Mediated Geographies Across Arizona: Learning Literacy Skills Through Filmmaking

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Chris Lukinbeal, John C. Finn, John Paul Jones III, Christina Beal Kennedy, and Keith Woodward

This chapter explores the project *Mediated Geographies: Critical Pedagogy and Geographic Education,* which combined the geography departments from the three Universities in Arizona (Northern Arizona State University, Arizona State University, and the University of Arizona). In the pedagogical project we encouraged students to both critically evaluate the vast amount of visual information in their daily lives and become literate in technologies related to digital media. Our four goals were as follows: (1) create a series of integrated geography courses across three universities; (2) have students work in groups on semester-long projects to produce digital video documentaries or multi-media photo essays; (3) use learner-centered education principles combined with critical pedagogy to enhance

C. Lukinbeal (✉)
School of Geography and Development, The University of Arizona, Harvill Building 437B, 85721 Tucson, AZ, USA
e-mail: chris.lukinbeal@arizona.edu

J.C. Finn
Department of Sociology, Social Work, and Anthropology, Christopher Newport University, Newport News, VA, USA
e-mail: john.finn@cnu.edu

J.P. Jones III
School of Geography and Development/College of Social and Behavioral Sciences, The University of Arizona, Tucson, AZ, USA
e-mail: jpjones@email.arizona.edu

C.B. Kennedy
Department of Geography, Planning and Recreation, Northern Arizona University, Flagstaff, AZ, USA
e-mail: tinakennedyster@gmail.com

K. Woodward
Geography Department, University of Wisconsin–Madison, Madison, WI, USA
e-mail: kwoodward@wisc.edu

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geographic media literacy within the courses; and (4) have students communicate what they learned to fellow students in a formal, conference setting. Elsewhere, we examine how critical pedagogy and learner-centered education strategies were used to engage students in these projects and how students communicated what they learned in a conference setting (Lukinbeal et al. 2007). In this paper we first review the student documentaries that were created and offer web links to these productions, before turning to our assessment of students' geographic media literacy skills. We conclude by noting the problems, difficulties, and successes of our project and by making suggestions on how to better assess and implement geographic media literacy skills in pedagogic practice.

Lukinbeal and Craine (2009, 176) argue that while "geographic literacy is widely written about and discussed in geography ... media literacy is not." In an era of increased globalization, media saturation and mediated technologies, along with their continued rapid rate of changes, have become the new norm. Lukinbeal (2014, 41) defines geographic media literacy as "the ability to locate, evaluate, effectively use and produce geographic information." It incorporates four basic literacies: visual literacy, information technology literacy, information literacy, and media literacy.

Visual literacy was a term created by John Debes to reference "a group of vision-competencies" that "enable a visually literate person to discriminate and interpret the visible actions, objects, symbols, natural or [sic] man-made, that he encounters in his environment" (Fransecky and Debes 1972, 7). According to the National Research Council, information technology literacy references three skill sets: (1) up-to-date skills, concentrating on the application of contemporary knowledge; (2) foundational concepts, covering the principles of technology; and, (3) intellectual capabilities, that allow one to apply skills and concepts to solve problems (National Research Council 1999, 1).

Information technology literacy in geography is often positioned only within the domain of geospatial technologies. However, as Lukinbeal (2014) argues, we need to not only position GIS as media (Sui and Goodchild 2001) but we also "need to expand geographic information technology skills across the broad array of media and communication technologies that deliver geographic information" (Lukinbeal 2014, 43). The Association of College and Research Libraries and Resources produced information literacy standards that were endorsed by the American Association for Higher Education (October 1999) and the Council of Independent Colleges (February 2004). These standards "recognize when information is needed, having the ability to locate, evaluate, and effectively use information, an understanding of the economic and social issues of information use, and knowing how to access and use information ethically and legally" (Lukinbeal 2014, 43). According to Kimsey and Cameron (2005, 17), information literacy is important to geography because students "must learn to find, evaluate, and manipulate information in almost any context." Further, majors, graduates and alumni need good research skills and an understanding of the need for lifelong learning (Kimsey and Cameron 2005). Buckingham (2003, 36) defines media literacy as "the knowledge, skills and competencies required using and interpreting media." According to Hobbs (1998)

there is a consensus amongst Western educators that media literacy is constituted by five key elements: "(1) mediated information is always constructed; (2) mediated information is the product of the social and historical milieu from which it was created; (3) mediated information affects how people understand their lived world; (4) meaning is an interactive process between the reader, text, and culture; and, (5) media has a unique language and system of communication" (Lukinbeal 2014, 44).

