Riding the Bus in Los Angeles: Creating Cultural Micro-Exposures via Technology

Sarah Cooney
cooneys@usc.edu
University of Southern California
Los Angeles, California, USA

Figure 1: The author (left) and a family friend on her first trip to New York City standing in front of the 9/11 memorial, circa March 2002.

ABSTRACT

The HCI community has largely failed to serve the millions of people in rural communities in the developed world. In part, I believe this is because our plural values do not match the more traditional, conservative values often found in rural communities. However, these rural communities, and in particular the marginalized populations within them, could greatly benefit from our work. I believe that one way to set the stage for deeper engagement with rural communities is by creating *cultural micro-exposures*—small brushes with the everyday realities of a culture or lived experience that is different from one's own—using technology.

CCS CONCEPTS

• **Human-centered computing** → **HCI theory, concepts and models**; *Empirical studies in HCI*.

KEYWORDS

rural HCI, cultural learning, cultural exchange, digital experiences, personal reflection

1 INTRODUCTION

Recently, due to the COVID-19 pandemic, I returned to my small, rural hometown—population 3,500, 97.5% white—for a period of several months. However, even as I sat at my childhood desk, I continued my work in *urban* HCI, because I had left the home of my adolescence behind, if not physically for the moment, in spirit. In the midst of a pandemic, a racially charged summer, and a contentious election season, I began to reflect on my experiences, specifically those experiences that had laid the groundwork for my own pluralistic worldview, and that had made it so different from so many of those surrounding me...

> *I was seven, feeling utterly cool in my shiny pink pleather jacket, visiting New York City for the first time. (See Figure 1.) I resignedly picked up the large hunk of my street-vendor soft pretzel that had fallen to the sidewalk (no five-second-rule here) and walked it to the nearest trash can. As soon as I'd let it go the man lounging on the sidewalk next to the can sprang into action retrieving the piece of pretzel.* **It was my first experience with the visible realities of homelessness and hunger...**

According to Sociologist Jack Mezirow's theory of transformative learning, our worldview is shaped by experiences of discomfort [34]. "According to Mezirow's theory, the multi-step process is first triggered by a disorienting dilemma resulting from a disconnect between one's understanding of the world and one's own concept of self" [25]. Just as our physical bodies change and transform when we lean into the discomfort of a particular stretch, so to do our mental perspectives transform when we lean into the discomfort of a particular experience.

> *I was sixteen, about to make my way across the pond for the first time (and to fly for just the second time) with only my Swedish host sister (also sixteen) as a guide. The flight attendants gave us the standard safety instructions, but as we headed for our layover in Amsterdam, the instructions were given in Dutch first,* **then** *(heavily accented) English.* **I realized suddenly, I was headed for a place where my language wasn't dominant, and I couldn't assume I'd be understood...**

If asked to think about our most formative experiences, I think it is typical to jump straight to triumphs and traumas; the highest highs and lowest lows that pushed us way beyond our comfort zones. We might recall snagging our dream job or the loss of a loved one. While these experiences are certainly impactful, I believe that our lives are often shaped by experiences that are much more subtle, to the point that without deep reflection we might not even recognize their impact. Experiences like tossing something into a garbage can or riding a bus...

> *I was eighteen, it was a Friday night in early September, and tentative friendships had been forged. A small group of us had decided to head off campus for dinner in a trendy neighborhood a few miles away. As Freshmen we weren't allowed cars, so we were braving the city bus—something none of us had done before. As we piled into the crowded, rush hour bus, I was acutely aware for the first time in my life of the color of my skin.* **It was the first time I had ever been aware of my race as being "other."**

For the purposes of this paper, I focus on my own experience growing up in the context of the rural United States, because it is an example I know well, but I believe that the ensuing discussion can go beyond this context.

