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What Geographical Skills do the International Geography Olympiad Aim to Measure? A Content Analysis of iGeo Questions

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Abstract. The aim of this research is to analyse the geography Olympiad questions organized between 1996-2022 according to main topics and geographical skills. The general qualitative research approach was used in the data collection phase of the research. The geography Olympiad questions organized between the years 1996-2022, which constitute the data sources, were decoded with descriptive analysis technique. In this research, the questions belonging to the 18 years that constitute the data sources were examined and analysed. While analysing the data sources of the research, attention has been paid to main topics and geographical skills are the determining element. It is found that iGeo questions aim to develop Spatial Analysis and Interpretation, Map Skills, Geographic Information Systems (GIS), Data Interpretation and Analysis, Fieldwork and Observation, Critical Thinking and Problem-Solving, Cultural and Human Geography Skills, Environmental Analysis and Sustainability. It can be suggested that content of geography curriculums and courses are designed to aim these geographical skills to educate students for their future jobs.

Keywords. Geographical Skills, iGeo Questions, Geography Olympiad, Main Topics in Geography.

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One of the most important phases of learning geography for a teacher is to find out if the students learn or how much did they learn. We have a constant need to measure, analyse, and make decisions, yet we need to ask if we are assessing or evaluating. Both assessment and evaluation are important aspects of education—they are central to learning and teaching (Kidman Chang, 2022). To find the answer we need to ask right questions for students. This phase of teaching geography can be seen the latest stage of learning process. Finding out if someone has learnt what you intend for them to learn remains a key issue in geography education (Chang, Seow, 2018). Thus, geographical educators should ask "How do we know that the learners have learnt? What is the evidence of learning/assessment?" (Chang, Wu, Seow, Irvine, & 2018).

> An international assessment of students' use of geographic information, facts, concepts, processes, and models is necessary to reveal how geography is understood and practised by students within diverse global contexts. This is important because no single country can resolve issues, such as global climate change, facing the world's people, places, and environments (Solem, Stoltman, Lane, Bourke, Chang, & Viehrig, 2018).

In this context, the International Geography Olympiad (iGeo) is considered in most of international geography community in the world one of the most important activities to measure and assess the students' learning geography in international dimension. iGeo is a prestigious competition that brings together young geographers from around the world to test their knowledge, skills, and passion for geography. This annual event challenges participants with a diverse range of questions that require a deep understanding of geographical concepts and the application of various geographical skills. In this article, we will conduct an analysis of iGeo questions, categorizing them according to the main topics and geographical skills they assess and highlighting the importance of these skills in fostering geographic literacy. Geography educators from different countries report that the content of the tests of the Olympiad contribute positively to the debate about the importance of geography as a secondary school subject (Van der Schee, 2012).

For geography teachers and geographers in education, the International Geography Olympiad can be an important platform for an international discussion about the quality of geographical education worldwide (Van der Schee, 2007). The International Geography Olympiad (iGeo) is an annual competition for the best 16- to 19-year-old geography students from all over the world. Students chosen to represent their countries are the very best, chosen from thousands of students who participate enthusiastically in their own National Geography Olympiads. The iGeo consists of three parts: a written test, a multimedia test and substantial fieldwork requiring observation, leading to

cartographic representation and geographical analysis. The programme also includes poster presentations by teams, cultural exchanges, and time for students to get to know their fellow students and explore the host city (The International Geography Olympiad (iGeo), 2022). This prestigious event challenges students with a wide range of questions that delve into the intricacies of our planet and its diverse landscapes. Participation in the international geographical Olympics is for high school students an opportunity to test both their skills and knowledge against their peers from around the world, as well as a great opportunity to get to know the exotic corners of the planet and to confront their theoretical knowledge of the geographical reality (Osuch, Kurek, 2014). The Olympiad exercises typically entail fieldwork, mapwork, data collection, analysis, and interpretation and, although not necessarily covered explicitly, issues of global environmental change, human-environment interactions, and sustainability are frequently included (Meadows, 2020). On the other hand, Edelson et al. (2013) argue that the primary purpose of educational assessment should be for making informed decisions. Because they typically regard assessment as a separate activity from instruction, educators, students, parents, and policy makers often overlook invaluable ways assessments can support and improve teaching and learning (Edelson et al., 2013).

