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Reflections of the American, Ukrainian and Chinese scholars

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**AN ISSUE OF DIFFERENTIATED INSTRUCTION UNDER
THE INDIVIDUALISATION OF EDUCATION TENDENCY.
REFLECTIONS OF THE AMERICAN, UKRAINIAN
AND CHINESE SCHOLARS**

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An issue of differentiated instruction under the individualisation of education tendency. Reflections of the American, Ukrainian and Chinese scholars

Abstract. The paper seeks to synthesize the research on the rationale supporting differentiated instruction. The article focuses on the basic theoretical concepts, scientific approaches and guidelines of the American, Ukrainian and Chinese educators on the issue of differentiated instruction and its implementation in secondary education. The scholars determine differentiated instruction as a teacher's reacting responsively to a learner's needs. The overriding objective of a differentiated classroom is to create conditions that would enable students to grow and develop, track their individual success to ensure they reach their potential in academic performance. Broadly supported concept that all students are unique, differentiated instruction applies an approach to teaching and learning that gives learners plenty of alternatives for receiving information, understanding and interpreting essential ideas. Most of researchers emphasize that using of differentiation strategy is targeted at maintaining students' educational potentials and academic progress. Both Ukrainian and foreign researchers scholars emphasize that the differentiated instruction improves schooling by taking into consideration students' individual and cultural learning styles, realizes that some students will require appropriate expectations. Educational differentiation offers various ways for students to study a subject and translate that knowledge into concrete, effective and targeted action. Particular emphasis in the article is on practical proposals how to start using differentiated instruction in the schooling process. The author of the article therefore examines key principles of quality differentiation and useful steps for planning and developing the differentiated lessons.

Key words: differentiated instruction, effective teaching, general secondary education, learning environment.

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Проблема диференціації навчання як тенденція індивідуалізації навчання. Рефлексії американських, українських та китайських учених

Анотація. *Вступ.* Однією з провідних тенденцій сучасного розвитку освіти є її орієнтація на особистісно орієнтоване навчання, створення комфортного навчального середовища, яке могло б ефективно сприяти формуванню індивідуальності учня, розвитку його пізнавальної та творчої активності, реалізації його потенціалу, прагнень та інтересів. Диференціація навчання може стати ефективним засобом для досягнення відповідних цілей. Більшість освітян пов'язують диференціацію навчання з оновленням та подальшим розвитком школи, тому ця проблема викликає загальний інтерес науковців і освітян в Україні, США та Китаї. *Мета.* Висвітлення поглядів американських, китайських та українських науковців на проблему диференціації навчання задля надання інформації для аналітичних досліджень у сфері формування освітньої політики України. *Методи.* Методологічною основою дослідження є аналіз опублікованих текстів, порівняння їх змісту, синергетичний підхід до їх інтерпретації. *Результати.* Більшість американських, українських та китайських освітян погоджуються, що диференційоване навчання є інструментом підвищення ефективності шкільної освіти та засобом розкриття та розвитку всіх потенційних можливостей учнів. Переваги диференціації навчання – підвищення мотивації та активності учнів у навчальному процесі. Основні аспекти, на які слід звертати увагу для практичного застосування навчальної диференціації, – це контент, процес та результат. Крім того, диференційоване навчання має відповідати вимогам наступності і брати до уваги вікові особливості учнів. *Висновки.* Попри безліч трактувань і концепцій щодо зазначеної проблеми, можна узагальнити, що диференціація навчання є одним з основних засобів демократизації і гуманізації освітнього процесу, оскільки вона може забезпечувати сприятливі умови для найкращого розвитку школярів.

Ключові слова: диференціація навчання, ефективне навчання, загальна середня освіта, освітнє середовище.

