



Dzhurylo Alina –

Candidate of Pedagogical Sciences, Senior Researcher of the Comparative Education Department Institute of Pedagogy of the NAES of Ukraine, Kyiv, Ukraine.

A range of scientific interests: the peculiarities of reforming the system of general secondary education in Germany, ensuring the quality of school education in the FRG, transformational processes in education.

e-mail: dzhurylo.ap@gmail.com

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GERMAN SCHOOL EDUCATION AFTER THE “PISA-SHOCK”: CHALLENGES FOR UKRAINE

The article is devoted to the issues of reforming school education and international comparative studies of students' educational achievement, as an indicator of the success of educational systems. The article deals with educational reforms in Germany, which were caused by society shock after the bungling participation of German students in PISA in order to implement the perspective experience of Germany on educational reforms and pedagogical innovations in the Ukrainian educational space. The reforms of the Ukrainian education system are considered as part of the implementation of the New Ukrainian School programs, focusing on their prospects. It is concluded that comparative studies of students' educational achievement not only help to determine the level of quality of educational services, but also in order to give a boost to governments to conduct reforms to improve the quality of education.

Keywords: education policy; German school education; international comparative studies of students' educational achievement; “PISA-shock”; education reform; the New Ukrainian School.

The problem setting. The current state of the world and its trends in globalization, the growing competition between countries, which necessitate the search for effective tools for ensuring the quality of education as a guarantee of economic success, intensify the implementation of various international comparative studies of students' educational achievement. Such studies provide educators and society with valid information for finding the best ways to improve education systems. The most prominent of such programmes is international comparative assessments of student achievement in mathematics and science (TIMSS), in reading (PIRLS) [8] and the programme for international student assessment (PISA), it is an international survey which aims to evaluate education systems worldwide by testing the skills and knowledge of 15-year-old students [5]. These studies examine the state of education in participating countries based on the assessment of student achievement levels at the end of primary and secondary school.

It is worth mentioning that global best practices show that the implementation of such monitoring with the subsequent systematic analysis of the results obtained is a reliable way of determining the real state of education and the level of preparation of students. International monitoring comparative studies based on standardized (unified) tools (tests, questionnaires,

interviews, class visits according to unified protocols and video recordings of classes) make it possible to compare educational and methodological systems of different countries, to find effective training methods, to improve national education systems following on from the results.

The European choice of Ukraine necessitates the study, synthesis, critical reflection and creative application of European experience in this area. The experience of Germany in this regard is of particular importance to Ukraine, as Germany has undergone a difficult way of developing an effective system for monitoring the quality of education, and through the participation of Germany in these studies has significantly improved the quality of school education, especially after the “PISA-shock”.

The analysis of recent studies and publications. Problems of school education reform in Germany have been reflected in the scientific works of a considerable amount of German authors. First of all, it should be mentioned well-known German scientists, including J. Baumert, G.-G. Gerlies, I. Joker, A. Jürgen, V. Klawki, E. Klimes, G. Picht, G. Rolf, K.-I. K.-I. Tillmann, J. Ziegenspeck, F. Waldow [10, p. 476–483].

During the years of independence of Ukraine, the interest of domestic scholars has intensified in the study of German education system. Various aspects of German pedagogical staff training models were researched by V. Kravets, T. Moiseenko, L. Pukhovskaya and others. A well-known comparativist N. Abashkina analyzed the controversial situation in Germany vocational education after the division of the state into the Federal Republic of Germany (FRG) and the German Democratic Republic (GDR). Directions of education policy in Germany are covered in the works of B. Melnychenko. A. Androschuk and G. Androschuk have studied the program of renovation of the higher education system of the Federal Republic of Germany and the cooperation of higher educational institutions with economic structures. The questions of democratization and the development of the educational system of Germany in the new socio-cultural conditions were studied by such Ukrainian scientists as K. Korsak, L. Pukhovskaya, A. Sbrueva and others. N. Kozak has analyzed its didactic basis of professional training. T. Vakulenko has considered the peculiarities of the training system for teaching staff in Germany. Analysis of the process of reforming the system of pedagogical education in Germany was carried out in the dissertation study by N. Mukhina.