What I noted post-reflection was that most of my exposure to a diversity of cultures and lived experiences had not taken place within the 1.8 squares miles of my hometown or the surrounding area.[1] I also recognized that they came from a place of privilege—having a family willing and financially able to provide experiences such as travel and higher education. This led me to consider the difference it may have made if more of these experiences had been available in my own community, and it led me to wonder how my own work as an HCI researcher and scholar might be used to bridge this gap. (This is not to say that there are not rural values that could serve their non-rural counterparts. However, this is not the focus of this paper.)

There is a temptation in the popular media to eschew rural communities, labeling them as "backward" or stuck in their ways. In reality, the picture is much more complicated, and rural lived experiences are much more varied than the media makes them out to be [52]. In my own experience, while residents of rural communities exhibit their share of prejudice and intolerance (although this is not limited to rural communities), the distinction must be made between outright prejudice and ignorance based on a lack of access to experiences of diversity. In some cases, the beliefs are firm; the believer has seen a diversity of experiences and met a variety of people, returning to their point of origin prejudices intact, or even strengthened. However, in other cases I believe it is simply a fear of the unknown [24, 51, 52]. In these cases, there may be an underlying openness to changing beliefs if the unknown could be made known. Ideally, this would be achieved through opportunities like I was given—to travel and to pursue a variety of educational and cultural experiences. Unfortunately, there are financial and other barriers which keep many people from obtaining these opportunities.

I believe there is an opportunity for technology to replicate and deliver the kind of subtle cultural experiences that made such a difference in my own life, experiences like riding the bus in Philadelphia or encountering the homeless population of New York City. I coin the term *cultural micro-exposures* (micro-exposures for short) to refer to these small, subtle brushes with the everyday realities or a culture or lived experience that is different from one's own. As a socially-oriented field, I believe the HCI community is uniquely poised to take on this task.

However, before doing so, I think it will be important for us to take a step back and consider how to approach these communities

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[1]I do not at all intend for this paper to denigrate the place I grew up or the people who live there. I acknowledge that it is a confluence of complicated factors that makes it what it is. In many ways it was a wonderful place to grow up.

Figure 2: A study in contrast. (Left) An Amish buggy driving in front of the author near her hometown. (Right) A street in downtown Los Angeles, where the author now resides.

with subtlety and care. These days, most HCI research is oriented toward social change (whether or not it is characterized that way explicitly) [6], and as researchers we like to see ourselves as "culturally competent." We care about participation [3]; we reflect on the implications of race [38], colonialism [29], and heteronormativity [45]. I believe that on the whole, we care about the world, and want to reflect this in our work and in the impact we have on the communities with whom we work. I know this is certainly true of my own perspective.

However, as Hardy et al. showed in their recent scoping review, there is a dearth of rural HCI research outside of the context of HCI for development [26]. They show that when we have worked with these communities, we have largely chosen to work on infrastructure issues (i.e. internet access or specialist healthcare) that are seen as value neutral. I believe that this may be in part due to an implicit assumption of the popular-media stereotypes surrounding rural communities. I believe that we have largely chosen to eschew these communities, because we see their values at odds with our own pluralistic perspectives. We may be tempted to blaze into these communities with bold notions of post-colonialism and queering to "teach those people a thing or two", but we know that in reality this is likely to only be met with resistance and hostility. I believe that the HCI community can help lay the groundwork for cultural change, but we must think about setting the stage by coming in with subtle, non-threatening interventions that provide a foundation for transformation.

In the rest of this paper, I first outline what I feel are four key principles for creating technologically mediated cultural micro-exposures. I then review related studies and technology for creating cultural exchange and experiences and assess them based on the four criteria in the previous section. I discuss the insights gained from this literature review and expand on three of my own ideas for creating micro-exposures with technology. I then spend some time discussing the ethics of creating such encounters. However, I largely leave open the question of how to proceed, calling on the HCI community to consider this important "pre-work" as an avenue for extending the reach and benefits of our work to new people and communities.

2 CREATING CULTURAL MICRO-EXPOSURES

Recall that a cultural micro-exposure is a small brush with the everyday realities of a culture or lived experience that is different from one's own.

