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City reflections: design collaborations for cross-cultural learning

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Abstract: Design educators must learn to develop and lead successful intercultural projects and exchanges for students entering into a globally connected and diverse profession. Teaching students to approach problems by using collaborative and interpersonal skills provides them with durable assets to better understand international audiences, colleagues, and perspectives. The proliferation and integration of first-hand cross-cultural experiences into design curricula can result in innovation and knowledge sharing, indicating synergistic properties in which the whole is greater than the sum of the parts. This research explores how collaborations between geographically separate design students in San Francisco, California, USA and Dubai, UAE—mediated by virtual communication—can impact learning, cultural awareness, and audience sensitivity. The two distinct courses challenge students to work together in teams, understand a range of audiences, give and receive critical feedback, exchange projects, and respond with culturally sensitive design solutions. The paper introduces the rationale, methods and design-related outcomes of a series of collaborations to encourage design educators to develop cross-cultural methods in their own classrooms.

Keywords: Cross-cultural, design education, collaboration, internationalism, cultural perspective, virtual communication.

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Introduction

A case for cross-cultural design

While the need to design for—and within—different cultures is a present reality of the design practice, the design classroom presents a valuable, yet rarely utilized opportunity to help students develop cross-cultural communication skills and awareness (Schadewitz 2007, 2). With the use of current digital tools and an understanding of how to facilitate interpersonal interactions that transcend barriers of time, distance, language, and preconceived notions, it is possible for design instructors to guide students through immersive and collaborative processes, helping them develop techniques for communication with international audiences and design professionals (Blair-Early 2010, 213).

Classrooms located on opposite sides of the globe can emulate the communication realities of praxis, connecting through technologies such as email, cloud-based collaborative tools, and various social media (Moldenhauer 2010, 226). Integrating these methods into design curricula help students navigate behavioral intricacies of language and culture, rather than understanding other cultures through secondhand resources (Wang 2011, 244). The proliferation and integration of first-hand cross-cultural experiences into design curricula can result in design innovation and knowledge-sharing, indicating synergistic properties in which the whole is greater than the sum of the parts.

According to Sikkema and Niyekawa, "Methods and manners of communication are so ingrained in us through our culture that we normally do not even begin to become culturally aware until some kind of cross-cultural communication breakdown occurs and we find that things simply don't mean the same" (Sikkema and Niyekawa 1987, 28). This research explores how design collaborations between geographically distinct teams can improve cultural awareness and audience sensitivity beyond embedded cultural norms—forestalling these "communication breakdowns." With the aim to encourage design educators to develop methods for intercultural collaboration in their own classrooms, this paper evaluates the rationale, methods and outcomes of a series of collaborations between design students in San Francisco, California, USA and Dubai, UAE.

Rationale for cultural awareness in the curriculum

Wang (2011) cites varying viewpoints to support the need for undergraduate students to cultivate "intercultural communication skills and sensitivity to cultural differences." Rationales range from preparation to enter a "global marketplace" and developing "world mindedness" to inspiring students to "civic action to redress global injustices" (Wang 2011, 243). Beyond the practical application within industry, additional sociopolitical benefits to cross-cultural educational experiences include "respect for cultural diversity and preservation of the elements of cultural identity" (Sánchez Sorondo, 2005). For those living in ever-diversified environments, learning to understand and accept other cultures helps diminish conflict and serves local communities' best interests (Gay 2000, vii–viii) "to promote peaceful understanding and tolerance, thereby identifying and encouraging true human values within an intercultural perspective" (Sánchez Sorondo, 2005).

Educators should prepare students for the rapid evolution of technology, global communications, and the evolution of education itself. Kurzweil argues that the current

democratization of information will bring an influx of virtually mediated education at all levels, accessible from anywhere in the world (Kurzweil 2005, 249). Integrating cross-cultural collaboration technologies into design classrooms will ensure that design continues to play a formative role in this indefatigable networked global community.

Intercultural collaborative design education developments

Cross-cultural design collaboration is the effective exchange of ideas, information, decision-making, form-making, and critique to arrive at successful visual communication solutions. In industry, cross-cultural graphic design discussions focus primarily on interacting with target audiences, and often overlook the reality of the communication that occurs between design professionals. Meanwhile, traditional design pedagogy relies heavily on form-making; the concept of internationalism is an aspect rarely addressed in the formal curriculum (Blair-Early 2010, 210). Students lack preparation for the realism of a "connected" intercontinental workplace and need to develop skills to better understand cross-cultural problems, audiences, and colleagues.

Design educators must prepare students to communicate, interact, and thrive in this present-day global environment. "Along with the rapid expansion of a potentially international audience, designers are being asked to solve multifaceted problems that address issues of sustainability and globalism" (Blair-Early 2010, 211). A successful cross-cultural design experience can help young designers enter the profession with multicultural sensitivity and sensibility, along with collaborative experience. These qualities give young professionals a competitive advantage not only in the workplace, but also in terms of enhancing their sensitivity, self-awareness and their visual work.

