Developing cultural responsiveness in environmental design students through digital storytelling and photovoice

Debra Flanders Cushing, PhD
Creative Industries Faculty
Queensland University of Technology, Australia
debra.cushing@qut.edu.au

Emily Wexler Love, PhD
Omni Institute
Denver, Colorado
ELove@omni.org

Abstract
As the Latino population in the United States grows, it will become increasingly important for undergraduate students in environmental design and related disciplines to become more culturally responsive and learn how to understand and address challenges faced by population groups, such as Latino youth. To this end, we involved environmental design undergraduate students at the University of Colorado in a service-learning class to mentor Latino youth in the creation of multimedia narratives using photovoice and digital storytelling techniques. The introduction of technology was used as a bridge between the two groups and to provide a platform for the Latino youth to reveal their community experiences. Based on focus group results, we describe the impact on the undergraduate students and provide recommendations for similar programs that can promote cultural responsiveness through the use of digital technology and prepare environmental design students to work successfully in increasingly diverse communities.

Keywords
Environmental design, cultural competency, cultural responsiveness, Latino youth, multimedia narratives, digital storytelling, photovoice

Introduction
The Environmental Design program at the University of Colorado trains undergraduate students for careers in architecture, landscape architecture, and planning. Professionals in these career fields are often called upon to work in and engage diverse communities and understand the needs and cultural differences of various populations. Much has been written discussing the need to attend to cultural responsiveness in preparing students for such work (Agyeman & Erickson, 2012; Forsyth, 1995; Rios, 2011) with some researchers calling for an integration of cultural competency across curricula as a recurring theme (Agyeman & Erickson, 2012). In addition, focusing on personal and professional accountability in design education through transformative experiences is necessary to “de-stratify our society” and enable students to challenge the status quo (Rios, 2011, p. 46). Therefore, developing an awareness of cultural differences, or cultural responsiveness, is critical for students studying environmental design in today’s rapidly shifting demographics.
One of the challenges of building cultural responsiveness into the curriculum at the University of Colorado is the need to prepare predominantly white students, many of whom come from middle class and affluent families, for future work in diverse communities, of which they may not have direct experience. Only 18% of the undergraduate students identify with a minority ethnicity or race (University of Colorado, 2012), which subsequently limits the student diversity in a typical classroom. This also limits the opportunities for interaction with and exposure to different cultural groups for students.

Although there are a significant number of diverse population groups with whom environmental design professionals might work, we chose to partner with one of the fastest growing population groups in the United States, first- and second-generation immigrant children and youth from Latin America (Stepick, Dutton Stepick, & Labissiere, 2008). In 2009, 22 per cent of all children under the age of 18 in the United States were Latino, a number that is expected to grow to 29 per cent by 2025 (Fry & Passel, 2009). In addition, population projections for 2020 estimate that Latinos will represent the largest racial/ethnic group in the US, after whites, at 22.5 per cent (University of California (San Francisco), 2003).

We, therefore, attempted to familiarise university students with the issues faced by this population and provide an opportunity to work directly with them to facilitate a mutually beneficial project. Working within the university constraints, we designed an interdisciplinary class that incorporated a service-learning model, through which undergraduates were able to provide a needed service to the community and engage in critical learning. Moreover, a service-learning model offered students an experiential learning opportunity whereby students could consider how the theory and content they learned about in a classroom setting was operationalised in a community context. Using a community-based service-learning format, we developed a project with our community partners to ensure mutual goals and objectives were addressed, and focused on incorporating transformative reflection to better achieve the learning outcomes for the participating undergraduates (Angotti, Doble, & Horrigan, 2011). The project enabled undergraduates to take part in an activity with a culturally diverse population of youth. Although the target university group included primarily undergraduates majoring in environmental design, we were also able to open the class to students in other majors, such as education, journalism, and sociology, to engage a more diverse cohort of students. By attracting students with a broader range of perspectives and experiences, our class created opportunities for richer discussion and deeper reflection, critical factors to develop cultural responsiveness.

