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Kelly M. Murdoch-Kitt  
*Penny W. Stamps School of Art & Design, University of Michigan, USA*

Denielle J. Emans  
*Roger Williams University, USA*

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Improving Intercultural Collaboration with Visual Thinking

Kelly M. Murdoch-Kitt and Denielle J. Emans
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Intercultural collaboration is one strategy for promoting inclusion and innovation in design education. Bringing two or more cultures together in an environment facilitates learning from each other’s varied perspectives and ultimately creates positive interpersonal gains and design outcomes. This study explicates how visual thinking can address unspoken stumbling blocks that can disrupt teamwork. These barriers include unconscious bias, stereotyping, and other deeply held beliefs. This research is based on observations and virtual classroom interactions with remote collaborators located in North America and the Gulf Arab Region. The findings suggest that ignoring the existence of unconscious bias can maintain social and cultural barriers between teammates, thus restricting the opportunities for innovative approaches to collaborative projects and stifling a team’s outcomes (Murdoch-Kitt & Emans, 2020). Conversely, establishing trust helps teams reach their full potential (Katzenbach & Smith, 1993). This inclusive approach to design is important in giving voice to underrepresented groups by opening up opportunities for discussion, dialogue, and understanding amongst team members.

Keywords: collaboration; bias; equity; visual thinking; methods

Introduction

As a twenty-first-century skill, collaboration "is the process of two or more people, i.e. collaborators, working together to co-create something through joint decision-making, in which everyone takes part in the process and responsibility for the outcomes" (Murdoch-Kitt & Emans, 2020, xv). Intercultural collaborations can occur between teammates in the same physical location or separated by distance (Emans & Murdoch-Kitt, 2018b). Such an approach intends to give voice to those who may be historically underrepresented—nationally and/or globally—and create an equitable and inclusive teamwork scenario. Team-building is an ongoing process that helps teammates learn about themselves and each other in order to establish the requisite trust to effectively and innovatively co-create. As evidenced in prior research, the need to develop competencies for effective communication is magnified when teammates are working together globally and remotely (Bennett et al., 2017). During intercultural collaborations, focusing on team-building is also essential to effective outcomes (Murdoch-Kitt & Emans, 2020). Studies demonstrate that diverse teams work more effectively and creatively together than homogeneous teams (Rosen, 2009). Yet innovation also depends upon addressing potential stumbling blocks related to disciplinary, cultural, or social boundaries. Intercultural collaboration is one route to address these boundaries. Moreover, a lifelong journey in understanding others necessarily begins with deep introspection and engaged communication practices (Sandu & Lyamouri-Bajja, 2018). Education must prepare students to enter this complicated arena by learning effective collaboration, as research indicates that unprepared teams often perform at lower levels than individuals working alone, while high-performance teams achieve much better and more sophisticated results (Patton & Downs, 2003; Katzenbach & Smith, 1993). Acknowledging and discussing values—deep beliefs that guide our lives—and biases are one route for improving the collaboration of diverse design teams (Murdoch-Kitt & Emans, 2020). Additional literature suggests that affinity bias and the need to "fit in" can result in team members unconsciously blocking inclusivity (Turnbull, 2016). Unconscious bias unintentionally influences individual
responses or behaviors toward another person or situation, whether positively or negatively, due to feelings or beliefs that are not consciously recognized (Turnbull, 2016). While individuals choose their personal values based on what they think is right or wrong, cultural values are often determined by particular beliefs and social patterns within different societies. Furthermore, some anthropological frameworks tend to explain cultural diversity by focusing on characterizing nationalities in broad terms rather than individuality within each culture (Hofstede, 2011; Trompenaars & Hampden-Turner, 2011). This can result in a sense of cultural absolutism and may even reinforce national, cultural, or racial stereotypes (Murdoch-Kitt & Emans, 2020). When individual identity is pigeonholed within a strict definition of culture, teammates have difficulty moving past stereotypes and embracing each other’s true characteristics and nature. This phenomenon makes intercultural collaboration more difficult and, in these situations, the outcomes of team-based projects are not always optimal or rewarding.

