

Engaging Students From Underrepresented Populations: The Enduring Legacies Native Cases Initiative

By Barbara Leigh Smith, Linda Moon Stumpff, and Robert Cole



Six years ago we started the Enduring Legacies Native Cases Initiative to promote Native American student success by creating a culturally relevant curriculum with engaging pedagogies. Case studies have been an important vehicle for accomplishing this. Teaching with cases and problem-based learning has become increasingly common in higher education, and evidence is accumulating that cases are effective (see Chamany, Allen, & Tanner, 2008; Herreid, 2007; Lundeberg, 2008). We had worked with cases before and understood the power of this approach, but few teaching cases were available on Native American issues. We hoped our initiative would address this gap and be useful to faculty and students at diverse institutions in a broad range of disciplines. Our project provided a unique opportunity for a partnership between two state colleges—The Evergreen State College and Grays Harbor Community College—and two tribal colleges, Northwest Indian College and Salish Kootenai College.

Why focus on Native Americans?

There are more than 560 federally recognized tribes in the United States. Washington State has 29 federally recognized tribes and large urban Indian populations. The Native American population is young and growing. American Indian tribes are in a robust period of cultural, political, and economic revitalization. Many tribes are taking advantage of changes in federal policy that now promote self-governance, with tribes taking over responsibility for programs formerly managed by the Federal Bureau of Indian Affairs. Interest in education is growing and seen by many tribal leaders as a key component of community development. As State Legislative Representative McCoy indicated in a 2005 case interview with us, “Education is a cultural value and an economic development strategy. With more than 40% of the members of the Tulalip Tribes under 18 years old, education and jobs are critically connected issues that have everything to do with the long-term viability of the Tribe.”

Native Americans are among the most underrepresented populations in America’s colleges and universities. Nationally, “in 2007, some 13% of American Indian/Alaska Natives 25 years or older held a bachelor’s or graduate degree” (National Center for Education Statistics, 2008). In Washington, 23% of the white population over 25 years old had bachelor’s degrees compared with 13% of the Native American population. Attainment rates are much lower on Indian reservations (Akweks, Bill, Seppanen, & Smith, 2010, p. 6). There are issues all along the educational pipeline. High school completion rates are alarmingly low. A 2010 report examining trends in 12 states found graduation rates averaged 46.6% compared with 71.4% for other students (Faircloth & Tippeconnic, 2010). Native American students lag in on-time high school graduation rates at 48%, compared with 70.4% for other students (Education Trust, 2005). In Washington, Native American high school graduation rates have been dropping from 42.7% in 2005 to 37.9% in 2006, and the percentage of high school graduates

students going directly to college has dropped from 52% to 37.7% in recent years (Akweks et al., p. 24). As a result, the college pipeline of Native Americans is much smaller than it needs to be despite rising numbers of school-age people.

Native Americans also face many challenges in higher education. College completion rates are lower than their participation rates. In Washington as elsewhere, Native Americans are concentrated in community colleges with completion rates among Native Americans at 47% (Akweks et al., p. 41; based on the percentage of students who entered college in 1999–2001 completing, transferring, or still enrolled). Native Americans also lag on numerous measures of student achievement (Akweks et al., p 42).

Native American participation rates in the sciences are a special concern. As Babco points out in a 2003 study of African American and Native American participation in STEM (science, technology, engineering, and mathematics), Native Americans, like other underrepresented minorities, are substantially better represented in the social and behavioral sciences than in the sciences (Babco, 2003; National Science Foundation, 2012). Although the number of doctorates earned by African Americans and Hispanic Americans has nearly doubled in the last 10 years, the doctorates earned by American Indians for the last decade has shown little increase. In recent years, master's degree attainment levels for Native Americans have improved but are still substantially below (3.1%) all other groups except Hispanics (Babco, 2003; National Center for Education Statistics, 2008).

