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Under construction: Reimagining health and safety communication for multilingual workers in Qatar

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Abstract: As Qatar races to complete development projects in advance of the 2022 FIFA World Cup, the country's construction sector continues to face criticisms regarding its treatment of migrant workers. This criticism is compounded by nominal safety legislation at the national level and the need for accessible occupational health and safety (OHS) media on worksites. Adding to these concerns, there is currently no comprehensive approach to ensure the effective communication of vital health and safety information to workers with limited English/Arabic proficiency or low literacy skills. In light of these concerns, this paper describes a pilot study that brings together the disciplines of safety management and communication design to resolve communication inequities embedded in the nation's construction industry. Through a three-part workshop series, the study explores the synergistic potentials of design research and creative action to generate inclusive OHS media in Qatar.

Keywords: occupational health and safety; migrant rights; action research; social change

1. Introduction and context of the study

The complex relationship between labour and development bears witness to humanity's relentless desire for expansion and progress. Throughout history, powerful empires have risen from desolate lands, built on the backs of men toiling under the gaze of an unforgiving sun. Few countries can escape the dark side of socioeconomic growth, with the remnants of decades of intense labour embedded into the bricks and mortar of most great nations. In recent decades, the discovery of oil in Gulf Cooperation Council (GCC) countries has fuelled development efforts in the region with billion-dollar construction projects supported by the recruitment of workers from South and Southeast Asia (GLMM, 2019). Within this context, GCC citizens maintain strict structural power relations between themselves and foreign workers tied to notions of nationalism and citizenship (Diop et al., 2012; Kapiszewski, 2006).

As one of the six Middle Eastern countries that comprise the GCC, Qatar has received extensive media coverage regarding its sponsorship laws and treatment of foreign workers

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(Amnesty International, 2019; ILO, 2018; ITUC, 2011). Rajai Ray Jureidini (2017) outlines some of the structural mechanisms impacting the workforce, including the tendering process and workers paying large sums of money to recruitment agencies in their home countries. Moreover, the ‘highly privileged position’ of nationals is reinforced and maintained through *kafala*, a sponsorship system which regulates residency duration, immigration opportunities, and ties temporary work visas to employers or “sponsors” (Jureidini, 2017; Zahra, 2015).

Comprising nearly 85% of Qatar’s total population, the majority of foreign workers come from Bangladesh, India, Indonesia, Nepal, Pakistan, the Philippines and Sri Lanka (Snoj, 2019; Crépeau, 2014). With an estimated 100+ languages shared amongst this diverse community, many blue-collar workers do not read or speak the two primary languages of the country’s leading contractors: Arabic and English (Gardner et al., 2013). Language is not only an essential cultural tool needed for communication and social cohesion (Everett, 2012), but linguistic barriers can also distance people from public discourse and contribute to socio-cultural marginalization (Lo, 2014). In workplace scenarios such as the construction industry, addressing communication inequities is arguably a “matter of life and death” for marginalised communities (Lee, 2009).

According to Amnesty International, construction workers in Qatar consistently face above-average rates of injury or death due to poor working conditions and limited access to healthcare services (2019; 2014). Umesh Upadhyaya from the General Federation of Nepalese Trade Unions, further references the harsh climate of Qatar, stating, “everyone is talking about the effect of Qatar’s extreme heat on a few hundred footballers, but they are ignoring the hardships, blood and sweat of thousands of migrant workers, who will be building the World Cup stadiums in shifts that can last eight times the length of a football match” (qtd. in Pattison, 2013). The linguistic and cultural diversity of Qatar’s foreign workforce, along with insufficient health and safety materials to support these needs, may offer evidence pertaining to the high number of safety-related incidents within the country.

In response to these complex socio-cultural challenges, several local design initiatives have emerged in recent years to investigate how designers can contribute to positive social change in Qatar. For example, the need for temporary labour accommodations for construction workers spurred Maja Kinnemark to create an adaptive innovation plan for communal living spaces that use portable modules as a solution to the shifting worksites across the country (VCUarts Qatar, 2014). Alia Khairat focused on enhancement-oriented innovation to improve upon construction worker’s clothing in response to the extreme temperatures in which people often work (Khairat & Modeen, 2014). Together, these projects highlight an opportunity for design research to actively contribute to improving the lives of people working in the construction industry as a form of social change in Qatar.

