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Interactive Unified State Exam Training Complexes

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Abstract

The article presents the experience in implementing modern interactive tools, precisely unified state exam (USE) training complex, into school education. It describes the structure of the training complex and specific features of its integrated elements. The use of USE training complex for studying History of Russia is examined.

Key words: training complex structure, motivation to study, knowledge quality.

Modern education, in our opinion, should meet two basic requirements. Firstly, it should correspond to the individual demands of every learner providing him/her with the possibility to go through his/her own learning path. Secondly, it should contribute to developing these individual demands involving learners into education process focused on the personal growth and development of the required skills and attributes. To meet the above described requirements, it is essential to use a special information-training environment (ITE).

Our concept of learning by means of ITE tools implies a variety of e-courses within each programme. Such approach allows planning and transferring comprehensive knowledge both by means of e-learning and blended learning. It also provides each instructor with the possibility to choose his/her own ITE tools and services, as well as teaching resources.

One of the relatively new elements of our e-courses is an interactive USE training complex. The training complex is intended for independent evaluation of knowledge acquisition within a certain subject including the ways to improve the results during further academic activity. The tasks of the training complex are compiled in accordance with the "Encoder of the content elements and requirements to school leavers' knowledge

for the unified state exams". The fulfilment of the same tasks is evaluated by the USE.

Let us examine implementation of USE training complex for studying History of Russia. It is worth noting that the content of USE training complexes is defined on the basis of the Federal component of the state standards for school education including basic and special levels (the order of the Ministry of Education of the RF dated 05.03.2004 No. 1089) and the Historical and Cultural Standard which is an integral part of the Concept of a new teaching complex on the national history.

The training complex covers the content of the Russian History course starting from the ancient times up to the present days including the data on the world history (history of wars, diplomacy, culture, economic relationship, etc.) and is aimed at revealing learners' achievements in History. The most crucial upgrading of training complex structure was its revision in accordance with the structure of the Historical and Cultural Standards. A new structure of the training complex includes the blocks of tasks, each of which is aimed at evaluating certain set of knowledge defined by the Historical and Cultural Standards: knowledge of chronology, knowledge of terminology and concepts, knowledge of personalities, and ability to work with documents, etc.

Thus, the USE training complex is aimed at helping learners systemize knowledge, get deeper insight into History of Russia from the ancient times to the present days including the issues of world history and familiarize them with various tasks used in the Unified State Exams.

It is worth noting that each USE test version includes significant amount of factual material. At the same time, great attention is paid to evaluating analytical, informative, cognitive and other intellectual skills of a learner. Due to the indicated binarity of the USE test content, the training complex on History of Russia is divided into two parts.

The first part consists of 21 blocks which cover in chronological order all didactic units of the USE encoder. The content of History of Russia is embedded into the training complex in a clear and concise manner – in the form of structural-logical schemes and tables. Such form allows revealing the most significant features of historical events and processes, identifying the regularities of and trends in development of Russia and understanding the link between definite historical events. The concise and clear manner of information delivery fosters its acquisition, enables learners to save time on material revision and enhance the preparation process for the USE.

Each training block allows evaluating knowledge and certain skills within any section of the course. The names of all training complex blocks are given in the table as an example. They cover the course on History of Russia from the ancient times to the Middle Ages and present times.

Each block of the training complex includes 20 tasks compiled according to the specific characteristics of each training block. These specific characteristics reflect more sophisticated structure of the material than that presented in the Encoder. Each element of the Encoder is subdivided into smaller topics in accordance with the content of certain tasks of the USE. Such detailed structure enables not only to evaluate knowledge acquisition within the course regarding possible specific features,

but also to train various types of a learner's intellectual activities that may be useful for corresponding task resolving (Table 1).

Thus, the blocks of the first part of the training complex cover the entire history of Russia, each being devoting to a certain peculiar chronological period. The second part of the training complex includes 15 blocks, each of which covers the entire history of Russia, but is aimed at enhancing certain activity (Table 2).

It is worth noting that holistic thinking is currently becoming rather popular. It is focused on a new holistic view of history and conceptual thinking as an intention of scientific historical conscious aimed at "catching" senses in most complex cases of History of Russia.

Today, knowledge of history including its role and significance in society is becoming more and more relevant. When a modern person is asked a question "Does he/she need knowledge of History?", History should be understood in a broad sense: it is an archive of culture, first of all, national culture. It makes it possible to give a clear answer to the question: Does a modern person need to know the past history? Definitely, "a person who has lost his/her memory becomes deprived of his/her personality, so, the nation which has lost its historical memory becomes deprived of its national identity", stated A.L. Nikiforov, Doctor of Philosophy [1].

