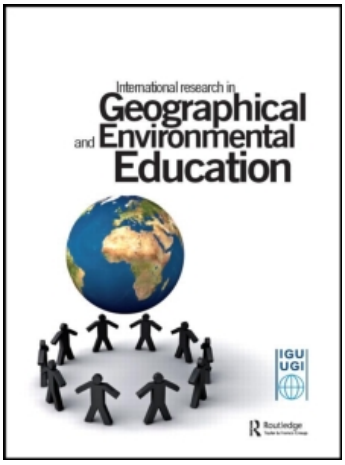

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Some thoughts about a new international geography test

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An important question for geography teachers all over the world is how to define, stimulate and test geographic literacy. Although modern technology is no guarantee of quality, it offers new possibilities for teaching and testing, as can be seen in contemporary geography learning/teaching units using digital maps and interactive tests. Tests such as the International Geography Olympiad and the Dutch GEA test for geographic literacy are starting points for an international discussion about the quality of geography teaching and for the development of a new international geography test.

Keywords: geography tests; geography Olympiad; geographic literacy

Introduction

In many countries the position of geography in education is under threat. At the same time, we see that geographical themes such as climate change, energy supplies, sustainable development and globalization dominate the news. However, we have no measure of the geographic literacy that underpins these commentaries. What we need is a benchmark for geographic literacy, based on an international test, that may help to draw more attention to the importance of geography and good geography teaching.

Geographers are not empty-handed. The Charter on Geographical Education (Haubrich, 1994; IGU-CGE, 2006) and existing international tests (Ankoné, 1996; Niemz & Stoltman, 1992) can help the community of geographers in education to build a new international geography test that can stand up under scrutiny. This paper gives a very short overview of some existing tests and then focuses on the development of the GEA geography test in the Netherlands, which can be seen as a new stepping stone on the way to come to an international test for geographic literacy.

The Charter on Geographical Education and InterGeo II

The International Charter on Geographical Education of the Commission on Geographical Education of the International Geographical Union is an important statement that supports geographical education all over the world. It includes the geographical core content, key concepts and statements about the importance and organisation of geography teaching. It is a useful guide to develop a national geography curriculum and a framework for geography teaching methods and geography tests. The Charter proved to be especially useful in

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countries where people wanted to develop or change a geography curriculum. The working out of the Charter will be different in every country dependent on the national or regional context. Purnell (1994) suggested developing an international item bank based upon the International Charter on Geographical Education from which countries could choose and develop their own test.

Niemz and Stoltman (1992) developed the InterGeo II test, a project of the Commission on Geographical Education of the International Geographical Union. InterGeo II was administered in 1990 and 1991. The main objectives were to assess students' achievement in geography, to assist in the development of world-class standards in geography and to provide data that some countries might use to help improve geography curricula (Purnell, 1994). The project included a reliable test for making cross-national comparisons of achievement in geography for 14-year-old students. More than 13,500 students from 23 countries participated in the test. The data analyses suggested a wide variation in basic geographical achievement between the students. The average scores of students in the former socialist countries of Eastern Europe were higher than the scores of students elsewhere. The test results helped the national coordinators to detect deficiencies in subfields of geography and to improve the national geography curricula, teaching methods and geography tests.

The International Geography Olympiad

The tests of the International Geography Olympiad are a newer benchmark for geographical literacy. Under the auspices of the International Geographical Union the first International Geography Olympiad started in 1996 in the Netherlands with five European countries. Each of the 24 participating countries in 2008 in Tunisia consisted of a team of four secondary school students, aged 16–19 years, and two adult team leaders. The students were selected through a national competition.

The Olympiad (www.geoolympiad.org) consists of three parts: a written response test (40% of total marks), a substantial fieldwork exercise (40%) and a multimedia test (20%). Teachers from participating countries reported that the test assignments inspired them to think about their national geography tests. Many participating students reported that they liked the tests, in particular the multimedia test.

Figure 1 shows one of the questions of the 2008 multimedia test.

To give the right answer, students need to have sound geographical knowledge. Students must know where the countries are on the globe, and must have knowledge about the distribution of mountains, street life and landscapes in different regions of the world. Relief, terrace farming, Arabic characters or words and transport by camel are the indicators for students to decide that Yemen is the correct answer. As this question illustrates, the multimedia test of the Olympiad transcends the mere knowledge of facts and figures. Geography is more than knowing place names. It is about frontiers, centres and peripheries; about tourists, terrorists and refugees; about trade of food, drugs and digital data; about population growth, earthquakes and the distribution of diseases. Geographers focus on world themes such as globalization and sustainable development and study these themes in a special way by looking at locations, distributions and interaction. All this is vital to understand everyday life on our globe. The Olympiad is a good opportunity to show what geographers can contribute. It can help to change the vague, outdated images many people have of geography (Ostuni, 2003).

An analysis of the results of the multimedia test of the 2008 International Geography Olympiad will be published elsewhere in this journal. Most of the themes of the Olympiad tests have counterparts in the list of themes mentioned in an issues-based approach in the

Here are three photographs. They were all taken in the same country. Look carefully. In which country were they taken?

A. Kuwait
B. Gambia
C. Yemen
D. Turkey

Figure 1. An assignment from the 2008 multimedia test (photographs by Irene de Groot).