There is a present need to expose design students to design problems beyond surface-oriented form and instead explore larger issues and ideas through their visual work (Blair-Early 2010, 213–215). However, several pitfalls exist within the structure of most traditional design curricula, including the fact that "As design programs become overloaded with courses focused on providing new technical skills, the ability to develop cross-disciplinary and cross-cultural experiences diminishes" (210). Blair-Early describes several cross-cultural and multidisciplinary collaborative design education projects that have taken place at University of Wisconsin-Milwaukee in recent years, though the paper does not cover any of these virtual exchanges in great detail. The paper briefly discusses "the role of social networking tools and participatory research in addressing cross-cultural and multicultural challenges" (208).

Buck-Coleman's "Sticks+Stones" project examines a cross-cultural exchange within American borders that took place between students located in the states of California, Utah, Maryland and Alabama—vastly different corners of the United States (Buck-Coleman 2010, 193). "Sticks+Stones" focuses on the ethical implications of "how personal beliefs of race, religion, socio-economic class and other differences impact visual messages" (191). The 2005 and 2006 collaborations took place through correspondence, but in 2006 the project culminated in a brief symposium at the Museum of Tolerance in Los Angeles, which gave students an opportunity not only to interact in person, but to provide feedback and engage in challenging discussions face-to-face (196).

Schadewitz's research examines exchanges over a three-year period between interaction design students in Korea, Austria, Hong Kong and Taiwan as they collaborated on various "design patterns," also relying on virtual communication to exchange ideas and visuals (Schadewitz 2007, 26). Moldenhauer, meanwhile, discusses the potential pitfalls and merits of introducing virtual collaboration technologies to

design classrooms in the first place (Moldenhauer 2010, 222). Virginia Commonwealth University, Qatar presents a different kind of cross-cultural design education model: in their particular example, American design pedagogy has been imported to Qatar's "Education City" in Doha, their capital. Yyelland and Paine describe "Pros and Cons of American Education" through the eyes of their predominantly Qatari students (Yyelland and Paine 2009, 127).

Research opportunity and intentions

At some point in their educational process, design students should have a cross-cultural communication and collaboration experience, regardless of whether they have an opportunity to study abroad, to learn from an instructor of a different culture, or to virtually interact. An English-language literature review revealed plentiful sources on collaboration, cross-cultural communication, or virtual communication technologies; there is little existing research that combines these topics together with productive, design-related outcomes (Schadewitz 2007, 2). Though there is some documentation of cross-cultural design education projects or courses, many of these involve cultures that already reside within the same community, or are temporarily collocated through study-abroad programs. Wang also notes that, while collaboration itself has been widely researched and documented, discussions of intercultural collaboration are less prevalent in general due to the difficulty in developing and leading successful projects (Wang 2011, 244).

In response, this investigation examines how a series of cross-cultural collaborations between design students in San Francisco and Dubai—mediated by virtual communication—can impact learning experiences, promote cross-cultural communication and understanding, explore similarities and differences, change ideas of representation, and address perceptions of "self" and "other." The ongoing research documented in this paper tests whether two geographically distinct design classrooms can improve cultural awareness and audience sensitivity beyond embedded cultural norms—using design thinking approaches and virtual communication tools.

Speculative project goals

In Spring and Fall 2012, students at Zayed University (ZU) in Dubai, UAE and University of San Francisco (USF) in California, USA, followed a design thinking and Human-Centered Design (HCD) methodology to engage in a series of projects that required students to work together in teams, exchange projects, and give critical feedback (IDEO 2012, 8). The two courses aimed to challenge students' assumptions of self and "other," to understand a range of audiences, and to respond with culturally sensitive design solutions. While each of the four projects had unique sets of learning outcomes tied to the objectives of each course (as defined by each department or program), the overall collaboration was founded on the following goals:

DESIGN

- Guide students through a series of team-oriented design projects, with the assumption that some might be hesitant to participate due to self-consciousness about language or anxiety about cultural differences.
- Ask students to generate visual work inspired by images and input from their partners, with the assumption that they might influence each other's visual design work.
- Encourage students to expand their visual language, explore new design concepts, and broach topics such as "similarity" and "difference."
- Explain how cross-cultural communication and collaboration are valuable professional skills for an international design market.

AUDIENCE

- Evaluate students' shifts in perception of audience, representation, and the "other" based on project completion. Encourage self-assessment, measured through written or visual coursework.
- Examine students' increase in local cultural understanding and how they apply "self" as a lens for reading another's cultural norms and as a way to widen awareness of what a persona—or audience—could be.

COMMUNICATION

- Discuss with students the ability to cooperate across distance using available technologies to effectively produce specific design assignments.
- Implement the use of constructive critical feedback as an important part of team interactions, with the assumptions that difficulty will arise due to the asynchronous communication technique, and that, as introductory design students, both groups will be new to critique.
- Encourage students to build collaborative working skills and practice openness to cross-cultural interactions, with the assumption that logistical issues of language, cultural translations, anxiety, and time difference will likely create communication challenges.

