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THE NEED TO IMPROVE DIDACTIC SUPPORT FOR GEOGRAPHY EDUCATION IN LINE WITH CONTEMPORARY PEDAGOGICAL REQUIREMENTS

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Abstract
This article provides a theoretical and methodological rationale for improving didactic support for geography education in general secondary schools in line with contemporary pedagogical requirements. Drawing on content analysis, comparison, synthesis, and methodological modelling of scholarly and methodological sources, the study examines criteria related to competency-based learning outcomes, differentiated and enquiry-based learning activities, digital and geospatial literacy, formative assessment, and the integration of local context. The analysis identifies several shortcomings in existing didactic support, including content overload, the use of uniform tasks for all learners, and weak alignment among digital tools, geographical skills, and assessment. To address these inconsistencies, the article proposes a flexible model of didactic support comprising three interconnected layers: a core-outcome layer, a variable-activity layer, and a diagnostic-corrective layer. The model's potential practical application is illustrated theoretically and methodologically through a specific school geography topic.

Keywords: Geography education, didactic support, competency-based learning outcomes, differentiated instruction, enquiry-based learning activities, digital and geospatial literacy, formative assessment, local-global connections, geographical thinking, core-outcome layer, variable-activity layer, diagnostic-corrective layer.

Introduction

The purpose of school geography extends beyond teaching students geographical terminology or the names of natural and socio-economic features on the world map. The subject develops learners' ability to understand space and territory,

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identify relationships between natural and social processes, compare information obtained from different sources, draw conclusions about territorial issues, and justify decisions with evidence. Consequently, the quality of geography education should be assessed not by the volume of information presented in textbooks or the availability of technological resources, but by the geographical thinking processes that learners are able to perform through the purposeful use of these resources.

In contemporary educational contexts, defining learning outcomes in competency-based and activity-oriented terms, taking account of learners' levels of readiness and need for support, organising enquiry-based learning, using digital and geospatial tools purposefully, and integrating assessment into the instructional process have become key pedagogical requirements. At the same time, there is a growing need to connect geographical content with learners' direct experience and local environments, and to use multiple sources—such as maps, statistical tables, diagrams, satellite imagery, and observational data – in an integrated and mutually reinforcing manner.

However, in existing didactic support, these requirements are often implemented in isolation from one another. Even when textbook content is updated, learning tasks and assessment practices may remain reproductive in nature, while digital tools may be used primarily for demonstration rather than to promote learners' active analytical engagement. The use of identical resources and instructions for all learners, the overly general formulation of geographical skills, and the misalignment between core classroom activities and assessment criteria further hinder the achievement of intended learning outcomes. Improving didactic support therefore requires more than updating an individual textbook, map, or digital resource; it calls for the redesign of the internal relationships among learning objectives, subject content, learner activity, instructional resources, and assessment evidence.

The article aims to substantiate the need to improve didactic support for geography education in general secondary schools in line with contemporary pedagogical requirements, identify existing methodological inconsistencies, and propose a flexible model for addressing them. In this study, didactic support is understood not as a collection of ready-made materials, but as a dynamic system that integrates learning outcomes, content, learner activity, resources, and assessment within a coherent methodological framework and is continually

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adapted to learners' needs and educational conditions. On this basis, the article elaborates the methodological structure of a model comprising three interconnected layers: a core-outcome layer, a variable-activity layer, and a diagnostic-corrective layer.

Literature Review

Issues related to improving didactic support for geography education in line with contemporary pedagogical requirements – including differentiated organisation of learner activity, formative assessment, the development of spatial thinking, enquiry-based instruction, and the purposeful use of digital technologies – have been addressed in the scholarly and methodological works of international researchers such as P. Black and D. Wiliam [2], D. Lambert and J. Morgan [3], J. Lee and R. Bednarz [4], P. Mishra and M. J. Koehler [5], M. Roberts [7], and C. A. Tomlinson [8], as well as Uzbek scholars including B. M. Abduraxmonov [1], N. A. Muslimov, M. H. Usmonboyeva, D. M. Sayfurov, and A. B. To'rayev [6], and X. Vaxobov, N. R. Alimqulov, and N. B. Sultanova [9]. These studies substantiate the need to orient geography content towards active learner engagement, develop students' ability to work with maps and other geographical sources, account for individual learner differences, and align didactic tools with learning objectives and assessment criteria.