In this chapter we first provide an overview and background about the *Mediated Geographies* project, then review the student documentaries that were produced. All of the documentaries are available online for viewing and represent the major outcome of this project: that a learned-centered education approach facilitates deeper learning through praxis. Following this we discuss the methodology deployed to assess learner outcomes including pre- and post-course essays and film clip assessments where students watched three different short film clips about human-environment interactions. Finally, we turn to a discussion about the assessment process and conclude with some thoughts about geographic media literacy and the *Mediated Geographies across Arizona* project.

Project Overview

In 1999, in an effort to renovate pedagogic practices and thereby change social conditions, the Arizona Board of Regents Regents (ABOR) adopted a work plan focused on learner-centered education (LCE) principles that place students at the center of the learning process, with instructors as facilitators. According to ABOR, LCE is expected to provide a more efficient and flexible college education that promotes deeper, more lasting, and more transferable learning. We created three courses that followed the principles of LCE to serve as vehicles for this project. Each course focused on a different grade level and theme: a sophomore-level course in Cultural Geography; a junior-level course in U.S. Geography; and a senior-level special topics course entitled *Cinematic Geographies*. Prior to teaching the courses, assessment matrices and LCE materials for each course were produced. While the same assessment matrices were used in each course, professors dealt with individual thematic content and geographic media literacy materials differently. In all three courses group projects required students to engage in either creating digital video documentaries or multi-media photo essays in PowerPoint that included voice-over narration and music.

Finally, as part of this project, documentary filmmaker Ari Palos was hired as a consultant. He assisted students at one of the universities on a regular basis; students at the other university that created video documentaries had more limited access. All students were brought together at the end of the semester for a conference held during the final weekend of the semester. The conference provided a professional venue where students from the three universities presented and discussed their projects. It was also a forum for peer evaluation of the student projects, and for evaluation of the tri-university project as a whole.

Student Documentaries

In this section we highlight seven different student productions. Although more were created, the documentaries presented here are the ones that do not violate copyright issues. The documentaries are central to this paper and show how geographic media literacy pushes the traditional means of publishing research.

The documentary *Mediated Geographies*, by Ann Fletchall and Kristy Smith, provides background information related to the inception and goals of the project *Mediated Geographies: Critical Pedagogy and Geographic Education.* The documentary includes interviews with the project's Principal Investigators Chris Lukinbeal, Tina Kennedy, and John Paul Jones III. It then follows the journey of two groups of students in Chris Lukinbeal's Cinematic Geographies class at Arizona State University from their unique classroom learning environment to the creation and impending completion of two documentaries on a local community in transition. Due to copyright restrictions the second half of the documentary does not include David Bowie's song *Under Pressure*, which provided the basis for the montage sequence. Copyright issues around the use of music became a central means through which to address information literacy skills. The documentary can be viewed at http://projects.sbs.arizona.edu/projects/clukinbe/Mediated_Geographies.mp4 (Fig. 24.1).

The documentary *Civic Engagement and Revitalization in Garfield*, by Katie deVriese, James Wagner, Chris Lukinbeal, Marilyn Dantico, John Finn, Natalie Lopez, Sarah Bongiovanni, and Stuart Bricker (with music by Peter deVriese), explores civic engagement, neighborhood revitalization and community building in the Garfield neighborhood of Phoenix, AZ. One of the oldest inner-ring neighborhoods in Phoenix, according to the 2010 Census, Garfield's population is 86 % Hispanic. It experienced white middle-class flight to the suburbs in the 1950s and increased physical deterioration and rising crime in the 1970–1980s (Price et al. 2011; Lopez and Lukinbeal 2010). Funded by the Arizona Humanities Council,

