Student Learning Assessment at the Course Level

Eastern Washington University

ID #: 66225
Department: Geography
College: CSBS
Course enrollment:
  Quarter:
  Course:
  Number of students: 36
  Describe students: General education

Student Learning Outcome to be assessed:

First assessment
Type of assessment: multiple choice quiz where each item is followed by a five-line justification for the choice
Date: 1st week

Second assessment
Type of assessment: Repeat above quiz and compare results
Date: End of quarter

Supporting documents:
  ✓ Syllabus
  ✓ Copy of assessment
  ✓ Other supporting course documents

Course revisions for Winter 2010 – from the instructor:

1)  No formal textbook – too costly
    A new Atlas is being used; the old one is no longer satisfactory
    Basing reading on CIA Factbook – $14 or free on web. Lists country, territory, and political unit statistics. And on detailed data-rich exercises in the Atlas.
    Students develop an Excel spreadsheet with 16 significant data descriptors. They look at what the numbers mean and develop comparisons. First principles.

2)  Use atlas to locate landmarks, etc. Note things like soil, rainfall, population and think about the correlation (e.g., how do the soil, rainfall, elevation, sustain populations). Eventually get past descriptions to explanations.

3)  GoogleEarth
    Start with Europe / southern Italy
    Geographic grid – ground-level photos posted from local photographers
Students construct an Image Pair – latitude & longitude, source and heading (citation), photographer. Students match up the ground-level photos with aerial photos of same location. Example: Amazon region – do five image pairs to demonstrate five elevations. Then perform a set of compare/contrast tasks that lead to a recognition of cause and effect for the salient elements of human geography; in each place, “how many of us are there and how well off are we?”

Instructor’s Findings:

PROCEDURE
A test instrument was devised that assessed student abilities to:

'critically assess information about a foreign culture, international problem or topic.' (Goal 3 from the University Graduation Requirements for International Studies, Culture & Gender Diversity and Capstone, per Ielleen Miller letter to Stacey Warren 4 November 2009.)

A pre-test instrument was administered to 36 students during the second week of the quarter and the same test was administered to 34 students during the last week. On both occasions the assessment objectives of the activity were described to the students, who were additionally informed that the tests were not part of their grade record.

THE INSTRUMENT
There were four questions: one on each of the major climate/latitude regions of the human environment. In the instrument the regions were described as:

• polar, such as Norway or Alaska,
• mid-latitude, such as France or Japan,
• tropical, such as India or Mexico, and
• equatorial, such as Brazil or the Congos.

The first two questions asked the students to deal with population density: the second two dealt with wealth/poverty.

The students were presented with a statement of effect and were given a set of five options from which to select the best one that is causal: 'Circle the letter of the answer that is most correct'. Next the students were asked to write a short justification for their choice. Four blank lines were provided for this response

OBJECTIVES
This assessment also addresses the Geography Program Student Learning Outcome #2: 'Demonstrate awareness of the diversity of cultural and natural landscapes on a global scale.'
The tests were designed to evaluate two levels of performance: 1) the student's ability to identify and select the best answer from a set of provided options, and 2) the student's ability to explain why that choice was the best. Making a 'most correct' choice is a relatively lower level intellectual act that is more based more on a simple awareness of facts than it is founded on any deep understanding. It also requires an ability to detect and reject nonsense and error. This first part of the instrument was weighted only 20% of the score potential. Explaining WHY one option is better than others is a more challenging process that requires a not just the awareness of facts but a degree of understanding about where those facts came from and the processes that make them work. This second part of the instrument is intended to assess a student's awareness of genesis or causality, as well as the vocabulary to express that awareness. This part of the instrument was weighted with 80% of the score potential.

POPULATION
Question 1. The polar lands of Earth are sparsely populated because:
   A. The cold makes people uncomfortable and they move away.  
   This choice invites the student into the errors that populations are based on people migrating from place to place, and that some degree of human comfort influences demographics: neither is true.
   B. It is too cold to farm reliably so carrying capacity is low.  
   This is the most correct choice.  5 of 5 points
   C. The winter sea ice prevents reliable shipping.  
   This choice invites the student into the error of thinking that just because a statement is true it must therefore also be causal. The statement is true but it has very little to do with population density, having more effect on wealth. There are many dense populations not based on ocean shipping.
   D. The indigenous people place less value on human life.  
   This choice invites the student into the error of cultural stereotyping more reminiscent of the era of Kipling and the 'white man's burden' than of today's era of what we hope is less judgmental cultural awareness.
   E. Mosquitoes spread disease and keep the population down.  
   This choice invites the student into the error of thinking that the famous summertime mosquito population (the Alaska state bird is a mosquito....) acts as a disease vector in the Arctic in the same way that mosquitoes are disease vectors for Malaria in the winter-free low latitudes.

