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**EVOLUTION OF CONTENT OF EDUCATION AND METHODS  
OF TEACHING GEOGRAPHY IN THE FEDERAL REPUBLIC  
OF GERMANY IN THE SECOND HALF OF THE 20TH CENTURY  
(FROM THE SIXTIES TO THE NINETIES)**

*Educational policy is generalized in the Federal Republic of Germany in 60-90-ies of the Twentieth century. Attention is given to the content and methods of teaching geography in secondary schools and gymnasiums. The progressive development of different types of training from traditional and programmed (such methods of teaching as verbal, visual and practical) to problem-based learning - training and even research methods of education, especially using mathematical methods, is analyzed. Attention is given to methods and learning tools, which assist in development of creative personality.*

*Здійснено узагальнення освітньої політики у ФРН другої половини ХХ ст. (60-90-ті рр.), зокрема змісту і методів навчання географії в загальноосвітній школі і гімназіях, виділено поступальний розвиток типів навчання від традиційного і програмованого до проблемного і навчання із застосуванням математичних методів.*

*Обобщена образовательная политика в ФРГ второй половины ХХ в. (60–90-е гг.), в частности содержания и методов обучения географии в общеобразовательной школе и гимназиях, выделено поступательное развитие типов обучения от традиционного и программированного до проблемного и обучения с использованием математических методов.*

Education in the modern socioeconomic conditions of globalization acceleration is enforced to «forming of personality, who is able to live in the conditions of dynamic

changes. There is a necessity of modernization of all links of education as well as content of backbone base becomes the decisive factor of realization of new requests and aspirations» [3, page 7]. Thus, education gets a special role, directed at overcoming of spirituality gap and culture crisis of society. Under existing conditions «a policy of educational reforms acquires the special methodological meaning. In the developed countries *an educational policy* becomes a major part of social strategy. In 1998 the questioning among the sociologists of all leading countries of the world was executed with the purpose of determining industries of human activity, where the investments of XXI-st century will be directed. The first place was taken by such sphere of activity as finding of new fundamental systems of education and teaching among ten priorities» [4, page 9]. The special attention should be given to the learning and generalization of foreign experience of studies.

In Ukraine a considerable incitement for objective research of foreign experience was enrichment of the methodological approaches to understanding of the educational world phenomena, including in separate countries.

Generalization of the experience of reformation, development of education, content and methods of studies in foreign countries in a different degree of fullness was represented in works of such domestic teachers as O.A. Lokshina, G.S. Yegorova, N.M. Lavruchenko, B.F. Melnichenko as well as such foreign teachers as G.K. Ashina, Z.A. Malkova, B.L. Vulfson, and such methodists-geographers as L.M. Pancheshnikova, V.P. Maksakovskyy, V.P. Lapchynskyy etc. However an educational geographical policy in Germany did not become the issue of research, although Germany is «one of the most powerful educational structures of Europe, which had a considerable influence upon educational processes in the countries of Europe and as far as possible in the whole world. Substantial influence of the German elite universities was exerted on creation of the Russian educational system, built essentially according to the German model» [1, page 244].

There was an objective necessity of understanding and rational use of positive experience of development of maintenance and methods of teaching geography at school of the Federal Republic of Germany in Ukraine. Actuality of problem and its

undevelopment at the same time stipulated the choice of research theme «Evolution of the content of education and methods of teaching geography in the Federal Republic of Germany in the second half of the 20th century». *The purpose of research* is to learn changes in the structure of school geographical education of the Federal Republic of Germany, content and methods of teaching geography to pupils. *A task* was formulated as follows: to generalize positive experience of development of the content of school education and use of the methods of teaching geography in the Federal Republic of Germany.