Although Native Americans share many socioeconomic characteristics with students from other underrepre-

sented groups, including high poverty rates, Native American students are also distinct in important ways. For one thing, many American Indian tribes have a treaty right to education and a long, complicated, and often sad history in terms of government adherence to this obligation. Boarding schools, dispossession of land, and policies of forced cultural assimilation are part of this history. The history of Native Americans dates back thousands of years but descriptions of America often begin in 1492. Invisibility in the curriculum is a persistent theme that is only now being addressed. In recent years various states have developed curriculum on Native American history and culture for their K–12 schools to address this curriculum gap; Washington, Montana, and Wisconsin are examples. Unfortunately, these efforts usually focus only on the social sciences.

Curriculum as windows and mirrors

In a compelling article, Emily Style (1988) wrote about how the curriculum functions as an important lens on the world. She argued that it should function as both a window and a mirror, giving students insights and multiple frames of reference on the world. “Windows” give students new perspectives on the world and others. “Mirrors,” in which they see themselves and their own world, give students a sense of belonging and validation of who they are. Mirrors and windows are embedded in all aspects of the academy—from the physical structures to the people, the curriculum, and the support services available. For many years, Native Americans have found many windows and few mirrors in America's colleges and universities. In the sciences, this issue is especially press-

ing because there is little curriculum, and few Native American students and faculty are in these fields. The result is often a feeling of not belonging and alienation that leads to disengagement, withdrawal, and an ongoing cycle of underrepresentation in these fields.

But this is changing. In recent years the paradigm has shifted to encourage educational planners to go beyond asking why Native American students leave college to exploring what can be done so they will stay. Native cases provide part of the solution by delivering a relevant and community-based curriculum.

Project design and case development

Our project has three prongs. First, we developed a collection of interdisciplinary cases. Second, we taught faculty how to teach with cases in the company of stimulating colleagues from various colleges and universities. Third, we did extensive dissemination activities to ensure that our cases reached a broad national audience.

Identifying topics for our cases was our important first step. We knew that there was a void in the college curriculum about contemporary issues in Indian Country (this is a frequently used colloquial term referring to the many Native American communities throughout the United States) and around STEM issues in particular. In many colleges, curriculum about Native Americans focuses on the past with little recognition of the radically changed circumstances of the last 25 years. But how would this be decided? Typically, topical selections are made by individual case writers/teachers around their disciplinary backgrounds and their personal interests. But we had a larger goal here, which was to

FIGURE 1

Sample case abstracts. See <http://nativecases.edu/> for cases and teaching notes.

“Native Fishing Practices and Oxygen Depletion in Hood Canal” by Robert S. Cole

This case examines the contribution of dumping chum salmon carcasses into Hood Canal to the lowering of dissolved oxygen in the Canal. A report by the Puget Sound Action Team and the Hood Canal Coordinating Council studied the contribution of different factors to low dissolved oxygen levels in Hood Canal. This report presented the Skokomish Tribal Nation with a potential public relations issue regarding their traditional practices of dumping the chum salmon carcasses into the Canal. Students are challenged to discuss recommendations about what actions the Skokomish Nation should take on the basis of the findings of the report, on issues of economic impact on tribal fishers, and on issues of equity in addressing environmental problems.

“Should the Confederated Tribes of Warm Springs Invest in a Woody Biomass Co-generation Facility?” by Kathleen M. Saul

Decades of fire suppression have left the national forests overgrown; littered with dead branches, leaves, and pine needles; and vulnerable to catastrophic wild fires. Global climate change has prompted an interest in sources of electricity that emit less carbon dioxide than coal. Those two factors come together as the Confederated Tribes of Warm Springs decide whether to build a facility that uses woody materials (“biomass”) to generate electricity. The case explores some of the environmental, regulatory, and economic factors the Tribes might consider in their decision-making process.