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Анотація. Одной из тенденций реформирования образования в Украине на современном этапе является ее направленность на личностно ориентированную модель обучения и воспитания, реализации интеллектуального, творческого и духовного потенциала учеников. В решении этой задачи важное место принадлежит дифференциации. Статья освещает взгляды американских, китайских и украинских ученых на проблему дифференциации обучения и применения ее на практике. Большинство исследователей подчеркивают, что дифференцированное обучение является инструментом повышения эффективности школьного образования и средством раскрытия и развития всех потенциальных возможностей учащихся. Основные аспекты, на которые следует обращать внимание для поддержания дифференциации на практике, – содержание, процесс и продукт (как ученики демонстрируют свое мастерство по освоению знаний или навыков). Дифференциация обучения выступает как определяющий фактор демократизации и гуманизации системы образования, поскольку обеспечивает условия для оптимального развития каждого ребенка.

Ключевые слова: дифференциация обучения; эффективное обучение; образовательная среда; общее среднее образование.

Introduction (problem statement). Under modern processes of world globalization, today's school classes are filled with students who differ not only in their cultural and linguistic environment, but also in their cognitive abilities, educational background, interests, abilities and learning style. One of the most important challenging task of the school education is to create such learning conditions that allow each student fully realize him or her personal interests, needs and make them able to learn. The level of learning readiness, attitude to learning and students' interests in each class are different. Often the teacher is forced to conduct classes according to the average level of development and learning readiness of the student. This inevitably leads to the fact that “strong” students are artificially constrained in their development. As result, they lose interest in learning. The “weak” ones are doomed to chronic backwardness. Those who belong to the “middle” are also very different: with different interests and inclinations, peculiarities of perception, thinking, memory. In order for each student to work at full strength, to feel confident in himself, to feel the joy of the educational process, to consciously and learn hard training material, to advance in development, the educational process is be built on the principle of individual approach. Differentiated instruction is one of the means of individual approach to children. It also may be an approach to teaching and learning for students with different abilities in the same classroom in order to motivate them to produce their best work.

The issue of individualization and differentiation of education remains one of the most pressing in foreign pedagogy. In the United States much attention is paid to identifying different forms and ways of their realization. The Chinese scientist from ancient times noticed the individual characteristics of different students, so the Chinese definition of differentiated instruction has very ancient origins and rich modern connotation. They strongly believe that the teachers may choose the learning method suitable for each student's characteristics to target the educational purpose. In their choice, they must rely on cognitive level, learning ability and self-quality of each student. They clarify different elements of gender education (因性而教), peculiarities of educational age (因齡而教), determine the importance of differentiation for students, teachers, schools, parents, educational equity, etc. In Ukraine most researches are focused on theoretical and methodological principles of educational differentiation in school, the essence of electives as forms of differentiation, a differentiated approach to the formation of general educational competencies of students, methods of activating educational and cognitive activities of students, peculiarities of students' independent work in training sessions, etc.

The analysis of recent research and publications. In the context of a knowledge-based society, the economy needs highly-educated, open-minded employees who are able to respond actively to the rapidly changing demands of the labour markets, to develop professionally and personally

throughout their lives. This stipulates the need to intensify the focus of education on a student/recipient of educational services. Individualization of education under these conditions responds to these needs, and differentiation within individualization becomes an effective tool for producing positive results.

Differentiated instruction has drawn increased attention in recent decades. It combines what we know about constructivist learning theory, brain development, and empirical research on influencing factors of learner readiness, interest, and intelligence preferences toward student's motivation, engagement, and academic growth within schools (Allan & Tomlinson, 2000). In fact, a large number of research has accumulated in support of differentiated instruction. According to Pearl Subban, differentiated instruction area "is a dynamic field, which is amended regularly, and contributions from across the globe keep this model fluid" (Subban, 2006, p. 936).

Research on the problem of differentiated instruction and its providing for the secondary education system were conducted in Ukraine and China. The researches of the following Ukrainian scientists: N. Bibik, S. Honcharenko (theoretical and conceptual framework for the personality-oriented learning), M. Huzyk, S. Trubacheva (content and organization of the educational process), L. Zhovtan, L. Romanishina, P. Sikors'kyy (theoretical and conceptual framework for differentiated instruction), V. Kyzenko, H. Vas'kivs'ka (didactic basis of the differentiated instruction in the basic school), O. Sukhomlyns'ka, N. Dichek (the differentiated approach in the history of the Ukrainian school) are of significant theoretical and practical value.