SOCIAL LEARNING

- Embolden students to discuss potentially polemical topics, such as religion or politics.
- Promote collaboration both as tool for cultural diplomacy and as relevant industry skill, with the assumption that students would likely have little previous knowledge of the other culture.
- Measure students' visual and written work in terms of what they learn from their partners' cities, cultures, and design styles.
- Encourage students to develop friendships—or at least empathy.

Methodology

Using a process of design thinking, the geographically distinct teams researched local culture, developed an understanding of international perspectives through their partners, and used virtual technologies to arrive at collaborative design solutions. Design thinking is a human-centered practice that follows a system of overlapping phases defined as inspiration, ideation, and implementation (Brown 2008, 88).

Researchers at the HPI-Stanford Design Thinking Research Program further describe the process as: define, understand, ideate, build, and test (Plattner 2011, xiv). Similarly, IDEO's "Human-Centered Design Toolkit" helps designers analyze an appropriate solution for each unique context by applying the phases: hear, create, and deliver (IDEO 2012, 8).

During both semesters, the 12-hour time difference between students required the use of asynchronous communication tools as a primary means for exchange and dialogue. Email and cloud-based collaborative technologies enabled participants to communicate in writing and exchange images and files with each other. Students in the geographically distinct classrooms were paired primarily based on complementary characteristics outlined in Digman's five-factor model of personality (Digman 1990, 433). Aside from evaluating their visual projects, important aspects of both exchanges were regular writing assignments to accompany each project phase.

In addition to providing instructors with a qualitative measure of each student's experience, students provided additional quantitative feedback regarding their learning outcomes and impressions of the course through completion of an optional online survey after the conclusion of the project(s). This section specifically discusses the approaches to project work; qualitative and quantitative analyses are detailed in the "Results" section of this paper.

Project overview

Spring 2012 began the ongoing international design education experiment between two introductory design courses located at University of San Francisco (San Francisco, California, USA) and Zayed University (Dubai, UAE). The first assignment of the semester asked students to photographically illustrate two contrasting concepts within their own cities (e.g. historic/modern, natural/man-made), in order to give the partners a relatable starting point from which to gradually expand their perspective on the other culture (Sikkema and Niyekawa 1987, 23). Using the oppositional concepts allowed students to critically examine cultural influences in their own city before attuning themselves to the other city. Through a written assignment, students shared the qualities and characteristics of their own cities with their partner, while simultaneously evaluating the city of their partner through an exchange of imagery.

Next, students shared their initial visual and anecdotal research to develop a series of posters about their perspectives of the similarities and/or differences between the two cities. Partners also collaborated on a poster "remix" project using critical texts (news articles, essays and prose), exploring themes such as the built and natural environments, immigration issues, and historic perspectives. Finally, students incorporated process work, design artifacts, and written reflections into a collaborative process book that recorded and described both classes' experiences and project outcomes.

In Spring 2012, the collaboration was the primary focus of the term, but in Fall 2012 the exchange served as a cross-cultural supplement to more typical coursework. This new group of students participated in a simplified version of the project in an effort to measure whether they would gain similar benefits and skills from a cross-cultural collaboration within a truncated time frame. Fall 2012 students participated in an analogous photography exchange, but with different prompts to drive discussions. Students similarly exchanged emails and images, and explored culture through simple visual narratives.

Guided collaborative design assignments: Spring 2012

In Spring 2012, 29 students engaged in 4 different guided design assignments and produced visual artifacts that they exchanged with their partners. In some cases, the partners modified the work and returned it to the original creator. In all cases, the students were asked to send each other constructive criticism regarding the projects they created and to write brief reflections on each project phase.

The project launch introduced students to a variety of concepts, processes, and steps important to the success of the collaboration. Class discussions encouraged students to consider both a global perspective and a local understanding of the idea of "city," using design as a tool for cross-cultural sharing. The visual exchange was initiated with a photo "scavenger hunt" and image trade. Teams were assigned different lists of design principles (e.g. rhythm & balance, scale, texture, transparency) to help capture and define their cities in visual terms. Each team also received a different oppositional word pairing (e.g. native/foreign, liberal/conservative, open/closed, professional/playful) and each student individually created definitions for those terms based on her own city. With these definitions in mind, each student shot at least 24 photos of the city to submit to her overseas partner.

Once they collected the requisite photos, students engaged in email introductions, sharing their photos and word-pair definitions via Dropbox, a cloud-based file-sharing service. Following the image exchange, students highlighted similarities and differences between the cities, sharing thoughts about their cumulative visual research within each class. Several sets of students noticed unexpected and unprompted similarities in the way they defined the word-pairs (and even in some of the images they captured), which helped to establish a shared understanding between partners. In the final phase of the photography project, students incorporated photography from their initial image exchange into a pair of posters exploring the two cities. Each student created a set of A3 posters to visualize the similarities or differences between San Francisco and Dubai while considering how research and dialogue could inform their design process.