“Tse-Whit-Zen: An Ancient Klallam Village Reclaimed . . . Territory Taken But Not Forgotten” by Arlene Wheeler and Barbara Leigh Smith

This three-part interrupted case tells the story of an extraordinary archaeological find—the ancient tribal village, Tse-whit-zen—during the construction process replacing the Hood Canal Bridge. This case offers important insights on intergovernmental decision making and cultural preservation. Part 1 of the case provides background on the bridge replacement project and the early stages of the planning process. This part is written largely from the point of view of the Washington State Department of Transportation. Part 2 is written from the standpoint of a member of the Lower Elwha Klallam Tribe as the discovery of the ancient village unfolded and everyone struggled with the impact of that discovery, trying to balance cultural considerations with the urgency surrounding the bridge replacement and the impact on the local economy. Part 3 describes the most recent issues after the discovery of substantial numbers of human remains and the ensuing controversy about whether the project should be shut down.

“Pacific Northwest Salmon Habitat: The Culvert Case and the Power of Treaties” by Jovana J. Brown and Brian Footen

American Indian tribes in the Pacific Northwest signed treaties with the federal government in the 1850s that preserved their right to fish in their “usual and accustomed” fishing grounds. The tribes have had to continually fight to have this right recognized. *United States v. Washington* (1974), the Boldt decision, upheld this fishing right and ruled that the tribes were entitled to 50% of the harvestable portion of salmon returning to their usual and accustomed grounds. Though this historic court decision enabled the Indians to legally fish, the decline of the salmon has meant that the importance of this decision has been eroded. For the last three decades the tribes have worked to preserve salmon runs by protecting and restoring fish habitat. The tribes are in a unique position to advance habitat restoration on a landscape scale. Restoring fish passage in streams throughout the state is an example of how the power of the treaties can facilitate salmon recovery significantly. In 2001, they went into federal district court with a specific habitat lawsuit: the Culvert Case. The decision in this case has been called the most significant victory for tribal treaty fishing rights since the Boldt decision.

write cases about issues important to Native American experts, inside and outside the academy. We believed tribal leaders needed to help guide the topic identification process because they are the experts in defining topics important to their communities.

So our initiative began by inviting 47 experts to form an advisory board. It included lawyers, faculty, tribal leaders, tribal liaisons in government offices, and Native American leaders in prominent organizations such as the National Indian Child Welfare Association, the National Indian Education Association, and the Office of the Superintendent of Public Instruction. Nearly all of the advisory board members (96%) came together to participate in a Delphi process of brainstorming key topics, a process we repeated over the years with smaller groups as well as individuals. (The Delphi decision-making process was developed by the Rand Corporation in the 1950s as a method of soliciting the opinions of experts on issues. For further information, visit http://www.nwlink.com/~donclark/perform/delphi_process.html.) Using Post-it notes, our initial group identified 100 topics in one hour and quickly prioritized topics by placing dots on the significant topics. This became our initial list of key case topics to develop.

The next task was to find case developers. The diversity of authors was an important consideration in creating a genuine multicultural initiative that had credibility and relevance to tribal communities. Our authors came from many different places, inside and outside the academy. The combination of “in the field” practitioners and academic faculty provided interdisciplinary balance in our cases and access to hidden resources in the field. The “Tse-Whit-Zen” case (see Figure

1), for example, was written by one of us with one of our students who was the cultural resource manager at the Lower Elwha Klallam Tribe. “Pacific Northwest Salmon Habitat: The Culvert Case and the Power of Treaties,” a highly interdisciplinary case that is relevant to students in diverse academic disciplines including biology, law, engineering, economics, and political science, was a collaboration between our case editor, Jovana Brown, and Brian Footen, a tribal fisheries expert at the Muckleshoot Tribe (see Figure 1).

Native American authors wrote 65% of our cases. A culture-bearer who is raised in a culture brings a special voice and relevance that resonates with Native American students because of their deep cultural knowledge. We also recruited writers with strong backgrounds in Native affairs through our workshops and summer institutes, our advisory board, and organizations like the Curriculum for the Bioregion Sustainability Project at Evergreen and the K–12 Tribal Sovereignty Curriculum Development Project in the Office of the Superintendent of Public Instruction. Denny Hurtado was a key connector to the Indian communities as a former tribal chair and current director of the Office of Native Education. We also made connections to the Northwest Indian Fisheries Commission, the National Indian Child Welfare Association, and various K–12 and higher education groups, which resulted in a significant number of case studies. Each of the lead faculty members at our partner institutions also wrote at least one case each year. Native students were authors or coauthors of eight of our cases.