2. Communication inequities in the construction sector

Over the past two centuries, the imperative to communicate safety information across language barriers has increased due to industrialization and economic development, but

also because of international gatherings such as the World's Fair, the Olympic Games, and the FIFA World Cup. The development of universal visual language systems have also greatly impacted how people understand visual information, particularly when the meaning of certain information is not always self-explanatory to international audiences (Adams & Foster, 2013). One often overlooked aspect of international standardization, however, is the potential sexist and nationalist values embedded in the creation of these visual systems.

In the case of the transportation symbols developed by AIGA in 1973, for instance, it is noteworthy to mention that these signs were designed by an all-male cohort, with only two women mentioned in the list of credits as "project coordinators" (Landa, 2011. p. 15). Rarely questioned, these sign-systems conceal possible cultural meaning and power relations that exist below the surface of their so-called universality. In "Queering the Universal Rhetoric of Objects," Bruce King Shey examines Henry Dreyfuss's "Measure of Man and Woman" to question the narrative and myth surrounding the notion of universality:

"[t]hrough the ability to see these ruptures in the industrial design narrative as points of tension between the idealized universal and the politics of difference, the determinacy of the narrative can be subverted" (2005, p. 32).

Extending Shey's argument to graphic forms, bathroom symbols have recently come to represent a "prejudicial and pigeonholed" use of visual language in many American cities (Dobson & Dobson, 2016, p. 80). Indeed, the intentions of designers who developed the original set of transportation symbols were effective in providing people with information about how to locate a bathroom or elevator. Yet, the opportunity to reimagine restroom signage as inclusive spaces for transgender community members is a necessary reminder about the need to continually question and evaluate seemingly benign design practices (Dobson & Dobson, 2016). This involves surpassing ingrained gender inequalities, social hierarchies, and stereotypical labelling embedded in notions of objectivity and neutrality.

The need to increase accessibility is especially critical with consideration to the international dimension of workplace health and safety in Qatar. In this context, safety inspectors can sometimes overlook how cultural and social differences can influence the way viewers interpret visual information. Miscommunication can arise from representational, linguistic, or formal barriers. Meaning that, the standardization of safety signs does not necessarily equate to understanding across cultures. Moreover, the hazards of cultural mismatches in the communication of safety information remains largely uncontested and provides an opportunity to investigate strategies for improving occupational health and safety (OHS) communication to workers from a range of linguistic and cultural backgrounds. This study responds by questioning how OHS media is created, disseminated, and evaluated in Qatar.

3. Design research and social change

Across the scope of scholarly literature, design research and methods are fundamentally concerned with *change* (Bardzell & Bardzell, 2013; Simon, 1996; Jones, 1963). One of the early pioneers of design research, Chris Jones, referred to the methods of design as "the

initiation of change in man-made things” (1992, p. 6). Nobel prize winner Herbert Simon conceived of design research as an action, in which “everyone designs who devises a course of action aimed at changing existing situations into preferred ones” (1996, p. 112). Years later, Peter Lloyd (2017) described design research as the “active engagement in shaping future forms by suggestion, prototype, speculation, practice, and intervention” (p. v). Fatina Saikaly describes this kind of practice-based approach to research as a “designerly mode of inquiry,” a concept first proposed by Bruce Archer in 1981 (2005, p. 4). Former president of the International Council of Design, Jorge Frascara, specifies some of the ways in which design can modify, reinforce, or facilitate change in behaviours, attitudes, or abilities:

“This modification can be a change, as in switching from one product to another or in quitting smoking; a reinforcement, as in the case of exercising more, giving more money to charities, or drinking more milk; or a facilitation, as in the case of reducing the complexity of reading, operating a machine, or orienting oneself in a new place” (1998, p. 51).

In addition to these conceptions of design research, there is an increasing range of definitions, theoretical concepts, and debates expanding the field to include critical frameworks and autonomous methods (Escobar, 2018; Clarke, 2017). The expansion of disciplinary boundaries now includes design anthropology (Tunstall, 2012), transition design (Irwin, 2018), and social design (Kolko, 2012), among others. But, while design scholars contend that research has radically transformed across the field in recent years, the need for conscious, equitable, and responsible design must continue to forefront scholarship. Scholars make a case for the ongoing need to develop both theoretical and practical strategies for social change as conceptualized as policy-oriented, systematic, and radical.

