

Learning in the Major: Geography Student Portfolio Assessment

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Project Purpose: Substantively, this study aims to determine the extent to which departmental learning goals are evident in student learning outcomes. The question addressed is, whether as a faculty, we are we achieving our learning goals in the major. The methodological purpose of this study is to evaluate the utility of student portfolio assessment for involving faculty in outcomes assessment. The question addressed is whether student portfolios are a sound approach for involving faculty in outcomes assessment. Do student portfolios reflect the alignment of departmental learning goals with student learning outcomes?

Project Timeline: September, 2005 – September 2006.

Background and Rationale:

In 1996 the Geography department initiated a meaningful assessment of student learning outcomes with the G-LOOP (Geography Learning Objectives and Outcomes Project¹) Project. Since the inception of G-LOOP, the Geography department has completed several phases in the process of creating a *sustainable culture of assessment*. Learning goals have been generated for every course. Learning goals have been developed for program concentrations. Departmental learning goals have been enumerated. These learning goals are distributed to students and faculty on course syllabi, websites, and course evaluations. Throughout our curriculum, learning goals have been integrated into the design of assignments and courses. Though not yet programmatic, in many instances student course assessments are being used to monitor whether learning goals are being realized. We have redesigned our curriculum and major requirements to help us achieve these learning goals. We have been recognized as a campus leader in assessing undergraduate learning, having twice (in 1997 and 2005) been invited to describe our G-LOOP project to the Board of Regents, been the first winners of the Brotman Award for Excellence in Undergraduate Education (1999), and received a Tools for Transformation Grant in 2000.

¹ Funded solely by the departmental funds from 1997-2000, and a small Tools-for-Transformation grant in 2000.

Currently, student perceptions and development in the major are being gauged by the Geography SOUL (Study of Undergraduate Learning) Project, directed by Rick Roth and funded by the UW Office of Educational Assessment. This is a two-year study of student learning aimed at assessing how well the departmental learning goals are being met *from the student's perspective*. What has yet to occur is a thorough assessment by faculty of learning in the major subsequent to our redesign of the curriculum. To what extent are we accomplishing our departmental learning goals? Is there evidence of *best practices* for meeting these goals? And how might we continue to monitor the correspondence between departmental learning goals and student learning outcomes? These are the objectives of this pilot study.

Project Goals: The primary goal of this project is to assess the correspondence between departmental learning goals and student learning outcomes. In so doing we aim:

1. to determine how well we are meeting these goals,
2. to determine what elements are contributing to meeting these goals,
3. to determine what elements are detracting from meeting these goals,
4. to determine if student portfolio assessment is a sound approach for involving faculty directly in outcomes assessment, and,
5. to make substantive recommendations to enhance learning in the major.

Project Methodology: Navigating the Portfolio Review Process

Assessment Team: The faculty portfolio assessment team was comprised of Suzanne Davies Withers (project director), Craig Jeffrey and Tim Nyerges. These three faculty members represent all levels of rank and different program concentrations. Although it is a small team, it well represents the considerable breadth of faculty in the department. This team worked initially with Rick Roth, the Undergraduate Program Advisor and Assistant to the Chair. Rick Roth is the Geog SOUL project director.

Designing a portfolio review strategy:

The assessment team met to design a method of portfolio review. During this meeting there were two decision points: i) what constitutes a representative portfolio of student learning?, and ii) how will the portfolio be assessed by numerous faculty for alignment with departmental learning goals?

What constitutes a representative portfolio? In an ideal scenario one would have as many artifacts as possible to represent student learning throughout the major. One could envision a longitudinal study initiated upon student arrival at UW. In the absence of such an ideal, we turned to two sources readily available in the geography department: i) artifacts collected from the student subjects of Geog SOUL, and ii) student portfolios

developed in a senior seminar titled *Geography 493: Assessing Student Learning*². The assessment team decided to conduct the main review process with the student portfolios derived from the Geog SOUL subjects. Each SOUL subject had been asked to submit the following hardcopy items:

1. a 5-page reflective essay on the student's learning as a geographer, addressing both Geography courses taken at the UW and any reading or learning done extra-curricularly,
2. at least two artifacts discussed in the essay (papers, projects, assignments, maps, etc.). As well, these artifacts were chosen to represent early works and recent works to assist with reflection upon development in the major³.

The advantage of selecting these hardcopy portfolios, instead of the digital student portfolios from Geog493, was the availability of the reflective essay. Twenty student portfolios were reviewed by the assessment team. At a minimum these portfolios had the reflective essay and two additional artifacts. Many portfolios had more than three artifacts.