Our cases go through a multistage peer review and development process.

Because we are interested in teaching people how to write cases, we work closely with authors and coach drafts through many revisions. As a result, our publication rate has been high, with only about 10% of the cases failing to come to “published” status on our website.

Each case is accompanied by detailed teaching notes that include learning outcomes, teaching approaches, discussion questions, references, and related resources. As circumstances change, the teaching notes are updated. When appropriate, we include links to other existing, underutilized resources. Our case, “When Our Water Returns: The Gila River Indian Community and Diabetes,” for example, includes information on resources from the American Diabetes Association, the Center for Disease Control and Prevention, and the Indian Health Service.

Our case collection currently includes 85 interdisciplinary cases addressing significant issues in our region and other parts of the country, such as salmon recovery, intergovernmental planning and management, climate change, sacred sites, indigenous science, health, energy, sustainability, education, and economic development. Some of the cases are the first comprehensive primer on important sociopolitical/cultural issues.

We disseminated the cases and the teaching approaches through a website, publications, and presentations so that our case collection is widely available to others, especially at colleges with significant numbers of Native American students. Unlike many of the other major case collections, such as the Harvard cases, our cases are free and available for anyone to download from our website. The focus on Native American issues

makes our collection unique. Other special features of our cases are an emphasis on interactive pedagogies, collaborative learning, and the interdisciplinary focus.

Teaching faculty to use cases

An annual four-day Summer Institute about Teaching and Writing Native Cases and more than two dozen one-day workshops at other colleges and universities and conferences have been our major vehicles for working with faculty on learning how to use our cases. In addition to developing cases that filled significant content gaps about Native issues, we were committed to active learning and interdisciplinary approaches. The project directors had extensive experience with collaborative learning and integrative curriculum design but recognized that collaborative learning is new terrain for many teachers. Our residential Summer Institute provides the opportunity for faculty to gain firsthand experience and learn various ways to teach and write cases. At the Summer Institute, faculty do the cases as if they are students through role playing, small group discussions, and jigsaw seminars. Institute sessions also ask them to design teaching and assessment plans. Participant evaluations of the Summer Institutes have been consistently positive, with improvements made each year in response to participant feedback.

Cases and approaches: Examples

The examples in Figure 1 provide a sample of some of our cases that exemplify different approaches. We are interested in enhancing quantitative reasoning skills of students through real-life examples across the

disciplines, so some cases require students to explore quantitative data sets. For example, the case “River Flow for Riparian Health” uses long-term river-flow data to explore the effects of dams on a river that for many years diverted the entire flow elsewhere for hydroelectric generation. This particular case, dealing with daily river flow, helped make statistical methods come alive for students with a dim view of statistics. The Warm Springs biomass case (see Figure 1) similarly encourages students to examine data to determine if the tribe should invest in a woody biomass cogeneration facility.

In the case “Native Fishing Practices and Oxygen Depletion in Hood Canal,” students use data to explore the widespread problems of oxygen depletion and potential solutions. In early 2004, the Puget Sound Action Team, the Hood Canal Coordinating Council, and the

University of Washington published a report, “Hood Canal Low Dissolved Oxygen: Preliminary Assessment and Corrective Action Plan” (Fagergren, Criss, & Christensen, 2004), listing potential sources of nitrogen thought to be the primary cause of the low dissolved oxygen in Hood Canal. The results of this study are summarized in Figure 2.

The fishing practices of the Skokomish Nation were directly responsible for the disposal of chum salmon carcasses in Hood Canal, and the estimate of that contribution is in the chum salmon carcass category. This report also showed the seasonal effects of nitrogen contributed by each of six sources to Hood Canal, illustrated in Figure 3. These two graphs suggest that the nitrogen contribution to Hood Canal by chum salmon carcasses is minor and highly seasonal. Nevertheless, the prevailing attitudes toward Native American

peoples and their fishing rights put pressure on the Skokomish Tribe to be the first to take mitigation steps.