For the Remix Poster project, students wrote personas (based upon different assigned audience demographics) and designed typographic posters in response to assigned texts, which were selected to highlight various cultural nuances and developments in the Arab and Western worlds. Students then swapped InDesign files with their overseas partners, and the partners had an opportunity to "remix" the initial designs by adding, subtracting, and editing a certain number of elements before passing the posters back to the original authors for one last round of design edits.

Finally, the students encapsulated their collaborative experience in the form of a collective and cooperative process book initiated by the American students, who sent files to their Emirati partners so they could also contribute their designs, insights and analyses.

Examining cross-cultural aspects of design media: Fall 2012

As opposed to the nearly semester-long design collaboration in Spring 2012, the Fall 2012 exchange was inserted into a more typical curriculum of classroom-oriented projects in order to provide a cross-cultural perspective on different forms of design in various media. The collaboration between 21 USF and ZU students attempted to prove that there would be similar merit in an intercultural exchange at a smaller scale.

The Fall 2012 photography exchange assigned a particular category of print-based design to each team, including identity/branding, posters, environmental/wayfinding, and publication/editorial design. Teams looked for examples of how the assigned

design categories manifested in their own cities, finding and documenting examples of particular cultural or social significance. In San Francisco, students created brief visual narratives (stories told in five images) concerning their particular area of design and later used the images for a poster project. In Dubai, students created a narrative storyboard based on the design category to understand how formal design principles relate to photographic images. Students were asked to consider the implicit meaning of images as understood by another culture, country, or individual.

Students then shared their complete, unedited sets of at least 20 photos with their partners, who, in turn, attempted to create new visual narratives constructed based on cultural assumptions, perceptions, and denotative/connotative visual information. Each student arranged or juxtaposed 5 of his/her partner's images, and sent these visual narratives back to the partner, accompanied by a brief written explanation of his/her "guess story." Following this exchange, most partners were able to discuss the interpretations with each other, providing feedback and cultural insights.

Once again, students incorporated their learning outcomes from the exchange into a final process book as a cross-cultural component of their semester-long research and projects. However, unlike Spring 2012, students worked on the books within their respective classes and did not co-design these chapters with their overseas partners.

Results

Qualitative analysis of student work
The first section of this analysis focuses on the outcomes of the Spring 2012 collaboration, followed by a comparison of Spring and Fall 2012 semesters.

"Safe" subjects
In the Spring 2012 collaboration, first impressions about each city varied greatly between classmates, and many students were embarrassed to admit they initially knew nothing about the other culture. Though they ultimately learned that the Burj Khalifa and Golden Gate Bridge are not the only noteworthy aspects of Dubai and San Francisco, most students initially struggled to define their cities beyond the obvious physical characteristics of architecture and environment. Perhaps they were drawn to architecture as a solution because it felt approachable and benign, and seemed relevant from a design standpoint.

Students were challenged to uncover ideas beyond the results of a simple Google search and encouraged to continue their one-on-one email conversations in order to share their perspectives and experiences. "Perhaps the most difficult skill in communicating across cultures involves standing back from yourself; becoming aware that you do not know everything, that a situation may not make sense, that your guesses may be wrong, and that the ambiguity in the situation may continue" (Adler and Gundersen 2008, 89). Prompted by the word-pair of "liberal" and "conservative" and inspired by her partner's interpretation, one USF student began to explore how the assumptions of definition could be challenged across cultures. Though, from her American perspective, these terms are typically imbued with specific and divisive meaning, she began to find new ways to contextually define the words' significance:

> One of Alia's photos for "liberal" is a shot of several women wearing burqas. They are considered an example of liberal because they are also carrying Western designer bags, have bright manicured nails, are adorned with western jewelry, and

are wearing western attire beneath the burqas. This is extremely fascinating for me, because here in California, designer handbags and expensive jewelry seem more conservative than liberal ... (Natalie, USF Spring 2012)

The Spring 2012 photography topics were selected with an expectation that they might elicit discussions of politics, government, religion, and women's rights as differentiators to explore through design. Even after months of correspondence, however, most students remained hypersensitive to many of these topics, tactfully avoiding them even when prompted to "dig deeper." In future efforts, it may be more effective to assign students specific polemical topics to discuss via email or assign a synchronous Skype discussion for homework (though these types of interactions have proved difficult due to the time difference).