In China, education reform has become widespread in order to raise its quality, create conditions for equal access for young people to quality education, to develop a personality capable of self-fulfillment, professional growth and mobility in today's society. The differentiation of education is one of the most important research topic of such Chinese scholars as Ma Yonghong, Wang Xiuping, Li Hangquan, Xia Zhengjiang.

The purpose of our study is to reveal the essence of differentiated instruction in modern scientific and pedagogical literature, to determine its purpose and main tasks, to analyze the existing types and forms of differentiated learning in secondary school, as well as to specify the content of concepts relevant to differentiated learning.

The results of the study. According to Carol Ann Tomlinson, a leading expert in field of differentiation in education, differentiated instruction (sometimes referred to as differentiated learning or differentiation) is aimed at providing students with individual ways to getting knowledge; to processing, constructing, or understanding of ideas; to developing training materials so that all students within the same classroom can learn reasonably well and effectively, irrespective of differences in their abilities (Tomlinson, 2001).

C. Tomlinson, T. Hall characterize differentiated instruction as a philosophy of teaching implying that students learn best when their teachers adapt the differences in their readiness levels, interests and needs (Tomlinson, 2001, 2003, 2005; Hall, 2002). They also consider that main goal of the differentiated instruction is fully using the advantages of every student's capacity to learn.

Broadly supported such concept, Mulroy & Eddinger consider that "in planning effective instruction teachers are no longer expected to lecture and quiz every student in the same manner, rather they must consider personal learning methods and how they can create a personalized learning environment within their classroom." (Mulroy & Eddinger, 2003, p. 2). Within the classroom environment allowed by the differentiated instruction, teachers work together to create a best learning experience for school students. The authors characterized differentiated instruction as the instruction that is student-centered. It provides a variety of approaches to address content, process and product; incorporates a variety of instruction models including group work, individual instruction, and whole-class activities. It is obvious that a teacher collaborates with others to plan appropriately to engage all children including those who have and have not been classified; staff is provided with opportunities to receive professional development related to best practices associated with effective differentiated instruction.

Dr. Julia L. Roberts and Tracy F. Inman underline “the importance of students understanding of themselves and their abilities before differentiated activities introduction.” (Roberts & Inman, 2007, p. 14). They believe that a differentiated classroom takes into attention diversity, provides openness.

According to the Ukrainian researchers (Кремень, 2008), from the perspective of pedagogical approach, the differentiated instruction is a system of influencing factors on students during the training course, which maximally corresponds to their interests, abilities, needs. From the perspective of didactic-methodical approach – it is differentiation of the educational content, teaching methods and forms of instruction. The Ukrainian educators distinguish the following types (forms) of differentiated instruction: internal (the organization of training in the same class in accordance with the tasks of different levels of complexity, with a specific teacher's help) and external (the organization of the educational process in specially created differentiated classes, schools): tiered – according to ability and achievement in study and profile – on cognitive interests and inclinations to the future profession.

Other Ukrainian scholars (Сухомлинська та ін., 2013) view the internal differentiation as the distribution of curricula, programs in terms of complexity, the presence / absence of individual subjects, different periods of study within the educational institutions according to their types and orientation. This internal differentiation is possible on various grounds – by testing, abilities, student achievement, interests and inclinations (profile differentiation), even by the temperament of the students.

P. Sikorskyj characterizes the differentiated instruction as “specially organized educational and cognitive activity (subject-subject pedagogical interaction), which, taking into account age, individual peculiarities of subjects of learning, their social experience and starting state, inclinations and interests aimed at optimal physical, spiritual and mental development students (students), assimilation of the necessary amount of knowledge, practical actions under different curricula and programs” (Сікорський, 2000).

Indeed, all the above interpretations make it possible to distinguish the following features: differentiated instruction involves the differentiation of the content of teaching material, methods and forms of education, and requires taking into account the various individual characteristics of the students, their subject experience for the organization of the corresponding fixed (or temporary) typological groups in order to create optimal conditions for development of interests, inclinations, interests, self-realization, etc.