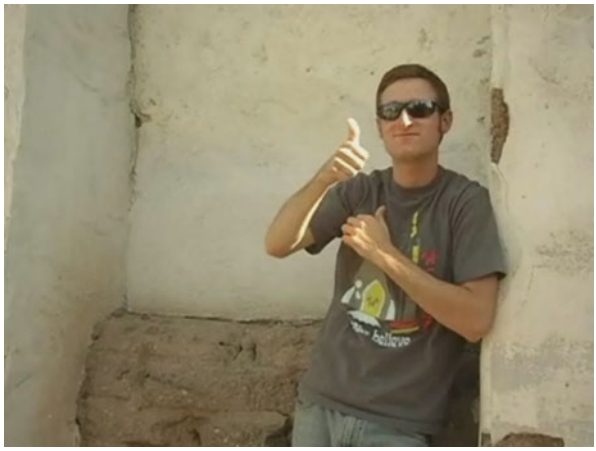

Fig. 24.1 Mediated geographies across Arizona student documentary

Fig. 24.2 Student documentaries about the Garfield neighboorhood in Phoenix Arizona

the Department of Political Science, and the School of Geographical Sciences at Arizona State University, the documentary uses interviews with community leaders, public officials, clergy, professors, and everyday citizens to explore the interactions that residents have with the institutions designed to serve them as they seek a common goal. The documentary incorporates and builds upon the student documentary project: *Garfield: The Rise, Fall and Revitalization* which was a part of the *Mediated Geographies: Critical Pedagogy and Geographic Education.* The documentary can be viewed at http://projects.sbs.arizona.edu/projects/clukinbe/Garfield_Revitalization.mp4 (Fig. 24.2).

The documentary *For Life* is by Sam Herr, Chelsea Kappeler, and Stephanie Lipple, who state, "we have put our blood, sweat and tears into the creation of this documentary." The documentary is the story of Shanti Sellz and Daniel Strauss, two *No More Deaths* volunteers who were arrested in 2005 for providing humanitarian aid in the Sonoran Desert. The documentary follows the lives of Shanti and a small contingent of other humanitarian aid workers and sympathizers over the last couple of months leading up to their trial. The lawsuit would later be thrown out in 2006. This documentary can be viewed at http://projects.sbs.arizona.edu/projects/clukinbe/For_Life.mp4 (Fig. 24.3).

The documentary *Porque es Barato/Because it's Cheaper*, by Claire Kleese, Chris Bentley, John Holden, and Nicole Disante, examines the market of tourist goods in Nogales, Mexico and Mexicans crossing the border to shop in Nogales, Arizona at big stores like WalMart. This documentary focuses on the exchange of goods between the two countries sharing Nogales. Both groups state that 'it is cheaper' on the other side. This documentary can be viewed at http://projects.sbs.arizona.edu/projects/clukinbe/Because_its_Cheaper.mp4 (Fig. 24.4).

The documentary *Crossing the Line*, by Kirby Brady, Nell McCallum, Mary Perry, and Nick Sexton, examines the relationship between the US/Mexico border and the people of Douglas, Arizona. Douglas seems to be an example of common, small-town America, with a main street and many parks within the town's