How will the portfolios be assessed? A lengthy discussion ensued regarding the various approaches that could be taken to review these student portfolios for alignment with departmental learning goals. This discussion was lively, creative, and constructive. It was agreed that each faculty would review the materials separately, and then meet again as a team to share evaluations and discuss findings. In this way team members would not influence or bias each other during the portfolio assessment process.

The most fruitful aspect of this meeting was the negotiation and dialogue regarding the current departmental learning goals. The team was working from a very general list generated by the faculty⁴. For each of these learning goals the team attempted to calibrate what would serve as evidence of having successfully achieved this goal. Consequently, the discussion of learning goals progressed from itemizing lofty learning ambitions towards defining precise parameters of tangible evidence of learning. During this discussion four things became evident regarding the current department learning goals: 1) there was considerable repetition, 2) a few important elements were missing, 3) some had been construed rather vaguely, and 4) an implicit progressive element of these learning goals became explicit. By discussions end, a refined set of departmental learning goals had been written, and were used to assess the student portfolios. Figure 1 portrays the refined departmental learning outcomes. By design, this diagram

² This course has been offered since 2001. It is part of the curricular revision ensuing from G-LOOP.

³ The specific language of the Geog SOUL portfolio request is available as Appendix A.

⁴ The list of Departmental Learning Goals as of February 2005, prior to this review process, is available as Appendix B.

portrays our learning objectives like a clock. 1 o'clock represents the most elementary of learning goals – the ability to understand and use key concepts constituting a geographic perspective. The elements then build progressively towards 12 o'clock which represents the pinnacle of learning -- evidence of the development of a geographic identity, the student as Geographer. This was the general perception of the team prior to portfolio review.