iGeo competition comprises a series of written tests, fieldwork exercises, and multimedia tasks designed to assess students' geographical knowledge, analytical abilities, and problem-solving skills. These assessments are not just about determining winners; they serve as a testament to the intellectual curiosity and dedication of the participants. iGeo also serve to development of own geography national Olympiads of countries and their geographic literacy (Wei, Yang, & Wang, 2014; Chang, Huang, & Tsaur, 2019; Songnui, 2020; Pospisil, 2020). Lane and Bourke (2017) also concluded that the International Geography Olympiad is a valid and reliable assessment that could be used to establish an international benchmark of geographical literacy. Many tasks from the Olympiad are used in classroom work to diversify the teaching-learning process. Therefore, the Geography Olympiad is a development engine not only for students but also for school geography in general (Liiber & Roosaare, 2007; Min & Dongying, 2007). Promotion of the Geography Olympiad is one way to revitalize geography education in Japan and is an opportunity for the exam takers to significantly upgrade their geography skills (Izumi, Iwamoto, 2017). In addition, Dóra, Gábor, and András (2018) from Hungary.

> "We examine these factors through the lens of a special group, namely students who have grown up in the Hungarian education system but have participated also in domestic and international iGeo (International Geography Olympiad) competitions. Broad experiences from students and their

preparation team can enable us to identify the most important differences between international and Hungarian systems and highlight the direction which Hungarian geography should go, from a traditional, fact-based lexical subject to a problem-based and skill-oriented subject. This new type of geography can improve the critical thinking of students and their ability to synthesize information instead of learning facts which they can easily access on the internet. This is an important step to reevaluate geography's role and provide concrete steps for the adaptation process (Dóra, Gábor, and András, 2018)."

The Relevance of Geographical Skills Beyond iGeo Questions

Geography is a multidisciplinary field that encompasses a wide range of skills essential for understanding the Earth's physical and human systems. Geography's assessment for learning should have its benchmark in international tests that combine the knowledge and skills that are related to the contemporary issues on planet Earth of today and tomorrow (Van der Schee, Nott´eband, Zwartjes, 2010). These skills form the foundation of geographic literacy and are crucial for addressing global challenges, making informed decisions, and appreciating the complexity of the world around us (Artvinli, 2010, 2012, 2020; Seiichi, 2017). While the International Geography Olympiad serves as a platform to showcase the talents of young geographers, the skills honed through the competition extend far beyond its boundaries. For example, more than 100 of the winners of All-Russian Geography Olympiad have graduated from universities with the 'red' Diploma (with honors). More than a dozen of them have already become PhDs in Geography (Naumov, 2007).

International Geographical Union (IGU) as a responsible body, with an interest in young geographers and a commitment to the international Olympiad as a bridging device for those interested in using Geography in their careers (Chalmers, Berg, 2014). Geographical skills are applicable in a wide range of academic and professional pursuits:

Higher education. Many iGeo participants go on to pursue degrees in geography, environmental science, urban planning, and related fields. The skills they acquire in the competition provide a strong foundation for their academic journeys.

Research and innovation. Geographical skills are essential for conducting research in areas such as climate science, urban studies, and natural resource management. They enable researchers to analyse data, create models, and propose solutions to complex problems.

Environmental advocacy. Geographers with strong environmental analysis and sustainability skills are well-equipped to advocate for conservation and responsible resource management. They play a vital role in protecting ecosystems and raising awareness about environmental issues.

Urban planning and development. The ability to interpret urban landscapes and propose sustainable urban development strategies is crucial in the field of urban planning. Geographical skills help planners make informed decisions about infrastructure, transportation, and land use.

Public policy and governance. Geographers contribute to public policy by providing data-driven insights and recommendations. Their skills in data analysis, critical thinking, and problem-solving are highly valued in government agencies and international organizations.

Global citizenship. Geography equips individuals with a global perspective and an understanding of the interconnectedness of our world. Geographical skills foster global citizenship, encouraging individuals to engage with global issues and advocate for positive change.