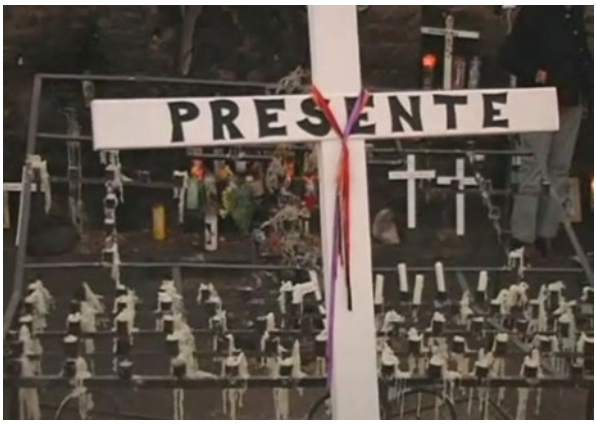

Fig. 24.3 Student documentary, *For Life*

Fig. 24.4 Student documentary, *Because Its Cheaper*

boundaries. However, being located directly on the border with Mexico has many social and economic benefits and consequences. Having a wall dividing the town puts strain on the people of both sides. Conflict has developed over what is best for both the town of Douglas and the United States as a country. With excessive growth on the Mexican side, the town of Douglas has changed in a way that does not necessarily benefit the people of Douglas or the people of Mexico. Through interviews with locals, humanitarian groups, and the border patrol, the film gives the viewer an understanding of ways the town and the border coexist and interpenetrate one another, for better and worse. This documentary can be viewed at http://projects.sbs.arizona.edu/projects/clukinbe/Crossing_the_Line.mp4 (Fig. 24.5).

The documentary *Changes . . . Route 66,* by Katie Smith, Shuko Ogi, Carson Cherland, and Mark Poland, takes us on a tour of Arizona's Route 66 near Flagstaff, Arizona. Route 66 was developed for one reason and one reason only: transportation from one U.S. coast to the other. Construction resulted not only in the highway, but also in towns and businesses. Towns developed due to the mere fact that they were

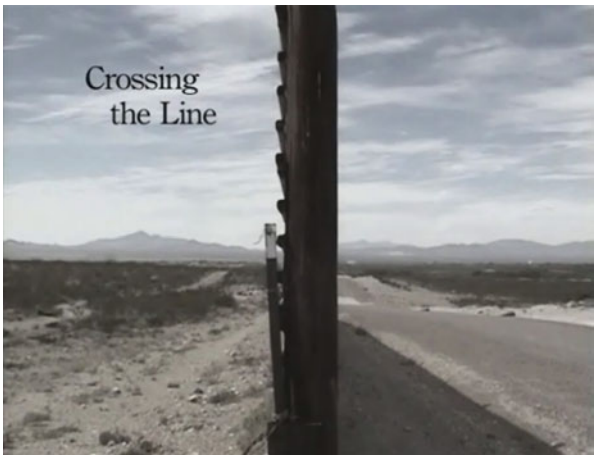

Fig. 24.5 Student documentary, *Crossing The Line*

Fig. 24.6 Student documentary, *Route 66*

located along Route 66. Over time, Route 66 was not large enough to accommodate the increased traffic from the country's growth. Some portions of a new highway were recreated on top of the original route; in others, completely new routes were created. Some sections of the new highway were only 100 ft away from Route 66's original path. Landscapes changed along with the road. New developments sprouted, while old businesses died. This documentary can be viewed at http://projects.sbs.arizona.edu/projects/clukinbe/Route_66.mp4 (Fig. 24.6).

The documentary *Mexican Pharmaceuticals at the Border… OR, Where the Pills At?*, by Tad Barker, Michael Wyman, and Ellis Harper, is about US/Mexico border pharmacies and their clientele. The film shows people that frequent these pharmacies, what they purchase, why they purchase medications there, their opinions on prescription drugs from both the US and from Mexico, and the legal circumstances in which they buy prescription drugs in Mexico. Interviewees included a senior citizen tour group on a day trip to Algodones, Baja California (which is about 15 min away from Yuma), a local expert on border health, Howard Eng, a University of Arizona student who was caught crossing the Nogales port of entry with controlled drugs without a prescription, as well as a Mexican pharmacy owner. Alongside the many Arizona college students who use controlled prescription drugs as a form of recreation, there are the thousands of senior citizens who come to Arizona each year with the similar intent of buying drugs in Mexico. The migration

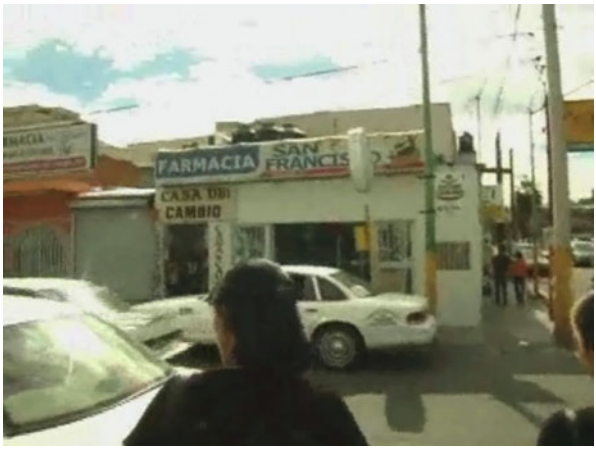

Fig. 24.7 Student documentary, *Mexican Pharmaceuticals at the Border OR, Where the Pills At?*

of these people to and from the border for this commerce is an important aspect of border culture. This documentary can be viewed at http://projects.sbs.arizona.edu/projects/clukinbe/Mexican_Pharmaceuticals.mp4 (Fig. 24.7).