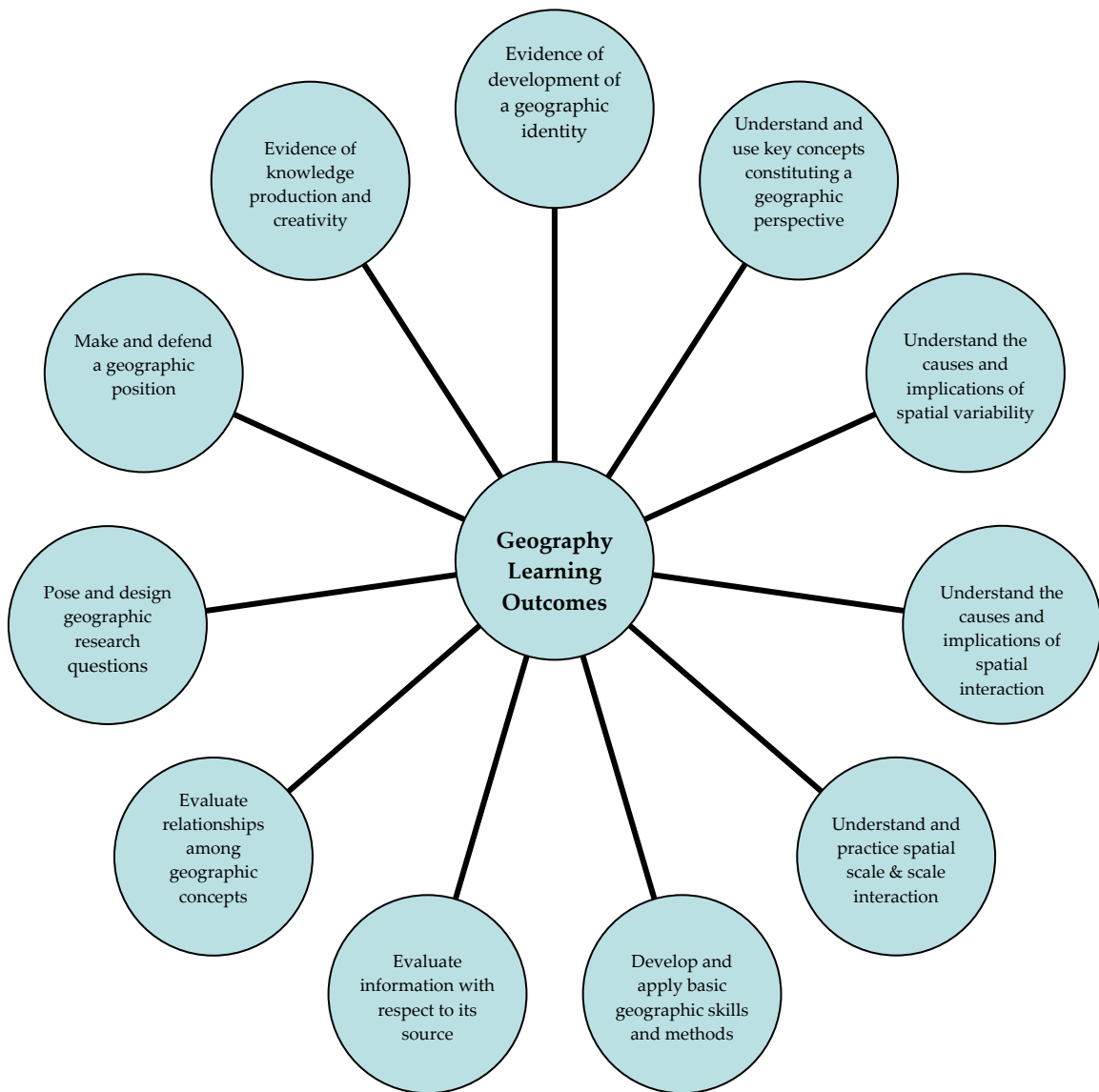


Figure 1. Refined Conceptualization of Geographic Learning Outcomes

The team designed a portfolio evaluation sheet that included each learning element, room for additional elements discovered during the review process, qualitative assessment of each element as strong, medium, or weak, and room for comments. A

copy of the portfolio evaluation sheet is available as Appendix C. For identification purposes the SOUL subject number was used instead of the student's name.

Project Findings: Assessing Learning in the Major

At the outset it is interesting to note that there was very little discrepancy amongst faculty reviews of the student portfolios. The team reviewed three or more artifacts for each of the 20 students for each of the learning objectives. While there was a great deal of variation in the student performances, there was little variation in the faculty assessment of these performances. For each of the learning goals there was evidence amongst the students of strong mastery of the goal, general accomplishment, as well as weak evidence of the learning element. Rather than discuss each of the learning goals separately⁵, this report will focus on what appears to explain the variation in these results.

Variation in performance related to variations in skill set and artifact selection

The assessment team was in agreement that part of the variation in performances resulted from different *stages in the degree* program. Some students were graduating seniors, yet others had only recently declared Geography as their major. Consequently, the absence of mastery of a learning element potentially was a function of relatively little exposure to the curriculum. As well, these portfolios contained a few select artifacts. If the artifact selection did not provide evidence of learning goals, it was not clear if that learning goal remained unaccomplished or whether evidence of its accomplishment was simply not provided. Another element that contributed to performance was the students *writing ability*. Students with strong writing skills were able to express their ideas clearly. This was particularly evident in the reflective essays. In contrast, it was very difficult to find evidence of learning within poorly constructed artifacts. The learning may have occurred but it was not evident in the written artifact. The assessment team was in agreement that strong writing skills underpinned the positive expression and assessment of the learning goals. Variations in *critical thinking skills* and *problem solving* were also evident. The assessment team determined that those students with strong critical reasoning and problem solving skills provided ample evidence of mastery of a number of learning objects, whereas in the absence of these skills it frequently was difficult to find evidence of learning for many of the goals.

⁵ The breadth and depth of performance for specific Geographic learning outcomes within student portfolios will be addressed in a separate report that aims is to provide students with a *Rhetorical Casebook for Writing a Geography Paper*. This text will catalogue such things as how students develop increasing sophistication in framing questions and developing answers; student use of jargon and keywords; ways students deploy evidence to support their arguments; and the ways students choose, use, and justify different methods to address Geographic research.

Differences in *quantitative reasoning* and *information literacy* seemed to contribute to a qualitative difference in overall student embodiment of the learning goals. The assessment team was in strong agreement that differences in student performance were in large measure a function of their different trajectories through the major.

The importance of trajectories through the major

There were a number of superior portfolios - those that excelled beyond the others. These portfolios were strong with respect to virtually every departmental learning goal. As well there were a number of portfolios that provided evidence of strong mastery of the lions-share of the departmental learning goals. The assessment team turned to these exemplars to assess their general commonalities. Did these students have similar experiences or varied paths through the major? The answer was overwhelmingly that these students had followed a trajectory through the major that embraced the very curricular revisions the department had implemented following the G-LOOP study. In particular, these students had taken *Geography 315: Evidence and Understanding in Geography*. One of the key recommendations of G-LOOP was the development of a required course in the major called Evidence and Understanding in Geography (Geog 315). After bemoaning the fact that students in our senior courses were not prepared in a variety of ways to conduct research, we decided as a department to provide this preparation and to make it mandatory for our majors. GEOG 315, developed by Prof. Michael Brown, covers the beginning steps in the research process. It introduces the discipline of geography, the department, and current faculty through the research aims of explanation and understanding that frame social scientific inquiry. Students develop basic library and writing skills as preparation for future research methods classes and independent research.