The Diversity of iGeo Questions

One of the most striking aspects of the iGeo questions is their diversity. Geography, as a multidisciplinary field, encompasses a wide range of topics, and the questions in the competition reflect this breadth. The International Geography Olympiad is not just a competition; it is a celebration of geography. The questions presented at iGeo serve as a testament to the depth and diversity of the field. They inspire young geographers to explore the world with curiosity, analyse its complexities with precision, and envision a future where geographic knowledge contributes to a sustainable and harmonious global society.

As we analyse the questions of the International Geography Olympiad, we recognize the profound impact this competition has on nurturing the next generation of geographers. It encourages them to see the world through a geographical lens, equipping them with the skills and perspectives needed to address the pressing challenges of our time. The iGeo questions challenge participants to think critically, analyse data, and propose solutions to real-world problems, mirroring the work of professional geographers.

Moreover, the International Geography Olympiad fosters global connections among young geographers. Participants come from diverse cultural backgrounds, representing a tapestry of perspectives. This international exchange of ideas not only enriches their understanding of geography but also promotes cross-cultural understanding and collaboration—a valuable skill in our interconnected world.

For educators and geography enthusiasts, the iGeo questions offer a treasure trove of thought-provoking scenarios and topics. They serve as an excellent resource for sparking discussions, conducting classroom activities, and deepening one's own geographic knowledge.

The questions of the International Geography Olympiad represent a testament to the vibrancy and relevance of geography as a discipline. They challenge young minds to explore the world's complexities, promote critical thinking, and inspire a commitment to global sustainability. As participants embark on their journeys through these questions, they emerge not only as skilled geographers but also as responsible global citizens who appreciate the beauty and significance of our planet. The iGeo questions, in essence, pave the way for a brighter and more geographically aware future, one where our understanding of the world is continually enriched through exploration, analysis, and appreciation of its diverse landscapes and cultures.

The International Geography Olympiad, which occupies an important place among the studies of the IGU-International Geographical Union, is held in the form of a competition of teams of 4 students selected because of the national competitions of the participating countries. Each participating country is represented by 4 students and 2 team leaders. Students compete individually in the Olympiads, which are open to students studying at the high school level. The country ranking is determined by the sum of the individual achievement scores of the students. The competition takes place in three stages. Up until 2012, the Olympiads were held every two years and after that it was decided to organise every year by IGU.

The aims of the Olympiad are to:

- Stimulate active interest in geographical and environmental studies among young people.
- Contribute positively to debate about the importance of geography as a senior secondary school subject by drawing attention to the quality of geographical knowledge, skills, and interests among young people.
- Facilitate social contacts between young people from different countries and in doing so, contribute to the understanding between nations.

There are three sub-dimensions of this research. The first of these is the written test part of the competition, which consists of open-ended questions. The second part of the division consists of multimedia questions. The last part of the study consists of field study questions. The questions of the competition, which are examined in three sub-dimensions according to the years, have been analysed according to sub questions below:

1. Which geographical topics are included the mostly in iGeo questions?
2. Which geographical/other skills are aimed to measure in iGeo questions?

Method

Research Model

This research occurs in a qualitative pattern. Qualitative research can be defined as research in which qualitative data collection methods are used, such as observation, interview, and document analysis; and a process is followed for the realistic and holistic presentation of perceptions and events in a natural environment (Yıldırım and Şimşek, 2016, p. 45). Research data was obtained through document analysis, which is a qualitative research method covering the analysis of written materials containing information about facts and events (Wachter, 2010).

In this study, research data was collected by document analysis technique and the data was analyzed by content analysis. Content analysis is defined as "the systematic reading of a body of texts, images, and symbolic matter, not necessarily from an author's or user's perspective" (Wachter, 2010).

Data Analysis. The process of data analysis is the process of exporting the meaning of data. Document analysis is a systematic procedure for reviewing or evaluating documents both printed and electronic (computer-based and internet-transmitted) material. Like other analytical methods in qualitative research, document analysis requires that data be examined and interpreted to elicit meaning, attainment understanding, and develop empirical knowledge (Yıldırım and Şimşek, 2016).

Before coding was performed in the study, studies were conducted on the validity and reliability of the study. The content validity of the data collection tool has been redeveloped in accordance with the review of a training program expert specializing in field education, and it has been decided that it is suitable for the purpose of the study.