Creating cultural micro-exposures will be a matter of more than just creating new educational platforms or pedagogical tools. With culturally oriented issues, such as racial or religious differences, there is often a need to overcome deeply rooted beliefs and prejudices. For instance, it has been shown that educators committed to promoting anti-racism education in schools and higher-education institutions often face backlash from students, parents and community members, and a lack of support from school administration [5, 15, 39]. Working to change Eurocentric education systems that whitewash history and culture is undeniably important [40], and it is these systemic cultural shifts for which micro-exposures can be used to pave the way, smoothing the path forward.

I now outline four criteria that I believe to be most import for creating these experiences.

Content: Does it center or convey ordinary lived experiences? Cultural micro-exposures should focus on ordinary, even mundane, experiences. These can include, but are not limited to, activities like riding the bus, eating breakfast, and shopping for groceries. The experience should rattle the participant slightly, perhaps causing some light discomfort. However, it should not be so extreme as to seem outlandish and beyond the realities of everyday life, so that it becomes unrelatable, and it should not create so much discomfort as to cause fear, which might lead to resistance.

Humanity: Is the experience focused on interactions with people? While this factor is related to content, I believe it is important enough to warrant consideration on its own. Whether real or virtual, a cultural micro-exposure should focus on the experience of humans as opposed to artifacts or landmarks. Certainly it can be a moving experience to visit a great cultural site like the Louvre. However, the experience is more than just seeing the shy smile of the Mona Lisa. It is the throngs of other tourists also looking for a glimpse of this famous lady; the excited chatter in myriad languages—the words unintelligible, the sentiment shared. It is this sense of shared humanity that we should try to replicate in a technologically driven micro-exposure.

Interactivity: Does the system allow users to interact with the content? Users should not be relegated to passive viewership of the experience. As I will discuss in the next section, traditional media has its role, but it is also easy to keep one's distance from the content if one is allowed to experience it in a hands-off manner.

Delivery: Is the content delivered in a natural manner? Finally, and perhaps most importantly, in a micro-exposure the content should not feel forced, and the cultural message should not feel as though it is the focus of the experience. As previously mentioned, when an audience is not ready to face a sensitive topic head-on, forcing them to do so can engender resentment and hardening of prejudice. We might use the phrase *tangential delivery* to note that the cultural exposure is tangential to the goal of whatever one is doing at the time it occurs. For instance, when riding a city bus one might be forced

to confront knowledge of their own race, but this is not the reason for being on the bus; the reason is perhaps getting to work, going to the movies, or whatever else may lie at one's final destination.

In the next section, these criteria will be used to evaluate studies and technology designed to create cultural experiences and exchanges.

3 RELATED WORK

In what follows, I consider a variety of studies and technologies for conveying cultural experiences. I break them into five broad categories: traditional media, broadcast of the arts (i.e. theater, opera, ballet), web-based technology, video chat technology, and alternative/virtual reality. Each is evaluated using the four criteria described in the previous section: content, humanity, interactivity, and delivery.

Traditional Media. Traditional media such as film and television can be an important source of cultural education and inspiration; the "Scully Effect" certainly shows this to be true [22]. For the most part, traditional media centers human stories and experiences, but CSPAN[2] aside when we watch television or a movie, we are watching a dramatization. As a viewer we may agree to suspend our belief for the duration of the episode or film, but this is a short-term agreement. Even in the case of documentaries, we know that the content has been curated to communicate a certain message. We are watching a carefully crafted plot; we do not watch television characters commute or brush their teeth, unless this moment is also somehow pushing the plot forward. For six car-less New Yorkers, we rarely see the cast of Friends taking the subway. Thus, traditional media falls short in the area of content. Furthermore, it also lacks interactivity.