Research Methodology

The methodological framework of the study was grounded in competency-based, learner-centred, activity-based, systems-oriented, and subject-specific approaches. The competency-based approach made it possible to define learning outcomes not in terms of the volume of information acquired, but in terms of learners' ability to perform practical tasks using maps, statistical data, and other geographical sources. The learner-centred approach enabled students' levels of readiness, pace of learning, and need for methodological support to be considered as key factors in the design of didactic support. The activity-based approach placed geographical operations – such as comparison, analysis, evidence selection, explanation of causal relationships, and conclusion drawing – at the centre of the learning process. The systems-oriented approach, in turn, allowed learning objectives, subject content, tasks, sources, assessment evidence, and

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feedback to be analysed as interrelated components of a coherent instructional system.

The study employed content and comparative analysis of international and Uzbek scholarly and methodological sources, decomposition of the pedagogical problem into its constituent elements, synthesis of inconsistencies in existing didactic support, and methodological modelling. The units of analysis comprised competency-based learning outcomes, differentiated and enquiry-based learning activities, digital and geospatial literacy, formative assessment, and the interrelationship between local and global content. Based on the systematic synthesis of the identified problems, a flexible methodological model was developed that integrates three dimensions of didactic support: the core-outcome, variable-activity, and diagnostic-corrective layers. The model's potential for practical application was theoretically and methodologically substantiated through its illustration in relation to a specific school geography topic.

Main Body

Improving didactic support for geography education cannot be limited to updating an individual textbook, map, or digital resource. It requires redesigning the internal relationships among learning outcomes, subject content, learner activity, the sources used, and assessment evidence. These relationships are particularly important in geography education, as learners must analyse texts, maps, statistical tables, diagrams, satellite imagery, and the results of local observations in an interconnected manner. From this perspective, didactic support should be understood not as a collection of materials, but as a coherent methodological system for organising geographical thinking and practical activity. Improving this system in line with contemporary pedagogical requirements therefore entails reviewing its objectives, content, activities, resources, and assessment components against clearly defined criteria. The methodological significance of these criteria for geography education is examined below.

The first criterion is to define learning outcomes in competency-based and activity-oriented terms. Objectives formulated as "explaining the topic" or "providing information" do not specify the geographical actions learners are expected to perform. Intended outcomes should therefore be expressed through observable activities, such as comparing two thematic maps, identifying spatial

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disparities on the basis of statistical indicators, explaining the causes of natural or social processes, or developing an evidence-based proposal concerning a local issue. Defining outcomes in this way makes it possible to organise educational content not as a sequence of isolated facts, but around key geographical concepts such as place, space, scale, interdependence, and change.

The second criterion concerns the differentiated organisation of learning activities in accordance with learners' levels of readiness and need for support. The intended learning outcome remains common to all learners, while the pathways towards achieving it – including guiding questions, step-by-step instructions, the complexity of source materials, additional evidence, and the form of the final product – are adapted to individual needs. Differentiation does not mean merely increasing or reducing the number of tasks; rather, it involves the deliberate planning of the methodological support required for successful task completion. At the same time, enquiry-based instruction requires learners not simply to locate answers in a given text, but to formulate questions, compare multiple sources, select relevant evidence, consider alternative explanations, and recognise the limitations of their conclusions.

The third criterion is the integrated development of digital and geospatial literacy alongside critical information literacy. The use of an electronic map or presentation in the classroom does not, in itself, constitute methodological innovation. The pedagogic l value of a digital tool becomes evident when learners use it to compare layers, filter data, measure distance and area, examine change over time, or identify relationships among different spatial indicators. Learners must also be able to evaluate the authorship, date, scale, purpose, and limitations of maps, infographics, and statistical data. The selection of digital resources should therefore be guided not by their visual appeal, but by the specific geographical thinking processes they are intended to support.