It was clear that the learning experience from Geography 315 had produced students who were qualitatively superior with respect to expressions within their artifacts of departmental learning goals to those who had not experienced this course. The assessment team acknowledged Geography 315 as an *essential learning moment* in the trajectory through the major. What makes Geography 315 an essential learning moment is the manner in which it integrates the three spheres of intellectual research and geographic inquiry: geographic theory, geographic method, and geographic substance. The learning experience from Geography 315 lies at the intersection of these spheres, and greatly benefits their integration by students (Figure 2). While students without this learning experience may be aware of these spheres and their intersection, the students from Geography 315 have greater self awareness of their role as researcher within these intersections. Evidence of this can be found in one student's quote,

“Before Geography 315, I had no idea what it meant to produce a real research question and design a research project. Previously, my experience with research consisted of analyzing a mainstream topic without contributing anything new to the knowledge surrounding it. Geography has taught me the true purpose of research, and I think this is incredibly valuable.”

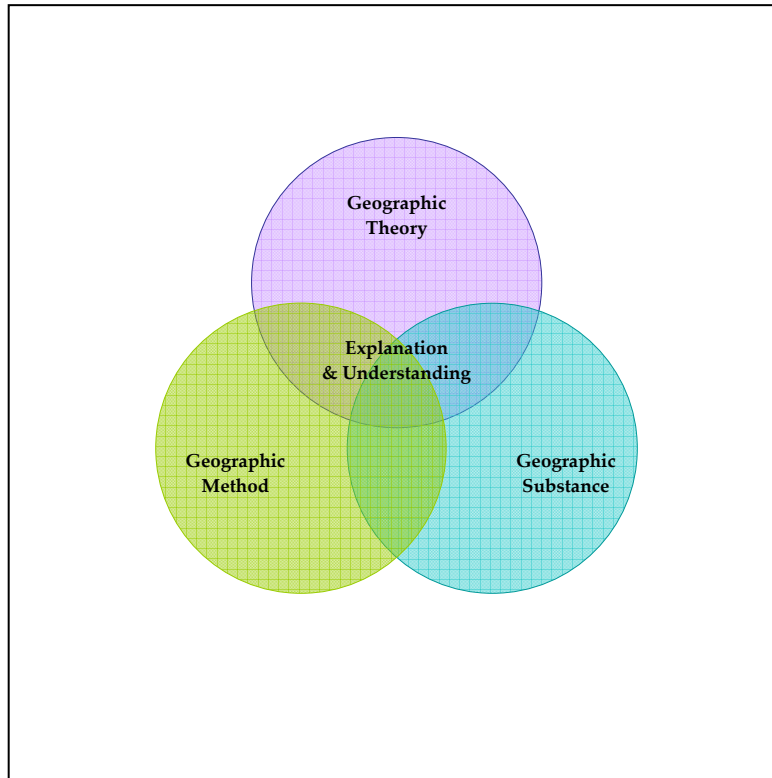


Figure 2. Pedagogic Significance of Geography 315: Evidence and Understanding in Geography

A second common element amongst the student portfolios that were in close alignment with the departmental learning goals was the acquisition of basic geographic skills and methods *prior* to their learning experiences in senior seminars and capstone classes. Additional required courses within the major, such as introductory quantitative methods, and cartographic analysis, provided an important skills set for students to draw upon in their senior classes. There was evidence that students benefited from taking these courses early in their trajectory through the major. The assessment team also regarded these courses as *essential learning moments* in the trajectory through the major.

The scaffold of learning

Although the assessment team had an initial view of the departmental learning goals as progressing in a sequential manner as depicted in figure 1, it became evident during the review of the portfolios that these essential learning moments provided a scaffold for

additional learning. The assessment team came to better understand that learning in the major develops in a tiered manner as depicted in figure 3. The introductory courses provide foundations for our students in areas of specialization in the major. These frequently lead to the acquisition of the foundational goals: the ability to understand and use key concepts constituting a geographic perspective; the ability to understand causes and implications of spatial variability; the ability to understand the causes and implications of spatial interaction and movement patterns; and the ability to understand and put into practice spatial scale by understanding the ways in which localized, regional, national, and global processes interact.