Charter (see Figure 2). Issues such as crisis regions and conflicts are missing from the list for the Olympiad. Themes such as climate change, landscapes, transport and tourism are not mentioned in the list of current issues and problems in the Charter. These differences will give rise to a reconsideration of both lists.

The GEA experience

With the advent of multi-media computer resources, geography has the opportunity to exploit its comparative advantage as a field of study where visuals in particular provide

Themes that are the base for the tests of the International Geography Olympiad	Themes in an issues-based approach in the Charter on Geographical Education
1. Climate and climate change	
2. Hazards and hazard management	Hazards and disasters
3. Resources and resource management	Energy management
4. Environmental issues and sustainable development	Environmental quality and sustainable development
5. Land forms, landscapes and land use	
6. Population and population change	Population dynamics Inequalities in race, gender or religion
7. Economic geography and globalisation	Global change Limits to growth Development problems and strategies
8. Transport, infrastructure and logistics management	
9. Urban geography, urban renewal and urban planning.	Urbanisation
10. Agricultural geography and food problems	Hunger in the world
11. Tourism and tourism management	
12. Regions and regional identities	Crisis regions Conflict

Figure 2. Themes of the International Geography Olympiad tests compared with themes in an issues-based approach in the Charter on Geographical Education.

Table 1. 2007 GEA scores (Notté & Van der Schee, 2008).

Age	*N*	Percent	Travel time (minutes)	Average level (range 1–5)
10–12	638	44	7.33	2
13–15	229	16	7.12	2–3
16–18	53	4	7.48	3–4
>18	420	29	7.57	4
Unknown	113	8	7.49	4
Total	1453	100	7.45	

the raw material for learning. Virtual reality will make geography instruction come even more alive in the near future (Miller & Zeigler, 1994). The extended visual and technical possibilities can also be used in geography tests.

Notté and Van der Schee (2008) describe the development of a national Dutch computer-based geography test. The GEA test is a trip around the world, constructed as an interactive game in which GEA is the name of a travelling companion during the test. GEA comes from Gaea, and the Greek name Gaea means planet Earth. Starting in the Netherlands, the participant travels East through 18 zones each of 20 degrees of longitude. As in games, the e-test has levels. There are five age levels for players: younger than 10 years, 10–12 years, 13–15 years, 16–18 years and 18 years or more. The test is adaptive and everybody starts at level three. If an answer is correct, the next question will be at a higher level, and if an answer is not correct the next question will be at a lower level. From a test bank with approximately 400 questions, the programme selects a question for the player's current geographical zone and that fits their geographical level. To answer the question correctly the traveller needs geographical knowledge about locations, landscapes and population characteristics, all being indispensable luggage for a global citizen on his or her way around the earth. Immediately after the test, the participants are informed of their geographical expertise. In 2007 more than 2000 visitors to a geography exhibition completed the test. The average "travel" time was 7 minutes and 45 seconds.

The results (see Table 1) showed that most of the participants younger than 16 years of age played in the first three levels. Most 16–18-year-old participants attained level three or four. The highest average scores were found in the group of 18 plus. However, within the group of adults scores did not rise with age, so there was no proof of the often heard lamentation that younger people miss the solid geographical knowledge of elderly people. The Dutch GEA test has been revised in 2008 and 2009 and a web-based version will be ready in 2011 to assess the geographical expertise of students from 10 to 18 years of age.

To make an international adaptive web-based geography test starting from tests such as the Olympiad multimedia test and GEA is the next step. The difference between the Olympiad tests and the GEA test is that the latter is adaptive and web-based. GEA has also a big geography test item bank as suggested by Purnell (1994) and can also be used for diagnostic purposes.

Discussion

An international version of GEA should be a recent development that extends the InterGeo tests and the International Geography Olympiad tests. These activities are the building blocks of a new interactive and international geography test. Although some geographers may not see the value of such tests, we think that a new test can be a reference point for

geographers in education worldwide to think about the content and the process of geography teaching. The pressure to cover the prescribed curriculum content and to prepare students for examination often limits the teacher's flexibility to do more than geography teaching itself. Developing an international geography test will be helpful for all those involved in geography teaching. It will be interesting to determine what shared geographical knowledge and skills could be reasonably expected of an international population, starting from what has been formulated in the Charter on Geographical Education. Computer technology enables us to make this geography test much more sophisticated than the old tests. The technology can be used to enrich tests by using an interactive and adaptive test structure. It also offers the opportunity to combine different sources such as digital maps, photos and video simultaneously or successively.

The theoretical underpinnings for the structure of such a test are derived from Stimpson (1992). With the use of modern test analysis methods (Verhelst, Glas, & Verstralen, 1995), the answers to different versions of a test can be compared and reliable statements on the level of geographic literacy in different countries can be made. In addition, there is the prospect of comparative research using scores in the existing and new international geography tests. Is there a difference between students from different parts of the world if we compare their scores? What is the relationship between the scores and geography teaching in different countries? Is the difference between knowledge and skills an important one or it is the difference between human and physical geography? How do successful participants train their knowledge and skills? Such a research approach would be even more effective if it was combined with research not so much in the field of assessment of learning but in the field of assessment for learning.

Assessing students' geographical progress is an important point in the educational process. The next important step is to help them adequately think through geography. Research in this field is scarce (Van der Schee, Leat, & Vankan, 2006). School curricula in many countries present adequate facts and concepts to the students, but a systematic training in acquiring and using geographical knowledge and skills in practical-oriented assignments is another story. 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.

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