In the sixties of the twentieth century the traditional teaching was used yet in the educational process of the Federal Republic of Germany. In traditional methods, according to the teaching of G.Beer, the use of questioning, drawing up of schematic maps, comparison of new data with the obtained knowledge, making a conclusion with the use of maps from school atlas were provided. It was allowed for pupils to use the preliminary printed programs, consisting of a few tasks-suggestions with the skipped terms, determined by students. However in the whole world the traditional teaching did not satisfy the necessities of increasing scientific and technical revolution and programmed teaching was used to replace the traditional teaching, which became one of the important didactic problems for researches of scientists-teachers, methodists and teachers. In the Federal Republic of Germany the programmed teaching, in particular for teaching geography, began to be used in all forms of general educational school and gymnasium. For example, during teaching geography in the 11th form of gymnasium a programmed lesson was given according to the following scheme: a machine indicates the maps of school atlas, and students draw the schematic maps according to the maps of school atlas and compare the acquired data with the given data before and draw a conclusion. Time, spent by a student for implementation of tasks, was fixed. As E.A. Buhler said, in other form of gymnasium several lessons were programmed according to a similar scheme for learning of meteorological concepts. Programmed teaching for 5-6 forms, as M. Reimers said, was a decision for the further fate of pupils: a conclusion was drawn on the basis of testing of knowledge about expedience of separate pupils to continue

studies in senior forms of gymnasium. If a student did not obtain the corresponding amount of grades, he should go to obtain a working profession.

At the beginning of 1975/76 in the Federal Republic of Germany the research was executed with 272 pupils of the seventh form of secondary school, non-classical secondary school and gymnasium on the topic «Volcanism». This research was executed at every school during 9 lessons in one of forms by the method of programmed teaching, and at the same time - by traditional methods. In the process of research maps and pictures, colour and voice films, diascope, texts for reading, working papers, standards of volcanic rocks were used. After completion of research a conclusion was drawn up as follows: the traditional methods of teaching in all forms show a higher degree of understanding of teaching material and knowledge, hereby the use of traditional methods is more effective. However it is considered that both methods should be complemented by each other [9]. This fact indicates insolvency of the programmed teaching to work out the problems of school education and problems connected with the expected changes. They began to take place gradually, although traditional teaching was not going to hand over own positions. For example, in schools of the Federal Republic of Germany study of a new course of “Social science” was introduced according to the American standard.

Geography was included into the course. The state of teaching this subject was analysed in the middle of 70-ies of the 20<sup>th</sup> century. It was found that the pupils of the Federal Republic of Germany get the best knowledge of geography compared to the pupils in the USA. The German methodists assume that it is related to the absence of conceptions of a «new geography» in the school program of the Federal Republic of Germany (in American understanding), geography continues to have a traditional type, where fundamental questions and conceptions of geographical science are examined less [7]. It is an extraordinarily interesting conclusion of the German methodists, which generates many questions and the main question as follows: What is the most essential thing in teaching pupils - academic geography or traditional geography? It was found that a similar situation was observed at teaching pupils of French school, when pupils took no «interest in geography, when it became

academic» [22]. We can come to the conclusion, that academic teaching with its high theoretical level is more used by profile schools. Which geographical knowledge will the pupils obtain at general secondary schools?

However radical changes gain in strength. Most attention was given to emancipation and forms of *self-education*. Schools with the half of twenty-four hours were transferred to schools of complete twenty-four hours; the dynamic programs, meeting the requirements of economy and management were provided. Combination of different types of schools, such as folk, non-classical secondary school, gymnasium, main, professional, gymnasium with the different degree of differentiation of groups and years of study. Content and methods of teaching traditional subjects were revised critically, the role of a teacher as an informer is substituted by the role of consultant and adviser at carrying out independent work of pupils with different sources of knowledge [30]. The German methodists worked out the new purpose of teaching social sciences, drawing the special attention to the establishment of causal and inheritance links in new programs. Methodists said that the educational and tutorial purpose of social sciences will be attained, if the pupils are able for orientation in space (geography), time (history), society (sociology and social science), as well as pupils are able for understanding of the basic mutual relations in public life and problems of relations of an individual and society [36].