New technologies such as IMAX, 3D, and even 4D viewing experiences go a long way in making the experience of traditional media more immersive. As a teen, I saw an IMAX film about the aftermath of Hurricane Katrina, which devastated the city of New Orleans, Louisiana in the summer of 2005 [12]. While it was a moving experience, immersivity could be improved with the addition of interactivity, allowing the viewer to control aspects of the narrative or ask additional questions.

Broadcasting the Arts. Sitting between traditional media and web-based cultural experiences is the broadcast (or live stream) of the arts, including theater, ballet, and opera [44]. This has become increasingly common and popular with theaters closed due to COVID-19 [48]. While these broadcasts and streams provide access to cultural events for millions who may not otherwise have been able to access them [21], like traditional media, they lack interactivity. Despite clever filming and other techniques designed to make the viewer feel as if they are truly there, there is a vast difference between sitting on a couch and sitting in the balcony of a packed theater. Furthermore, while usually human-centric, the arts are typically designed to be anything but subtle, and are often even politically charged—think Hamilton, Hairspray, or Rent. Overall,

the arts, even in streaming form, have a barrier-to-entry that is far higher than a cultural micro-exposure should have.

Web-Based Technologies. The web is often touted as a "great equalizer," and whether or not this is true, it has been used in a variety of creative ways to facilitate cultural learning and exchange.

One website—born of suppressed wanderlust in the age of COVID-19—that delivers on the ordinary is WindowSwap [4]. The site allows users to view pre-recorded, user-submitted footage of the view from people's windows around the world from Thailand to Boston. Stunning as some of the views may be, they represent a piece of the ordinary, and the delivery feels fun, not forced. However, there is a lack of interactivity aside from the ability to swap to a new view, and the focus is not exactly human-centric.

While WindowSwap shows the world from the inside out, tools such as Google Maps and Google Street View allow one to wander almost anywhere in the world in a slightly more interactive manner [31]. Online, map-based games like the popular GeoGuesser [2] can serve as a source of subtle cultural knowledge with the realization that places a world apart appear far more similar than one might imagine. (Did you know stop signs in parts of Botswana are identical to those in the USA?) Delivering this knowledge via a game, which separates the acquisition of such knowledge from the goal of winning, helps make the delivery natural rather than forced. However, the focus is squarely on landscapes, not people.

Another form of web-based cultural learning is what Meyers and Nathan refer to as "public pedagogies: media that teach outside the classroom" [33]. They cite three interactive games designed to teach users about sustainability as examples. While this type of game offers interactivity, could include subtle cultural moments, and could offer human-focus as well, the focus on learning about some particular topic makes natural delivery a challenge. When left open to the public, there will inevitably be a self-selection bias; people who do not accept the reality of climate change or peak oil are not likely to choose to engage in a game like World without Oil. When used in a classroom setting, as with any pedagogy, there is some possibility of influencing students, but as mentioned, there is also the potential for the message to seem forced, engendering apathy at best, or worse backlash.

One project that shows promise in creating a natural exchange of cultural micro-exposures is Chen et al.'s "Wonder Album" [11]. By allowing users to exchange photos representing everyday aspects of life such as favorite singers or a typical breakfast, and encouraging interaction with the photos, they promote cross-cultural interaction via easy, non-controversial topics. However, additional levels of interaction beyond the comment box could be useful. Thus, the next section explores cultural exchange via video-chat technologies.

Video Chat. At its most basic, video chat technology has the ability to create highly interactive, and natural exchanges.

One avenue in which cross-cultural media (video and audio) exchange has been widely studied is connecting geographically disparate family members [18, 19, 28], in particular grandparents and their grandchildren [20, 43]. Connecting with family or friends is certainly a good way to alleviate feelings of forced participation or mistrust, but not all families have culturally or geographically distant relatives or friends with whom they can connect. As

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[2]For readers who might be unfamiliar, this is a television channel dedicated to streaming the American legislature. It's known for being quite dry.