Having students work on semester long video projects put geographic media literacy into praxis and allows for deeper learning through doing. As Buckingham (2003) notes, media literacy is not just about the interpretation of texts, but also embraces the field of praxis through the use of media. As technologies become more easy to use and more pervasive, this style of teaching will spread. Both Garrett (2011) and Jacobs (2013) have noted the rise of videographic geographies and/or filmic geographies. This new style of applied geographic media literacy positions education in a learner centered environment. According to Jacobs (2013, 715), "When we actively engage with the production of a moving audio-image, place—as a historical, social, economic, gendered, ethnic and political space—is put firmly on screen, and other senses are able to enter the ontology of film and digital video." Both Jacobs (2013) and Garrett (2011) argue for geographers to begin producing videos and documentaries as a means to educate and as a new outlet for research. Making videos aligns well with engaging in public discourse and informal science education outside of the classroom.

Methodology: Assessment Matrix

In this project we used a mixed methodological approach with several assessment tools in order to measure progress in students' geographic media literacy resulting from the courses. First, at the beginning of the semester, we asked students to write a short autobiographical essay providing information on why they were taking the class, what they hoped to gain from it, their educational and family background, places and environments in which they had lived, and the role of media in their daily life. These autobiographical essays also asked for basic demographic data such as

age, gender, number of years in school, college major, and whether or not they had taken a geography or critical thinking class before. At the end of the course we again asked students to write a self-reflective statement based on a number of specific questions such as, "What was the one most useful or meaningful thing about visual media you learned in this course?" and, "What would you like to learn further about this subject/discipline?"

Our second assessment tool looked at changes in geographic media literacy skills as it related to levels of cognition (discussed below). We showed short clips from three documentary films at the beginning of the semester to establish a baseline and again at the end of the semester to detect changes. Each clip was related in some way to human-environment relationships, and each had a different narrative style. The first clip focused on the construction of the Hoover Dam to control flooding on the Colorado River. The narrator, a white male with a tweed suit, glasses, and a British accent, tells a triumphant story of American ingenuity and power in the control of nature. The message is unabashedly one of modernity and progress. The second clip focused on the relocation of cane toads from Hawaii to Australia to help mitigate an agricultural pest. This clip subverts classic documentary narrative conventions by destabilizing authority figures, making the cane toad a central character in the *mise en scène*, and using music in a humorous fashion. The third clip, which focused on tourism, was a low budget film that used dramatic music, "home movie" style shots, aesthetically pleasing imagery of landscapes, and an omnipresent narrator to promote the Oregon Coast as a tourist destination.

Fifteen questions related to the film clips were used to evaluate the geographic media literacy skills of the 40 total students in the 3 courses (a total of 600 pre- and 600 post-course entries to evaluate). The clips were shown on the first and last day of class and were not discussed or used in classroom exercises in order to avoid tainting assessment results. Each question was ranked by Bloom's (1956) taxonomy of (1) knowledge, (2) comprehension, (3) application, (4) analysis, (5) synthesis, and (6) evaluation. The first three levels relate to lower-order cognition: "knowledge" refers to the ability to recall or describe information; "comprehension" relates to meaning, understanding, and interpretation of instructions; and "application" is where one seeks to use a concept in a new manner. Levels 4–6 relate to higher-order cognition: "analysis" tests one's ability to separate ideas into component parts to reveal an organizational structure; "synthesis" is where one can assemble the component parts into a whole, thus producing new meaning; and "evaluation" allows one to make value judgments about information. In our assessment two questions were classed as knowledge based questions (80 total responses) and two were categorized as comprehension based questions (N = 80). As there were no application based questions, lower order cognitive responses totaled 160. Three questions were categorized as analysis (N = 120), while only two questions were categorized as synthesis (N = 80). The bulk of the questions (6) were evaluative (N = 240). In all, 26.7 % of the questions related to the lower order cognitive domain while 73.3 % related to the higher order cognitive domain (N = 440), reflecting our interest in assessing higher order cognitive domain skills.