Each new generation poses its own questions to the history looking at it like in the mirror and trying to find the ways how to solve the present problems. Completing the course on National History is not only useful in terms of educational, scientific, thought-provoking aspects, but also provides learners with practical orientation. History facilitates spiritual development of personality, as well as development of historical conscious. It enables to retain and strengthen value orientation of a person, contributes to independent creative thinking and active public activity [2].

It is worth noting that training and instructional methods to study History,

Table 1. Training complex (the first part)

Name of training complex block	Activity to be evaluated
№ 1. From Ancient Rus to the Grand Duchy of Moscow.	Knowledge of basic facts, processes and events.
№ 2. Development of the united Russian State. Russia throughout 16 th to 17 th centuries.	Knowledge of basic facts, processes and events.
№ 3. History of Russia from the ancient times to the end of the 17 th century.	Establishment of cause-effect relationship.
№ 4. Russian culture throughout the 8 th – 17 th centuries.	Various activities.
№ 5. History of Russia from the ancient times to the end of the 17 th century.	Search for information in various sources.
№ 6. Russia during the 18 th and the first half of the 19 th century.	Knowledge of basic facts, processes and events.
№ 7. Nobility Imperia during the 18 th – first part of 19 th centuries.	Knowledge of basic facts, processes and events.
№ 8. Russian Imperia throughout the 18 th – first part of 19 th centuries.	Establishment of cause-effect relationship.
№ 9. Internal and external policy of Russia during the 18 th – first part of 19 th centuries.	Search for information in various sources.
№ 10. Internal and external policy of Russia during the 18 th – first part of the 19 th centuries.	Knowledge of basic facts, processes and events.
№ 11. Russian Imperia throughout the second part of the 19 th century – beginning of the 20 th century.	Establishment of cause-effect relationship.
№ 12. Russian throughout the second part of 19 th century – beginning of the 20 th century.	Search for information in various sources.
№ 13. Culture of Russia during the 18 th – beginning of the 20 th century.	Various activities.
№ 14. Russia, USSR, throughout 1917–1941.	Knowledge of basic facts, processes and events.
№ 15. Russia, the USSR, throughout 1917–1941.	Establishment of cause-effect relationship.
№ 16. The Great Patriotic War 1941–1945.	Knowledge of basic facts, processes and events.
№ 17. The Great Patriotic War 1941 – 1945.	Search for information in various sources.
№ 18. Internal and External policy during 1941 – 1991.	Knowledge of basic facts, processes and events.
№ 19. The USSR during 1941 – 1991.	Establishment of cause-effect relationship.
№ 20. Russian culture from 1917 until the present day.	Various activities.
№ 21. The Russian federation from 1992 until the present day.	Knowledge of basic facts, processes and events.

Table 2. Training complex (the second part)

Name of training complex block (evaluated activity)
Training block № 22. “History of Russia throughout the 8 th – 21 st centuries” (Ability to define the order of the events).
Training block № 23. “History of Russia throughout the 8 th – 21 st centuries” (Knowledge of dates; matching task).
Training block № 24. “History of Russia throughout the 8 th – 21 st centuries” (Term definition; to choose one element (term, name) from the list).
Training block № 25. “History of Russia throughout the – 21 st centuries” (Term definition based on several features).
Training block № 26. “History of Russia from the beginning of the 20 th century until the present day”. (Work with the historical text. Brief answer in a form of a word, word phrase).
Training block № 27. “History of Russia throughout the 8 th – the beginning of the 21 st centuries” (Work with the historical text; task to match the characteristic features of the studied period of Russian History).
Training block № 28. “History of Russia throughout the 8 th – the beginning of the 21 st centuries” (Systematization of historical data. Multiple choice).
Training block № 29. “History of Russia throughout the 8 th – the beginning of the 21 st centuries” (Knowledge of historical personalities; matching task).
Training block № 30. “History of Russia throughout the 8 th – the beginning of the 21 st centuries” (Knowledge of basic events, processes; matching task).
Training block № 31. “History of Russia from the 8 th century to the end of the 19 th century” (Work with historical document; task to match the fragments of two historical documents).
Training block № 32. “History of Russia from the 8 th up to the beginning of the 21 st century” (Systematization of historical data presented in various forms (tables)).
Training block № 33. “History of Russia from the 8 th up to the beginning of the 21 st century” (Knowledge of basic events, processes; gap filling task).
Training block № 34. “History of Russia from the 8 th up to the beginning of the 21 st century” (Knowledge of basic events, processes of Russian culture; matching task).
Training block № 35. “History of Russia from the 8 th up to the beginning of the 21 st century” (Analysis of visual information based on the proposed photos).
Training block № 36. “History of Russia from the 8 th up to the beginning of the 21 st century” (“Reading” of illustrated historical source and matching it with a certain historical period).

including USE training complexes, are intended to provide young people with the ability to demonstrate thinking skills by analyzing, synthesizing, and evaluating historical information, to help them understand cause-effect relationship, get interested in history and acquire sense of pride for their country.