Similarities and differences

Students' visual responses overwhelmingly led to poster pairs that focused on cultural similarity rather than difference. This emphasis on similarity emerged *concurrently* with the idea that the cities were different from one another:

Finding commonalities between Dubai and San Francisco was difficult, but my word pair (large & small) unfolded the commonality of elevated heights. I discovered that albeit different in nature, the two cities have their own great heights that result in expansive views. (Erika, USF Spring 2012)

Students found easy similarities between the cities in terms of their international fame, architecture, beaches, cultural diversity, and tourism. Still, when attempting to explore differences, discussions between students remained restrained in spite of their assigned word-pairs. Most topics interpreted and defined by the students as differences focused on weather, timezone, architecture, topography, environmental landscape (trees and hills vs. desert and sand), graffiti/public art, clothing, and educational structure:

The differences between Dubai and San Francisco are mainly concerned with what is considered to be "native" in each of the cities, such as the gelato in San Francisco, and the harees—a type of food—in Dubai. (Rawdha K, ZU Spring 2012) Both cities are concerned with progress, consumer culture, development and tourism. Traffic seems to be a common issue for both cities, although I must say it looks much worse in Dubai! (Hannah, USF Spring 2012)

Adler writes that cross-cultural situations require participants to "assume difference until similarity is proven" in view of the fact that people from different countries see, interpret, evaluate, and act upon events differently (Adler and Gundersen 2008, 72). In course feedback, students mention feeling "surprised to learn" about similarities between the cities, but never venture to comprehensively explain initial thoughts or feelings of difference. It seems they are unwilling to articulate what might be perceived as unfounded or biased initial assumptions about the "other." At the same time, students from USF felt shy to ask cultural questions, perhaps from a desire to maintain positive relations with their partners and a fear of overstepping cultural boundaries or protocol.

I would have liked to learn more about her clothing and traditions but we never really got there in our conversations and I did not want to ask it off the bat. I am so

curious about how the girls in Dubai perceived our class [...] it would be really interesting to see the other side. (Sophie, USF Spring 2012)

The idea that students had an opportunity to help break down stereotypes and teach others about the similarities between the cities seemed to be a driving force behind a somewhat homogeneous approach:

I was trying to communicate the idea that, underneath our burqas and/or hot pants (as the case may be), we are all ultimately people. We feel the same emotions and we share the same basic life experience. (Natalie, USF Spring 2012)

The challenge of deeper understanding

ZU students generally seemed to struggle with representing San Francisco on a deeper level. Visual responses and interpretations were based primarily on photography and often did not seek to derive deeper meaning from their partners. Perhaps both groups could have asked more of each other to arrive at posters that had equal meaning and soul; in most cases, simply encouraging students to critique each other's work via email was not productive in this regard.

For other students, the process of defining the word-pairs helped reveal deeper levels of understanding. In such cases, the students moved past polite conversation, revealing personal introspection and challenging cultural assumptions. These students not only began to analytically explore the city, but more importantly, develop ideas about its residents.

Initially, I didn't understand how there could be a balance between traditional culture and modern American society but [...] The fact that Rawdha wears the Hijab and European designer clothes at the same time is the epitome of blending cultures in Dubai. (Clare, USF Spring 2012)

Regarding culture and social aspects, San Francisco is way more liberal than Dubai is. Dubai is more conservative regarding religion, many things that are accepted in San Francisco are not accepted in the UAE generally. (Rabab, ZU Spring 2012)

Connecting through personas

The persona-development component of the Remix Poster assignment led to some of the most interesting cultural insights of the entire collaboration. Requiring students to write in detail about their audiences in the form of personas grounded the exchange on a personal level—focusing students on a tangible, shared humanity—which gave rise to discussions that did not emerge in earlier exchanges. Perhaps it is easier to engage in cultural critique in the third person, or to share opinions and preferences through the lens of a fictional character.

The personas represented an important moment in the students' design education: the project allowed them to consider audience in a different way, both locally and on the other side of the world. Through the lens of their various personas, they reconsidered whether their design choices were appropriate, communicative, and relevant. The personas and subsequent layout exchange also helped students educate each other on cultural intricacies, providing windows into their different backgrounds. This round of interactions also made them realize that not all individuals have counterparts in other cultures.

Insights during final book compilation

As students worked on their final process book, general discussions began to emerge in the classrooms and between partners about the overall merits of the project, with an overwhelming consensus about the unexpected value of the experience. Students asserted that personal relationships with their partners allowed for greater cultural understanding, and that the traditional research methods of internet searches and library visits left them unfulfilled and disconnected. Real-world collaborations allowed them to see the other city in a rare light, while helping them rigorously examine their own city and customs:

> I never would have learned as much if we had simply been assigned some research — by communicating one on one with Ebtesam I learned about Dubai from a unique, personal perspective." (Chloe, USF Spring 2012)
>
> ...by exchanging photos with an actual San Franciscan you get to see the city from their perspective which was something new to experience, rather than just Googling. (Rodha M., ZU Spring 2012)

Semester comparisons

Through design collaboration, students located in Dubai and San Francisco began to realize that personal relationships, gender relationships, and family life influence communication, interaction, and assumptions. For students in the UAE, the influence of religion, for example, plays a dominant role in defining the appropriate use of imagery and photography, particularly within social media. Female Emirati students in Dubai rarely share photographs of themselves on Facebook, blogs, or other social platforms. On the other hand, students in San Francisco freely and abundantly share images of themselves in almost all aspects of their digital lives, and were frequently confused by the "lack of faces" in photos they received from their Emirati partners. Challenges arose when the two student groups interacted solely through asynchronous virtual platforms. In this case, a perceived barrier was erected for Western students who tried to connect emotionally with their Arab partners without the aid of photographic representations.

