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Cognitive assessment as a practical instrument of student's progress monitoring in the USA

Today Ukrainian system of education, its content and methodological approach to teaching instruction is being changed in order to meet international educational standards. It is searched that cognitive assessment is a monitoring process which allows to receive the data of students' academic performance, to ascertain its accordance with national educational standards and, that is more important, having taken into consideration background information to analyze possible cause of failure and define the ways of correlating teaching instruction and student's way of studying in order to improve student's performance. In Ukraine such a procedure takes place partly and is not presented as a nationwide system. The components, function and cognitive targets of cognitive progress monitoring in Reading in the USA were searched, as this country has a very developed system of educational monitoring at a national, state and local level. Possible ways of implementation of cognitive assessment in Ukraine are offered.

Key words: cognitive, reading cognitive assessment, progress monitoring, intermediate and summative assessment, psychometric characteristics, background indicators, reading behavior.

Introduction. Nowadays one of the most important priorities in the field of education is precise attention to each individual student and creation conditions for improving quality of his education. Having set such a priority Ukrainian educators aim at joining the European and international educational standards. One of the ways to resolve this aim is to develop and implement effective procedure of students' assessment, schools outcome evaluation and monitoring quality of education as a

practical instrument for educational management and predicting further development of education. Implementation of such a priority can not occur without systemic changes in the content of education and its methodological approaches. Assessment is the procedure of receiving the results of students' academic performance in various ways. Among different types of students' assessment (intermediate, formative, summative, progressive, authentic, portfolio and others), which are widely used in the countries with high academic performance, cognitive assessment is an integral part of student's progress monitoring. Cognitive assessment allows teachers to take into consideration student's psychometric characteristics such as ability to realize and self esteem his academic progress. Making use cognitive assessment assists in methodology modeling and proof reading individual performance score according to the academic national standards.

Literature overview. In Ukraine state assessment is mostly represented as summative (after 9th and 11th grades) which allows students to receive school certificates, and external state assessment which presents student's academic performance and give him the possibility to enter higher educational establishments on the basis of this performance. Summative and external state assessments are sometimes partly available to the comprehensive analysis of students' progress monitoring. The results of external state assessment are used as investigation to find connection between student's performance score and the school he studied at (secondary school, lyceum, specialized in some subjects etc.); the place of residence (a city, town or rural school) and some other indicators [3]. Today in our country national state assessment which would analyze and take into consideration not only students' academic performance but their possible academic progress and ways of further correlation doesn't take place. Ukrainian educators and investigators L.Kashkariova, V.Landsman, I.Petuhova, T.Pushkariova present frameworks for testing and assessment on the basis of self assigning and evaluating, content and resultant, progress monitoring [1; 2; 4; 5]. Their investigations demonstrate a framework of students' performance monitoring based on their psychological and pedagogical characteristics which take into consideration such indicators as

measurement of unhindered attentiveness, productivity of verbal unhindered memory, evaluating student's capabilities and others. But these performance monitoring frameworks are not used as the nationwide system of students progress monitoring, present assessment and evaluation framework doesn't analyze comprehensive indicators and students characteristics, doesn't put the aim to perform and reason out cognitive assessment results.

Given the above, we consider investigation the framework of cognitive assessment in foreign countries, especially in those where such a procedure successfully works, is worthy. The United States of America has a well developed and effective system of monitoring quality of education and students' educational progress, and cognitive assessment is an integral part of such monitoring. Everything mentioned above stipulated the theme of our article, where we research and present the peculiarities of cognitive assessment in the USA.

Therefore we **put the aim** to investigate the essence of cognitive assessment and present its peculiarity as student's progress monitoring in the USA. This aim requires to put the **following tasks**: to define the essence "cognitive" and "cognitive assessment"; to search the components of cognitive assessment and its function in the process of nationwide educational progress monitoring; to present possible ways of implementation of cognitive assessment in Ukraine.

The term "cognitive" originates from "cognition" and is interpreted as ability to receive and analyze, as knowledge, as the result of the receiving and analyzing process. "Cognitive assessment" is the monitoring process that allows to define, perform and analyze student's academic performance according to their abilities, psychometric characteristics and other indicators, then to interpret and correlate further teachers' instructions and students' ways of studying [7].

In Ukraine nationwide summative and external assessment is being realized in such major subjects as Ukrainian Language and Literature, History, Natural Sciences. We consider language and literature to be the fundamental basis for student's ability to receive, analyze, reason out, use, interpret and revise the sense of the text. That is

why we have searched the function and components of cognitive assessment in Reading in the USA progress monitoring process.

Since 1969 the National Assessment of Educational Progress (NAEP) is a state educational establishment that provides educational monitoring on a legal basis at a national, state and local level [6]. It is an ongoing national indicator of what American students know and can do in major academic subjects, including reading in English. NAEP reading assessments have been administered on a regular schedule to students in grades 4, 8, and 12. Under the No Child Left Behind Act of 2001 (NCLB), NAEP assesses reading in grades 4 and 8 every 2 years. NAEP also measures reading in grade 12 every 4 years.

