected to expert assessment by 10 experts.

The tests have two modules. The first module includes questions and tasks from the linguistic training of the learners, the second one – from the mathematical training.

TEST-1 aims to establish the level of the ILMC of the persons involved in the study before the implementation of the new training model, and TEST-2 – at the end of the experimental work.

The different test tasks are evaluated with different score depending on the level of the ILMC (L-1, L-2, L-3).

It should be noted that Bulgaria has no experience in establishing threshold values for criteria evaluation.

For each correctly completed module the learner gets a maximum of 50 points.

The minimum number of points that a learner needs to receive from both modules, in order to obtain an ILMC level, is 40 points. A learner, who has received less than 40 points, has a zero level of



competence. Persons having 41 to 60 points cover the first level of competence, those with total score of 61 to 80 cover the second level of ILMC, while those with a score of 81 to 100 points – third level of competence.

Learners, who receive the **first level** result, demonstrate competencies, greatly restricting the ability to deal with real problems. Learners at the **second level** show competencies that allow them to use their knowledge and skills in real situations. Learners at the **third level** have competences that involve active and independent inclusion in society.

The statistical processing and analysis of the results of the establishing experiment (TEST-1) and the forming experiment (TEST-2) must answer the basic question: *“What is the level of ILMC that every learner involved in the experiment has, is there a significant difference in these levels and what is the connection between the measured ILMC level and the age and ethnicity of the respondents?”*

For the mathematical and statistical processing of the results is used the computer program SPSS 16.00.

In the levels of competence, presented as a percentage from TEST-1 and TEST-2, the relative share of second level of ILMC of adult learners is maintained, but there is a significant change in the third level (from 0% to 41%) in comparison to the first level.

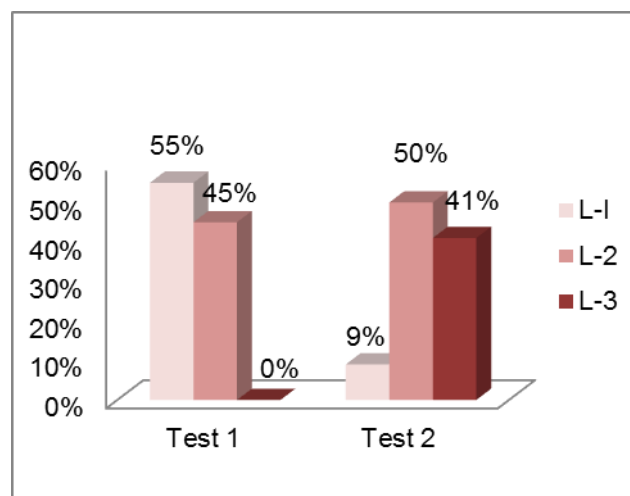


Fig.1. Levels of competence

The average results from the levels of ILMC of the respondents as a whole, presented in points (Figure 2), show an increase of 29 points, which is a significant progress for the prisoners in their abilities to apply the acquired language and mathematical knowledge and skills when solving real life problems and tasks.

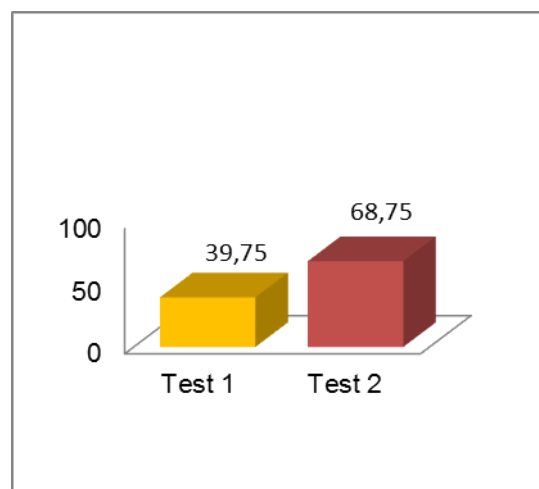


Fig.2. Competence in points (average result)

The influence of two demographics: ethnicity and age is also tested.

On the basis of the results of the dispersion analysis ANOVA for the threshold level of significance was concluded that ethnicity does not affect the test results.

The estimated values of the Pearson's coefficient for the correlation between age and the overall result in points of entry and exit are statistically insignificant.

The overall theoretical and experimental study gives rise to the following **conclusions**:

✓ With regard to the problems in the adult education within the places for imprisonment:

1. Insufficiently developed normative legal base.
2. There are no developed state educational standards, reporting the psychological peculiarities of the contingent of learners and the specific operating conditions in the prisons and the schools thereto.
3. There is no developed unified state system for preparation and qualification of the prison educators.
4. There is no developed educational-methodical apparatus necessary for the organization of effective educational process in the places for imprisonment.
5. The syllabus in Bulgarian language and Mathematics for the initial stage of training must contain an option for adult learners, in which accurately and in detail shall be described the objectives of the chosen subject, the topics, the mentioned competences are formed, their forming, well as the corresponding set situational tasks for the achievement of the goals set.
6. The frequent change of the contingent of learners, which is associated with the varying time for systematization of each learner, adversely affects the effectiveness of the training.

✓ With regard to the original andragogical model for the formation of elementary mathematical competencies in adults:

1. In the proposed training model cannot be applied the andragogical training principles in their entirety and completeness, because the contingent of respondents is incapable of responsible attitude to learning.
2. Most suitable for the model are the heuristic (search) training methods.
3. The model determines: the purposes of the education in Bulgarian language and Mathematics; the ILMC, which will be formed; the measured levels of competence; the system **of competency-oriented language and mathematical tasks for adults**.

✓ With regard to the results of the experimental training:

1. The results at the exit are higher than those at the entry, both in ILMC levels and as a whole.
2. There is no significant difference between the results and the age of the learners.
3. The ethnicity does not affect the test results both at the entry and the exit.

As a **conclusion**, we would like to note:

On the basis of the overall study it could be stated that the goals and the objectives of the established andragogical model for the formation of ILMC in adults under a curriculum for the initial stage of training have been achieved. The established training model in Bulgarian language and Mathematics in the context of the competence approach proves its advantages.

Besides the scientific studies other studies related to the ILMC could also be realized:

- Study on the levels of ILMC in adults from other classes, stages, forms and degrees of training;
- Study of the impact of the demographic status on the ILMC of adult learners;
- Study of the connection between the level of the acquired linguistic and mathematical knowledge and skills and the levels of the ILMC.

In this sense, the present study is only the beginning.

Notes

The study was conducted within the Inclusive Education project and the Alternatives in Education project at the Paisii Hilendarski Plovdiv University, Bulgaria.

References

- [1] Rumiyanova Tankova, Didakticheski tehnologii za nachalno ovladyavane na bulgarski ezik ot uchenitsi s dominirashit maychin romski i turski ezik. Plovdiv: Universitetsko izdatelstvo "Paisii Hilendarski", 2014, p. 6.
- [2] Klyuchovi kompetentnosti. Evropeyska referentna ramka. Sofia: Ministerstvo na obrazovaniето i naukata, 2007.
- [3] Pravilnik za prilagane na zakonaza izpalnenie na nakazaniyata i zadarzhaneto pod strazha. Sofia: Darzhaven vestnik, 9, 2010.