Many of the undergraduates participating had little in common with Latino youth. We therefore needed to bridge the gap between the two groups and create a meaningful and multi-modal project with which the students could engage. We used technology to do this and created a project that incorporated digital storytelling and photovoice to allow Latino youth the opportunity to reflect on their community and what it means to them. Photovoice is a process through which community members can photograph issues they observe and write captions to express their perspectives. Similarly, digital storytelling is a participatory process that enables community members to use photographs they already possess or take new ones, then add a voiceover script and music to create short videos to inform the public about community issues from a personal perspective. These two digital technologies, digital storytelling and photovoice, have been shown to be effective in engaging students in learning and in producing their own knowledge based on personal experiences (Baker & Lovell, 2009; Sadik, 2008).

This paper reports the findings from an evaluation of the class we developed and taught for three semesters. First, we describe the goals for this class and the context in which it was developed. We then provide additional details about our use of photovoice and digital storytelling in the classroom and the process for facilitation. Next, we discuss our findings from undergraduate student focus groups and conclude with a discussion about developing cultural responsiveness in environmental design students.
Goals of the Class

We first created the service-learning class described in this paper as a partnership between the Children, Youth and Environments Center for Community Engagement at the University of Colorado Boulder and three local high schools. The Center is housed in the College of Architecture and Planning and undertakes interdisciplinary activities in research, teaching and community outreach to support meaningful participation by young people in the creation of thriving communities. As researchers and instructors associated with the Center, we had experience with community engagement and felt confident coordinating this class. Starting in late 2008, we developed the class and taught it over three semesters. We used input from the undergraduate students and youth participants, as well as ongoing outcome evaluations to continuously enhance and refine the participatory processes employed. The goals, however, have remained the same; with a major focus on connecting undergraduate students to Latino youth in an effort to build cultural responsiveness; raising awareness about the unique challenges of minority ethnic populations in our communities; and learning the value of engaging traditionally underrepresented stakeholders. It also introduces diverse high-school youth, predominately Latino, to the possibilities of attending university and to the community development professions. The undergraduate students learn to facilitate photovoice and digital storytelling activities with high-school youth who generate knowledge about their community and share this information with community officials and the wider public.

Growing Population Diversity

It is critical for environmental design students to understand the population they are working within. The Latino population in Boulder County, Colorado, where the university is located, is experiencing a dramatic increase, having nearly doubled between 1990 and 2005 (Boulder County Civic Forum, 2007). According to the 2005-2009 US Census estimates, the Latino population was 13 per cent of the total population (United States Census Bureau, 2009). However, the student population at the University of Colorado has not kept up with this shift in population, and, although the percentage of Latino undergraduate degree-seeking students grew by 2.6 per cent from 2008-2009, it totalled just 6.4 per cent of the student body in the spring of 2010. This disparity is also evident in the College of Architecture and Planning, where Latinos comprise only 7 per cent of the student population (University of Colorado, 2012). To create more inclusive processes of community development that better represent the diversity of the U.S. population, it was necessary for teaching staff to intentionally incorporate opportunities for students in environmental design and related disciplines to reflect on cultural responsiveness through projects that give them the skills and experience of working with diverse populations.

Research has shown that community engagement looks different for various ethnic groups, both in concept and practice (Sánchez-Jankowski, 2002; Stepick, et al., 2008). Therefore, opportunities for engagement in community development projects need to accommodate cultural differences and enable students to consider the range of ways they can support community engagement in their future work. By designing service-learning projects that provide opportunities for students to connect with diverse populations, they can begin to develop a core set of skills that help them to be more responsive to all population groups.
Stereotypes, Racism, and Other Challenges faced by Latino Youth

Before engaging with Latino youth, undergraduates must first learn about background experiences and challenges these youth are navigating. To this end, we share digital stories created by young people from the community and discuss research on youth experiences. We facilitate deliberate conversations with our undergraduate students about the biases that Latino youth face in interactions with teachers and in the wider community (Katz, 1999; Rosenbloom & Way, 2004). Latino youth also face challenges resulting from personal and environmental characteristics, including socio-economic status, education level, English language skills, availability and accessibility of affordable housing, work schedules, and access to daycare, among others. Our students reflect on how these characteristics can make it difficult for people to participate in community initiatives and often precipitate social stigmas that reinforce racism and discrimination by the dominant culture (Rios, 2011). In addition, we discuss how challenges faced by Latino youth, such as low expectations in school and the community (Streng et al., 2004; Valdés, 2001); barriers to postsecondary education (Abrego, 2006; Callahan & Gándara, 2004; Streng et al., 2004); and a lack of value placed on their cultural backgrounds and language, often impede their success.