The fourth criterion involves integrating assessment into the instructional process and linking geographical content to the local context. A summative test may assess learners' knowledge of terms and facts, but it cannot fully capture their ability to select evidence from a map, explain spatial causal relationships, or substantiate a position on a geographical issue. Brief diagnostic tasks, interim explanations, criteria-based peer assessment, and reflection make it possible to identify the stage at which a learner is experiencing difficulty and to provide timely corrective support. Connecting global processes – such as climate change,

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water pollution, urbanisation, and |migration – with local maps, statistics, and observational data also brings abstract knowledge closer to learners' direct experience.

Selected Misalignments in Existing Didactic Support

The analysis reveals several interrelated misalignments between contemporary pedagogical requirements and existing didactic support. The first concerns the imbalance between the volume of content and the time allocated for learner activity. An emphasis on communicating large amounts of factual information leaves insufficient time for map analysis, discussion, data comparison, and the formulation of evidence-based conclusions. Content should therefore be organised into three layers – "essential to know," "essential to apply," and "opportunities for extension" – with priority given to establishing meaningful connections between key geographical concepts and practical learning activities.

The second misalignment arises from providing learners with different levels of readiness with the same sources, instructions, and forms of output. Under such conditions, a task may offer insufficient cognitive challenge for highly prepared learners, while those requiring greater support may be unable to determine how to begin. This issue should be addressed not by changing the number of tasks, but by adapting the type of support, the stages of activity, the complexity of the source material, and the form in which responses are presented.

The third misalignment is evident in the disconnect among digital tools, geographical skills, and assessment. Presentations, videos, and electronic maps may enhance visualisation; however, if learners remain passive observers, the educational potential of technology is not fully realised. Moreover, broad formulations such as "works with maps," "thinks independently," or "uses ICT" are insufficient for identifying which specific component of a skill is being developed. Reading map symbols, locating features, identifying spatial distribution patterns, comparing layers, and drawing evidence-based conclusions should therefore be addressed through distinct tasks and clearly defined assessment criteria.

The fourth misalignment concerns the lack of alignment between the principal learning activities undertaken in the lesson and those that are subsequently assessed, the unsystematic updating of instructional resources, and the

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insufficient methodological guidance provided to teachers. When learners complete a project, engage in collaborative map analysis, or undertake a problem-based task, yet their achievement is evaluated solely through a final test, they may fail to recognise the relevance of those activities to the assessment process. Furthermore, even when teachers have access to a wide range of ready-made slides and tasks, they may struggle to integrate them into a coherent lesson sequence if the intended objective, target class, time allocation, and assessment criteria are not clearly specified. Didactic support should therefore not replace teachers' professional judgement; rather, it should facilitate informed and contextually appropriate pedagogical decision-making.

Table 1 Improving Didactic Support for Geography Education

Criterion for Improvement	Existing Methodological Problem	Methodological Solution	Expected Outcome
Competency-Based Outcome	The objective is limited to presenting the content	Specifying the action, geographical source, and learning product in an integrated manner	Applying knowledge in real-world contexts
Conceptual Content	Facts and place names take precedence over learning activities	Organising content around the concepts of place, space, scale, interdependence, and change	Explaining geographical patterns
Differentiated Instruction	The same source materials and instructions are provided to all learners	Adapting the level of support, task complexity, and form of the final product while maintaining a common learning outcome	Ensuring active participation
Enquiry-Based Learning Activity	Finding answers in a ready-made text predominates	Integrating questions, evidence from multiple sources, comparison, and reflection	Drawing independent and evidence-based conclusions
Digital and Geospatial Literacy	Technology is used primarily for demonstration	Performing tasks involving layer comparison, data filtering, measurement, and spatial comparison	Using maps and data critically and purposefully
Formative Assessment	Assessment is limited to a final test	Collecting evidence throughout the learning process, providing criteria-based feedback, and implementing targeted corrective support	Identifying errors in a timely manner
Local–Global Connections	General examples are disconnected from learners' experiences	Analysing global processes through local maps, observational data, and statistics	Recognising the real-world relevance of knowledge