Document analysis is a qualitative research method used to analyse the content of written documents rigorously and systematically (Wach, 2013). It is a systematic method used to examine and evaluate all documents, including printed and electronic materials. Like other analytical methods in qualitative research, document analysis requires that data be examined and interpreted to elicit meaning, gain understanding, and develop empirical knowledge (Corbin and Strauss, 2008).

The decoders were examined separately by a field Specialist Researcher and expert for reliability. The formula developed by Miles and Huberman (1994) for the reliability calculation of the work was conditioned to work. Reliability=Consensus / (Consensus + disagreement) according

to the calculation, the reliability of the research was found to be 94%. The fact that this ratio is more than 70% indicates that the study is reliable (Miles and Huberman, 1994).

Selecting a sample from data. A criteria sampling method was preferred to objective sampling methods when determining a research sample.

Category development. At this stage, it was looked for geographical skills included in the literature review were analysed through iGeo questions.

Defining an analysis unit. Depending on the purpose of this study, main geographical skills in the literature were associated with the achievements and geographical skills were categorized in the iGeo Olympiad questions.

Digitization. The data collected in accordance with the categories, units and attainments of analysis determined in the study were considered separately in each size and in accordance with the geographical skills.

Findings

In this phase, after content analysis of 18 years iGeo questions, it is found that they focused on these skills: Spatial Analysis and Interpretation, Map Skills, Geographic Information Systems (GIS), Data Interpretation and Analysis, Fieldwork and Observation, Critical Thinking and Problem-Solving, Cultural and Human Geography Skills, Environmental Analysis and Sustainability.

Geographical Topics Included the Mostly in iGeo Questions

The International Geography Olympiad (iGeo) is a prestigious competition that tests the knowledge, skills, and passion of young geographers from around the world. As participants dive into the challenging questions of iGeo, they encounter a diverse array of topics that encompass the rich tapestry of our planet's geography. In this sub-problem, it is embarked to explore the main topics of iGeo questions, offering insights into the multifaceted world of global geography. After the document analysis it is found that participants are challenged to explore:

Physical geography. Questions related to the Earth's physical features, including landforms, climate patterns, geological processes, and ecosystems. These questions test students' understanding of the natural world and their ability to analyse environmental phenomena. Physical geography forms the bedrock of iGeo questions, as it delves into the Earth's natural features and processes. Participants are often presented with questions related to:

Landforms: Questions may explore the origins and characteristics of landforms such as mountains, plateaus, and valleys. Participants must analyse the forces that shape the Earth's surface.

Climatology: Climate-related questions investigate weather patterns, climate zones, and the factors influencing climate change. Understanding climatology is crucial for comprehending global weather phenomena.

Biogeography: Biogeographical questions examine the distribution of plant and animal species across the planet. Participants analyse ecosystems, biodiversity, and the impact of human activities on the natural world.

Geological Phenomena: Geology-related questions may cover topics such as earthquakes, volcanoes, and tsunamis. Participants must grasp the geological processes that lead to these events.

Human geography. Inquiries into the human dimensions of geography, such as population dynamics, urbanization, cultural diversity, and geopolitical issues. These questions assess students' knowledge of human societies and their impact on the environment. Human geography questions invite participants to navigate the complex world of human societies, cultures, and interactions. Key topics include:

Population Geography: Questions may focus on population distribution, growth, migration patterns, and demographic trends. Participants analyse the factors that influence human population dynamics.

Urbanization: Urban geography questions explore the growth of cities, urban planning, and the challenges of urbanization. Participants delve into the complexities of urban life and development.

Cultural Geography: Cultural questions delve into the diversity of cultures, languages, religions, and traditions around the world. Participants gain insights into the cultural tapestry of humanity.

Economic Geography: Economic questions investigate global trade, resource distribution, economic systems, and development disparities. Participants analyse the economic forces shaping our interconnected world.

Geopolitics. Geopolitical questions immerse participants in the realm of international relations and global affairs. Topics include:

Political Geography: Political questions examine the borders, territories, and geopolitical conflicts between nations. Participants gain insights into the ever-changing political landscape.

Geopolitical Conflicts: Participants may be tasked with analysing specific geopolitical conflicts, their historical contexts, and their implications on regional and global stability.