Cambre et al. found when attempting to connect strangers regarding a contentious topic—the US presidential election of 2016—self-selection proved to be a problem with most of their discussion groups lacking political diversity [10]. Thus, proving that issues of self-selection will be an important barrier to overcome in delivering micro-exposures. As we saw with games like GeoGuesser, one possibility is to separate the goal of cultural exchange from the goal of the system or interaction. Although language is certainly an element of culture, video-based language exchange programs [8, 27] are still a means of creating this separation by putting the focus on the language skills, perhaps for a grade in a school setting, as opposed to the content of conversations. I feel that basic video chat is a promising avenue, particularly given the rise of "Zoom" as a household name over the past year, and will return to it in the next section.

Despite being more interactive than traditional media and web-based systems, basic video-chat is still conversational rather than action-oriented. Researchers have attempted to overcome this limitation by providing various augmentations for a more interactive experience [37]. Examples include a system for dining together that allows remote parties to serve food to one another [50], robots allowing one to virtually accompany a family member while geo-caching [42], and shared experiences of physical play such as jump rope [53] and air hockey [35]. However, even with augmentations, video-chat is still a clumsy substitute for actual experience. Today's augmented and virtual reality technology can get us much closer to a realistic-feeling substitute for in person experiences.

Augmented / Virtual Reality. There is a great deal of research in augmented and virtual reality around the theme of cultural experience.

One problem with much of the augmented reality work is that it augments existing cultural or historical sites and landmarks, requiring the user to be in situ [13, 14, 36, 41, 46]. This is obviously problematic when the goal is to expand cultural learning beyond the confines of what is available in the user's current location.

Recognizing that not everyone has in person access to cultural sites, some researchers have switched from augmented to virtual reality to provide users with experiences of geographically distant cultural sites and phenomena [9, 16, 30]. However, these experiences are typically focused on the static content of the site as opposed to recreating the atmosphere one would truly encounter at such a site. For instance virtual museums focus on replicating the works of art, but as previously mentioned, a large part of visiting cultural sites is being surrounded by throngs of other tourists and local residents speaking a multitude of languages as they share in the experience. (See Figure 3.) It is unlikely that one will ever have the pleasure of visiting the Eiffel Tower entirely alone or get a private tour of the Guggenheim. While a private tour of one of the world's most treasured landmarks or exclusive museums might be an incredible tale to tell, it would only represent a piece of the true cultural experience.

There are two recent projects which are especially promising, although neither quite hits all the criteria of a cultural micro-exposure. The first is a study by Vishwanath et al. that engaged students in both Atlanta and Mumbai in creating their own virtual reality movies using low-cost equipment [49]. The movies focused on

justice-oriented topics relevant to the students, such as homelessness and respect for the environment. As for creating a cultural micro-exposure, the content is right and sufficiently human focused, the experience of creating and viewing the films is sufficiently interactive, and the act of creating the movies distracts somewhat from the cultural lessons to be learned. However, the project focused on experiences available to the students in their own cities. For rural students, the point of creating micro-exposures is to provide experiences that are not immediately available or known to them.

The second study of note is the "New Dimensions in Testimony" project from USC's Institute for Creative Technologies. The purpose of the system is to use video and artificial intelligence to preserve the stories of Holocaust survivors in a way that allows users to have interactive conversations with the survivors about their experiences [47]. This project provides exactly the right level of interactivity, and human focus for a micro-exposure. However, while immensely important, the content goes beyond a micro-exposure, and the delivery is also too straightforward. I will return to this type of interactive conversational system, with a few tweaks, in the next section.

4 DISCUSSION

In this section, I will briefly summarize a few themes garnered from reviewing the related work in the previous section. Then I will present three ideas for technology to provide cultural micro-exposures. Finally, I will discuss some ethical considerations for creating micro-exposures via technology.