In Spring 2012, most students' email conversations seemed to remain at a surface level due to their hesitancy to discuss challenging topics and tendency toward maintaining a safe, almost diplomatic distance from one another. Unlike the Spring 2012 collaboration, Fall 2012 participants began the collaboration by exchanging stories about themselves via email. This not only relieved some inhibitions, but also provided an opportunity for partners to ask each other some cultural questions earlier in their correspondence. Specific discussion prompts from faculty diminished the fear of overstepping perceived cultural boundaries and encouraged students to lower their guards enough to allow for a richer cultural exchange. The exercise also elicited lengthier email responses that involved cultural topics requiring further explanation, prompting students to learn about each other via anecdotes rather than short factual snippets (Sikkema and Niyekawa 1987, 51-52). As one student shared:

> My partner had a lot of great quotes in her emails to me, but my favorite was when I asked her why she didn't show her subject's face in any of her photos. She responded, "Here in UAE almost [all] families do not allow their daughters to put [...] images that show their faces in the internet because there are lots of compan[ies] or bad boys [who] can use them in unsuitable way[s]. In UAE the girls' reputation should not be harmed or hurt (we are expensive jewelries)." (Jean, USF, quoting her ZU partner Amna, Fall 2012)

Though the Fall 2012 students were provided with written briefs and guidelines outlining their photographic and visual narrative exchange, the two classes seemed to be somewhat confused about the nature and purpose of the collaboration. Most students eventually came to appreciate the rare opportunity for cross-cultural exchange, but others reported that it was "not [the] biggest learning opportunity in the course," (Anonymous USF student quote, Fall 2012) undoubtedly because it was much shorter in duration than the Spring 2012 exchange and the relationships between the students did not have as much time to develop. Without the opportunity to share design decisions using collaborative design techniques such as the Remix Poster project, the chance for students to communicate directly through the platform of design was absent from the collective Fall 2012 experience.

Although asynchronous virtual communication allowed students to connect at their own convenience and schedule, both courses were frustrated with the lag in responsiveness afforded by the time difference. The brevity of the Fall exchange amplified the negative response to asynchronous communication, culminating in an overall consensus that the interactions were sporadic and course-based, rather than genuine and relationship-based. The reliance on electronic media for communication—rather than face-to-face meetings —also impacted students' ability to effectively communicate and interpret meaning regarding their partners' culture (Adler and Gundersen 2008, 85). In the survey responses, one ZU student wrote:

> I would like to have partners that are eager to interact, engage and exchange information with. I would also like to have a project that allows us to exchange more work and information where we give each other feedback, ideas and opinions. My partners gave me the impression that they were not that excited about the project as I was (which kind of made me lose the enthusiasm as we moved along...). (Anonymous ZU student, Fall 2012)

Even with the challenge of maintaining group motivation and the difficulty in encouraging students to build authentic relationships, the Fall 2012 students recognized the value of the cross-cultural interaction stating that it demonstrated the benefit of exchanging ideas, meeting deadlines, practicing patience, and working in groups. Students felt that the exchange of visuals, narratives, and photographs gave them unique insight into the life of their partner, while simultaneously exposing them to the day-to-day lives of another culture. Self-evaluations of the cross-cultural exchange revealed that students believed their cultural awareness had increased and their sensitivity to audience had improved.

The Spring 2012 students reported higher satisfaction with the overall cross-cultural experience through their written reflections, class-critiques, and survey responses. The design thinking process that included collaborative research, team-based ideation, exchange of visual materials, and co-design all contributed to a rich, well-rounded cross-cultural collaboration. The ability for students to see their photography incorporated into a collage or read their written exchanges transformed into typography on a partner's poster increased their emotional connections to their partners. For the Spring semester students, cross-cultural collaboration and co-design tools resulted in a mutual appreciation for their partners' contributions to their learning experiences and their readiness for participation in a global community. Friendships formed between many of the students, with unprompted efforts to continue dialogues and collaboration outside the confines of the course structure:

This project has changed my overall outlook on the world. I now have a larger realization that every different culture perceives visual information in different ways that may have similarities [...] but indeed have a lot of differences. It's been a very eye-opening project.... (Jessica, USF Spring 2012)

It's an experience that I think is irreplaceable and necessary to grow as a designer. [...] I start thinking about the various ways my poster can be interpreted not just by classmates, but another culture, an outsider... (Alia, ZU Spring 2012)