The impact of Native cases

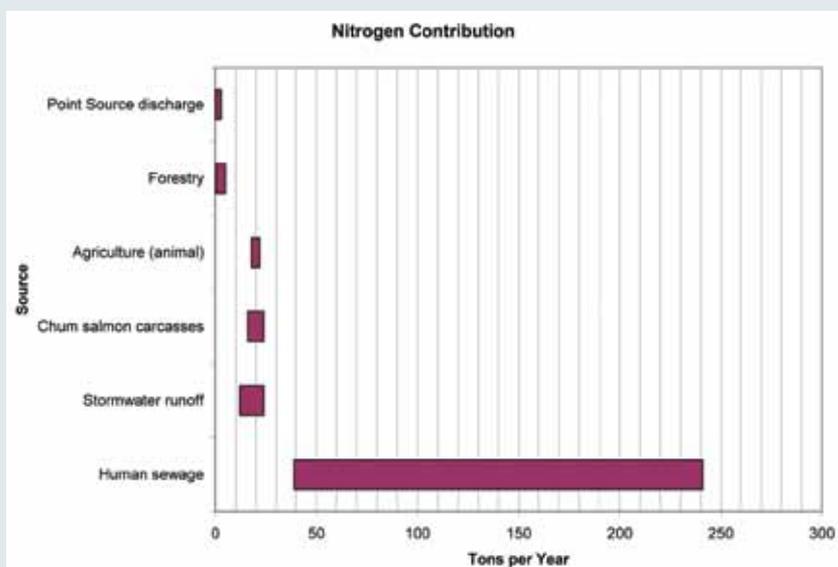
Six years into the project, we have substantially exceeded our goals in case production, faculty participation, and student learning and success. More than two dozen, one-day workshops have been offered along with six four-day Summer Institutes. Faculty members from 29 colleges and universities have attended our Summer Institutes, along with teachers from four high schools and seven representatives from tribes and other organizations. The largest representation came from the partner institutions that had priority registration and a goal of reaching deeply into their faculty.

Many of the participating institutions are interested in making connections between Native cases and larger institutional goals, including strengthening general education, developmental education, and STEM course offerings, as well as promoting best practices and improving student retention. Institutional goals at Salish Kootenai College, for example, center on promoting what they call the “four Cs”—the learning outcomes of critical thinking, communication, culture, and citizenship. Northwest Indian College is working on a broad range of initiatives designed to improve teaching and learning in developmental education and STEM fields as it becomes a baccalaureate institution.

Evergreen State College and Grays Harbor Community College continue to be the primary test sites for the cases, especially in the undergraduate Reservation-based programs, the Master of Tribal Public Administration program, and the Environmental Studies graduate and undergraduate

FIGURE 2

Seasonal nitrogen inputs to Hood Canal. (Adapted with permission from Fagergren, Criss, & Christensen, 2004.)



programs. In the undergraduate reservation-based programs, we've had the unusual opportunity to test our cases with cohorts of students who spend as many as four or five years with us. The reservation-based program is a collaborative effort between Grays Harbor and Evergreen offered at six, largely rural, Indian reservations. The program is designed to be a seamless educational experience with a clear path to a bachelor's degree. Grays Harbor delivers the first two years of the curriculum leading to an associate of arts degree through a hybrid distance-learning model, whereas Evergreen offers the upper-division curriculum through face-to-face classes at each reservation site. Once a month, the 70 students from all reservation sites in both programs come together on Evergreen's campus for classes that include a common case-based course, *Battlegrounds in Indian Country*. Since 2006 these students have worked with the *Enduring Legacies Native Cases* in the *Battlegrounds* course. Other online and face-to-face classes have used the cases as well. In the online courses, cases are used in *Introductory Biology*, *Health and Wellness*, *English*, and *American Government*.