The theory that differentiated instruction is based on assumes that every teacher should modify and adapt his or her approaches to satisfy the wide diversity of students in the classroom. The American educator J. Stern emphasizes that educational differentiation is “not creating an individual plan for each student, or keeping students in stagnant groups based on data from the beginning of the year, or teaching only the lower-level students and letting the higher-level students teach themselves.” (Stern, 2015). Moreover she gives three aspects of differentiated instruction is when “students can be in groups based on skills, interests, readiness, or by choice; there is a “purposeful use of flexible grouping” while keeping the lesson’s goals in mind; teachers are “teaching up” and holding students to high standards.” (Stern, 2015).

V. Papirovnyk (Папіровник, 2013) considers that application of DI first depends on the teacher's great desire to teach every student regardless of his/her educational background.

When planning a differentiated lesson, a teacher should pay attention to the learning environment and content, didactic stuffs and resources, instructional strategies and time, as the same as assessment procedures. Besides, the teacher should understand students’ necessities and react them adequately.

In the pedagogical literature of China there is the concept of “因材施教” – “teach students in accordance with their abilities”. This means that teachers must proceed from the real situation of students and their individual differences, purposefully conduct differentiated training so that each student can develop strengths, avoid weaknesses and achieve optimal progress.

Chinese scientists believe that teaching students according to their abilities is an important teaching method and teaching principle. Comply with the cognitive levels, learning abilities and

self-confidence of different students during the teaching process, every teacher chooses the teaching method that corresponds to the features of each student and goes along with student's targeted learning. Students' strengths may compensate for the lack of enthusiasm, stimulate interest in study and build confidence during the learning process, thereby contributing to the overall development of students (夏正江, 2008).

The Chinese definition 因材施教 has very ancient origins and rich modern connotation. 2500 years ago, during the educational process, Confucius took into account the individual characteristics of students. He drew attention to the fact that the mental abilities of each person are different. Also, a person may be different from another level of cognitive interest, learning opportunities, etc. Each person is characterized by different levels of determination in action or challenge, as well as particularities in choosing a field of activity. For instance, one likes the humanities, the other shows a tendency to engage in politics, and the other shows a tendency to engage in military affairs or commerce. Confucius, as a good psychologist, noticed the peculiarities of characters and mental abilities of his students and took into account the similar diversity in the educational process. The text of the "Analects" has an episode where Master Kong gives the following description to his students: "Ji Kang Tzu asked Confucius about his student Zhong Yun if he could handle public affairs. The teacher replied, "Yu is decisive. Therefore, nothing prevents him from doing public affairs." Then Ji Kang Ji again asked, "How about Xi, can he do business?" The teacher replied, "Xi is such a person. He also has nothing to do with public affairs." "And who is this? Can he handle public affairs?" Asked Ji Kang Ji again. The teacher replied, "Qiu is a good one. Therefore, nothing prevents him from dealing with public affairs." Based on a differentiated approach to the assessment of students' abilities, Confucius sought to create optimal conditions for the implementation of the principle of individualization in teaching. There are many examples in the "Analects" that demonstrate that Confucius treated and taught students differently (傅佩荣, 2006). Many Chinese scholars in the history of pedagogy emphasize that the method of considering the individual abilities of students originates from Confucius: he appreciated the qualities of his students and tried to develop their natural inclinations and abilities.

The Chinese educators consider that teachers should monitor students' development and correct them in a timely manner. Firstly, the teacher should timely organize the homework and quickly correct it, find the problem and fix it in time. In other words, the teacher must give and correct assignments, as well as the time and space to complete the assignments. If mistakes will not be corrected in time, so the students can easily get rid of the teacher's supervision. Secondly, the student's behavior should also be controlled by the teacher, which is in fact a combination of five behavioral characteristics: memory, interest and hobbies, speed of reaction, imitative ability and endurance. Nobody can predict what type of behavioral abnormalities will affect student growth and progress, so teachers should pay attention to student achievement in all aspects. Furthermore, encouragement and non-coercion are also magical weapons that make them learn. Some people are rebellious by nature. The coercive method can only make them go in the opposite direction. The last but not the least, the teacher completely eliminate prejudices. The key point in teaching students according to their abilities is that each student must have equal access to quality education.