International Organizations: Questions related to international organizations explore the roles and functions of entities like the United Nations, NATO, and the European Union in shaping global geopolitics.

Geopolitical questions challenge participants to unravel the complexities of international relations, fostering a deeper understanding of the forces that shape the world.

Environmental Issues. Environmental questions in iGeo focus on the critical challenges facing our planet. Topics include:

Climate Change: Participants analyse the causes, impacts, and potential solutions to climate change, including its effects on ecosystems and human societies.

Conservation and Sustainability: Questions may explore conservation efforts, sustainable resource management, and strategies for preserving biodiversity.

Environmental Hazards: Participants are tasked with evaluating environmental hazards such as pollution, deforestation, and natural disasters, and proposing mitigation measures.

Ecosystems and Biomes: Questions delve into the characteristics and importance of Earth's diverse ecosystems and biomes.

Environmental questions prompt participants to engage with pressing global issues, encouraging them to consider their role as stewards of the planet.

Cultural Landscapes. Cultural landscapes represent the fusion of human culture and the natural environment. Topics include:

Historical Landscapes: Participants may examine historically significant landscapes, including archaeological sites, ancient cities, and cultural heritage sites.

Sacred Places: Cultural geography questions may explore sacred or religious sites, their significance, and their cultural impact.

Cultural Land Use: Questions often investigate how human cultures have shaped the landscape through agriculture, architecture, and urban planning.

Cultural landscape questions take participants on a journey through time and space, revealing the profound ways in which human societies have left their mark on the Earth.

Geographical techniques. Assessments that gauge students' proficiency in using geographical tools and techniques. This includes map interpretation, spatial analysis, and the use of geographic information systems (GIS). Maps and Cartography: Participants are challenged to interpret and create maps, understand map projections, and use cartographic techniques effectively.

Geographic Information Systems (GIS): GIS-related questions may involve data analysis, spatial modelling, and the application of GIS technology to solve real-world problems.

Data Interpretation: Questions often require participants to interpret data, graphs, and charts related to geographic phenomena.

Regional studies. Questions that delve into specific regions or countries, requiring students to apply their geographical knowledge to analyse regional challenges, opportunities, and dynamics.

Sustainability and global challenges. Inquiries related to pressing global issues, including climate change, resource management, and sustainable development. These questions challenge students to think critically about the future of our planet.

Geographical Skills Aimed in IGeo Questions

The International Geography Olympiad (iGeo) assesses a wide range of geographical skills through its questions. These skills are fundamental to understanding and analysing geographic phenomena. Here are the findings of document analysis by the researchers for the key geographical/other skills aimed in iGeo questions according to analysed previous questions:

Spatial analysis and interpretation. Spatial analysis is the ability to examine and interpret spatial data, such as maps, satellite images, and geographic coordinates. Questions in this category often require participants to:

- Analyse maps to identify geographic features, patterns, and trends.
- Interpret satellite imagery to understand land use, environmental changes, or urban development.
- Calculate distances, areas, or densities using geographical coordinates.

- Participants are required to analyse maps, satellite imagery, and other spatial data to identify patterns, trends, and relationships.
- They must demonstrate an understanding of spatial concepts such as scale, distance, direction, and location.
- This skill enables participants to make sense of spatial information, identify geographic features, and draw conclusions from maps and imagery.

To further illustrate the connection between this skill and iGeo questions, let's explore a few examples from previous competitions. These questions highlight how specific skills are tested and their real-world relevance:

- Question: Participants are presented with a map showing vegetation distribution in a region. They are asked to analyse the map and explain the factors contributing to the observed patterns.
- Skill Emphasized: Spatial analysis and interpretation.
- Real-World Relevance: This skill is vital for understanding environmental patterns and helping make decisions related to land use, agriculture, and conservation.

Map skills. Map skills involve the creation and interpretation of maps. It is found that iGeo questions in this category challenge participants to:

- Design thematic maps that represent geographic data effectively.
- Interpret map legends, scales, and symbols to extract information.
- Identify distortions in different map projections and their implications.