4.1 Reflections on Related Work

Recall the four criteria for creating a cultural micro-exposure: content, humanity, interactivity, and delivery. As far as I can find, there is no current technology that completely fulfills all four criteria. One of the biggest challenges seems to be the mode of delivery. Most technologies designed to provide cultural experiences are designed to be transparent about doing so. (Something I will return to shortly in the discussion of ethics.) While some are designed to make it fun using techniques such as gamification [2, 33] or allowing users to take part in creating the experience [49], the purpose of the experience is still undeniably to teach some cultural lesson.

Content is also a challenge as most of the technology and studies I found focus on special experiences such as seeing an opera [44] or visiting an art museum [30]. There were very few examples of technology that focused on everyday activities, and those that did were typically intended to facilitate sharing between family members not with strangers. One notable exception is Chen et al.'s "Wonder Album" [11].

Related to content is humanity. While special experiences such as the opera and museums are not necessarily considered micro-exposures themselves, in real life they are often surrounded by them in that they typically bring large and diverse groups of people together under one roof. Chatting with fellow theater-goers during intermission or hearing fellow museum-goers marvel at the same painting in different languages can have as much an impact as the art itself. However, as noted in the previous section, these are the parts that are often left out of digital replications of such experiences.

Figure 3: Part of visiting famous landmarks is sharing the experience with other tourists. Left: Saint Peter's Basilica, Vatican City. Right: The Changing of the Gaurd, Buckingham Palace, London, UK

While not all of the technologies reviewed in the previous section were interactive, the state of video-chat and virtual reality today leave me with no doubt we can provide sufficiently interactive experiences when creating technologically-based cultural micro-exposures.

4.2 Ideas for Technologically based Cultural Micro-Exposures

In this section, I briefly describe three ideas for creating cultural micro-exposures via technology. I discuss them in order of technological complexity.

Cross-Cultural Group Projects. I believe basic video chat technology has great promise to facilitate cross-cultural learning. Educators have shown the remarkable capacity of video chat for use in education as they have pivoted to online modes of learning during the Covid-19 pandemic. There is no reason why this technology could not continue to be incorporated beyond this pandemic to connect students living remarkably different lives. It has already shown promise connecting people for language learning [27], why not in other subjects as well. Imagine pairing students in the rural Midwest with students in a large West Coast city to complete geography projects, or connecting students in the United States with students in China or Uganda to work on world history projects. The emphasis would be on completing an academic project, not a micro-exposure in and of itself, but hopefully the side effects would be giving group members a glimpse into one another's worlds. Working together via video chat would create the conditions for exchanging snippets of everyday life, or cultural micro-exposures, and perhaps even for lasting friendships to form.

A Virtual "Amazing Race". Today's video games tend to bring to life war, violence, and destruction in high fidelity, but imagine an alternative that brings to life cultural learning and diversity of experience.

"The Amazing Race" is an American reality television show in which teams must travel the globe racing against one another to complete destination-themed challenges [1]. While the show itself is dramatized and perhaps even partially scripted, the principle of traveling the world to complete challenges is promising. Imagine a virtual-reality based game in which players must navigate cities around the globe completing missions. Players might be forced to use the bus system in Los Angeles to reach a clue at some distant destination or shop for groceries in Germany to cook a traditional meal. They might be asked to complete a scavenger hunt through the Prado in Madrid without a map. The most important thing is that the game be designed to seem as realistic as possible. The racial makeup of the cities should match reality; the other characters should speak varying levels of English, perhaps none at all; public transportation should be realistically unpredictable, and so on. By externalizing the goal to completing some number of missions or gaining some ultimate prize, the cultural experiences embedded in completing the missions will hopefully appear only as byproducts of playing the game—cultural micro-exposures. Hopefully, using sophisticated virtual reality, should make the experiences feel real enough to make an impact on players even after they leave the world of the game.

Virtual Citizens. Imagine directly increasing the diversity of a rural town with virtual citizens. Like in Traum et al.'s Holocaust survivor project [47], these would be interactive personas designed to have conversations about a diversity of topics and experiences in the form of small talk. They might be placed as displays in places where people usually wait—a doctor's office, park benches, street corners, or the line at the grocery store, or come in the form of an app. There would still be some self-selection bias, but perhaps if the personas and conversations were innocuous enough, the potential users bored enough, people might begin to engage and perhaps even learn. Particularly if these systems were billed as a means to alleviate boredom rather than for cultural exchange.