Object of the article. The purpose of this article is to analyze the impact of international comparative studies of students' educational achievement on school reform in Germany with the aim of using the FRG's experience in reforming of general secondary education for Ukrainian pedagogical theory and practice.

Results of research

Education policy and reforms in Germany

It is worth pointing out that in the Federal Republic of Germany responsibility for the education system is determined by the federal structure of the state. Federal states of Germany have the right to legislate unless the Basic Law (German: *Grundgesetz*) awards legislative powers to the federation. Within the education system, this applies to the school sector, the higher education sector, adult education and lifelong education. Administration of the education system in these areas is almost privileged a matter for the states [3].

Compulsory education and training period usually covers primary and lower secondary education levels and corresponds to the full-time school attendance. In Germany it is compulsory to stay in education and training until age of 18-19. However, between ages 15-16 and 18-19, students can attend compulsory education and training programmes combining part-time school based and part-time workplace courses [2].

Since 1969, after reading literacy evaluation among the seventh grade pupils (German: *Nationale Gymnasium-Lese-Untersuchung*), initiated by the then-government, the Federal Republic of Germany did not participate in international comparative studies of students' educational achievement. In 1993, after a long break, Germany participated in the international program TIMSS (Third International Mathematics and Science Study). In 2001, Germany participated

in another authoritative study PISA (Programme for International Student Assessment) another authoritative study). German officials had high hopes for the first results and expected that their country – the birthplace of Albert Einstein and Wolfgang von Goethe – would end up at the top of the international rankings.

But the results were sweeping. German 15-year-olds performed well below the average of OECD countries, ranking 27th out of 30 countries in reading, 28th in mathematics, and 25th in science. Moreover, the results were highly inequitable; the gap between the highest performers and the lowest performers was higher than in any other industrialized country [7].

The “PISA shock,” as it was called in German society, spurred policymakers into action. German government adopted an extensive series of reforms, including [7]:

- lengthening the school day from roughly 4 hours in most cases to the 6.5 hours that is common in most industrialized countries;
- vastly expanding early childhood education, including making early education and care an entitlement for all children age 1 and older;
- providing more autonomy to schools;
- reforming tracking at the secondary level;
- creating national standards for student performance.

The “All-Day School”. Prior to PISA, programmes for “all-day” schooling had been developed both in Bremen and Brandenburg; however, they had not enjoyed a high priority on the political agenda. After the publication of PISA-I, this changed, and comprehensive programmes for introducing all-day schooling were implemented in both federal states. In Rhineland-Palatinate, all-day schooling had enjoyed a comparatively high political priority before PISA. The education minister thus interpreted the catalogue of measures passed by the KMK (German: *Kultusministerkonferenz*) (which included all-day schooling) as confirmation that Rhineland-Palatinate was on the right track [10, p. 479].

The Federation and federal states support the continuation of the nationwide Study on the Development of All-Day Schools (German: *Studie zur Entwicklung von Ganztagschulen – StEG*) (2016–2019). Key topics are the nationwide monitoring of all-day schools with representative surveys on the development of all-day schools in Germany and studies on the quality and effects of the all-day offers [4].

Educational Standards and Centralised Examinations and Assessment. Before PISA, there was a rapprochement between the opposing camps; centralised assessment and examinations together with the introduction of educational standards slowly gained wider popularity even in political camps that previously had been opposed to them. In 1997, the 16 federal states agreed on introducing centralised assessment instruments at some points during compulsory schooling. Also, centralised school-leaving examinations became more popular; from 1999 on, even many federal states governed by social democrats introduced them. This shift towards a favourable view of centralised assessment and examinations also took place in large parts of the press and the general population.

After the publication of PISA-I, the KMK acted swiftly, introducing mandatory educational standards (that were supposed to be connected to appropriate central assessment instruments) for the end of the lower secondary stage and primary school. Individual federal states were required to base their curricula on these standards. However, as noted above, in the federal states investigated a lot of activity (i.e. the first stages of the “policy cycle”) in this area preceded PISA and this initiative by the KMK [10, p. 478].

Refugees Policy. The significant rise in the number of refugees of school age has been posing a huge challenge for the federation and federal states, a problem that can only be overcome by using a considerable number of resources. This relates to additional funds to create spatial capacities and the employment of teachers, social workers and integration helpers. The integration of young refugees in schools also calls for special support measures, socio-educational and psychological

care as well a complex cooperation between all persons and institutions involved in caring for and supporting refugees [4].