Film clips were assessed using two matrices: first, a five-point Likert scale, and second, a categorical classification of responses. We assigned a Likert score of one for the most incomplete, least detailed, and least thoughtful answers, while a score of five was given for the most complete, detailed, and thoughtful responses. By comparing changes in individual scores from pre-course to post-course responses we were able to assess geographic media literacy improvement. There was an 85.8 % response rate to all pre- or post-questions (515 out of 600). Lower order cognitive domain questions had a response rate of 93.1 % (149 out of 160); higher order cognitive domain questions had a response rate of 83.2 % (366 out of 440).

Because we were concerned that the subjective nature of converting qualitative responses to a Likert scale might privilege positive outcomes over negative ones, we conducted a secondary analysis that compared pre- to post-course responses and assigned each response pair to one of the following categories: blank, same, different (but neither better nor worse), worse, or better. All 600 pre- and post-course pairs were used for analysis (N = 600). Anything coded as same, worse, different, or better required the presence of both a pre- and post- response. The blank category was used where there was no response to either pre- or post- questions.

Finally, content analysis of the students' written assessments allowed us to look for trends in responses, as well as to provide confirmation of the quantitative analysis. Qualitative results from the students' pre- and post-course essays, along with quantitative results from the assessment matrices, are presented below.

Pre- and Post-course Essays

Responses collected in the pre-course autobiographies proved useful for analysis in three ways: they gave important insights into the types of students in the courses, provided information on issues of interest to students, and detailed the role of visual media in students' lives. The three courses consisted of freshmen (1), sophomores (6), juniors (11), seniors (16) and graduate students (6). Their ages ranged from 19 to 39, with an average of 23. The gender of students was more or less evenly split, with 47.5 % female (19) and 52.5 % male (21). Non-geography majors outnumbered geography majors nearly two to one.

Despite the differences in course level and content many students expressed common interests in international travel and related this interest to their previous personal experiences. They showed a curiosity about cross-cultural issues, social justice, immigration, and the US/Mexico border, and many displayed a desire to learn and apply digital media skills. As one student explained, "I am eager to dive into the photo essay because it not only allows me creative control over my work, but photojournalism and photography in general are areas of considerable interest to me" (student 27)[1].

[1]To maintain confidentiality, all students that participated in this project were assigned a number. Responses cited in this paper reference this coding procedure.

The pre-course autobiographies also highlighted significant ways that media influences and impacts students' daily lives. One sentiment common to all the students was the media's omnipresence, with television in particular being seen as having had the greatest effect on them. A small number of students also expressed a more negative outlook on media and its role in society, citing its manipulative and/or addictive qualities.

Post-course reflective essays were administered on the last day of class. The first question asked was: "What was the one most useful or meaningful thing about visual media you learned in this course?" Most responses focused on the need to critically examine messages. According to one student,

> The most meaningful thing I learned this semester about visual media is that one should not sit back and absent-mindedly take it all in. Nearly every message sent through visual media has intent or a bias behind it and one can be negatively affected by that message if he or she is not careful. While I do not think it is necessary to write a complete, detailed analysis about the thousands of messages we receive every day, I do think it is important to take a second to step back and think about where the message is coming from and what the creator might be trying to say. In essence, I have learned that it is important to take a more active role in receiving visual media rather than passively let yourself be bombarded with sounds and images all day (student 38).

This statement highlights many key aspects of geographic media literacy including examining intent and bias, being an active rather than passive receiver of information, examining the source of information, and being conscious of the effect visual media has on an individual. By learning how media assembles audio-visual material to tell a story, sell a product, or transmit knowledge, students were better able to differentiate between the affective nature of media and the quality of information received from various sources.