During the class we also emphasise the role that the mass media play in propagating common negative stereotypes. Messages portraying Latino youth as deviant, promiscuous, or lazy permeate our media-saturated society. Often the messages include insinuations and assumptions that they are undocumented, engage in gang activity, and cannot speak English or succeed in school (Katz, 1997). These negative portrayals discount Latino youth voices, fail to recognise the strengths that youth offer, and perpetuate the lack of respect that dominant group adults show them, thus limiting their opportunities to engage in their communities.

In general, when adults refer to youth as a group, they are likely to refer to problems they perceive. Due to limited personal interactions, adults often exaggerate such negative perceptions of young people who belong to ethnic groups different from their own (Aubrun & Grady, 2000). In addition, television news is almost twice as likely to portray Latinos (not necessarily Latino youth) as felons, as compared to whites (Dixon, 2000). And youth have pointed out how negative images and stereotypes can prevent them from contributing to their communities and have requested more realistic images in the media that focus on the positive potential of youth (Messias et al., 2008).

Against this background, our undergraduate students learn to facilitate a project intended to empower marginalised groups to counteract negative stereotypes. Through the process of working directly with the youth, our students often see that this is an important step for Latino youth to gain access to opportunities to improve their communities and personal lives. In the following section, we briefly discuss participatory planning theory as the theoretical framework we used to connect the engagement portion of the class to the design professions.

Participatory Processes

In the classroom, we discuss participatory planning practices reflecting the work of Paul Davidoff (1965) who argued for advocacy planning, and Sherry Arnstein (1969) who advocated for citizen participation in community decision-making. Participatory planning involves advocating on behalf of underrepresented population groups and giving them opportunities to have their opinions heard, as opposed to a purely top-down approach in which planners and decision-makers determine recommendations and implement solutions. Participatory planning and design often incorporates the social equity ideals of advocacy planning as a means to empower people to speak for themselves and create change on their own behalf.
The principles behind participatory planning also reflect the writings of Paulo Freire in his seminal work, the *Pedagogy of the Oppressed* (1970). Specifically relevant to Latino youth engagement, is Freire’s (1970) concept of critical consciousness, or *conscientização*. Critical consciousness, developed through action and reflection, includes an understanding of societal forces that restrict one’s ability to take action and confront oppression (Freire, 1970). Action projects can provide young people with opportunities to develop critical consciousness, empowering them to reflect on their world and initiate change in their own communities (Ginwright & Cammarota, 2007). Through the discussion of this literature during the first few weeks of the semester, undergraduates learn that participatory processes can provide opportunities for youth to critically examine their community and take action to change it.

**Using Digital Technology for Engagement**

We introduced two engagement techniques to students in this class, photovoice and digital storytelling. These techniques depart from other contemporary methods used in participatory planning and design, such as community meetings, simulation games, and visual preference activities, to incorporate participatory digital media. While researchers and participation experts often encourage the use of contemporary participatory methods (Sanoff, 2000), the methods often reflect the expectations and cultural participation norms of the dominant culture. For example, participants of a community meeting or workshop may be expected to communicate their opinion in a traditional forum with a microphone in front of a crowd. However, for participants such as Latino youth, this may not be the setting with which they are comfortable. In contrast, the use of digital photography gives young people the opportunity to use familiar technology and provides more options through which they can capture and share their experiences. These techniques can empower youth to contest the dominant social stereotypes by relying on insider knowledge of their own lives (Messias et al., 2008).