Quantitative data analysis

Following both projects, 17 Spring semester students and 16 Fall semester students responded to a survey to rate the project and their learning outcomes. The results are represented in the following figures:
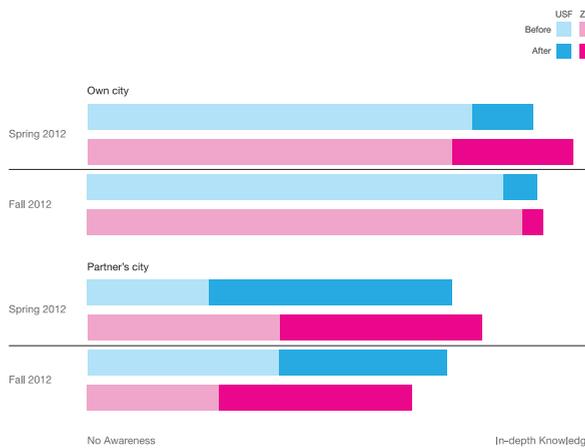

Figure 1. Evaluation of students' cultural knowledge before and after the project compares preexisting awareness of their own city and their partners' city to their level of knowledge
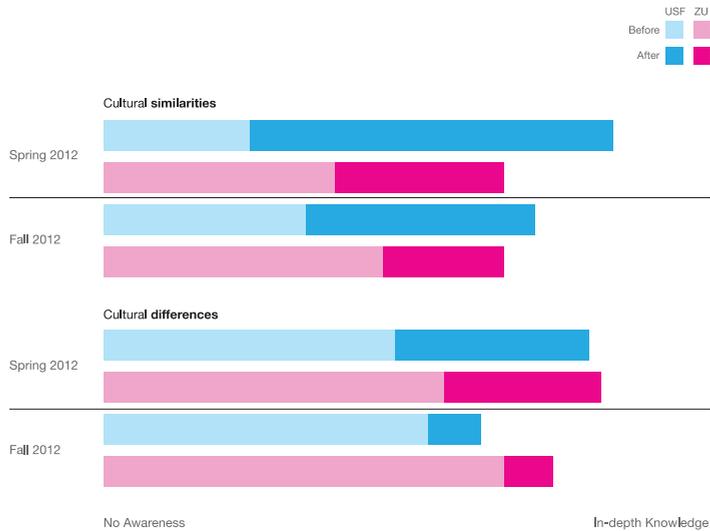
following the course.

Figure 2. Evaluation of students' cultural knowledge before and after the project compares
preexisting awareness of cultural similarities and differences to their level of knowledge following
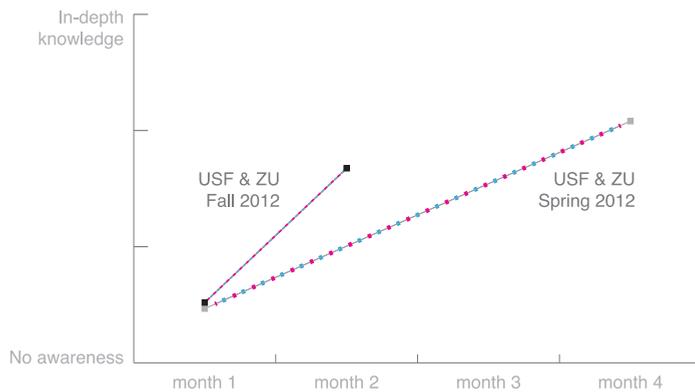the course.

Figure 3. The average of students' perceived cultural knowledge (across all measured categories)
before and after the project reveals that students at both universities placed themselves at almost
the exact same starting point in terms of pre-project cultural knowledge. The Fall 2012 students
at USF and ZU reported an identical perceived average knowledge gain, as did the USF and ZU
students who worked together in Spring 2012. Though the Fall 2012 students did not work
together as long as the Spring 2012 students and reported lower overall satisfaction with the
project, they still reported a significant gain in cultural knowledge.

USF ZU
Before
After

how images are created and interpreted

Spring 2012

Fall 2012

audience (viewer/receiver of message)

Spring 2012

Fall 2012

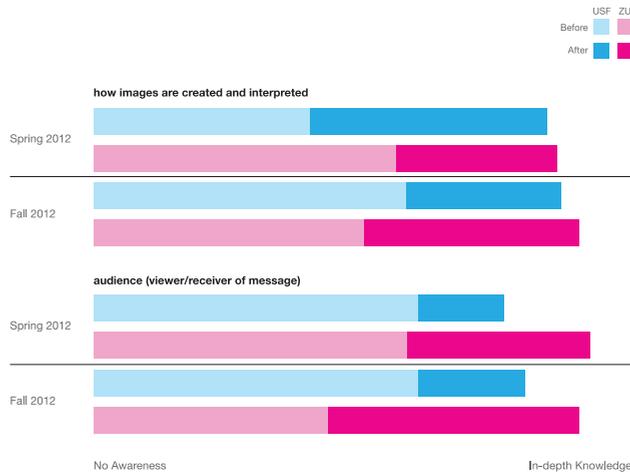No Awareness   In-depth Knowledge

Figure 4. Evaluation of students' design knowledge before and after the project compares preexisting awareness of representation and audience to their level of knowledge following the course.