In spite of the fact that some aspects of the schooling process may be out of the teacher's control, it is possible to make certain changes for ensuring the supportive and comfortable schoolroom for each student.

Dr. Tomlinson points out 6 aims that shape effective differentiation in education:

- 1) safe and challenging learning space for each student;
- 2) instruction may be carried out both for the whole class, and for a small group or an individual;
- 3) educational aims are clearly defined and focused on the key knowledge, comprehension and skills in a topic or subject;

4) preliminary and continuous assessments make corrections as required in teachers' instructional planning;

5) teachers manage time, materials, teaching strategies and space in flexible ways in order to meet student needs;

6) classrooms are transformed into educational communities in which learners share with the teacher commitment to respect, optimal working, and maximal individual progress (Tomlinson, 2005).

The Ukrainian researcher Yu. Lavrysh considers that "before the beginning of learning, the teacher has to complete a pre-assessment to determine students' skills, language proficiency level, learning style and experience. If the teacher expects continuous progress from students, they need to be challenged appropriately according to their ability to master intellectual, emotional, and social tasks at progressively more difficult levels." (Lavrysh, 2015).

The American researchers have determined the "base units" of effective differentiated instruction, such as "knowing the learner, traits of a quality teacher, quality curriculum, ideal learning environment, flexible educational time resources, best practices and instructional materials, proper evaluation and grading. These components meet the needs of culturally and linguistically diverse pupils because they demonstrate a teaching and learning approach that demands from teachers to act differently for various children (Forsten, Grant & Hollas, 2002).

The American researcher R. Wormeli highlights that "differentiation takes effort, time and is a career long pursuit...successful differentiated instruction teachers should give themselves three or more years to really feel savvy with it." (Wormeli, 2003).

The main goals, results and effectiveness criteria of educational differentiation are:

- increasing the efficiency of school education, creating the most appropriate education model for the young generation of the country, which provides everyone with the maximum development of his/her capabilities and abilities;

- democratization of the educational process, elimination of school uniformity, providing students with the freedom to select the elements of the educational process;

- creation of conditions for education and upbringing, adequate to individual characteristics and optimal for the versatile general development of children – mental, physical, moral, aesthetic, labor;

- formation and development of individuality, autonomy and creative potential of the individual, maximum development of gifted children, ensuring a sound choice of profession taking into consideration the abilities and results of education;

- protection of children in need of social and pedagogical assistance, adaptation/inclusion of children with special needs and asocial behavior in the mainstream educational process.

Conclusion and prospects for further research. The majority of theoretical sources define the differentiated instruction as a framework for effective teaching that realizes student's needs, responds them positively. Additionally, differentiated instruction involves providing support to different students in the same classroom with different ways to learning to develop their personality, talents and mental and physical abilities to their fullest potential. It is essential to emphasize that differentiation does not mean that every curriculum topic must be presented through content adjusted to each student. Differentiated instruction should be about providing additional support to pursue the common curriculum – not about creating a multiplicity of individual programs for students. But it means including all students in the same curriculum, as well as including them physically in the same classroom.

Most American, Ukrainian And Chinese educators agree that differentiated instruction is a tool for improving the efficiency of school education, and a means of disclosing and developing all the potential opportunities of students.

The analysis of the pedagogical literature on the issue of differentiated instruction makes it possible to draw the following conclusions:

- the issue of the differentiated approach to teaching has remained topical over the last decades;
- there is no single commonly accepted concept of “differentiated instruction” so far;
- differentiated instruction is viewed by the scholars an effective means to improve the quality of learning, develop the abilities, inclinations and interests of students, as well as their cognitive activity;
- educational differentiation is one of the key priorities of school modernization;
- educational differentiation is a determining factor in the democratization and humanization of the education since it provides the conditions for the optimal development of each child; humanistic orientation of differentiation requires the interests of everyone are weighed.

The prospects for further research are, first and foremost, to organize and conduct an experimental study on the provision of the principles of individualization and differentiated instruction in the school educational process of Ukraine.

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