A competent justification for the most correct choice B would include: short growing season, cool summer season, a period of winter darkness, permafrost, low fertility soils and acidic groundwater. Any four of these was considered as a satisfactory explanation and was awarded 20 of the possible 20 points, with fewer points awarded for less complete responses. It was also possible for a student who had selected a less correct option (options A, C, D or E) to be awarded some points if their justification was factual and sensible.

Report coordinated by Dr. Helen Bergland, Office of Undergraduate Studies for the 2009-2010 Student Learning Assessment at the Course Level Project
Report by ID #: 66225
Question 2. The tropical lands of the Earth support dense populations because:

F. The climate is not dangerous so people stay there.
The climate in the tropics is less dangerous than climate in the polar region, so this choice invites the student into the error of concluding that a relationship that is valid is therefore necessarily causal. The second error in this choice is that population density is not controlled by migration as much as it is by productivity or carrying capacity.

G. The climate does not prevent productive agriculture, as it does in some other places.
This is the most correct choice. 5 of 5 points

H. Big rivers make shipping and trade more reliable.
This choice invites the student into the error of thinking that just because a statement is true it must therefore also be causal. The statement is true but it has very little to do with population density, having more effect on wealth. There are many dense populations not based on ocean shipping.

I. This is where the world’s wealth is concentrated and rich people have more children.
This choice invites the student into two errors: 1) that the tropical places are wealthy (they are not), and 2) that wealthy people have more children (they do not). The second error seems plausible upon first encounter but proves false upon examination of the relationship between natality and wealth.

J. The belief systems of tropical people place high value on large families.
This choice again invites the student into the error of thinking that because a statement is true it must therefore also be causal. Most tropical people are poor and poor people tend to have more traditional value sets, and that commonly includes a pro-natal attitude. But simply wishing for large families or even generating a high birth rate does not provide the food and the medicine that keeps the newborns alive. If this statement were chosen it was awarded 4 of 5 points.

A competent justification for the most correct choice G would include: there is no strong winter season so harvest can take place for most or all of the year, this allows population growth without the need to over-produce in the summer in order to store up winter food, and this in turn allows population growth on the basis of lower-technology lifeways at earlier times in history. An explanation with all three of

Report coordinated by Dr. Helen Bergland, Office of Undergraduate Studies for the 2009-2010 Student Learning Assessment at the Course Level Project
Report by ID #: 66225
these elements would have been awarded 20 of 20 possible points. It was also possible for a student who had selected a less correct option (options F, H, I or J) to be awarded some points if their justification was factual and sensible.

**SCORES**

<table>
<thead>
<tr>
<th></th>
<th>PRE-TEST</th>
<th>POST-TEST</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHOICE; PERCENT ZEROS</td>
<td>28%</td>
<td>18%</td>
</tr>
<tr>
<td>CHOICE; AVERAGE SCORE</td>
<td>69%</td>
<td>82%</td>
</tr>
<tr>
<td>EXPLANATION; PERCENT ZEROS</td>
<td>24%</td>
<td>18%</td>
</tr>
<tr>
<td>EXPLANATION; AVERAGE SCORE</td>
<td>24%</td>
<td>49%</td>
</tr>
</tbody>
</table>

**WEALTH**

**Question 3.** The mid-latitude lands have the most wealth because:

K. The cold winters and warm summers challenge people to work harder.

This option invites the student into the error of the sort of environmental determinism that was popular 100 years ago, and still exists among some folks with a culture-limited world view. 2 of 5 possible points

L. That is where dominant Christianity encouraged the development of capitalism.

Again, the students are invited into the error of over-generalizing and extending a truth (or a partial truth) inappropriately into places or cultures or eras where it no longer has valid explanatory power. It is true that the mid-latitude Christian Europeans invented modern capitalism which in turn was significant in the creation of wealthy Europe, but not all Christians got rich and not all mid-latitude people are Christian. 4 of 5 possible points

M. Mid-latitude places conquered most of the world and so became rich.

This choice again invites the student into the error of thinking that just because a statement is true it must therefore also be causal. 3 of 5 possible points.

N. These places are populated mostly with white people.

The statement may or may not be true. Rich societies everywhere have decreasing natalities and there are (so far) more rich white societies than other, so the historical relationship after time after Columbus of the rich people also being the white people is apparently on its way to becoming a historical anomaly. Beyond that, this option invites the student into a choice based in the erroneous idea of intrinsic abilities based on race. Zero points.

O. Mineral ores and fossil fuels were abundant and easily available.

Even though the statement is imperfect, it is the most correct choice. 5 of 5 possible points.