A strong grounding in methods and geographic evidence prior to senior-level courses in specialized areas greatly enhanced the student's ability to practice and embody the departmental learning goals in their work, thereby enabling the articulation of the second tier of learning goals. There was ample evidence of each of these second-tier learning goals (the ability to pose and design geographic research questions; evidence of making a geographic position; ability to evaluate relationships among concepts and substantive areas; ability to evaluate information with respect to its source; evidence of a geographic identity for social contribution) amongst the student portfolios reviewed.

The portfolio assessment process greatly benefited from the reflective essay provided by the students. The individual student articulations of trajectories through the major provided important clues and signals for best practices. The assessment team agreed that these essays were invaluable in assessing student learning. From these essays overwhelmingly it was evident that a great deal of learning is derived from the reflective experience itself. In much the same way as Geography 315 brought the concepts of evidence and understanding to the fore for students, these reflective essays brought self awareness of learning in the major to the fore. This is valuable beyond the task of assessing the match between departmental learning goals and student learning outcomes. The self-reflective process is *itself* a valuable means by which the departmental learning goals are achieved. Many students seemed to become self-actualized as geographers during the progression of their essay. Similarly, the assessment team found evidence, from artifacts and student comments, that capstone classes, particularly those that provided experience for students to consult for public and private organizations and businesses, similarly provide reflective learning moments of great importance. These reflective moments are essential for students to move towards self-identification as a Geographer. Therefore, another key element to the scaffold of learning is the opportunity for *reflective learning moments*.