For increasing of the theoretical level of teaching geography the German teachers began to actively use the method of «project work». Acquaintance of pupils of the tenth form of gymnasium with the methods of geographical researches takes place, as an example of project development of the topic «City and environment» during 14 educational hours. Students mastered the basic concepts of geography of cities («city», «mutual relations of the city with environment», «central settlement», «pendulum trips» etc.), found out the functions of cities and their distribution in the middle of the city. Conclusions are identical: high efficiency of work at acquisition of knowledge of the elements of methods of geographical researches and mastering of geographical knowledge by the pupils, growth of interest to geography [12]. In 12 years the repeated research of efficiency of use of the method of project work at

teaching geography was executed by the German methodists and they came to the conclusion that the method of project work allows to successfully combine a theory with practical activity. The method represents «open» didactic form of teaching in contrast to the traditional forms and use of knowledge in other areas of researches and disciplines with extension of the range of vision of pupils are provided [13]. However a serious importance is attached to the method of project work, during teaching geography at school it is used not in all schools and forms, but only according to the programs of the 5<sup>th</sup> form - 12,2 %, 6<sup>th</sup> form - 9,7 %, 10<sup>th</sup> form - 16,8 % [26].

At the end of 70-ies of the 20th century use of mathematical methods in teaching was extended. The quantitative methods of research in teaching geography were used mainly in researches, where teachers or methodists carried out themselves in forms and groups during teaching. Advantage of similar teaching is that a teacher (a methodist) can take into account all aspects of own experience, such as: basic content, choice of methods, use of the corresponding manuals, and reaction of pupils. Pupils get important data and instructions for estimation of results of the study course by means of quantitative methods [25]. Changes in school education of the Western Germany resulted into necessity of the corresponding changes of the school programs and textbooks.

It defined a necessity of transition for teaching geography from traditional methods to new methods, which form independence of the pupils, critical thought, responsibility, humanity, readiness to the contact and mutual help. For this purpose pupils get greater independence in active understanding of geography, that promotes to maximum activity of pupils in their «understanding by means of act», and the role of their consultant and helper is taken by a teacher in an educational process, that, in its turn, provides for the new organizational form of work of pupils, such as: in pairs or in small (3-4 students) and large (1/3 or 1/2 of form quantity) groups, as well as joint work of all form over one topic [19]. At the same time, the German methodists are disturbed by that new in-empiric methods have the limited area of application,

although these methods bring considerable scientific exactness in methodology of teaching geography. It is necessary to instruct the teachers [11].

Changes in teaching geography at schools of the Federal Republic of Germany during 15 years (from 1962 to 1977) are defined as a transition from geography to spatially scientific education and cover purposes, content and importance of teaching geography taking into account development of pedagogical science and geography as a science. Refusal in teaching geography has an important value by reason of presentation of a large quantity of material to the pupils with the purpose to give attention to the summarizing concepts. The principle «from near to distant» is used, which first of all is oriented to the account of sociological and physical conditions of modern perception of the world by pupils, as geography is examined as a science about spatial organizational forms and spatial processes of basic functions of human society [10].

At the end of 70-ies of the Twentieth century the theory of problem teaching begins to gradually penetrate into schools of the Federal Republic of Germany, as there are good possibilities such as a large number of available comparative actual materials [10]. The study of complex problems in senior forms: «Growth of mankind», «Problems of hunger», «Reduction of colonial domination», «Life in industrial centres» and etc. is a concrete example. New academic programs orient a teacher to carrying out of works on forecasting of the regional planning of environment protection, rational use of resources in senior forms [18].

In some lands of the Federal Republic of Germany the pupils are seriously prepared to the practical use of the acquired knowledge. Thus, curricula for the 11<sup>th</sup> form of Bavarian schools provide for learning by the pupils of practical research methods for geographical space. For example, the pupils of gymnasium in the city district of Munich carry out educational research on the basis of study of the central function of a big city. The method of researches is as follows: information collection for preparation of maps on location of enterprises of trade, servicing and flows of passengers, questioning of the population and enterprises owners. 8 lessons are taken

for carrying out by the pupils of information collection and questioning, and other 7 – are devoted to summing up the results of research [33].

On the whole it is an experiment of interest, but in Ukraine under conditions of the regimented study, carrying out of a similar research is possible only in out-of-school activities (if it is carried out by a teacher at school), and the results can be used during the study of the corresponding topic of geography course.