The NAEP Reading Assessment is guided by *a definition of reading cognitive assessment* that reflects scientific research, draws on multiple sources and conceptualizes reading as a dynamic cognitive process. This definition applies to the assessment of reading achievement on NAEP and states that reading is an active and complex process that involves: *understanding written text* (readers attend to ideas and content in a text by locating and recalling information and by making inferences needed for literal comprehension of the text. In doing so, readers draw on their fundamental skills for decoding printed words and accessing their vocabulary knowledge); *developing and interpreting meaning* (readers integrate the sense they have made of the text with their knowledge of other texts and with their outside experience. They use increasingly complex inferencing skills to comprehend information implied by a text. As appropriate, readers revise their sense of the text as they encounter additional information or ideas); *using meaning as appropriate to type of text, purpose, and situation* (readers draw on the ideas and information they have acquired from text to meet a particular purpose or situational need. The use of text may be as straightforward as knowing the time when a train will leave a particular station, or it may involve more complex behaviors such as analyzing how an author developed a character's motivation or evaluating the quality of evidence presented in an argument).

Having defined the components of cognitive assessment in reading American educators and scientists determine the following *cognitive targets*: to analyze the mental processes or kinds of thinking that underlie reading comprehension; to make test questions will be aligned to cognitive dimensions applicable to literary and informational texts and also to cognitive dimensions specific to each text type; to include specific cognitive targets that reflect the intent of the definition of reading that guides the assessment [8].

Having set such a definition, function and targets of cognitive assessment in Reading American educators and scientists analyze the following students` psychometric characteristics, indicators and factors related to the text being read and to readers' backgrounds and experiences influence reading performance: the way that readers prepare for and approach their task; student's consideration why they are reading (e.g., to study, to relax); how much they know about the topic, and other concerns that shape the time they will spend reading; understanding the vocabulary, concepts, and structural elements of the text contributes to readers' successful comprehension. It is emphasized that comprehension is also affected by readers' background knowledge and by the context of the reading experience.

The background knowledge and experience that students bring to the NAEP Reading Assessment differ widely. To accommodate these differences scientists define, analyze and interpret student's so called "reading behavior" on a legal and permanent basis to monitor students` educational progress. Regular reports followed by every scheduled cognitive assessment are available to the educators, administrators, teachers, students and their parents. Report's conclusions and recommendations allow educators and administrators to monitor and improve content, conditions and quality of education; teachers to correlate their instruction strategies; and students to monitor and proof read their ways of studying.

Given the above, we consider the following ways of implementation of cognitive assessment in Ukraine: to provide a legal schedule of cognitive assessment in major subjects for a school or school region, nationwide in order to monitor the results (for example in Reading every two years as an intermediate assessment and at

9th and 11th grades as summative one); to define the aim, content, conception, function and cognitive targets of the subject being assessed; to determine psychometric indicators and background characteristics which influence the academic performance; to perform the results, reports, conclusions, recommendations and ways of their implementation for educators, teachers, students and their parents; to monitor and represent all changes if some took place at given school, school region, nationwide (to provide progress monitoring data available for community).

Summary. Cognitive assessment is the monitoring process that allows to define, perform and analyze student's academic performance according to their abilities, psychometric characteristics and other background indicators, then to interpret and correlate further teachers' instructions and students' ways of studying and to monitor academic progress (which is often called "progress monitoring"). In the USA cognitive assessment is an ongoing process that provides educational monitoring on a legal and scheduled basis at a national, state and local level. Providing cognitive assessment in different subjects (Reading, Math, Natural Sciences) scientists and educators define and represent the aim, functions and cognitive targets of such assessments for community; make conclusions and recommendations; summarize and monitor all changes as a result of cognitive assessment. In Ukraine we observe the absence of such complete procedure which would take place regularly, on a legal basis and would have the possibility to monitor and reason out all changes, if some took place. We offered some ways to implement cognitive assessment as an integral part of progress monitoring in our country.

We consider investigation of student's psychometric and background indicators ("reading behavior") that influence academic performance in reading is worth further searching.

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Когнітивне оцінювання як засіб відстеження навчального поступу в США

Досліджено, що когнітивне оцінювання – моніторингове дослідження, яке дозволяє отримувати дані про рівень навчальних досягнень учнів, визначити його відповідність національним освітнім стандартам та, що є найбільш цінним, враховуючи інші показники, зробити аналіз можливих причин відставання у навченні та визначити шляхи змін у методології навчання вчителем та способу

навчання учнем з метою покращення рівня навчальних досягнень. Враховуючи багаторічний досвід та дієвість моніторингу освітнього поступу в США на національному, рівні штату та місцевому рівнях, досліджено цілі, зміст та складові когнітивного оцінювання з читання. Представлено можливі шляхи впровадження когнітивного оцінювання в Україні.

Ключові слова: когнітивний, когнітивне оцінювання з читання, освітній поступ, поточне та підсумкове оцінювання, психометричні характеристики, причинні індикатори, поведінка читача.

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**Когнитивное оценивание как средство исследования образовательного
прогресса в США**

Исследовано сущность когнитивного оценивания – учитывая психометрические характеристики учеников и другие причинные индикаторы анализировать результаты обучения и осуществлять изменения в содержании и методологии обучения. Рассмотрено цели, содержание и компоненты когнитивного оценивания чтения в США. Представлены возможные пути осуществления когнитивного оценивания как общенациональной системы в Украине.

Ключевые слова: когнитивный, когнитивное оценивание чтения, образовательный прогресс, текущее и итоговое оценивание, психометрические характеристики, причинные индикаторы, поведение читающего.

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