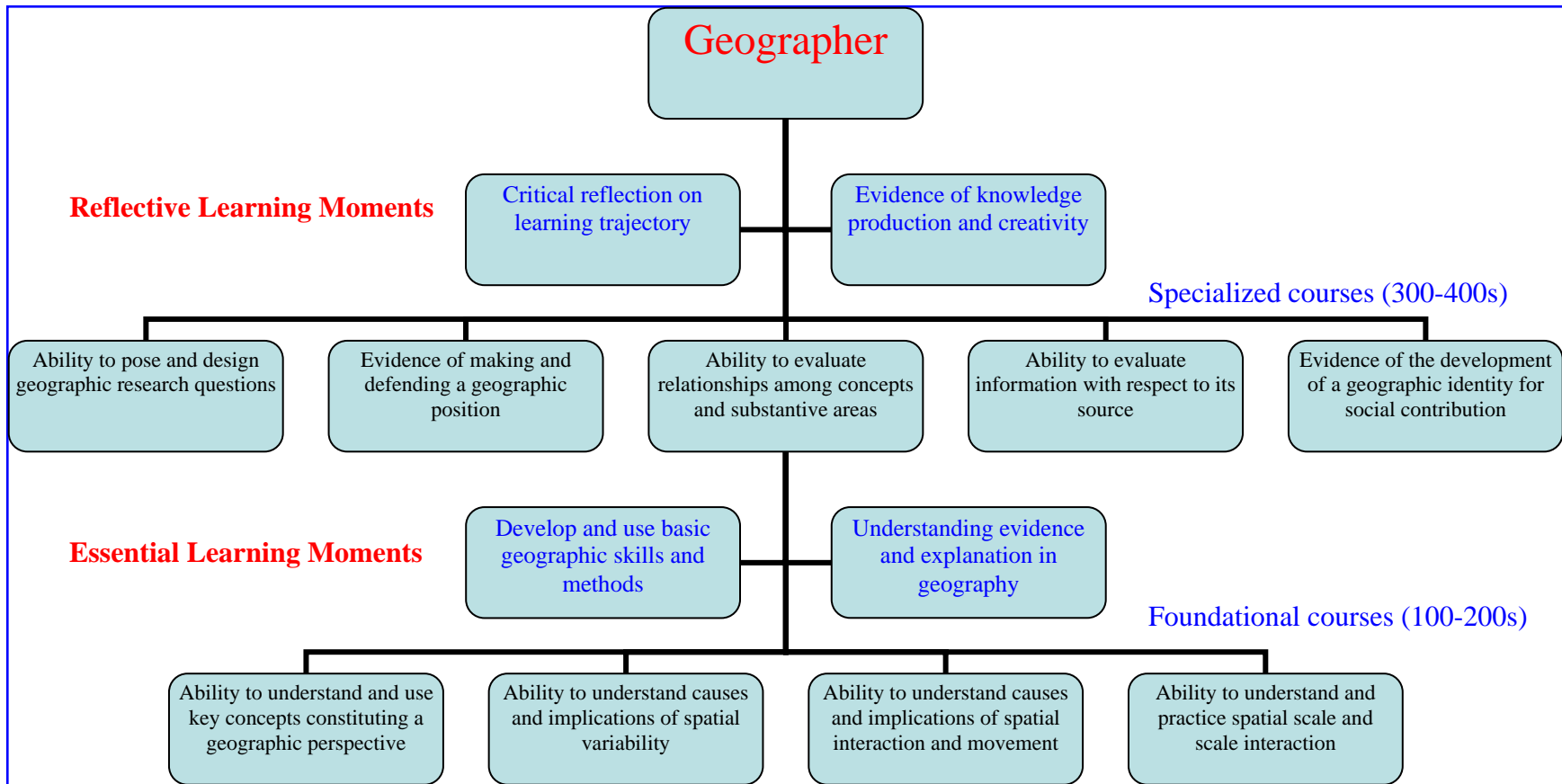


Figure 3: Trajectories of Learning in the Major

Additional evidence of the value of reflective learning moments

Geography 493: Student Learning Assessment provides seniors in geography the opportunity for critical reflection on their learning in the major and at the University. The portfolios developed by the students in the most recent class (Spring 2006) provide insights into the departmental learning goals not afforded by the Geog SOUL subjects. First, while the Geog SOUL subjects are at various stages in their degree process, all members of Geography 493 are graduating seniors. Second, from the Soul Subject portfolios it is not clear whether students did not develop a command of a learning goal or if it simply was not evident in the particular artifact provided. In contrast, the portfolios developed by students in Geography 493 are much more comprehensive with respect to artifacts of learning. While they do not include a self-reflective essay they do include personal statements. Third, as digital portfolios these collections can include a greater breadth of artifact types (film, presentations, etc.) than the hardcopy versions.

The Geog493 portfolios portray a much stronger sense of learning in the major. With the exception of two students who put the very minimum effort into developing their portfolio, the remainder of the portfolios provided a very impressive collection of artifacts from which it is clear that the departmental learning goals are strongly aligned with student outcomes. The most recent student portfolios can be read at <http://faculty.washington.edu/swithers/geog493/portfolios.htm>, login geog493 and password graduate. These portfolios make it clear that some of the variation in performance presented in the GeogSOUL portfolios was a function of the selection of artifacts on behalf of the subjects.

Many of the subjects in GeogSOUL parroted the departmental learning goals, making it difficult to know what lay behind the rhetoric. While some of the students in GEOG493 also parroted the departmental learning goals, more often than not these students provided their own language to articulate what they personally had learned, and what the artifact was evidence of with respect to their learning. For example, the following quotes explain why students selected an artifact for their digital portfolios:

"I included this book review to highlight one of my strongest writing skills, the ability to review and critique both the structural and conceptual elements of a work. This particular review was an assignment from a Geography course during spring quarter 2005."

"This research paper represents an important interest area of mine, and an example of my abilities to conduct research, formulate a thesis and support it using established evidence."

"I have also included two examples of my abilities using different computer software packages. The Adobe project shows my attention to detail and visual representation using the Adobe Suite. The photomontage was created from a number of individual images, and organized to appear as a single image. The GIS project is a quick example of my abilities with both the ESRI software package, and also the Adobe Suite. This project contains two maps, both of which show my abilities with the manipulation of data to resolve siting a location issue, and display a multifaceted approach to problem solving, combining visual representation with research."

"Geography 377: An urban political geography seminar that allowed me the room to express my ideas and listen to others to understand the many different opinions and foundations that dictate policy on all levels."

These quotes express the student's self-awareness of significant learning in the major.

Elements contributing to meeting departmental learning goals

The portfolio assessment team determined the following practices contribute to meeting the Geography departmental learning goals:

1. Articulating and distributing learning goals for each course amongst students
2. Articulating and distributing learning goals for each area of specialization
3. Articulating and distributing departmental learning goals with students
4. Requiring Geography 315: Evidence and Understanding as an introduction to the faculty, the discipline, and research in the discipline.
5. Requiring methods courses such as Geography 326: Statistical Methods in Geography and Geography 360: Introduction to Cartography.
6. Various efforts to improve writing skills of students, such as writing assignments within courses, and the inclusion of the Write Center within a course syllabus.
7. Curricular revisions stemming from G-LOOP are proving to be tremendously fruitful.
8. The opportunity for students to have constructive reflective learning moments, such as Geography 493 including the student portfolio development experience.
9. The opportunity for student to have reflective experiences as seniors (capstones), particularly those which get students into the community wherein they often experience for the first time the role of "being", rather than becoming, a geographer.

Elements detracting from meeting department learning goals

There were three main elements that detracted from the attainment of department learning goals: 1) student time in department, 2) a lack of prerequisites, and 3) the

frequency of departmental course offerings. At the outset it is acknowledged that these issues are not independent.