Another critical aspect of geographic media literacy that students acknowledged was how the source of information affected the content. This interrelates two issues in media literacy: first, that sources of information are culturally and historically situated and impose particular perspectives on viewers, and second, that receivers will differentially interpret the information based on their own subjectivity and characteristics (Zonn 1990; Zube and Kennedy 1990).

While in the pre-course essays only one student mentioned identifying manipulation in mediated messages, this number grew substantially by the post-course essays, where more than 50 % of the students said that by engaging in visual media production they learned firsthand how form and context influence information. Many students further remarked on the importance of being active, critical consumers in the wake of proliferating forms of media. We are not suggesting a 'manipulation of the masses' Frankfurt School critique of media literacy here, rather, we would argue geographic media literacy is nuanced, open, and an ongoing process of meaning deliberation between producers, products and consumers.

The final question of the post-course reflective essays asked students what they would like to learn further about this subject/discipline. While at the beginning of the course many students questioned the integration of producing videos, media literacy exercises, and geography, by the end of the class students seemed to grasp the interrelationships.

As a whole, the pre- and post-course essays reveal significant improvement in students' ability to critically evaluate media. Specifically, students became more conscious about intent, bias, and the construction of information content, and how presentation techniques have an effect upon information. Furthermore, many students gained a better appreciation for how a different perspective, based on social characteristics of individuals, affects information presentation and reception. Key visual literacy skills highlighted in student post-reflective essays included being critical about the source of information and being judicious when it comes to selecting information sources.

Film Clip Assessment

The pre- and post-course film clip assessments provided valuable insights into students' digital media literacy before and after the courses. In this section we outline the most important findings based on qualitative content analysis of pre- and post-course film clip assessments before turning to the two methods we used to quantify this shift.

Based on content analysis of the pre- and post-course film clip assessment, students began to link empirical examples to deeper theoretical issues. By the end of the course many students had developed a more critical eye and were able to move from descriptive accounts to more critical commentaries on human-environment relations, thus demonstrating an improvement in their geographic media literacy by inadvertently changing lower-level comprehension questions into upper-level evaluative questions. By the end of the course students were also able to use technical terminology related to digital photography and filmmaking, showing that they were better able to analyze the packaging of messages, narrative conventions, camera angles and shots, color and lighting, and style.

We were further able to distill important trends by quantifying pre-and post-course film clip assessment responses in two different ways. First, after ranking all pre- and post-course responses on a 5-point Likert scale, we found that pre-course scores tended to be higher for questions in lower domain cognitive skills (average score 3.7) and lower for higher domain cognitive skills (average score 2.89). While slight improvements occurred in both lower and higher domain cognitive skills, gains were better on the higher domain cognitive skills questions. We presume that this result was partially due to pre-course scores being high on lower domain cognitive skills questions. Without having taken the course, read any of the material, or completed the digital media project, students had an easier time answering questions focused on knowledge and comprehension rather than those focused on analysis, synthesis and evaluation.

In order to answer higher order questions students must understand and interpret meaning, separate material into component parts for more profound understanding, distinguish between fact and inference, and make judgments about the value of ideas or materials (Bloom 1956). At the beginning of the semester most students had not yet engaged in this type of evaluation regarding media and thus wrestled

with questions such as, "Do you think the documentary will have a happy ending?" or, "What contributes to the narrator's authority in this clip?" By emphasizing geographic media literacy skills in geography courses, higher domain cognitive skills regarding media can be improved; however, improvement is slow and difficult to quantitatively measure.

Discussion

The three courses involved in this study varied in class level, size, and approach to geography (regional, cultural, thematic), as well as in the nature of the visual media project (documentary film, multi-media photo essay) and the pedagogic approaches and styles of the instructors. Still, all three were integrated through their focus on learner-centered education and geographic media literacy, the same assessment material, interactions between faculty and teaching assistants, and a student conference.