Intercultural collaboration is also a strategy for de-centering cultural dominance by eliciting equitable contributions through discourse between diverse participants. In the context of our study, Muslim communities and students outside of a Middle Eastern context are often disenfranchised and disadvantaged socially and institutionally in the U.S. and other societies (Stevenson, 2019, 2018; Nadal et al., 2012). Visual thinking activities in this study also illuminate these concerns about racism and mistreatment (see Figure 1). Breaking down unconscious bias and deep beliefs is a necessary step toward team cohesion and toward establishing inclusive and safer teamwork environments. Therefore, this study focuses on how the creation and interpretation of visuals can enable teams to open productive conversations. Visual thinking activities—and the conversations they prompt—can also improve both the team’s collaborative experience and its creative outcomes. In turn, these activities can also promote a sense of team equity by challenging social and cultural partialities, which is essential to engaging previously underrepresented voices.

Figure 1. Belief Brainstorm & Affinity Diagram. This activity is completed simultaneously by partners in each culture as a way to begin confronting individual and group biases and assumptions when interacting with intercultural partners later in the teamwork process. The aim is to recognize, come to terms with, and ultimately confront unconscious and conscious attitudes and behaviors toward another person, place, or situation. In this example, a cohort in the Middle East explores facts, assumptions, and opinions about the United States and how their ideas illuminate concerns and gaps in knowledge related to their future project partners who are located there.

Although all humans possess both biases and values, it can be difficult to start a conversation about them when beginning a collaborative relationship. Understanding and coming to terms with these complexities encourages all members of a team to grow as individuals and as collaborators. Introspection, self-reflection, shared knowledge, and interpersonal relationship-building help to foster understanding and empathy. These skills can be learned during collaborative design projects which situate designers in unfamiliar contexts or when students are provided with opportunities to learn from other cultures firsthand. These projects may also focus on working with communities towards social change efforts or community development initiatives to understand others as partners in creative innovation (Bennett et al., 2006; Sanders & Stappers, 2012; Blair-Early, 2010). Building on these important studies, this research offers an approach for fostering interpersonal relationships between students located in North America and the Gulf Arab Region through visual thinking activities. The study drew from theories of collaboration (Rosen, 2009; Patton & Downs, 2003); global learning (Mansilla & Jackson, 2013); and intercultural communication (Martin et al., 2002), by asking:

*How might we use visual thinking to improve upon the collaborative processes of diverse design teams by addressing abstract topics such as cultural values and biases?*
Redesigning Intercultural Collaboration

Participants in intercultural collaborations need to feel “both motivated and psychologically safe” in order to build the requisite trust to channel their differences into innovative ideas (Hill et al., 2014). There are also many evidence-based practices for dealing with the cognitive, emotional, and interpersonal challenges inherent to intercultural collaboration, ranging from lateral thinking (de Bono, 1992) to fluid movement (Slepian & Ambady, 2012), to boundary objects (Star & Griesemer, 1989). Building on this scholarship presents an opportunity to offer a hands-on approach to team-building by looking deeply at teammates’ cultural values and biases as necessary components of effective teamwork. Through visual thinking activities, teams can work together to create and interpret visual artifacts. This strategy of focusing on the artifact, rather than the person, enables group dialogue to evolve beyond judgment-based assumptions to dig deeply into topics of cultural and social relevance.

Designers have long known that preliminary and in-process visualizations aid in a “divergent or expansive process of inquiry” as a strategy to evolve the development of creative outcomes (Nelson & Stolterman, 2014, p. 7) and in playing “a constitutive role in the production and communication of knowledge” (Ganster 2011, p. 21). This study engages with these ideas specifically as an opportunity to build trust and cultivate deeper dialogues among teammates from different cultural backgrounds. The focus of this study is less about co-design methods as a means to arrive quickly at a beautiful final artifact, and more about the process of intercultural collaboration and communication between partners, which can ultimately lead to establishing equitable, inclusive, and safer teamwork environments. Thus, the visualizations created through this process are a form of “interpretive construction,” which “registers point of view, position, the place from which an agenda [...] occurs” (Drucker, 2014, p. 133).