USF ZU
Before
After

basic design skills

Spring 2012

Fall 2012

typography

Spring 2012

Fall 2012

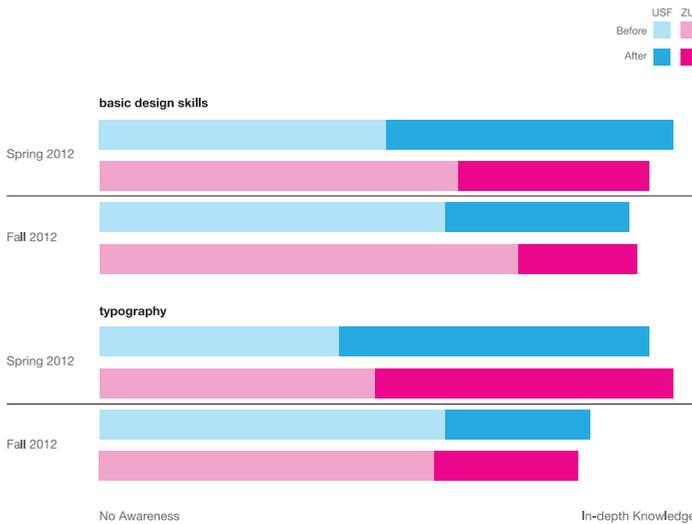No Awareness   In-depth Knowledge

Figure 5. Evaluation of students' design knowledge before and after the project compares preexisting awareness of basic design skills and typography to their level of knowledge following the course.

Figure 6. The average of students' perceived design knowledge (across all measured categories) before and after the project reveals that students at both universities placed themselves near the same starting and ending points in terms of design knowledge before and after the project. As with cultural knowledge, the Fall 2012 students at USF and ZU reported a similar perceived average knowledge gain, as did the USF and ZU students who worked together in Spring 2012. Though the Fall 2012 students did not work together as long as the Spring 2012 students and reported lower overall satisfaction with the project, they still reported a significant gain in design knowledge.

Conclusions

Both Dubai and San Francisco are examples of incredibly diverse cities, with highly international, multilingual populations representing a full spectrum of cultures and classes. The two cities offer an ideal environment for design teams to explore techniques for increased cultural awareness and audience sensitivity beyond embedded cultural norms. In the Spring and Fall 2012 semesters, geographically distinct teams used design to brave the challenge of cross-cultural communication without the benefits of body language, visual cues, tone of voice, and facial expression to ease communication barriers (Sikkema and Niyekawa 1987, 25–37). The extreme time difference not only challenged students' patience and commitment to the process, but also led to communication discrepancies. However, student evaluations revealed that the exchange still delivered valuable learning outcomes, including increased cultural awareness.

Communication between culturally homogenous designers can be a challenge in itself; the introduction of different languages and cultural backgrounds in cross-cultural communication escalates this complexity. Adler explains that cross-cultural misinterpretation commonly occurs based on four distinct areas that include "subconscious cultural 'blinders,' a lack of cultural self-awareness, projected similarity, and parochialism" (Adler and Gundersen 2008, 80). Cross-cultural communication techniques from the field of Management can provide practical approaches to early pitfalls or hesitations during student design exchanges. Educators can introduce some of Adler's ccommunication techniques by encouraging students to "assume difference"

until they have evidence of similarities; by placing emphasis on descriptions first before allowing students to interpret things for themselves; by challenging students to see through the eyes of their overseas collaborators (88).

Real-time correspondence could also increase spontaneity and help decrease the burden of maintaining an epistolary relationship, which may feel more permanent and rigid. At the same time, these technologies also bring a new set of questions, requirements and potential problems that must be addressed in preparing students for the assignment (Moldenhauer 2010, 233). Students might appreciate becoming acquainted in a looser, more carefree space, though time differences will always pose a challenge. Additionally, building stronger relationships between partners may help generate a more successful critique environment for both classes. A culminating experience that enables students to interact in person and engage in face-to-face discussions may increase the probability of long-term cross-cultural relationships.

In terms of critique, simply requiring students to evaluate each other's work is too open-ended. Students should be required to thoroughly articulate their concepts to each other, and need a framework for analyzing each other's work. During collaborations, it would be useful for students to have a rubric that provides concrete criteria to use in analyzing their partners' projects, and helps them reflect on whether or not they achieved specific goals. For this approach, it is vital that students understand that their comments will not affect their partners' grades.

In spite of myriad challenges, both expected and unforeseen, participants from both terms recognized the value of this collaboration. In most cases, even when they felt anxious about swapping files or participating in critiques, realizing their accountability to a partner abroad—in addition to professor and classmates—made students more attentive, focused and driven in their design work. At the semester's completion, the young designers felt better equipped to take on the challenges of a global profession with broadened perspectives, collaborative techniques, and co-creation tools.

Design students should enter the field with knowledge beyond the basic essentials: they should also possess an awareness of the world around them as the greater context of their work. In the midst of constant technological progression, teaching students to approach problems by thinking for themselves and using collaborative and interpersonal skills provides them with durable assets that will extend to their future design practice—and beyond.

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