Beyond virtual displays, imagine creating diverse citizens in the form of humanoid robots. This would make the interactions less awkward and more natural. For instance, you might strike up a conversation with the woman waiting next to you at the dentist and learn that she's celebrating the Luanr New Year this weekend; you might make small talk with the dad next to you on the park bench and learn about his previous brushes with homelessness. Making these interactions feel genuine would likely be technologically challenging, but I believe if this can be accomplished virtual citizens have the potential to create interactive, human-centric cultural micro-exposures. Furthermore, putting the onus for cultural learning on virtual displays or robots could alleviate the emotional burden that is often placed on the very few people of color in the room, or in this case town, to educated white people about diversity [40]. This is clearly a potential benefit of delivering micro-exposures via technology, but there are other aspects that might be questionable, which I turn to next.

4.3 Ethical Considerations for Delivering Cultural Micro-Exposures

In general, when we work with community there are two dominant approaches we might take. One is the subjective approach, which requires us to set aside our own values to match those of the communities in question. However, this may require us to do work that is antithetical to our own beliefs. The other option is to take a normative approach and force our own values on these communities. In reality, there exists a spectrum between subjective and normative.

Creating cultural micro-exposures falls toward the normative side of the spectrum. It can be seen as a form of imposing our values on communities who may not share them or want to be imposed upon. Typically as HCI practitioners, this is something we try our hardest to avoid. Particularly in participatory work, our goal is usually to retain the values and agency of participants [3, 17, 23]. For instance, when Halbert and Nathan examined the use of ICT-mediated engagement with uncomfortable experiences in a graduate-level course on indigenous experiences surrounding media, they were upfront about the topic of the course and the potential to cause discomfort, allowing students to self-select into the experience [25].

However, I do not believe that this means creating micro-exposures is unethical. In contrast to the work of Halbert and Nathan, a major goal of creating cultural micro-exposures is to make them very subtle and non-threatening [25]. The experience should be just enough to provoke a slight twinge of discomfort in the user, causing a moment of reflection without asking them to rethink their entire belief system. We can take a cue from the work of Benford et al. on creating deliberately uncomfortable user experiences [7]. The authors note that one use for provoking discomfort is, "Enlightenment. Discomfort can frame our engagement with challenging themes, provoking us to reflect on our feelings and responses." This is exactly the goal of cultural micro-exposures, although they are significantly less provocative than the installations discussed in [7]. Beneford et al. examine several ethical frameworks that can provide justification for the deliberate use of discomfort, but ultimately

declare that, "designers must carefully weigh each experience, focusing on specific ethical concerns, and balance any temporary discomfort against the longer-term value." I firmly believe that the long term value of cultural micro-exposures outweigh the modest discomfort they might cause. Furthermore, while the examples discussed above may not use informed consent, they do include the right to withdraw. If riding the bus or shopping for groceries in a virtual world makes the user uncomfortable they can simply stop playing the game, and if conversing with a virtual citizen provokes distress, there is no requirement to continue the conversation—not even the usual rules of politeness of human decency. Cross-cultural group projects might seem like an exception since grades might be at stake, but schools would retain the ability to manage discomfort with the assignment the same way they manage other elements of the curriculum that might cause controversy or discomfort among students or parents.

Once we have decided to create a micro-exposure via technology, there are a few additional ethical considerations we need to manage.

First of all, once we have chosen a community we should be sure that we are committed to partnering with community members and building trust the same way we would in any other project in which we engage. Just because we are doing normative work, does not mean we should simply breeze in, install some technology, and breeze out. We should be committed to working with community members and groups to understand the impact of the system we have installed and to follow up with additional work that might support cultural shifts happening in the community.