Although photovoice and digital storytelling are often used on their own, combining them in the same project can lead to more thoughtful and powerful messages. This model also allows undergraduates and high-school youth more opportunities to work together and develop important relationships (Klein, Reyes & Koch, 2007). Other disciplines, such as public health, have used photovoice and digital storytelling to empower marginalised populations and engage them in community-based initiatives (Strack, Magill & McDonagh, 2004; Wang, 1999; Wilson, 2006). Although the digital technology provides a focus for the interaction between diverse youth and university students, it is also important to ensure that a certain level of trust is established before beginning the photovoice and digital storytelling process. To do this, undergraduates facilitate introductory activities to build relationships that make it more comfortable for the youth to share their experiences and discuss their photos later on.

**Photovoice**

Photovoice, developed by Wang and Burris in 1992, is a technique often facilitated within a participatory action research framework with three main goals: 1) to empower marginalised populations to record their needs and reflect on their lives; 2) to increase their collective knowledge about a specific situation or issue they face; and 3) to inform policymakers and the broader society about the issues of greatest concern to the marginalised population (Wang et al., 1996). Research has demonstrated the potential of photovoice as a medium for youth empowerment and community change (Davis, 2004; Messias et al., 2007; Rudkin & Davis, 2007). Variations of photovoice have been used in other community development projects and participatory processes (Gant et al., 2009).

During our class, the undergraduates learn about photovoice as the first step in the process of creating digital stories. They engage in collaborative peer workgroups to learn how to facilitate a session with youth, as they are responsible for leading each session with the high-school youth.
To ensure youth are able to accomplish the project objectives and that participants have access to digital technologies, youth participants borrow digital cameras that we acquired through grant funding to take pictures of their communities, including places they hang out, places they never go, places that feel segregated, places that are welcoming and inclusive, and places they simply like or do not like. They download the photos from the cameras and the undergraduate students facilitate a discussion with the youth based on the SHOWeD method. The SHOWeD method involves five questions: What do you See here? What is really Happening here? How does this relate to Our lives? Why does this situation, concern, or strength exist? and What can we Do about it? (Strack, Magill & McDonagh, 2004). Because the undergraduates need to build relationships with the youth, they are able to adapt the questions to be responsive to the youth as long as they capture the same basic information. After discussing the photos, undergraduates support high-school students through the process of writing captions for specific photos, selecting those that most effectively communicate their desired message.

Small group discussions using the photos as prompts are a critical aspect of the photovoice process. These discussions create opportunities for participants to inspire each other to take more informative photographs, develop a collective voice around their messages, and mobilise the participants toward both individual and collective action (Strack, Magill & McDonagh, 2004; Wang & Burris, 1994). For some participants, photovoice offers an opportunity to share experiences and perceptions they may otherwise be unlikely to share. Essentially, participants can indirectly ‘self-reveal’ sensitive ideas by sharing their photos (Chio & Fandt, 2007). Latino youth have identified their photo-essays as a “medium for creating change” and a way to create alternative images of them in the community (Messias et al., 2008). Undergraduates made use of the photovoice technique as a means to ensure that youth have photos of their community and as the first step to create their digital story.

**Digital Storytelling**

Digital storytelling is a method made popular by the Center for Digital Storytelling, a nonprofit, community arts organisation in Berkeley, California, founded in the late 1980s. It enables people who are not professionally trained journalists or filmmakers to produce their own media messages instead of simply consuming those produced by others. A typical digital story contains three components: a narrative script that becomes the voice over and subtitles for the video; still photos and/or short video clips combined to create the visual component of the video; and music that sets the mood and accentuates the overall effect. In the program described in this paper, undergraduate students combine photovoice with digital storytelling, enabling community youth to reflect on their photos and determine the message they want to communicate in their digital stories. Undergraduate students first learn the digital storytelling process by creating their own digital story that they share with their classmates. Once they are familiar with the process, they mentor the Latino youth through each step.

When undergraduate students are learning the process for themselves, most will either have their own digital camera or smartphone, or can borrow one. This is also true for the photo-editing and movie-making software which are often accessible at computer labs on a university campus or as free or inexpensive software on individual computers and tablets. However, a community group may not have access to these same resources and accommodating this is a key component of ensuring a successful project.