Map skills are fundamental for geographers, as maps are powerful tools for communication, navigation, and conveying complex spatial information. To further illustrate the connection between this skill and iGeo questions, let's explore a few examples from previous competitions. These questions highlight how specific skills are tested and their real-world relevance:

- Question: Participants are given a map with multiple layers of information, including topography, land use, and transportation networks. They are asked to design a new map that highlights specific aspects while maintaining clarity.
- Skill Emphasized: Map skills.
- Real-World Relevance: The ability to create effective maps is crucial in fields such as urban planning, disaster management, and transportation logistics.

Geographic information systems (GIS). GIS skills involve the use of Geographic Information Systems, which are computer-based tools for analysing, managing, and visualizing geographic data. iGeo questions related to GIS ask participants to:

- Perform spatial analyses using GIS software.
- Create thematic maps with GIS applications.
- Questions often involve the use of GIS software or concepts to analyse geographic data.
- Participants may be asked to perform spatial analyses, create thematic maps, or solve real-world problems such as urban planning or environmental assessment using GIS.
- Proficiency in GIS is increasingly important for geographers and professionals in various fields.

Proficiency in GIS is increasingly important in modern geography, as it enables geographers to explore complex spatial relationships and make data-driven decisions. To further illustrate the connection between this skill and iGeo questions, let's explore a few examples from previous competitions. These questions highlight how specific skills are tested and their real-world relevance:

- Question: Participants receive a dataset containing population density, land cover, and climate information for a region. They are tasked with using GIS software to analyse the data and propose strategies for sustainable development.
- Skill Emphasized: GIS skills.
- Real-World Relevance: GIS proficiency is essential for addressing complex spatial problems, including urban growth, environmental conservation, and disaster response.

Data interpretation and analysis. Geographical data interpretation and analysis skills require participants to make sense of numerical and statistical information related to geography. iGeo questions in this category involve:

- Analysing population data to identify demographic trends.
- Interpreting climate data to understand weather patterns and climate change.
- Evaluating statistical information to draw conclusions about environmental phenomena.

- They must analyse and interpret data to draw conclusions and make inferences.
- Data interpretation and analysis skills are crucial for understanding geographic patterns and trends.

These skills are vital for geographers, as data analysis plays a crucial role in understanding geographic patterns and making informed decisions. To further illustrate the connection between this skill and iGeo questions, let's explore a few examples from previous competitions. These questions highlight how specific skills are tested and their real-world relevance:

- Question: Participants are provided with demographic data for a city over several decades. They must analyse the data to identify trends in population growth, migration patterns, and age distribution.
- Skill Emphasized: Data interpretation and analysis.
- Real-World Relevance: These skills are valuable for understanding demographic shifts, informing public policy, and addressing social and economic challenges.

Fieldwork and observation skills. Fieldwork and observation skills involve conducting on-site investigations and collecting primary data in the field. Questions in this category require participants to:

- Questions may require participants to describe and analyse geographic features or phenomena observed during fieldwork or in photographs.
- Propose hypotheses and conduct experiments or surveys to gather data.
- Evaluate the accuracy and reliability of field-collected data.
- They must use fieldwork experience to provide detailed and accurate descriptions.
- Fieldwork and observation skills are vital for conducting on-site investigations and collecting primary data.

Fieldwork and observation skills are essential for geographers to gain firsthand experience and gather valuable data for research and analysis. To further illustrate the connection between this skill and iGeo questions, let's explore a few examples from previous competitions. These questions highlight how specific skills are tested and their real-world relevance:

- Question: Participants are given a set of photographs taken during a field expedition to a coastal area. They must describe the geographic features observed, including landforms, vegetation, and human impact.
- Skill Emphasized: Fieldwork and observation.
- Real-World Relevance: Fieldwork skills are essential for conducting environmental assessments, ecological studies, and land-use planning.

Critical thinking and problem solving. A fundamental aspect of the iGeo questions is their emphasis on analytical and critical thinking. Participants are not merely expected to regurgitate facts; they are encouraged to analyse data, synthesize information, and draw informed conclusions. The questions often present complex scenarios and require students to apply their geographical knowledge to propose solutions or interpretations. For example, participants might be presented with a map showing temperature anomalies and asked to explain the potential implications of these anomalies on local ecosystems. Or they may need to analyse demographic data to identify trends and challenges in a specific region. iGeo questions focus on these skills ask to participants:

- Evaluate the potential impacts of human activities on the environment.
- Assess the ethical and social implications of geographic issues.
- Participants are challenged to think critically about complex geographic issues.
- They must analyse scenarios, propose solutions, and evaluate potential outcomes.
- Critical thinking and problem-solving skills are essential for addressing real-world challenges.