Critical scholars contend that what is often missing from the rhetoric surrounding human-centred design and design thinking is the concept of reciprocity, justice, and systems of oppression. Sadie Red Wing makes a call for designers to evaluate the responsibilities embedded in processes dedicated to problem-solving and communication, warning of design’s ability to abuse individuals and populations (AIGA, 2018). These systems affect and exclude “some humans from being considered human” (Platoniq, 2019). For instance, the design of digital technologies and consumer goods have emboldened global consumerism and colonialist ideals (Clarke, 2017). Moreover, the visual propaganda of MAGA (Make America Great Again) in the form of hats and other wearable objects serve to communicate ideological values, ethnic heterogeneity, and political systems that threaten many groups. Reaching back even further, German propaganda posters during World War II celebrated the Nazi regime and spread hateful messages to malignant ends (Bachrach & Luckert, 2009).

As part of the theoretical lens for this study, critical theory offers a way to study language as a social practice and investigate its social-theoretical implications using the term discourse. *Discourse* primarily refers to written or spoken communication but also includes semiotic modalities such as visual images and photography (Machin & Mayr, 2012; Lassen et al., 2006; Kress & van Leeuwen, 2006). In a pilot study such as this, moreover, the goal is to analyse the causality and determination between discursive practices (Fairclough, 2010, 1993), historical structures (Wodak, 2009), and socio-cultural cognition (van Dijk, 2001, 1993). In

doing so, critical theory serves to propel design research towards the creation of equitable and inclusive OHS media for multilingual workers, while concurrently respecting the social development space of Qatar.

4. Methodology

Design scholar Cal Swann suggests *design research* is an interpretive and reflective process, where “reflection ‘in action’ and reflection ‘on action’ lead to “action research” (2002, p. 50). According to Swann, “action research and the action of designing are so close that it would require only a few words to be substituted for the theoretical frameworks of action research to make it applicable to design” (p. 56). Much like *action research*, designers seek out practical and creative resolutions to problems rather than prediction or explanation alone. This practical purpose is important because while many other disciplines focus on the scientific, technological, and social impacts of research topics, *creative action* is verified through praxis. Design researchers Sandeep Purao, Matti Rossi and Maung Sein describe an overlapping methodology that integrates creative action with action research as identification/definition, intervention, evaluation, and reflection/learning (2010). The basic principles of this approach is to test ideas through real-time collaboration and feedback so as to produce practical knowledge rooted in the experience of those involved (Reason & Bradbury-Huan, 2007; Maguire, 1987).

Within this study, however, the protection of vulnerable community members foregrounded traditional notions of participatory creative action to account for the strict socio-political barriers embedded within Qatar’s context. As mentioned earlier, the topic of migrant rights and inequities remains a highly contentious topic in the GCC region. It requires researchers to account for governmental policies and practices, first and foremost. For example, foreign journalists from the BBC and WDR were arrested in 2015 for reporting on the conditions of low-paid migrant labourers in Qatar’s construction sector (Akkoc, 2015; Lobel, 2015). Therefore, a core feature of IRB approval necessitated the exclusion of migrant workers from data collection processes to mitigate any unintended negative consequences associated with the research. An alternative method of data collection involved semi-structured interviews with Doha-based safety experts. This group of people works closely with migrant workers, with their professional responsibilities focused specifically on OHS. In addition to this interview data, the study drew from a content analysis of observational and visual data collected from construction sites in Doha over a two-year period.

The collection of interview, visual, and observational data informed the final stage of the pilot study, wherein 15 Doha-based communication designers came together in a three-part workshop series to creatively respond to the need for inclusive OHS media. Hailing from nine different countries, each possessing a range of multilingual acuties, the group of designers encompassed professionals, faculty, staff, alumnae, and students. Using the aforementioned collected data to drive their creative process, the designers worked together in weekly workshop-sessions to devise strategies to cross language barriers and increase

communication around OHS topics. The resulting workshop data includes three workshop surveys, photographic documentation, and three OHS proposals.

5. Workshop series: Reimagining health and safety communication

5.1 General workshop structure

As a form of knowledge-sharing, the setup for the workshop series introduced participants to health and safety themes raised during interviews with the Doha-based safety experts. The workshop space was designed to feel like an experiential mood-board, expanding from the pin-up walls to the tables. At each table, materials were provided for participants to use during the series of design-based activities including coloured sticky-notes, sticker-dots, pens, pencils, and index cards. Participants were asked to walk around the full workshop space and ground themselves in the gathered data, including: safety messaging, and visual data collected from worksites (Figure 1). In addition to these materials, the presentation of interview data collected from safety experts provided the participants with key OHS insights in alignment with three overarching questions:

- What are some ways that you think construction workers in Qatar could be better supported in terms of health, safety, and communication?
- What are constraints or boundaries to inclusive and accessible communication?
- How would you like to see things changed?