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Table 1 systematises the principal criteria for improving didactic support in geography education by linking them to existing methodological problems, proposed solutions, and expected pedagogical outcomes. Defining competency-based learning outcomes moves instructional objectives beyond the mere transmission of content and directs learners towards performing specific activities using geographical sources. The selection and organisation of conceptual content, in turn, reduce the excessive emphasis on facts and place names and support learners' understanding of key geographical concepts such as place, space, scale, interdependence, and change. Differentiated instruction and enquiry-based learning enable students to work towards common outcomes through varied pathways that take account of their levels of readiness and need for support, while also developing their ability to compare evidence from multiple sources and formulate independent conclusions.

The criteria of digital and geospatial literacy, formative assessment, and local–global connections presented in the table strengthen the practical orientation of contemporary geography lessons. Using digital tools not merely to display information, but to compare map layers, filter data, perform measurements, and identify spatial patterns ensures learners' active analytical engagement. Formative assessment supports the collection of evidence throughout the learning process, the provision of timely feedback, and the implementation of corrective measures appropriate to the errors identified. Linking global geographical processes with local maps, statistical data, and observational findings enables learners to recognise the real-world relevance of the knowledge they have acquired and apply it in actual territorial contexts.

The changes presented in the table should not be regarded as independent measures. A differentiated task may lose its coherence unless it is linked to a clearly defined learning outcome; without formative assessment criteria, it remains unclear which aspect of enquiry-based activity is being developed; and a digital map cannot move beyond the level of visual display unless it is integrated with relevant concepts and guiding questions. Accordingly, the principal condition for improvement is not the proliferation of individual tools, but the alignment of objectives, learning activities, resources, and assessment within a coherent didactic logic.

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Proposed Three-Layer Flexible Model of Didactic Support

To address the identified misalignments, it is proposed that didactic support be designed on the basis of a model comprising three interconnected layers: the core-outcome layer, the variable-activity layer, and the diagnostic-corrective layer. The model does not imply the development of a new textbook or a separate electronic platform; rather, it represents a methodological framework that specifies the criteria for selecting, integrating, and updating existing and newly developed resources. Its distinctive feature lies in integrating content, learning tasks, technological tools, and assessment not as separate elements, but as interrelated components directed towards the achievement of a common learning outcome.

The core-outcome layer specifies the essential geographical concepts, practical actions, principal sources, and assessment evidence that all learners are expected to master. For each topic, one or two key learning outcomes are selected, with the required action, source, and learning product clearly identified. For example, the outcome "the learner compares precipitation and relief maps and provides a causal explanation for differences in the distribution of precipitation on mountain slopes" integrates the actions of comparison and explanation, two maps as the source materials, and a causal conclusion as the learning product. This structure helps determine which elements of the textbook text, maps, and supplementary materials constitute the core content.

The variable-activity layer organises different pathways towards achieving a common learning outcome. While the essential nature of the task remains unchanged, the form of support may vary according to learners' needs: one group may be provided with guiding questions, another with a table for organising information, and a third with an additional source or an alternative hypothesis. The final learning product may take the form of a written text, an annotated map, a diagram, or a brief oral presentation. This layer makes it possible to adapt the pathways through which learners complete the activity without simplifying the intended learning outcome.

The variable-activity layer also applies the principle of digital and print alternatives. Where appropriate technical conditions are available, learners may compare interactive map layers, filter data, or measure distances. In classrooms with limited internet access or insufficient devices, the same activities can be organised using printed maps at a common scale, pre-prepared datasets, or offline

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images. In both cases, the intended learning outcome remains unchanged, while technology serves not as an end in itself, but as a means of performing geographical thinking processes.

The diagnostic-corrective layer encompasses identifying learners' initial level of readiness, collecting evidence throughout the learning process, determining the source of errors, and providing appropriate methodological support. A brief map-based task or concept map at the beginning of a topic reveals learners' prior knowledge, while interim explanations, map annotations, and group conclusions help identify difficulties arising during the learning process. Corrective support should not take the form of a general "re-explanation of the topic"; rather, it should correspond to the specific type of error identified. A brief prompt may be provided for difficulties in interpreting cartographic symbols, a diagram showing the sequence of evidence may support learners experiencing difficulty with causal relationships, and step-by-step guidance on constructing a graph from a table may be offered in cases of statistical misinterpretation.