Methodology

This study involves quantitative and qualitative data gathered through observational studies in higher-education design classrooms to understand the productive and creative potentials of visual thinking to bring teams together in the context of intercultural collaboration. Conducted over ten years with 300 participants, attending five academic institutions hailing from 23 countries, the research investigates how visual thinking might promote a sense of inclusion necessary to engage diverse teams in open and productive conversations. Self-assessments from participants, combined with observation of the teams’ interactions throughout their collaborations, and evaluation of team projects, provide data about how the shared activities can serve as a catalyst to understand self and others.

Given the humanistic nature of the questions this research poses, this study employs a multi-methodological approach to understand the collected data from “multiple points across the field” (Ellingson, 2011). Productively combining a range of theoretical and methodological perspectives helps clarify the identified phenomenon via the components of description, analysis, and interpretation of findings (Collins, 2010; Prosser & Schwartz, 1998). This is informed by the methods and approaches of a constructive-development paradigm, which suggests that participants can develop critical thinking and sophisticated problem-solving skills by first constructing a broadly informed understanding of themselves. This sense of self affects how they see their own development in relation to their colleagues or peers (Sandu & Lyamouri-Bajja, 2018; Baxter Magolda, 2001).

Meanwhile, the grounded theory approach of assessing and analyzing this data over time enables researchers to construct new theories from comparisons of data “grounded” in earlier findings (Charmaz, 2014; Glaser, 1978). Grounded theory has led the authors to insights from studying and comparing the data from each collaborative cohort since 2012. The grounded theory approach includes classroom observations and the review of primary and secondary sources from business and creative collaboration (Rosen, 2009; Patton & Downs, 2003), global learning (Mansilla & Jackson, 2013), intercultural communication (Martin et al., 2002), and intercultural learning (Sandu & Lyamouri-Bajja, 2018).

Combined with constructive-developmental theory, the study investigates how students construct knowledge about themselves, while also responding to the gathered textual and design data, as a strategy to make informed decisions about the findings (Sandu & Lyamouri-Bajja, 2018; Baxter Magolda, 2001). The study also employed guidance from the Council of Europe’s strategies for intercultural learning, which involved establishing: (1) equal status among teammates; (2) shared goals; (3) cooperation between teammates; and (4) social norms to support group communication (Sandu & Lyamouri-Bajja, 2018, p. 35). In line with the grounded theory approach, the authors’ analysis was constructed using constant comparative analysis (Glaser & Strauss, 1967) of qualitative data gathered through empirical evidence such as documented faculty observations, design artifacts, and participant self-analyses. The authors also used inductive analysis to code
and compare participants’ written reflections, survey responses, and assessments of their creative work.

Analysis: Visual Thinking Activities Support Intercultural Collaborative Teams

In analyzing the data, there were two major outcomes. Compared to cohorts that did not utilize these visual thinking activities, teams that participated in one or more of the visual thinking activities presented herein showed greater ability (1) to build more meaningful personal and working relationships with intercultural partners, and (2) to delve more deeply into different perspectives on project topics and lived experiences (rather than focusing solely on similarities and superficial characteristics). Because the outcomes of the visual thinking activities provide a focal point for discussion, teams can focus on knowledge-sharing and knowledge-creation, rather than singular ideas or individuals (Drucker, 2014; Star & Griesemer, 1989). With reduced pressure on individuals, more open and productive group conversations can occur.

In contrast with earlier collaborations in the study, which did not utilize these preliminary visual thinking activities, later cohorts who used these activities were able to deepen group dialogue beyond basic assumptions or accessible facts. These activities were instrumental in teammates’ ability to broach more challenging social and political topics in their conversations. Through self-reporting via end-of-collaboration surveys, recent cohorts who utilized the visual thinking methods described in this paper reported several important findings. These include better sense of cultural learning and exchange; stronger sense of connection with teammates; and overall higher satisfaction with the collaboration. Furthermore, these cohorts were able to move past minimization of differences to discuss and embrace their contrasting perspectives and reflect on their personal growth because of this experience:

“I realized I perceived my cultural sensitivity was much stronger than it actually was. I appreciated the identification or my implicit biases and how I can learn to correct them.”
—Participant, Michigan, USA