Furthermore, federal states are greatly expanding their schemes for teacher training as well as continued education and training for teachers in the field of inter-cultural education and German as a second language or German as a foreign language. The federation and federal states hold regular talks to coordinate the responsibilities, the organisation and the financing of these schemes [4].

Comprehensive Strategy for Educational Monitoring. In June 2015, the Standing Conference revised its comprehensive strategy on educational monitoring from the year 2006. The various elements of the comprehensive strategy should not only describe developments in the education system but also create applicable knowledge. From the empirical data, the right conclusions should be drawn and put into action. The comprehensive strategy provides for the following methods and instruments [4]:

- participation in international school performance studies (PIRLS/IGLU, TIMSS primary school, PISA)
- monitoring and implementation of educational standards for the primary sector, the lower secondary level and the General University Entrance Qualification (German: *Allgemeine Hochschulreife*);
- methods to ensure quality at the level of schools;
- the joint report on education of the federation and federal states.

Support Strategy for High-Achieving Pupils. In June 2015 the KMK for the first time resolved a Support Strategy for High-Achieving Pupils (“Förderstrategie für leistungsstarke Schülerinnen und Schüler”) [6]. The aim of the support strategy is to create learning conditions for highachieving pupils that allow them to develop their potentials in an optimum manner and gives them the best possible education corresponding to their individual performance.

The support strategy recommends consolidating the measures in the field of diagnostics and in the promotion and support of pupils with the potential for high achievement both in and out of school. Greater efforts are needed in all phases of teacher training to extend the skills and competences of teachers in the field of encouraging high-achieving pupils. Special emphasis is being put on the role of teaching staff in identifying high performance potentials and thus determining the initial learning situation in classes. Apart from the primary encouragement of general intellectual abilities, what is also important is particular support for the musical, artistic, sports and emotional abilities. The support strategy relates to the primary and secondary level and also draws attention to the design of the transitions [4].

The results were dramatic. In a few short years, Germany climbed to the top of the international rankings on PISA, and it has remained there, although performance has stalled in recent years. The reforms had an immediate impact on raising student performance, but the improvement was limited. That is why improvement in PISA scores has stalled in recent years. Germany now faces challenges to build a stronger foundation of educational improvement. One area that needs more attention is building a strong teaching profession.

Initial teacher education in Germany is fairly strong, despite the fact that teacher-training institutions are autonomous and there is limited system coherence. Teacher-candidates must pass a rigorous test to enter teacher education programs, and they spend a year working in schools with skilled mentors. All teachers in Germany have a master’s degree and specialize in a content area. But ongoing professional learning is relatively weak, and there is no career ladder to encourage teachers to continually develop their skills.

Despite all education challenges, Germany’s success in the past decade and a half offers lessons for other countries. One big lesson that German society has learned from “PISA-shock” is about the equity in education. Another lesson is about the importance of building public demand for improvement. A third lesson is about the timing of the reforms. Unlike some countries, which implemented tests soon after developing standards for student performance, Germany rolled out

the implementation of standards in a careful, deliberate way, giving time for schools and teacher-education institutions to adjust to the new expectations before putting in place tests to measure whether students have met them.

Education policy and reforms in Ukraine

The main problem of Ukrainian educational system is lack of skills in using acquired knowledge. In Ukrainian schools students generally acquire the great scope of knowledge, but without a full understanding how it can contribute to both their personal and Ukraine's fulfillment and growth or how it can be reduced to practice [9, p. 16].

In the furtherance of this goal, Ukraine is undergoing a period of transformation nowadays, which is unprecedented by its scale and complexity. Despite national challenges, Ukrainian politicians of all persuasions, researchers and educationists started systemic and institutional reforms never before seen in our history of independence [9, p. 2]. Reform of the education sector is of paramount importance, as the quality of teaching greatly impacts the future of the country's young generation. Ukraine and other EU countries as well as Germany have changed, society has evolved, the needs of the economy have grown [9, p. 16] and a successful and efficient education system is key to world primacy and prosperity.