Furthermore, we need to be conscious of how and by whom the content for our micro-exposures is being created. We must make sure we are working with the diverse communities we intend to represent, allowing them to tell their own stories. Otherwise, we may unconsciously bring our own biases into the experiences. For example, the "Clouds of Sidra" project, which aimed to teach school children about the plight of Syrian refugees through immersive VR, raised eyebrows, because the narrative was created by white Journalists, not the people they were portraying [32].

Overall, I believe there is great potential for cultural micro-exposures to benefit communities with limited access to experiences of cultural and lived diversity such as many rural communities in the United States. However, we must ensure we are carefully weighing the ethical impacts as we engage in this work.

5 CONCLUSION

The HCI community has long failed to truly serve rural communities in the United States. I believe that we have failed to serve these communities, because in many cases we see their values as a mismatch with our own, and see working in these communities as fruitless. However, I also believe that if we do the work to set the stage, we will find that there are opportunities to do important and fruitful work in these communities.

Cultural micro-exposures—short touches with unfamiliar people, culture, and experiences—can be an important part of setting the stage and opening people up to the kind of plural values the HCI community holds dear. Unfortunately, in many places such as rural communities in the US, these experiences are few and far between, if they are available at all. This is where the HCI community can

step in, using technology to replicate these experiences and deliver them in a natural manner.

I have described three of my own ideas for how to provide these experiences, but the problem is far from solved. I ask my fellow HCI researchers to reflect on their own defining moments and micro-exposures, and how they might be translated into technological experiences to be shared with others.

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COMMENTARY

Alexander Muir
Shoween & Amma Insight Ltd, London, United Kingdom
Amirta Vishwavidyapeetham, Kollam, India

Hello, thanks for sharing your thoughts on this topic! To my mind, the lead-in and the content do not match, but they mismatch in a very interesting way. From what I can understand (and please forgive me if I've misunderstood) - this paper sets us up by pointing out, essentially, the urban bias against rural communities, especially in the US. I anticipated that the direction of the cultural education via micro-exposure would be, therefore, to educate ourselves (the urban HCI practitioners) on those to whom we are ignorant and ignoring. So I expected to hear about micro-exposure to help the city dweller understand the rural person. But the paper then pivots and describes a proposed method to covertly re-educate people perceived as culturally flawed. It suggests bypassing standard ethical practice related to consent, as well. I'm not sure the author makes a strong enough case for waiving the ethical requirements for things like informed consent; rather, there is an appeal to the role of art to "enlighten".

I think we need to critically evaluate the assumption that urban HCI practitioners have the cultural capital to "enlighten" rural people. It seems to be a restatement of a very old tension, in which the urbanites see themselves as fundamentally more civilized than the rural "pagan", who are seen as more backward; and the educated as inherently having the role to instruct the uneducated. Though there might be some truth to how cities are cultural centres that radiate outwards, and in the relative spread of university degrees, it is not the whole story and there are important ways the opposite is true (e.g. the lost city dweller returning to their roots) that should not be lost in this narrative.

My own work, by reference, is HCD with rural villages in India. In that context, we do not try to break the value system of the village but rather support them to work within their own value system and towards their highest ideals. We contribute knowledge but only by invitation, and based on a long term and trust-based relationship. There are moves, in India and elsewhere, for a modernist agenda to be forced on rural people, but it tends to result in chaos because it is inflicted from the outside. I am concerned that the gentle nudges proposed in this paper veers towards the wrong side of the ethical line because there is no establishment of a long term relationship, trust or permission. I also work with on HCI with prisoners in the UK, and again there are quite stringent requirements to be overt and ethical in how we use HCI. In neither does an HCI practitioner have the right to implement micro-exposures on people.

It is provocative work, and I hope it is included and sparks a good debate that allows a more open-minded view of those the HCI field has ignored. Again, please accept my apologies if I've misunderstood or misrepresented your intention.

Many thanks for the chance to read it

Alexander