“Such intercultural collaboration is also about learning to be sensitive and mindful of how we communicate with others, and being able to focus on simplest of details like ‘being able to pronounce names’. It is also about respecting and learning from the work ethics of others.”
—Participant, Bengaluru, India

In contrast, earlier cohorts who did not use these activities, were unable to discuss their partners’ cultures in depth. These cohorts focused more on surface-level characteristics, such as basic geography and the cities’ urban landscapes, as represented in these student quotes:

“Seeing as how I couldn’t point out Dubai on a map prior to starting this project, I think I’ve come a long way in the past several weeks.”
—Participant, San Francisco, USA

“Actually, we didn’t know anything about San Francisco before, but when our partner sent us some photos and information, we were amazed and excited...”
—Participant, Dubai, UAE

The outcome of this research is a series of visual thinking activities that can be used beyond the original study to prepare participants for intercultural collaboration in higher education and beyond. The grounded theory approach supported an iterative process that enabled the authors to implement, test, and refine several preliminary visual thinking activities that help teammates think about values and biases in different ways (Table 1). With these activities in mind, findings from several collaborative cohorts are offered in the next section to exemplify how the methods work. Participating in these visual thinking activities leads to conversations that improve both the team’s collaborative experience and creative outcomes. The authors’ findings also suggest that developing virtual teams into mature and capable work-units does not occur instantaneously; rather, team development is a process that involves learning to understand all members of the team, their opinions, and their cultural values (Murdoch-Kitt & Emans, 2020; Emans & Murdoch-Kitt, 2018a, 2018b).
Table 1. These visual activities are intended for the pre-collaboration phase, before teammates have met their partners located in another culture. It is not necessary for a team to do all of these activities. Based on time and duration of the collaboration, teams can select and modify these activities on a case-by-case basis. Many of these activities can also be repeated later in collaboration with all participants as an effective way to unpack biases around the team’s project topic.

**PREPARING PARTICIPANTS for INTERCULTURAL COLLABORATION**

1. **VALUE DISCOVERY & COLLAGE**
   Prior to intercultural collaboration, teammates can introspect on their own personal and cultural values origins to set the stage for discussion and prime teammates for mutual understanding and respect. Creating a collage that represents personal values helps these abstract ideas feel more concrete and gives teammates discussion points to refer to when explaining values to the team.

2. **BELIEF BRAINSTORM & DIAGRAM**
   This activity is recommended for local colleagues to do together prior to connecting with remote teammates in another culture. It uses the technique of distributed brainstorming, in which everyone is able to simultaneously write down their own ideas about facts, assumptions, and opinions of the other culture. This strategy helps reduce self-consciousness and produce a larger number of responses than when participants say their responses aloud. Following the brainstorming session, participants post their individual responses on a vertical surface and organize their collection of responses into an affinity diagram, which groups similar responses together into categories to reveal larger patterns of thinking.

3. **PERSONAL & GROUP ICEBERGS**
   This activity, based on Edward T. Hall’s iceberg metaphor for implicit and explicit cultural characteristics (1976), the approach enables individuals to generate a visual that helps participants define their own cultural characteristics and values. Creating these individually provides time for personal reflection prior to merging ideas with local colleagues to create a larger iceberg image that is representative of the local group. Individual and group icebergs can be shared later with intercultural partners as a way to stimulate dialogue, assisting with cultural learning and understanding by preempting assumptions or unspoken cultural questions.

4. **COMPARATIVE IMPression MAPS**
   These visual maps, which incorporate sketches along with associative word webs, help reveal the gaps in participants’ knowledge or understanding of a topic by comparing what they know about it across multiple cultural contexts. As a result, these maps push individuals to think more deeply about an idea, their related associations with it, and their understanding of a topic from another cultural perspective. This can be a humbling process that often dismantles notions of cultural superiority by revealing the limitations of knowledge about a topic from the perspective outside of one culture. For example, how does gender equality manifest in the United States vs. the Middle East?

5. **DEEP DIVE**
   Doing one or more of the previous activities helps prepare participants for a Deep Dive, which involves preparing culturally sensitive questions for partners in other cultures. This process focuses on transforming fact, assumptions, and opinions; implicit cultural values; and/or gaps in cultural or topical knowledge into thoughtful, “intentional questions” (Murdoch-Kitt and Emans 2020). These questions enable teammates from different cultures to deepen their conversations beyond surface-level small talk. When teammates realize that everyone on the team is going through the same process, it reduces feelings of self-consciousness.