To ensure the integrated functioning of the three layers, it is advisable to maintain a concise "didactic update card" for each topic. The card should specify the intended geographical learning outcome, core concept, primary and alternative sources, learner activities, differentiated support, assessment evidence, common errors, and appropriate corrective strategies. This card does not replace a complete lesson plan; rather, it clarifies the key points at which teachers need to make methodological decisions across different classroom and technological conditions.

Practical Application and Discussion of the Model

The practical application of the model can be examined through the topic "The Composition and Distribution of Uzbekistan's Population." The core learning outcome may be formulated as follows: "The learner compares statistical data on the age–sex and urban–rural composition of Uzbekistan's population with a population-density map and explains territorial differences in population composition and distribution using at least three pieces of evidence." For the core-outcome layer, tables and diagrams on population composition, a population-density map, key terminology, and concise assessment criteria are selected. Within the variable-activity layer, one group may be provided with a comparison table for analysing the age–sex structure of the population, another with open-

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ended questions designed to explain the proportion of urban and rural populations, and a third with relief, water-resource, transport, or industrial maps as additional sources for identifying the natural and socio-economic factors influencing population distribution. To connect the topic with real life, observational and comparative questions concerning the population composition, distribution of settlements, and population density of the district or region in which learners live are incorporated.

Within the diagnostic-corrective layer, learners are asked at the beginning of the lesson to indicate approximately on the map an area of high population density and explain the reason in one sentence. During the lesson, evidence is collected concerning their ability to interpret map symbols, compare territories, and formulate causal conclusions. At the end of the lesson, learners review their initial assumptions and identify which map evidence supports their conclusions. In digitally equipped classrooms, a layered map is used, whereas printed maps at a common scale are employed where technological resources are limited. In this way, content, source materials, learner activity, and assessment are closely interconnected.

A key feature of the proposed model is that it does not depend on expensive technological resources and conceptualises didactic support not as a universal collection of materials, but as a system adaptable to intended learning outcomes and classroom conditions. The model does not restrict teachers' professional autonomy; rather, it clarifies which elements should remain core and which may be variable. At the same time, its implementation requires teachers to be competent in formulating learning outcomes in activity-oriented terms, breaking geographical skills down into their constituent components, planning differentiated support, and providing criteria-based feedback.

Conclusion

The findings of the study demonstrate that improving didactic support for geography education cannot be limited to updating an individual textbook, map, or digital tool. Contemporary didactic support should integrate competency-based learning outcomes, conceptual content, differentiated and enquiry-based learning activities, digital and geospatial literacy, and formative assessment within a coherent and interconnected methodological system. The principal criterion is not the quantity of materials employed, but the extent to which they

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facilitate learners' geographical thinking, comparison of sources, selection of evidence, and formulation of evidence-based conclusions.

The analysis revealed several shortcomings in existing didactic support: an imbalance between the volume of content and the time allocated for learner activity; the provision of identical source materials and instructions to learners with different levels of readiness; the use of digital tools primarily for demonstration; and a lack of alignment between geographical skills and assessment criteria. These problems cannot be addressed merely by introducing an individual method or technology; rather, they require the redesign of learning objectives, content, activities, source materials, and assessment evidence within a coherent didactic logic.

As a methodological solution to the identified misalignments, a flexible model of didactic support comprising the core-outcome, variable-activity, and diagnostic-corrective layers was proposed. The core-outcome layer defines the essential geographical learning outcome, core concept, principal source, and assessment evidence required for all learners. While maintaining a common learning outcome, the variable-activity layer adapts the form of support, source materials, pathways for completing tasks, and form of the final learning product to learners' needs. The diagnostic-corrective layer, in turn, ensures the identification of learners' initial level of readiness, the collection of evidence throughout the learning process, the determination of the source of errors, and the provision of appropriate methodological support.

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