The course that required students to produce multi-media photo essays in PowerPoint showed the greatest improvement. Pre-course assessment may have been lower in this course because only 4 of 18 were geography majors. Further, with a less technologically intensive final project, there was more time for evaluative geographic media literacy exercises. The potential drawbacks of highly intensive technology projects were mentioned in self-reflection essays. Some students even suggested that the format of the course be changed to either focus on evaluative media literacy exercises or praxis: "If I were to do the entire class over again, I would recommend not trying to combine content and production into one course. We needed substantially more time to edit our projects" (student 9). However, we found that the best method for improving geographic media literacy skills was applying learner-centered education through project-based exercises and discussion.

Students' personal attitudes and feelings also affected their responses to questions; indeed, only a few students could separate their personal views from critical evaluations. For instance, for the *America by Design* film, we asked, "Who do you imagine the filmmakers had in mind as their intended audience?" Whereas one student (student 2) saw the film's audience consisting of "environmentalists," another saw it as constituted by "Republicans" (student 28). For the same film clip we asked if the documentary would have a happy ending. In their pre-course response one student (student 7) said, "No because it ends describing a misunderstanding between humans and nature." That student's post-course response remained the same, but had greater detail: "It doesn't seem to have a happy ending. The film started with the notion that Americans don't take care of the land they have been 'given,' but rather exploit every bit of it for welfare and prosperity." Another pre-course response states, "Happy endings are relative. *In my opinion*, no this will not have a happy ending because the narrator seems to be arguing that 'conquering' or exploiting resources for the benefit of mankind is a positive thing, and *I do not agree"* (emphasis added, student 8). This student's post-course response remains

the same: "Happy endings are subjective. *In my opinion*, no—because it seems to promote the Hoover Dam as necessary" (emphasis added).

Many student responses show how media provokes an affective response that forestalls a critical evaluation of information. In short, rather than challenging a person's opinion, values, attitudes, or feelings, media's affect may reinforce them (Shaw and Warf 2009). The act of reinforcing personal opinion maintains the consensus group that individuals perceive themselves to belong to, while simultaneously curtailing their ability to critically judge media information from positionalities beyond such standpoints. However, these processes are always in a state of flux and becoming, a never ending shift of meaning and identity creation and interpretation.

While the quantitative assessment matrices showed mixed results on students' ability to improve higher order cognitive skills, the qualitative results appeared to suggest that these skills did improve. This leads us to believe that constructing quantitative measures that assess geographic media literacy skills can be problematic. In our efforts to focus on questions that address human-environment relations and higher order cognitive skills we ended up with no taxonomic questions in the application area. Further, as was shown, a Likert-based analysis worked well to report improved skills (however small), but the categorical analysis seemed to negate part of these findings. The manner of implementing a quantitative analysis had its problems also, as a number of factors could have influenced the results. In contrast, the qualitative assessment appeared to allow students to be more open with regards to their answers and to express their opinions, values, beliefs, and knowledge by going beyond what was asked for in a question to expound upon ideas that were of concern to their personal lives.

Conclusion

As Westernized nations move further into a postindustrial world where culture is increasingly commodified and packaged into mediated information, students need to be able to critically evaluate and differentiate not only between data, information, and knowledge, but also between evidence, meaning, stereotypes, rhetoric, and ideology. Some key geographic media literacy issues exposed through this project include the following: omnipresence of media, the medium's effect on content, intent and bias, being active consumers, differential reception, and the importance of hands-on practical work in enhancing visual media literacy.

If representations such as those portrayed in documentary films are already subjective (Natter and Jones 1993), and if the reception of such information is also deeply subjective, then why is our ability to critique media so important? The answer lies in the need to improve our ability to assess the quality, source, and content of visual media, as well as the need to understand that the author(s), the medium, and the positionality (including both biography and wider socio-cultural context) of the viewer are always in a co-constituting process of meaning and identity negotiation.

Developing skills to critically evaluate visual media should include exercises that analyze specific texts and generate technical understanding of the techniques of narration within a visual text. Textual analysis exercises can involve everything from content analysis and technical-stylistic assessment to decoding or deconstructing the meanings embedded in images. It can also include situated analysis of the socio-spatial, cultural, and historical contexts of representations and their receptions. Critical thinking is not just for evaluative purposes; it can also probe the affective nature of media. Becoming conscious of how media affects our emotions, behaviors, and values is just as important as learning skills with which we can critically analyze media.

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