In 2017 the Law of Ukraine "On Education" was adopted and has launched the development of special legislation for improving both general secondary education and vocational education, changes to higher education financing. In the first half of 2018 the draft law on general secondary education has been developed. In the 2017-2018 school year 100 primary schools tested a new standard the New Ukrainian School, in the 2018-2019 academic year all the first forms are training behind it. Implementation of the New Ukrainian School concept will continue until 2029 with successive levels of secondary education [9, p. 12].

The education reform launched with the adoption of the Law of Ukraine "On Education" (No. 2145-VIII) on September 5, 2017 provides for [9, p. 17]:

- Introduction of competence-based education with high-quality, contemporary content;
- Equal access to education for all;
- New incentives for teachers' continuous professional development;
- Enhanced financial transparency and accountability of educational institutions and new multi-channel financing opportunities;
- Modern system of education management;
- Putting academic integrity at the core of education.

It is expected that the impact of the education reform will take decades to play out, however Ukrainian authorities expect long-term benefits include [9, p. 18]:

- The New Ukrainian School concept implemented across the secondary education sector: school children will gain competencies, skills and values needed for the development of today's generation and the growth of Ukraine;
- The principles of decentralization, deregulation, institutional, academic and financial autonomy of education institutions, and accountability will guide the system of education management and funding.

The first success of educational reform can be considered the fact that in 2018 Ukrainian pupils first participate in the Program for International Student assessment PISA. The result of this study will be a large report (approximately 400 pages), which will outline the main gaps in Ukrainian education, and not only (assess the quality of teacher training, educational programs, and compare the effectiveness of education in countryside and urban schools, etc.). The results will be used to compare the Ukrainian education system with the education systems of West European countries and adopt the best practices; to assess its state adequately, to identify the weaknesses and strengths, and to build benchmarks that will further shape the educational policy in Ukraine, in order to correspond with the international educational goals of the UN program until 2030.

Conclusion and prospects for further research.

The experience of school education reforms in Germany testified that the countries participation in international comparative studies of students' educational achievement is an effective tool for improving the quality of national education systems. Such studies (ICILS, ICCS, PIRLS, PISA, TIMSS) [1] make it possible to measure the level of pupils' academic achievement and compare it with other countries' results, identify problem issues and identify tasks that will contribute to improving school education. Speaking of Germany, it should be noted that the experience of participation in comparative studies (both national and international) allowed not only to improve the quality of German school education significantly, also it showed the readiness of society for changes and reforms, increased cooperation between educationists and government, and strengthened public confidence in school system.

Going back to the Ukrainian challenges in national education, it should be noted that in strategic documents which defined the development of national education, last-mentioned is positioned as an important resource for improving public well-being, an instrument for ensuring national interests, strengthening the competitiveness of the Ukrainian state at the international level, and the quality of education is defined as a national priority and a prerequisite for national security.

From this perspective, the experience of the Federal Republic of Germany has shown that monitoring in education is the basis for assessing quality of educational services provided by the state and the public, and ensuring equal access to quality education.

Due to this precise reason, Ukraine's participation in international comparative studies of students' educational achievement is a requirement of nowadays, not a blind following by European and global trends in education.

Comparison with Ukraine has shown both certain achievements and problems on the way to quality education. It should be emphasized that the need to improve the quality of national education is announced as key strategic documents that determine the development of this industry. National Doctrine of Education Development (2002) has proclaimed that the quality of education is a national priority and a prerequisite for the national security of the state, observance of international norms and requirements of the Ukrainian legislation on the implementation of the human right to education.

In National Strategy for the Development of Education in Ukraine for the period till 2021 have been analyzed the problems of Ukrainian education in the twenty-first century, which complicate the provision of quality education in the country. These include, in particular, the lack of conformity of educational services to the requirements of society, the individual and the labor market; limited access to quality education for certain categories of population (children living in rural areas, children with special needs, migrant children, talented youth, etc.); lack of a holistic system of education, physical, moral and spiritual development and socialization of children and youth; lack of orientation of the contents of vocational, higher and postgraduate education to the needs of the labor market and socio-economic challenges; failure to work an effective system of employment of graduates of higher educational institutions; insufficient development of a network of preschool institutions; imperfection of the national system for monitoring and evaluating the quality of education; low level of financial-economic, logistical, educational, methodological and informational provision of educational institutions; lack of a system of motivation and stimulation of innovation activity in education; insufficient development of public self-government of educational institutions. For overcoming these problems the goal of state educational policy has been determined such as increasing the availability of quality, competitive education in accordance with the requirements of sustainable development of society and economy. An important tool for improving the quality of education is called monitoring; the construction of the monitoring system involves improving the system of external independent assessment of student