In addition, the teachers pay a solid attention to the teaching pupils to work with the map that is - to forming of cartographic skills in the topographical orientation during the study of geography. The methodology is as follows: use of a blank map, copying by the pupils of a map with generalizations, description of separate geographical objects and phenomena by a map, establishment of combinations of objects and their grouping in a table form by a map, correction of wrong text or text with the skips by a map, answer on the raised questions by a map [16]. New in teaching geography is in strengthening attention to the problems of geographical thought development, which is possible only if the pupils have some knowledge that is knowledge of regularities, concrete factors and ability to get them from geographical material and from maps determining causal relationships [6]. In modern conditions, when pupils are not taught to think, it is a hard work requiring from the teacher to search for new tools and methods of pupils thought activation.

For achievement of concrete educational purposes in the process of teaching geography at schools of the Federal Republic of Germany, selection of teaching tools has a special value, among which an important place is taken by data carriers, serving in their turn for mastering by the pupils of geographical research tools. Goal functions for data carriers in the process of teaching have three aspects: 1) providing of pupils with necessary information, 2) development of contacts between pupils on the basis of discussion of information obtained, 3) forming ability of independent action of the pupils. While selecting data carriers it is very important to take into account the level of knowledge and ability of pupils [8].

Finally at the end of 70-ies – beginning of 80-ies of the Twentieth century people began to speak about the scientific methods of geography, which should be

introduced to a school educational process and about forming of research abilities of pupils. At some schools in teaching geography methods of modelling were applied. Work with typical notions (settlement – city – big city – small city) is important in teaching geography of the cities. A model, as an abstract form of representing actually existing objects or mental presentations, allows showing spatial objects in the simplified form which is well perceived. During the geographical study of city, models allow to evidently reproduce the structures, to generally show the variety of geographical phenomena, to make theoretical generalization for its verification in practice, they are arising interest to the search of causal bases of the phenomena [20]. In addition, models train pupils to think critically. Therefore at many schools of the Federal Republic of Germany curricula in geography as an educational purpose provide for forming by the pupils of skills of critical thought in the processes of space planning. For this purpose the best way is to use the models which allow generalizing the single phenomena, for example, during the study of the topic «Geography of the city». Pupils work not only with the prepared models but also with models, developed by the pupils themselves that will contribute to acquisition of skills to critical estimation of models [29]. And in the 11<sup>th</sup> forms of Bavarian gymnasiums the curriculum of country study provides for carrying out of structural analysis of space with the elements of scientific methods. The topic is an introduction to the applied geography, which is built upon the direct carrying out by the pupils of geographical research of spatial object. Teaching in the given course sets two purposes: arising interest of pupils to geographical researches with understanding of the role of concrete objects in space, and learning methods elements of the applied geographical researches [14].

The topic «Structural analysis of space» contains 4 stages: 1) informative acquaintance of pupils with the concrete features of space on the example of which a topic will be worked over; 2) acquaintance with the separate structural elements of space and their properties; 3) practical research of space on the example of which the teaching is carried out, with the exposure of elements of correlation dependence of

structural factors; 4) generalization of the obtained materials with description of the spatial phenomena distinguishing this space and giving it peculiar features [17].

A creative ardour for the increase of efficiency of teaching with the use of elements of scientific research methods comprised most schools of the Federal Republic of Germany. The use of nature study scientific experiments which visually help to show to the pupils the character of geographical regularities and processes became usual. From experience of schools it is marked, that the experiments according to their content cover five thematic problems of study: problematics of environment; geology and geomorphology; meteorology and climatology; soil science; hydrology [27]; at the second school visual experiments are carried out with pupils of the fifth form on the topic «Origin of climatic areas» and «Origin of seasons» [24]; at the third – the experiments are carried out with pupils of 5–8 forms during research of deposits of sedimentary layers of concrete deviations by the topic «Conquering of lands from sea» and «Sedimentary deposits». Purpose of experiments – learning by the pupils of influencing of different natural factors upon forming of space [32]; and with pupils of 6–7 forms demonstration experiments are carried out during the study of condition of soil alienation in arid regions in a topic «The climate and vegetable areas of the earth» [31]. Most of demonstrative experiments are carried out in hydrology: in junior forms in such topics as «Water resources», «Water content of different soils», «Ground waters and rivers», «Water treatment», and in senior (8–10 forms) – «Artesian wells», «Hardness of water», «Filtration», «Determining oxygen content in waters» and etc. [28]. Even the most difficult question about tectonics of plates in such topics as «Continental drift», «Forming of mountains», «Earthquakes», «Volcanism» is being taught with the help of model experiment in 7–8 forms, due to what pupils have better understanding of the system of interactive factors affecting tectonic processes [34]. Thus three basic methods in teaching geography were selected: obtaining of information in the form of informative text; research of the real, concrete situations; building of models as the most visual form of teaching [35].