Our approach to using cases emphasizes active learning and collaboration. Having students work in small groups and present their conclusions to the larger class deepens student engagement and students' ability to discuss complex issues that don't have a simple solution. With 70 students, we always use small group formats that mix the Grays Harbor and Evergreen students. This serves the ancillary purpose of creating peer relationships across colleges and, we hope, mentors and inspiration to earn a bachelor's degree. Clear directions are always critical in collaborative learning and especially with a group

this large. Presentation and discussion formats have evolved over the years, with students showing clear preferences for variety. After discussing the case in small groups, students usually do formal presentations of their group's conclusions. Because each group works on different questions, the reports are always interesting to everyone in the room. Making public presentations of their conclusions ensures accountability and builds presentation skills.

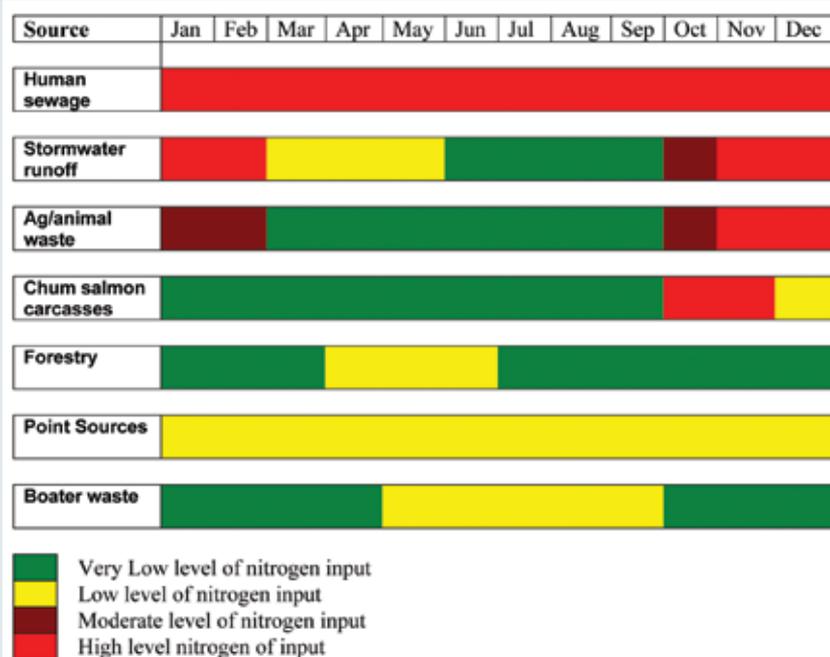
Over the years we have refined our approach. With many more cases now available, we can organize the case selections more thematically and tightly integrate them with other parts of the curriculum. We have experimented with various ways to evaluate student learning in this course. We consistently do end-of-class evaluations, with students filling

out forms to evaluate both the cases and the process. In addition, students write in-class responses to three or four questions about the case. One question usually asks them to apply the lessons to their own community. Often the instructor starts the next class with a short overview of the student responses from the previous class along with comments on the most important points. This overview really grabs students' attention and helps them consolidate their learning.

Although our assumption that students would relate well to local, place-based cases was certainly validated, we also found that Native cases do not have to be written only about local tribal communities to be relevant and engaging to local Native American students. A comparative perspective, especially on scientific issues and topics that broadly effect Indian

FIGURE 3

Human-influenced nitrogen sources—Hood Canal. (Adapted with permission from Fagergren, Criss, & Christensen, 2004.)



communities such as water, diabetes, climate change, and health, is often a good approach to use. Asking students to make connections between their tribe and others enhances learning and broadens their perspective in important ways. Place-based interdisciplinary cases also raise interest in the sciences as students see connections to their personal lives.

The cases have been a highly successful addition to the curriculum, resolving previous issues around attendance, student retention, and curriculum integration. Quarter after quarter, year after year, students rate the Battlegrounds course as a peak learning experience. Cases have also brought our curriculum much closer to the reality of live issues in tribal communities and helped us establish closer relationships with tribal leaders who are often speakers at the Battlegrounds classes.