achievements and monitoring the quality of education; developing a model of monitoring research for different levels of education management; the development of a system of indicators for the quality of education at the national level, reflecting the context, educational process and educational outcomes; Monitoring of the quality of resource support; Ukraine's participation in international comparative studies of education quality (TIMSS, PISA, PIRLS); modernization and updating of educational statistics system.

It should be noted that some successes have already been achieved on this path: the system of standardized testing of students after the completion of high school for entry into higher educational institutions has been in operation for several years, Ukrainian students have been testing their skills in tests TIMSS 2007 and 2011 PISA 2018 (the results have not announced yet), and a rating system for schools is being developed and implemented. Such in the sector of vocational education. At the same time, many issues remain unresolved, which are both theoretical (developing a concept of quality education at the state level) and practical issues (developing valid tests, training qualified personnel, lack of funding), which makes world developments particularly relevant for Ukraine.

Summarizing the German experience analyse, it should be emphasized that participation in international comparative studies of the students knowledge quality makes it possible to identify the challenging issues of the national school education system; find the optimal algorithm for solving topical issues; improve student literacy rates; to increase the professionalism of the teaching staff; promote equalization of educational opportunities of students.

It is worth pointing out that the political will of conducting monitoring reforms and scientists' consensus for the format of their implementation is a prerequisite for its success.

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Джурило А. П., кандидат педагогічних наук, старший науковий співробітник відділу порівняльної педагогіки Інституту педагогіки НАПН України, м. Київ

ШКІЛЬНА ОСВІТА В НІМЕЧЧИНІ ПІСЛЯ «PISA-ШОК»: ВИКЛИКИ ДЛЯ УКРАЇНИ

Статтю присвячено питанням реформування шкільної освіти і порівняльних досліджень освітніх досягнень учнів, як індикатора успішності освітніх систем. У статті розглядаються освітні реформи в Німеччині, які були викликані суспільним шоком після провальної участі німецьких школярів в PISA з метою імплементації перспективного досвіду ФРН з освітніх реформ та педагогічних інновацій в український освітній простір. Розглядаються реформи української системи освіти в рамках реалізації програми «Нова українська школа», акцентуючи увагу на їх перспективності. Зроблено висновки, що порівняльні дослідження освітніх досягнень учнів не тільки допомагають визначити рівень якості освітніх послуг, а й стимулює уряди до проведення реформ з метою покращення якості освіти.

Ключові слова: освітня політика; німецька шкільна освіта; міжнародні порівняльні дослідження освітніх досягнень учнів; «PISA-шок»; реформа освіти; Нова українська школа.

Джурило А. П., кандидат педагогических наук, старший научный сотрудник отдела сравнительной педагогики Института педагогики НАПН Украины, г. Киев

ШКОЛЬНОЕ ОБРАЗОВАНИЕ В ГЕРМАНИИ ПОСЛЕ «PISA-ШОК»: ВЫЗОВЫ ДЛЯ УКРАИНЫ

Статья посвящена вопросам реформирования школьного образования и сравнительных исследованиям образовательных достижений учащихся, как индикатора успешности образовательных систем. В статье рассматриваются образовательные реформы в Германии, которые были вызваны общественным шоком после провального участия немецких школьников в PISA с целью имплементации перспективного опыта ФРГ по образовательным реформам и педагогическим инновациям в украинское образовательное пространство. Рассматриваются реформы украинской системы образования в рамках реализации программы «Новая украинская школа», акцентируя внимание на их перспективности. Сделано выводы, что сравнительные исследования образовательных достижений учащихся не только помогают определить уровень качества образовательных услуг, но и стимулирует правительства к проведению реформ с целью улучшения качества образования.

Ключевые слова: образовательная политика; немецкое школьное образование; международные сравнительные исследования образовательных достижений учащихся; «PISA-шок»; реформа образования; Новая украинская школа.