In spite of the carried out school reforms which took place in 80-ies–90-ies of the Twentieth century in the Federal Republic of Germany, as well as in all countries of the world, change and improvement of curricula on the whole, or separate courses of geography, proceed continually, as rates of vital activity acquired extraordinary speed. Therefore the task of preparing future citizens to these changes has been set.

The German methodists not only criticize the existing school course of geography, marking its slight changes compared to the old one, but also turn political and economic geography to the course of «Social science» and show how it is necessary to rebuild teaching economic geography at secondary school taking into account the modern stage of development of political and economic life under the deficit of time taken for the study of concrete topic (for example, «Europe as an object of study at school»). Teaching in 9–10 forms is carried out by the «keys» method, as such two countries are selected – Poland and Ireland. Principle of selection – pupils know little about them, for example few people know, that 8 % of modern population of the USA are of Irish origin, during 1840–1984 the population of Ireland decreased from 6,5 million to 3,8 million persons (in 1960 – 2,8 million persons) [20]. In other circumstance «Global problems», which are studied with obligatory attachment to the concrete region of own country, are the study topic. Here «the scale approach» is important: large region as a whole (world, continent) and region of the country, during the study of which the relations of all processes taking place on the Earth are established. Establishing relations is carried out based upon concrete information from different sources, obtained by pupils independently [15].

In other lyceum the teaching is organized on the example of dumps of metallurgical enterprise in Aachen («Aachen red earth»), existing from the end of the Nineteenth century, ecological problems are discussed and suggestions on utilization of heavy metals which are contained in dumps are expressed [23]. Breathtaking educational researches of pupils are carried out during study of the topic «Old dumps and abandoned enterprises» – source of environment contamination (as of 1988 only on federal earths of the Federal Republic of Germany there were about 42 thousand of old dumps). From the European list of poisonous substances (about 100 thousand

of names), any of them can be located at old dumps. Pupils together with a teacher discuss the possible ways of their sanitation [21].

The method of «project work» was also implemented during the study by the pupils of life conditions of migrants from the countries of Asia, Africa and countries of the Eastern Europe. Respective houses for migrants of the city of Mainburg in a district of Kelheim were selected for inspection. Pupils developed a research plan; they carried out collection of materials and interviewing by independently developed questions. After generalizing of the collected material, they made diagrams and tables, drawn location plans, prepared summaries for holding a discussion. The method of project work is considered to be an example of classic variant of such form of study, as it gives to the pupil a possibility to be determined in own interests to concrete activity, and it is a strong pedagogical tool of teaching and education [21]. On such examples the German methodists and teachers show the way for establishment of close relations between school and real life. Projects method is the freest form of study for the pupils of the Federal Republic of Germany, which differs by such criteria as independence, application of the developed methods, research of concrete examples in allied industry, narrowness of the topic both in territorial and in time section, orientation on practice [5].

Thus, in the second half of the Twentieth century in school policy of the Federal Republic of Germany, as well as in other countries of the world, there were radical changes in the content, forms and methods of teaching, in particular geography, as well as the role of teacher substantially changed – from a carrier and re-transmitter of knowledge to the consultant and adviser of pupils in their independent cognitive activity. Teachers, free of the strict control of obligatory traditional study, actively introduced own creative forms, skills and methods of teaching into educational process. For Ukraine which is getting ready to introduce the western model of school educational structure, research workers and school workers will be able to use theoretical and practical positive experience of development of the content and methods of teaching in the Federal Republic of Germany.

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