Time in Department

It has previously been discussed that an ideal trajectory through the major involves a progression through tiers of learning which afford essential and reflective learning moments surrounding the acquisition of foundational and specialized knowledge. Unfortunately, a sizable proportion of Geography majors transfer from community colleges or discover geography late in their undergraduate experience, and are with us for only two years before graduating. Consequently, they lack the opportunity to take full advantage of the requisite courses since they do not take them in a sequential manner. A number of students stated that certain courses were very helpful yet they would have been MORE helpful if they had experienced them prior to taking senior-level courses.

The Lack of Prerequisites

For many years, faculty has been requesting that prerequisites be established for some of our senior courses. Repeatedly, this has been met with a great deal of resistance due to a concern that they will negatively impact our enrollments. The assessment team agreed that although enrollment numbers may suffer in the short-term during students' adjustment to the change in requirements, prerequisites that reinforce the essential learning moments, and the cumulative nature of knowledge acquisition for our 400-level seminars would vastly enhance our learning objectives in the short-term, and by extension should enhance our enrollment numbers in the long-run. The portfolio review process made this abundantly clear.

Realistically, the issues of time in degree and effective prerequisites are intertwined. Given that many of our students arrive in Geography relatively late in their academic undergraduate careers, rigid prerequisites might prove overly burdensome. One suggestion to remain true to the objective of prerequisites, yet not make navigating the degree overly burdensome, was to communicate strongly recommended prior courses for our senior-level courses, rather than required prerequisites. This has the added advantage of keeping courses open to students of related disciplines.

Departmental Course Offerings

The portfolio assessment review revealed the significant learning moments around Geography 315 and capstone experiences. Unfortunately, capstone opportunities are not always available. This serves to the detriment of student learning in the major given the profound self-reflective potential of these courses. To further learning in the major, capstone experiences should be more readily available than is currently the case.

Recommendations regarding learning in the major

In sum, the assessment review team finds ample correspondence between departmental learning goals and student learning outcomes. Nonetheless, it makes the following recommendations to further the attainment of the departmental learning goals:

1. Programmatically adopt the inclusion of course learning goals as part of students' course assessment to monitor whether learning goals are being realized.
2. Programmatically adopt efforts to enhance writing skills within geography courses.
3. Programmatically adopt efforts to include essential learning moments within geography courses. Geographic methods and skill sets should be reinforced by threading throughout the foundational and senior-level courses and not simply serve as the domain of specific method courses. Likewise, foundational geographic concepts should be reinforced by threading throughout other courses in the curriculum. In this way the three geographic learning elements (theory, substance, method) will be integrated throughout the curriculum.
4. Majors be strongly recommended to complete Geography 315 (and perhaps other essential learning opportunities) prior to enrolling in a 400-level geography seminar.
5. Geography 315 is sufficiently formative that it ought to be offered twice an academic year.
6. Geography 315 ought to be a required element for the minor in geography.
7. Students be required (or strongly encouraged) to complete Geography 493 in their senior year.
8. The department offer capstone experiences for majors, consistently.

Recommendations regarding the student portfolio review processes

This study resolves that student portfolio assessment is a fruitful approach for involving faculty directly in outcomes assessment. The assessment of student learning begins with educational values⁶. A key benefit of this method is the demand it makes on faculty to articulate collectively departmental learning goals. Moreover, these learning goals need to be sufficiently understood so as to define precise parameters of tangible evidence of learning. In and of itself this is a valuable learning moment for faculty in the assessment process.

⁶ One of the principles of good assessment practice set forth by the American Association for Higher Education.

This pilot study has two recommendations regarding student learning portfolios in the assessment of learning outcomes: the first refers to the process of portfolio development, and the second to the timing of portfolio evaluation.

The process of portfolio development

According to the American Association for Higher Education assessment is most effective when it reflects an understanding of learning as multidimensional, integrated, and revealed in performance over time. Given that learning is a developmental process, the assessment team recommends that students be encouraged to develop a portfolio throughout their academic careers. Upon arrival at the University students should be afforded the opportunity to initiate their learning portfolio. Catalyst has made the portfolio development process fairly straightforward. The portfolio development process itself serves as an important reflective moment in the intellectual identity of students.

