INTERDISCIPLINARY CONNECTIONS AND INTEGRATED APPROACH IN TEACHING GEOGRAPHY

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The relevance of integrative learning is underscored by the reality that contemporary global challenges — such as ecological, energy-related, socio-economic, and geopolitical issues — profoundly impact humanity. In recognizing the interconnectedness and interdependence of natural and social processes, individuals are increasingly aware of our shared destinies.

Understanding the need of cooperation in solving contemporary global challenges leads to the internationalization of human life. As a result, people go through a significant change in how they see the world and themselves. This leads to a need to understand the world as a unified whole, made up of interconnected parts — a complete integration [3].

One of the goals of modern education is to develop in students the systemic knowledge needed for holistic and integrated thinking. This knowledge can only be obtained through the integration of the humanities, basic sciences, and technical subjects. Therefore, there is a growing trend in teaching theory and practice towards integrating academic disciplines, such as through integrated courses and lessons. This approach helps students make interdisciplinary connections and better understand the bigger picture of the world.

The knowledge and skills that students acquire across different subjects often consist of loosely connected information that isn't effectively applied in their studies or in real-world practices. Therefore, the importance of integrated lessons in school education is clear.

Geography is a complex field of study, it is based on both natural sciences (such as chemistry, biology, and physics) and social sciences that investigate societal development (like history and social studies).

Teaching geography in an integrated way creates new opportunities for both teachers and students, offering an effective approach to stimulate mental activity and enhance teaching techniques. This method also calls for using diverse teaching formats that positively impact students' psychology and improve their ability to grasp educational material. Many geographical concepts require a foundation in subjects like mathematics, physics, biology, and chemistry for students to fully understand and master them [2].

Integration as a concept emerged in response to the increasing specialization and fragmentation of sciences and industries, where new disciplines continued to branch out from existing ones. The growing differentiation of sciences has led to a counterbalancing desire for integration. Integration can take various forms, including methodological, technical, procedural, and conceptual, occurring at different levels and in various directions. This area of study can broadly be termed as the structural methodology of integration.

Ultimately, integration should help in reuniting our perception to see the world and our place in it

as a unified whole.

Integration as a pedagogical concept has deep historical roots. Many subjects have inherently been integrative in nature for a long time. Often, this integration occurred within subjects themselves: for example, a school geography course traditionally integrated geography as a science, reading practice, and practical experience. This longstanding establishment of interdisciplinary connections laid the foundation for the current integration process, reshaping education to emphasize the interconnectedness of subjects and the importance of collaborative pedagogics.

Currently, integrative pedagogical concepts are understood as a cohesive set of organized principles, provisions, and ideas that guide the direction and content of integrative pedagogical activities at various levels of educational goals and objectives [1].

Interdisciplinary connections help shape students' understanding of the natural world and enhance key cognitive skills such as systematic thinking, depth of knowledge, awareness, and flexibility. This approach activates cognitive interest and fosters the development of creative and systematic thinking. Additionally, interdisciplinary connections promote independence and a genuine interest in learning about the world around us. Among academic subjects, geography stands out because it integrates knowledge from various scientific fields such as physics, chemistry, biology, ecology, and social studies. This integration encourages the building of interdisciplinary connections within the educational process.

The extensive content of the geography curriculum offers teachers many opportunities to organize diverse student activities and select teaching methods and resources. The interdisciplinary connection between subjects is evident when one subject serves as a tool to address questions and problems in another subject. In the case of geography, physics plays this role. The connection between physics and geography is essential; their integration is evident in sections where natural phenomena and mechanisms are studied.

Geography is commonly integrated with subjects such as history, biology/ecology, physics/chemistry, mathematics, Russian language, fine arts, and music. Integration often involves not only pairing two subjects but also combining three or more subjects. These integrated lessons allow students to delve deeply into the topic and enhance their understanding. Furthermore, integrating three subjects helps make lessons more dynamic, increases their informational richness, fosters interest in the subjects and course material, and enhances students' creative potential [4].

The adoption of integration has led to the development of new ways to organize the educational process, such as lessons with interdisciplinary connections, comprehensive seminars, integrated excursions, interdisciplinary field trips, and other innovative approaches [5,7].

Usova A.V. identifies five primary methods for implementing integration in her works:

1. Reliance on knowledge gained from studying other subjects, for example, the section “Nature of Russia”, which was studied in the 4th grade course on the surrounding world, is discussed in more detail in the 8th grade Russian geography course.

2. Using skills previously acquired in the study of related subjects in the process of solving problems or performing practical work.

3. Solving problems that require the complex application of knowledge of related subjects, as well as experimental tasks of chemical and geographical content. For example, “Study of samples of minerals and rocks” (practical work, grade 8).

4. Disclosure in the process of studying new material of the connection between phenomena studied in related subjects, for example, “Environmental pollution”, the formation of acid rain.

5. The use of laws and theories that are studied in related subjects when explaining phenomena, specifying more general concepts and principles [6].

Summarizing the experience of teachers, the list of ways to implement integration in teaching can be continued: students completing abstracts and research works that require the use of knowledge of related subjects, for example, “The influence of anthropogenic activities on global warming”, “Hydrometeorological and hydrochemical studies of the river basin”; carrying out complex (interdisciplinary) practical work, for example, “Determination of air humidity”; conducting elective courses.

Integration is a highly effective tool for teachers to inspire students to engage in creative exploration and utilize their full range of school knowledge. By integrating subjects like geography and chemistry, students are encouraged to understand the interconnectedness of nature and sustain their interest in learning. Through these interdisciplinary connections, educators can address students' training, development, and education at a more advanced level, laying the groundwork for systematically tackling complex real-world issues [6].

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