These skills enable geographers to address pressing global challenges, such as climate change, resource management, and social justice. To further illustrate the connection between this skill and iGeo questions, let's explore a few examples from previous competitions. These questions highlight how specific skills are tested and their real-world relevance:

- Question: Participants are presented with a case study of a city facing water scarcity due to climate change. They are asked to assess the challenges, propose solutions, and consider the social and environmental implications.
- Skill Emphasized: Critical thinking and problem-solving.

- Real-World Relevance: These skills are crucial for addressing complex global issues, such as climate change adaptation and resource management.

Cultural and human geography skills. Cultural and human geography skills focus on understanding human societies, cultures, and their interactions with the environment. Questions in this category involve in iGeo:

- Analysing cultural landscapes and their evolution.
- Exploring the distribution and characteristics of human populations.
- Evaluating the social and economic factors influencing urbanization and migration patterns.
- Questions may focus on human geography topics, including population distribution, migration, urbanization, and cultural landscapes.
- Participants must analyse social, economic, and cultural factors that influence human activities and patterns.
- Cultural and human geography skills provide insights into human-environment interactions.

These skills provide insights into the complexities of human-environment interactions, helping geographers understand and address issues related to globalization, cultural diversity, and social change. To further illustrate the connection between this skill and iGeo questions, let's explore a few examples from previous competitions. These questions highlight how specific skills are tested and their real-world relevance:

- Question: Participants are given a scenario involving cultural diversity and urbanization in a specific region. They must analyse the factors influencing cultural change and urban development.
- Skill Emphasized: Cultural and human geography skills.
- Real-World Relevance: Understanding cultural dynamics and their impact on urbanization is essential for promoting social cohesion and sustainable urban development.

Environmental analysis and sustainability. Environmental analysis and sustainability skills encompass the assessment of environmental issues and the development of sustainable solutions. iGeo questions related to these skills require participants to:

- Evaluate the impact of human activities on ecosystems and natural resources.

- Propose strategies for environmental conservation and sustainable development.
- analyse case studies of environmental challenges and their solutions.
- Participants may be asked to evaluate environmental issues, assess the impacts of human activities on ecosystems, and propose sustainable solutions.
- They must consider the long-term well-being of the environment and its resources.
- Environmental analysis and sustainability skills are vital for addressing environmental challenges.

These skills are crucial for geographers to contribute to the protection of the environment and the promotion of sustainable practices. To further illustrate the connection between this skill and iGeo questions, let's explore a few examples from previous competitions. These questions highlight how specific skills are tested and their real-world relevance:

- Question: Participants are provided with data on air quality, water pollution, and land degradation in an industrial area. They are tasked with evaluating the environmental risks and proposing strategies for sustainable industrial practices.
- Skill Emphasized: Environmental analysis and sustainability.
- Real-World Relevance: These skills are critical for addressing environmental challenges, ensuring sustainable resource use, and minimizing ecological impacts.

Conclusion and Discussion

According to Eraslan (2009), there are four main factors that affect student success in such international competitions. These are (1) teacher training program, (2) traditional school life, (3) cultural perspective on the teaching profession and (4) in-service teacher training. First, it is important to compare these main problematic points to find the differences of such competitions results between countries. Those four phases should be supported in a country to develop the quantity of education's results. If one of them or most of them are weak in a country, it can be hard to develop the content of the education in that country. One of the main problematic points is the teacher training program for measure to student success in some countries (Pınar, 2011).

In this research, it is found that iGeo questions were produced during the last 18 years focus on these skills:

1. Spatial Analysis and Interpretation,
2. Map Skills,
3. Geographic Information Systems (GIS),
4. Data Interpretation and Analysis,
5. Fieldwork and Observation,
6. Critical Thinking and Problem-Solving,
7. Cultural and Human Geography Skills,
8. Environmental Analysis and Sustainability.