When the digital stories are finalised, we host a public exhibition to share them with a broader audience. It is critical that undergraduate students and other adults help the participating youth to determine the appropriate venue and audience for the exhibition and draw on existing contacts to invite important community leaders. We treat the final exhibition as a celebration in order to acknowledge the significant amount of work the undergraduates complete and provide them with a sense of closure for the relationships that they have built over the semester.
**Research Methods**

In order to assess the impact of this class on the undergraduates, a researcher not involved with the class led focus groups with the university students during the last week of each semester. The focus groups were semi-structured in nature and designed to evaluate the positive and negative experiences of the undergraduate students. A total of 36 students participated in the focus groups over the three semesters. We received human subjects approval from the school district and from the university to report on the data collected. The focus groups were transcribed and analysed for common themes using NVivo content analysis software.

**Findings**

A significant goal of the service-learning class was to enable university students majoring in environmental design to increase their cultural responsiveness and understand the importance of listening to the views of multicultural populations, particularly Latino youth. For most students, this was accomplished. As one participating non-traditional college student, a Latino immigrant himself, noted, “It [the class] was successful because in the past I only thought of adult immigrants, and now I think of youth and how they incorporate themselves into the community.”

In addition, most students mentioned the value of learning and using innovative participatory methods, such as photovoice and digital storytelling, to build cultural responsiveness, and develop a greater awareness of other cultures, ethnicities, and age groups. They came away learning the possible benefits of community outreach and taking steps to specifically involve diverse population groups in environmental design projects. The following quotes are from several different students who noted a greater awareness of cultural differences.

- One of the things that I learned is that everyone has different views. I see that some of the students here have different perspectives, and I learned that we can make a lot of changes with photovoice because, with the captions, you can express all your feelings and what needs to be done, and what changes [are needed] in the community.

- It kind of shows what [the youth] were saying, how everything connects, like socioeconomic status, and where everyone is coming from. Where they come from and whether they’re immigrants or not, they’re all connected. You have to consider it all when you’re in planning or architecture.

- In my perspective, coming from different communities in the United States, a lot of people came in [to the class] thinking that race wasn’t a big issue right now. And I think this class allowed everybody to think of all of the groups that are out there.

- It [the class] really made me think about bringing youth into design, and I know that this is exactly what our class is about. But I’m really looking at going into work like this abroad. And what I’ve gotten out of this class is that not only do I need to be thinking about what the local community needs, but I need to be looking at and talking to the youth of that area for a lot of the answers. And I just don’t think that I would have thought about it the same way if I hadn’t gone through this class. So in that way, it’s affecting me on a personal level, and I really like that.

Students also expressed satisfaction with the service-learning format of the class, above what they would experience in a typical, non-service learning seminar or lecture style class. Several students noted their increased level of engagement and accountability for the material covered in the class.
We’re not just sitting here and talking about it, we’re sitting here talking about it and then doing things about it and talking with other people about it and being engaged in the community. So that’s one thing I thought was really successful about the class.

Working with the youth really helped me get involved personally with the class. Just doing something active by going outside the school made me feel more connected with the class.

This is the most refreshing format change I’ve ever had at [the University of Colorado]. It’s like having the service-learning component reinforced everything we had in class. It’s like in seminar classes, everyone’s going to take their own research direction and no one really cares about keeping it on track. But actually having the service-learning component helped to reinforce all the material that we were going through.

Students also indicated that the class helped them learn a set of interpersonal and communication skills they could use after graduation, in whatever profession they intended to go into.

I think from this class specifically we’ve all gotten a much better skill set to take with us, in whatever direction our career takes us.

I definitely came in already planning a career path doing architecture, like low-income housing. That’s the reason I took this course. But now I feel like I have a lot more options. I know a lot more about my career field and other connecting career fields.