When introducing teaching and interactive programmes into education system including USE training complexes, a special focus is put on the issues and tasks which are intended to be covered by learners independently. Thus, the training complex can be easily applied both by learners for independent studying and school teachers

during History classes for teaching and course refreshing.

It is to be noted that a learner studying History by means of the training complex is given the interactive test which consists of 20 tasks, each corresponding to a certain specific topic. Each task is randomly selected from the task base according to the chosen block. The number of tasks ranges from 250 to 350, with the total number being more than 10000. As a result, teachers are equipped with numerous interactive tests that can be used both in class for group work and at home for independent study.

Depending on the specific setting, time constraints can be imposed on a test. After submitting the test, it is evaluated on a 100-point scale. The results and feedback options including all given questions and selected answers with correct ones are in effect for learners to view. When resolving the task of the second block, the answers are supplemented with the comments, which significantly contributes to the learning effect of the training complex.

To resolve the tasks of a certain training block, a learner is allowed multiple attempts. It is essential that the questions and all given answers are saved. It gives a teacher and a learner the possibility to think over or to discuss a certain answer. In addition, each learner has the possibility to trace the history of attempts within a certain training block, as well as to receive the final grade. In fact, a learner may build his/her own learning path. The obtained data and results allow teachers and learners to analyze and adjust individual learning paths.

A teacher has the opportunity to view the time spent on each training block and learner's result in terms of the final score. The result of the entire group can be compared with the results of all participants presented as the histogram showing the distribution based on the received score and average score for the whole group and all participants.

The training complex is equipped with an automated service "Statistics" that provides a teacher with great amount of useful information concerning task fulfilment within each training block:

- the number of first attempts;
- the total number of attempts;
- average score of the first attempts;
- average score of all attempts;
- mean-squared deviation from the average score;
- skewness coefficient of distribution of learners by the obtained score;
- coefficient of kurtosis (a descriptor of the shape of a probability distribution of learners by the obtained score);
- task internal consistency index (a definer of result reliability);
- error coefficient (a characterizer of correlation degree for various training tasks);
- standard error of test result.

Such detailed analysis of the obtained results for each learner and the whole group allows for an objective assessment of learning outcome achievement within the selected training block, i.e. rather specific topic of the course. It also enables teachers to identify the problem questions and make the necessary adjustments to the teaching process.

In addition, "Statistics" service allows for assessment of all training block tasks providing the following data that is important for task designers:

- the number of attempts;
- easiness index;
- mean-squared deviation;
- effective weight (share of certain task in total score);
- differentiation index between good and weak learners (roughly);
- efficiency of the differentiation (more accurate indicator of correlation between the answers and the entire test).

In conclusion, it should be noted that approximately 1000 learners annually use USE training complexes, undertaking about 20000 various tests. They connect to the training complexes independently or with the assistance of their teachers. Based on the teachers' feedbacks, the following conclusion can be made:

1. Significant involvement of learners into the academic activity is registered: the increase in time and intensity, as well as

importance of game forms and competition in teaching.

2. A teacher is granted with an interactive tool that allows for the increase in learner's independent work efficiency, as well as

individual and group class work.

3. Use of training complexes stimulates learners' motivation to study, enhances education quality and improves the results of independent knowledge level assessment.

REFERENCES

1. Znanie o proshlom v sovremennoj kul'ture (materialy «kruglogo stola») [Knowledge of the past in the modern culture (materials of roundtable meeting)]. *Voprosy filosofii* [Issues of philosophy]. 2011. Issue 8. pp. 3–45.
2. Chistyakov, V.B. Istoricheskaja sushhnost' socializacii studentov (stat'ja pervaja) [On historical essence of students' socialization]. *Alma Mater Vestnik Vysshey Shkoly* [High School Herald]. 2012. Issue. 5. pp. 23–26.

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REFERENCES

1. Znanie o proshlom v sovremennoj kul'ture (materialy «kruglogo stola») [Knowledge of the past in the modern culture (materials of roundtable meeting)]. *Voprosy filosofii* [Issues of philosophy]. 2011. Issue 8. pp. 3–45.
2. Chistyakov, V.B. Istoricheskaja sushhnost' socializacii studentov (stat'ja pervaja) [On historical essence of students' socialization]. *Alma Mater Vestnik Vysshey Shkoly* [High School Herald]. 2012. Issue. 5. pp. 23–26.