6. **VIDEO INTRODUCTIONS**
   In preparing and exchanging brief videos, new teammates can introduce themselves and share some of their physical context (location, work environment, etc.) with each other. Beyond personal introductions, these short videos are an ideal way to share initial impressions or experiences with a topic that the team may be exploring together. These can be recorded on a phone and do not require special software or editing skills.

With this in mind, this section presents a number of visual thinking activities that can help teams address barriers to teamwork that arise due to unconscious bias and deep beliefs. In response to the need to build trust and understanding between team members, the Belief Brainstorm and Diagram (Figure 1), Comparative Impression Maps (Figure 2), and Video Introductions (Figure 3) are a few of the many activities that have evolved from the authors’ research (Murdoch-Kitt & Emans, 2020).
Figure 2. Comparative Impression Maps. This activity involves creating multiple sets of webs incorporating words and sketches to help individuals understand their ideas about a topic, location, or culture prior to intercultural collaboration. In this example, students worked together to create maps to explore their initial ideas about sustainability in their own culture compared to their partner’s culture.

Figure 3. Video Introductions. This activity can be framed as a way to launch teammates into discussion about critical topics by inviting each person to share a personal narrative or perspective in a closed online space. In this example, students simultaneously introduced themselves and relayed a personal story about discrimination that they had faced or witnessed as a strategy to begin conversations about a shared topic of concern. Collaborative teams formed based on content from these individual videos.
Conclusions
This study indicates that visual thinking can improve intercultural collaboration activities. Findings reveal that when participants engage in these visual thinking activities, they are better able to address, circumvent, critique, or transform unconscious biases that may affect team cohesion to better account for differences. In contrast, responses from a cohort who did not use any of the preliminary visual thinking activities outlined in this paper remained at surface-level. The authors discovered that process-based, hands-on, visual thinking activities can improve collaboration of diverse design teams and help address cultural barriers between teammates. The study also indicates that visual thinking activities improve intercultural collaboration because they engage diverse teams in open and productive conversations around challenging topics. The conclusions suggest that visualizing and discussing differences as a planned part of team-building enables collaborators to come to terms with differences in productive ways that improve project success as well as foster individuals’ growth.

Altogether, the activities described in this paper help participants get to know themselves better and learn how to work with others more effectively when used early in the collaborative process. Together, they are categorized as the second dimension within the authors’ Six Dimensions of Intercultural Teamwork, a multi-phase framework that includes more than 30 visual thinking activities to support intercultural collaboration (Murdoch-Kitt & Emans, 2020). Conversations about values and cultural biases are framed around the visual thinking activities, rather than about a specific individual and their ideas. This is an essential first step in encouraging teams towards dialogue about values and bias in small groups as a means to cultivate personal growth and learning about self and the world. Learning to utilize these methods can encourage teammates to disrupt feelings of cultural hegemony, establish team equity, and get at the heart of challenging local and global topics, which are essential to diversifying design.

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**Kelly M. Murdoch-Kitt**
Penny W. Stamps School of Art & Design, University of Michigan, USA
kmmk@umich.edu
Kelly M. Murdoch-Kitt believes in integrating visual communication, interaction design, and service design with global and social responsibility. Murdoch-Kitt is an Associate Professor at the University of Michigan’s Stamps School of Art and Design. She holds a Master’s degree in Graphic Design from North Carolina State University’s School of Design; and a Bachelor of Arts from Wake Forest University.

**Denielle Emans**
Feinstein School of Humanities, Arts and Education, Roger Williams University, USA
demans@rwu.edu
Dr. Denielle Emans is passionate about intercultural collaboration, visual storytelling, and empowering teams to build strong relationships to fuel creative action. Dr. Emans holds a Ph.D. in Communication for Social Change from the University of Queensland, Australia; a Master’s degree in Graphic Design from North Carolina State University’s School of Design; and a Bachelor of Arts in Communications from the University of North Carolina, Chapel Hill.