The timing of portfolio evaluation

Assessment requires attention to outcomes but also and equally to the experiences that lead to those outcomes⁷. It is important to assess students at the same stage of development in the major. Individual courses can use student assessments to interrogate learning outcomes in each course. To interrogate learning in the major it is best to assess students who have gained the full experience of learning in the major. Departmental learning objectives are best aligned with student learning outcomes when graduating senior student portfolios are assessed. As well, to be complete, it is recommended that these portfolios contain a reflective essay on the student's learning experience. These reflective essays serve as an integral moment in the development of a student's identity in the major.

Toward a sustainable culture of assessment

The geography department has engaged in meaning assessment of student learning outcomes for many years. This study has indicated that curricular revisions implemented after G-LOOP have had a positive impact on learning in the major. The adoption of the recommendations in this report serve as another iteration of curricular revision designed to align departmental learning goals with student learning outcomes. Annual faculty evaluation of senior portfolios that include a reflective essay will significantly sustain the culture of assessment in geography. Student portfolio assessment is a potent means to engage faculty in the assessment of learning goals.

⁷ An additional principle of good assessment practice set forth by the American Association for Higher Education.

Appendix A

Geography SOUL Project

Portfolio Reflective Essay Questions

Spring, 2006

Write a 5-page reflective essay on your learning as a geographer, addressing both Geography course you took at the UW and any reading or learning you've done extracurricularly. Please send me (ideally as an attachment, but snail mail will do) at least two artifacts that you discuss in your essay –papers, projects, your work on particular assignments, maps, etc. Since this study aims to longitudinally assess your learning in the major, please think broadly about where you started out as a Geography major, where you are now, and what milestones there were along the way.

Some questions you might consider (though are not necessarily limited to):

- a) Pick two papers- one that you wrote very early in your time in the major and one you wrote very recently. Describe the differences between them, and relate these differences to some of the milestones in your learning in the major over the past two years.
- b) Pick one assignment you've done for one of your Geography courses that you believe represents the most complex thinking you've had to do in the major. This can be anything – whatever you did that you feel really stretched you. What were the things that made that piece of work challenging? What helped you figure out how to meet those challenges? Can you point to specific paragraphs or points in the item that illustrate your discussion?
- c) Name three things you've learned in your Geography courses that you think are important. Where did you learn them, how do you know you've learned them – i.e., can you point to something you've done that demonstrates that learning? – and why do you consider them important?
- d) Please look over the attached list of departmental learning goals. Which goals did you learn the most about? How often has it come up in your studies? In what different ways did it come up or was applied? Why did you find this tool or skill or concept especially useful?
- e) Think back on who you were and what you thought about the world before you entered the major, how would you say you've changed in any way as a result of your coursework here or abroad?
- f) If you could take one more class, write one more paper, study one more case in the major, what one thing would help your learning the most?

Appendix B

UW Geography Learning Goals

Revised February 2005

- ability to understand and use key concepts constituting a geographic perspective: context, scale, cartographic, tabular, process, flow and outcome, and the holistic and integrative character of a spatial perspective
- ability to understand causes and implications of spatial variability (for example, in housing, law enforcement, immigrant incorporation into US society, regional economic growth, etc)
- ability to understand the causes and implications of spatial interaction & movement patterns
- ability to understand and put into practice spatial scale: ways in which localized, regional, national, and global processes interact
- ability to develop and use basic geographic skills such as map reading and analysis; map making; landscape analysis via use of multiple analytical methods
- ability to think relationally about such key intertwined concepts as community and economy, society and environment, and citizenship and globalization
- ability to seek relationships among historical development, economic development, & globalization
- ability to develop information literacy about representations of locational relationships
- ability to understand the relationship among regional economy, health, and well-being in regards to sustainability
- ability to pose important geographic research questions, appreciate what makes those questions important, and design reasonable research approaches to them

Learning in the Majors - Portfolio Evaluation Sheet **SOU Subject #:** _____

Assessment of Artifacts

Learning Element	Strong Medium Weak Comments		
1 Ability to understand and use key concepts constituting a geographic perspective			
2 Ability to understand causes and implications of spatial variability			
3 Ability to understand the causes and implications of spatial interaction and movement patterns			
4 Ability to understand and put into practice spatial scale: ways in which localized, regional, national, and global processes interact			
5 Ability to develop and use basic geographic skills such as map reading and analysis, etc.			
6 Ability to evaluate relationships among concepts such as development, globalization, society, regional economy, health and wellbeing, etc.			
7 Ability to evaluate information with respect to its source			
8 Ability to pose geographic research questions and design research approaches to them			
9 Evidence of making and defending a geographic position			
10 Evidence of knowledge production and creativity			
11 Evidence of the development of a geographic identity for social contribution			
12 Other			

Summary of Overall Strengths and Weaknesses