A competent justification for the most correct choice 'O' would include the ideas that: industrial work is the fundamental source of wealth, and that industrial activity requires ores and fuels that, in the initial stages of industrialization had to be locally available. A complete explanation was rated at 20 of 20 possible points. It was also possible for a student who had selected a less correct option (options K, L, M or N) to be awarded some points if their justification was factual and sensible.

---

Report coordinated by Dr. Helen Bergland, Office of Undergraduate Studies for the 2009-2010 Student Learning Assessment at the Course Level Project

Report by ID #: 66225
Scores

<table>
<thead>
<tr>
<th></th>
<th>Pre-Test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice; Percent Zeros</td>
<td>30%</td>
<td>3%</td>
</tr>
<tr>
<td>Choice; Average Score</td>
<td>50%</td>
<td>76%</td>
</tr>
<tr>
<td>Explanation; Percent Zeros</td>
<td>50%</td>
<td>32%</td>
</tr>
<tr>
<td>Explanation; Average Score</td>
<td>25%</td>
<td>32%</td>
</tr>
</tbody>
</table>

Question 4. Most of the world’s poor live in the tropical and equatorial areas because:

P. The kindly climate does not require people to work had to survive.
This option invites the student into the error of the sort of environmental determinism that was popular 100 years ago, and still exists among some folks with a culture-limited world view. 3 of 5 possible points.

Q. The populations grew too much and overshot the carrying capacity.
This is the most correct choice. 5 of 5 possible points.

R. Traditional pagan belief systems do not place a high value on wealth.
This choice again invites the student into the error of thinking that just because a statement is true it must therefore also be causal. 3 of 5 possible points.

S. These are mostly dark skinned people.
This option invites the student into a choice based in the idea of intrinsic abilities based on race. Zero points.

T. The soils are very poor.
Even though the statement is true, it is a condition that can be overcome with appropriate technology. 4 of 5 points.

A competent justification for the most correct choice ‘Q’ would include the ideas that: the winter-free climate allowed equatorial places to raise large populations prior to the development of effective science, under these conditions technical innovation could not keep up with population growth, so population exceeded productivity and any potential surplus was used up simply as food. A complete explanation was rated at 20 of 20 possible points. It was also possible for a student who had selected a less correct option (options K, L, M or N) to be awarded some points if their justification was factual and sensible.

Scores

<table>
<thead>
<tr>
<th></th>
<th>Pre-Test</th>
<th>Post-Test</th>
</tr>
</thead>
<tbody>
<tr>
<td>Choice; Percent Zeros</td>
<td>50%</td>
<td>6%</td>
</tr>
<tr>
<td>Choice; Average Score</td>
<td>50%</td>
<td>80%</td>
</tr>
<tr>
<td>Explanation; Percent Zeros</td>
<td>50%</td>
<td>3%</td>
</tr>
<tr>
<td>Explanation; Average Score</td>
<td>12%</td>
<td>70%</td>
</tr>
</tbody>
</table>

Report coordinated by Dr. Helen Bergland, Office of Undergraduate Studies for the 2009-2010 Student Learning Assessment at the Course Level Project
Report by ID #: 66225
COMMENTS

1. Experience shows that student performance on tests will always demonstrate a spectrum of understanding that ranges from 'near-perfect and wonderful' downward to 'satisfactory' so we need to recognize that this is normal and acceptable. What is not so acceptable is when students show continued ignorance. For that reason the 'percent zero' criterion is used here to identify the portion of the students who on the pre-test show the most need and on the post-test show that the effort was not as successful as hoped for.

2. The first half 'choice' portions of the questions were intended to evaluate the students' awareness of facts. The aggregate of those scores on all four questions increased 51 percentage points. This indicates that information transfer is successfully taking place.

3. The second half 'explanation'; portions of the questions were intended to evaluate the students' understanding of facts. The aggregate of those scores on all four questions increased 22 percentage points. This also indicates that improvements in comprehension are taking place, but at a lesser rate.

4. Even though all scores are improved from the pre-test to the post-test, it is still disheartening to see the relatively large portion of the students who make wrong choices and score zeros.

5. Since the assessment instrument was presented as a non-graded exercise, some students gave very little effort and some parts were left blank. Because of this the aggregate scores are lower that they should be. In the future these instruments will be presented as if they are part of the work load of the course and avoid this problem of inaccuracy.

6. The scores on this instrument point out to me some parts of the course where improvement is needed. I will alter some of the course tasks to emphasize the ability to explain.

I will be pleased to hear comments and feed-back on this assessment exercise. In this my 40th year of teaching at EWU I still encounter conversation and exchanges in the classroom that surprise me and cause adjustments in the course for 'next time.' I am sure that there will be more of those.