Although all three semesters were generally thought to be successful, some students stated that the time constraints and logistics limited the connections made with the community youth. Other scholars have also concluded that one semester is not enough for students to engage with a community in a meaningful way and develop a transformative relationship (Rios, 2011). Participating students recommended this type of class be turned into a year-long class or a certificate program in order to increase the amount of preparation in facilitation and community engagement, as well as increase the number of interactions they have with the community.

Additionally, it was important for the class not to be too focused on the digital technology, but to use it only as a tool to facilitate connections with a community group and to enable them to tell their own story. For example when the students were told that the class would be taught again the following year, one reflected that:

It [the class next year] may be really focused on the Photovoice part, which was a very valuable thing, but I hope that the part of emotion and reflection and connecting with the youth on an emotional level isn’t lost. Because I thought that was one of the most valuable things of this class. I hope Photovoice doesn’t take that over and make it more technical.

Discussion

Classes that enable environmental design students to connect with diverse population groups can encourage the development of core skills to act more culturally responsive to community groups. Our findings suggest there is value in using specific teaching models, such as service-learning, that also incorporate digital media technology as a tool to connect students with populations and effectively learn about their experiences and needs. Through the research presented here, we have learned the importance of developing classes that explicitly focus on how culture and ethnicity impacts environmental design. Undergraduate students need to have opportunities to build cultural responsiveness and learn that community development processes must be context specific and inclusive in order to be effective and meaningful. Therefore, students need to develop skills enabling them to facilitate these processes. To this end, participation in a class such as the one
described here can be very useful. Based on our findings, we recommend the following key principles for developing similar community engagement projects that incorporate digital media technology.

First, the use of photovoice and digital storytelling offered a constructive way for undergraduates to connect with community youth. Since the undergraduates were trained in the multi-media techniques prior to facilitating the project with participating youth, they were not only seen as experts in this technology, but it gave them a starting point and a focus for the interactions. This was important for undergraduates who did not have experience working in the community and may not have had a previous connection with the youth. In addition, the youth were excited about creating their own videos and sharing their stories, as opposed to simply participating in a more typical focus group or interview. Therefore, the digital media technology was a key reason for the success of this project. However, it is important for the technology to be seen as a means to an end, and used as a tool for encouraging the interactions and communicating the youth stories without overshadowing the transformative relationships that often developed.

Second, in service-learning classes, students must learn that they can best support a community group if they focus on an issue that is relevant to that group. In this class, the undergraduates heard directly from community youth that their personal experiences of racism and discrimination were creating barriers to their community and school participation, preventing them from becoming more involved in community-based initiatives. By helping them create digital stories about their experiences and needs in the community, they can reflect on those experiences and present a more truthful account of Latino youth. For the participating undergraduates, it was a critical step in their learning process not to rely solely on adult mediated research, but to work directly with young people as partners in the project and co-create the messages.

Third, for undergraduates to experience a project that promotes awareness of marginalised people, those people need to participate in the community-based class activities. Marginalised groups often face barriers to community engagement that may also prevent them from participating in projects like this, such as limited technical resources and limited class time to participate. These barriers needed to be addressed before our class could begin. This is also an important lesson for students to learn when working in other contexts and later in their careers. Although digital media technology appears to be everywhere in our society, certain populations may not have access to it or the knowledge to use it effectively.

Finally, while the undergraduates benefit from working directly with marginalised groups and hearing their voices, the class can have a greater impact on decision-making when community leaders such as city council members and staff planners, landscape architects and architects in the community watch the digital stories and ask follow-up questions themselves. For the undergraduates, hearing the reactions of the community leaders can also provide a sense of closure for the class and give them insight into what actions may be taken, if any, to address the issues raised in the digital stories. Sharing the finished work within a larger context can also help ensure that the service-project is not just a one-off classroom exercise, but is more meaningful to the broader community.

The structure, format, and content for environmental design education needs to respond to emerging demographic patterns if it is to remain current and relevant. Providing service-learning opportunities that incorporate digital media techniques enables undergraduates to develop culturally responsive skills to learn about and work with diverse populations. Directly learning and practising culturally appropriate facilitation methods within a university experience can help prepare future professionals who are culturally sensitive and knowledgeable about the very communities in which they will be employed.
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