These skills can be found in a similar content in the literature. The International Geography Olympiad serves as a testament to the importance of geographical skills in fostering geographic literacy and understanding our world. Geography curriculums around the world also aim to develop geography skills of students (Ministry of National Education (MoNE), 2018). Through a diverse array of questions, the competition challenges participants to apply spatial analysis, cartographic, GIS, data interpretation, fieldwork, critical thinking, cultural and human geography, and environmental analysis skills. According to Winter, Berg (2007) it does appear that the fieldwork experiences of the Olympiads are meeting the needs of the participants and they want more of it.

On the other hand, many countries use the result of iGeo to evaluate end develop their own teaching of geography in their countries (Izumi, 2015). For example, according to Barwiński, Sawicki, Uroda (2014) and Podgórski, Charzyński, Zaparucha (2016) the International Geography Olympiad is also a way of comparing the results of teaching geography in the Polish educational system with that of other countries. Given the results achieved by Polish students, this comparison is very positive and gives cause for optimism. Polish youth and the teaching of geography in Polish schools may be viewed more positively and optimistically because of the national and international Geography Olympiads. iGeo also helped the development of students' high-level thinking skills were observed by researchers from the results of tests on geography by the syllabus of the national science Olympics in geography (Wijayanto, Susetyo, Nofrion, 2020) as most of the iGeo questions focus on the higher order thinking skills (Artvinli, Dönmez, 2022).

As educators and learners, we should recognize the value of these skills and continue to emphasize their development in geography education. By nurturing the next generation of geographers with strong geographical skills, we empower them to address the complex challenges of our rapidly changing world and contribute to a more informed, sustainable, and interconnected global

society. To develop these geographical skills in students, the same skills need to be developed in teacher candidates. For example, in the book exam for those who want to become teachers in Finland, students' skills in researching information, thinking critically, distinguishing between relevant and irrelevant information, forming their own opinions, defending, and synthesizing are measured (Eraslan, 2009). In this context, the teaching styles of geography teachers are also of particular importance (Artvinli, 2010). Moreover, these skills of students are transferable and applicable in various academic and professional fields. Students who develop strong geographical skills can excel in careers related to urban planning, environmental management, international relations, data analysis, and more.

The analysis of iGeo questions according to geographical skills underscores the significance of incorporating these skills into geography education. Geographic literacy goes beyond memorizing facts and figures; it equips students with the ability to analyse complex spatial information, make informed decisions, and engage in critical thinking about global issues. A well-developed international test may help to draw more attention to the importance of geography and good geography teaching, especially if it is combined with research not only in the field of assessment of learning but also in the field of assessment for learning (Van der Schee, Kolkman, 2010).

The analysis of iGeo questions according to geographical skills reinforces the idea that these skills are the backbone of geographic literacy and problem-solving in our ever-changing world. Geography educators and enthusiasts should recognize the intrinsic value of these skills and continue to integrate them into the curriculum.

In doing so, we not only prepare the next generation of geographers but also equip them with the tools to understand, analyse, and address the pressing challenges facing our planet—from climate change and urbanization to cultural diversity and environmental sustainability. Geographical skills, as demonstrated through iGeo questions, are not just academic exercises; they are a pathway to informed citizenship and a more geographically literate, interconnected global society.

Recommendations

For students, the iGeo questions exemplify the vast potential of geography as a field of study and a career choice. They reveal the excitement of exploring diverse landscapes, cultures, and environmental phenomena. Beyond the competition, geography education nurtures critical thinking, spatial reasoning, and an appreciation for the planet's intricacies. It equips young

minds to contribute meaningfully to society, whether as environmental advocates, urban planners, or global policymakers.

Educators can draw inspiration from the iGeo questions to design engaging lessons that cultivate geographic literacy and stimulate curiosity. These questions provide a blueprint for fostering a sense of wonder about the world and encouraging students to become active participants in its exploration. To do this, educator should focused on these main skills of iGeo in the past.

For lifelong learners, the questions of the International Geography Olympiad offer a wealth of opportunities to delve into the complexities of our planet. They provide a window into the evolving field of geography, where digital tools, ethical considerations, and global challenges shape the way we understand and interact with the world.

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