What faculty participants say about cases

In 2010–2011 we surveyed more than 100 faculty who had attended our Summer Institute and/or our one-day workshops, and 66% responded. Follow-up studies indicated that faculty turnover was responsible for most of the nonresponses. Half of the respondents identified themselves as Native American. Forty-three percent worked at four-year institutions, 18% at tribal colleges, and 10% at two-year colleges. Fifty-three percent were full-time faculty, and 70% had taught for eight years or more. We learned that the cases are being used in interdisciplinary as well as disciplinary courses at various educational levels, ranging from high school to graduate school, and in general education courses as well as courses in the major. An overwhelming majority said cases were

appropriate for online courses. The proportion of faculty teaching online courses has steadily increased at many of these colleges, reaching 90% at Salish Kootenai.

Many of the participants were comfortable with cases and active-learning approaches. Ninety-one percent said the case teaching method was compatible with their usual teaching approach. Fifty-two percent said they had used cases prior to attending our Summer Institute or workshops. After the Summer Institute or workshops, the number of respondents using cases rose to 77%. This figure understates the use rate because a number of respondents indicated they were now in nonteaching roles.

What faculty say about the results of using cases

When asked about the results of using cases, the respondents reported the following very positive results:

- Students learn to view issues from multiple perspectives—97% agree
- Students are more engaged—93% agree
- Students develop stronger critical-thinking skills—90% agree
- Students have a better grasp of the practical applications of core course concepts—89% agree
- Students strengthen communication skills—85% agree
- Students develop positive peer-to-peer relationships—78% agree
- Students gain confidence working in groups—61% agree

Additional benefits of using cases reported by smaller numbers of faculty included attendance increasing, fewer students failing or withdrawing, and student evaluations of faculty becoming more positive. When asked

more specifically about the impact of Native cases versus cases in general, the respondents pointed to the following noteworthy dimensions:

- Students gain understanding of important issues in Indian Country—100% agree
- Native cases enhance the scientific curriculum for Native American students—100% agree
- Students feel the curriculum is more culturally relevant—83% agree

One hundred percent of the faculty also said that Native cases are effective in raising the awareness of non-Native American students about Native perspectives and issues. In classes with few or no Native American students, the cases introduced the students to new perspectives. Many were not aware of the involvement of Native American people in critical current events, such as environmental restoration, where their role can be huge. This was particularly true when issues of treaties and fishing rights were examined in the context of current environmental issues in the Puget Sound.

Faculty reported that they assess students' learning through course evaluations, tests, case analysis, journals, position papers, peer evaluations, projects, papers, and e-portfolios. They were interested in data on motivation, perceptions, attitudes, motivation, attendance, student engagement, grades/completion rates, learning, and clinical skills/tasks.

What are the challenges of using cases in the classroom?

Sixty-one percent of the faculty respondents reported that some students find the format of group

work challenging. Fifty-eight percent indicated that dominance of some students in discussion groups can be a challenge, and 40% noted some unevenness in student willingness to work in groups. When students do not see a clear connection between the cases and the overall curriculum, this can also be an obstacle, according to 25% of the respondents. Faculty also indicated that lack of appropriate cases can be an obstacle as well as lack of prep time. A few faculty thought some of our cases were too complex for their students. Our workshops now provide more guidance to address these challenges.

What Evergreen and Grays Harbor students say about cases

In addition to faculty reports about student responses to cases, we have information about the impact of our cases on students from our primary case tests sites at Evergreen and Grays Harbor College where the cases have been used for the longest period of time. Students involved in cases over a long period of time demonstrate substantial gains in learning new content and building a variety of skills in group work, public speaking, problem solving, and critical thinking. Student enrollment and retention has increased substantially as well with the partnership between Evergreen and Grays Harbor, but we cannot tease out the impact of cases alone on these outcomes because we made many other changes to our curriculum.

Our case-based course, *Battlegrounds in Indian Country*, does student evaluations at the end of each session, evaluating the cases and the teaching/learning process. Student responses have been remarkably

similar over the years, with 95% stating that “the case studies were engaging,” 95% stating that “the cases addressed important issues in my community,” 89% stating that “the cases improved my critical-thinking skills,” 84% stating that “I am becoming more confident and successful in participating in groups,” and 78% stating that “I learned new things from other students in my group discussion.”

Student comments to open-ended questions are also revealing. When asked about the skills gained from learning with cases, students responded with long lists of outcomes including problem solving, analysis, evaluation, public speaking, communication, negotiating, critical thinking, patience, multifaceted approaches to problem solving, collaboration, transcendence of personal limitations, commitment to higher learning standards, and commitment to being an activist. Only one student said that there were any downsides to using cases.

Students repeatedly pointed to the value of cases in helping them learn about important issues in Indian Country and in their own communities. Many commented that the extensive background information helped them understand how the past contributes to current struggles. The way cases connect the past with the present is powerful for many students. “The Culvert Case,” one student said, “clearly showed the necessity to continue the efforts at enforcing the ‘spirit of the treaties’ and go beyond the Boldt decision to restore habitat.” And bridges that cases make between different disciplines matter to students; one noted that the Culvert Case was her most memorable case because it incorporated culture, activism, science

and nature, and the law, and most important, it provided a framework for solution-based problem solving.

Surprisingly, a large number of students said that they shared the cases with their family and coworkers. About a third of the students each quarter reported that they go well beyond the syllabus to further explore topics raised in the cases.

Interdisciplinary cases can help build cognitive flexibility and multicultural awareness. Students repeatedly report their surprise at the diversity of student opinions within their discussion groups. One student noted the congruence of this approach with his own cultural tradition, saying that “the Native story telling traditions are an excellent gateway to explore case studies.” As another student put it, “Cases provide a framework for dialog about sensitive and sometimes controversial subjects and bridging of knowledge between Native storytelling and Western educational concepts.” Another said, “Cases help us see the bigger picture. We could see many tribes face similar issues.”

Many students noted the importance of cases in raising both issues and answers. As one student put it, “I loved seeing the discussion move from ‘here they are picking on us Natives again’ to ‘we can take charge.’ As we become empowered, we will end up being an asset to our communities.”

Developing the skills and motivation to become an activist and a leader was frequently mentioned as an outcome of doing cases. As one student said, “The big lesson for me is the need to have a voice, take action, and be part of the solution.”

“One of the things that aided my learning,” said one student, “was that this stuff is happening in our lifetime.

We can make a difference if we want. We can make a difference if we educate other people to understand what is going on around them.”

Conclusion

Our initiative demonstrates that interdisciplinary cases can provide a significant arena for exploring complex issues and deeply engaging students. They can also open up avenues for connecting our colleges and our curriculum to the larger community and the pressing issues of the day. Cases appear to work well in various areas of the curriculum, including the sciences, and at different types of institutions. Faculty and students are enthusiastic about using them. Native cases are especially powerful for Native American students, providing new windows and mirrors on their world and a relevance in the college curriculum that motivates them to continue their education and become more involved in the issues of the day. Our work leaves some intriguing larger questions unresolved: Might this approach work with other underrepresented groups in higher education? Should colleges and universities consider developing more place-based curriculum at trouble spots in the curriculum? If used more widely can cases increase student interest in STEM fields?

Note: The Enduring Legacies Native Cases Initiative (<http://nativecasees.evergreen.edu/>) has produced more than 85 interdisciplinary teaching cases. Hundreds of faculty at different colleges and universities have used the cases over the last five years with success reported in student learning and student engagement. Case studies can provide an engaging and culturally relevant curriculum for Native American students who are

underrepresented in higher education to address the serious issues of student retention and student success. The Enduring Legacies Native Cases Initiative is funded by the National Science Foundation, the Bill and Melinda Gates Foundation, and the Lumina Foundation for Education.

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