Figure 1 The setup for the workshop series “Reimagining Health & Safety Communication for Multilingual Workers in Qatar” included safety messaging, visual data collected from worksites, and interview data collected from Doha-based safety experts.

The principles of design for inclusion and universal design served as the primary backdrop for large and small-scale group discussions during the workshop series. *Design for inclusion* offers a creative-practice checklist to consider the “physical, visual, auditory, financial, and other factors as well as an individual’s temporary or permanent limitations to accessing each” (Axios, 2018). The principles of *universal design* provide a framework to increase usability by embedding “economic, engineering, cultural, gender, and environmental concerns” into the process, practice, and mindset of designers (The Center for Universal Design, 1997). Together, these two underlying strategies helped participants to better

understand how to broaden their perspectives, design for equitable use, and build inclusion into their processes (Axios, 2018; The Center for Universal Design, 1997).

5.2 Knowledge-sharing workshop activities

Over the series of three workshop sessions, participants creatively responded to the viewpoints of safety experts by engaging in brainstorming and small group activities. The workshop activities were designed to spark creativity and connect participants with the opinions of stakeholders who work with construction workers on a daily basis. The *Reimagining Safety Card Game*, for example, invited teams to work together to reimagine strategies for communicating OHS concerns to workers (Figure 2). The card deck contains 72 cards with three equally distributed categories, each related to a certain aspect of the study. These three categories correspond to the themes: 1) health and safety concerns; 2) type of visual media; and 3) emotional reaction the design should spark in the viewer.

During gameplay, for example, one participant proposed revising the information that appears on workers' water bottles in response to the three cards: *dehydration*, *packaging*, and *personalized needs*. Instead of branding on the label, the bottle showcased the amount of water a person should drink during heavy labour or in extreme heat. The proposal featured a sketch of a water bottle with digital markings and accompanying text that prefaced the idea with the statement "this requires programming." The designer went on to describe how a construction worker drinking from the bottle would receive positive and individualized messages recorded by co-workers and approved by a mental health expert. "By drinking the water, the worker also lessens fatigue caused by dehydration" explained the designer.

In a second round of gameplay, another designer focused on the development of an app to help people manage depression in response to the three cards: *depression*, *app*, and *comfort*. By connecting people to counselling services, the proposed app could become a lifeline to people suffering from depression or those feeling suicidal. This idea emerged in response to an interview statement from a safety expert that explained: "many people feel depressed when they are separated from their families and living in a different country." According to the designer, the app could provide people with motivational quotes, Bollywood soundtracks, or funny videos in multilingual formats.

Figure 2 Recruitment flyer for the workshop series (left) and the “Reimagining Safety Card Game” materials and group gameplay (right).

5.3 Consolidating ideas

Following the series of brainstorming activities, participants were broken into three distinct teams based on their shared or overlapping interests in OHS. Rather than forcing a particular prescribed creative outcome on the designers, the small groups were asked to discuss how to either focus or expand upon “favourite” proposals developed during gameplay. The groups brainstormed how to communicate their concepts, determining which ideas could be rough and which needed to be well-defined (Knapp, 2016). Some concepts required abstraction, for instance, while others lent themselves to narrative solutions. Each group was then asked to develop a story-map to outline all of the necessary action steps required for a construction worker to engage with the concept (Figure 3).

The aim of developing a story-map is to drive more in-depth thinking about a chosen concept and make it actionable by outlining a step-by-step plan for a potential prototype (Knapp, 2016). For example, an opening scene might begin with a construction worker receiving a private message on their mobile phone. In this case, the first scene would include the text “a worker reads the message and clicks on the link.” Other examples for opening scenes include when a boss shares a booklet with an employee, a friend sends a text message, or someone watches a video in their workplace cafeteria.

Figure 3 This series of photos shows the story-map and action steps phase of the workshop series.

Following the story-mapping process, each team was asked to determine their preferred and chosen “answer” by exploring various aspects of OHS and participating in the “construction of possibilities” (McCoy, Triggs, & Van Toorn, 2002, p. 331). In-depth discussions were geared towards building a consensus about the actionable steps of their plan and deciding which idea(s) to execute individually or as a team (Brown, 2009; Brown & Katz, 2009). During this time, the group also considered how to eliminate ideas that were either impractical or outside the skillset of the group. To reach a final consensus, workshop participants used sticky notes to anonymously vote, engage in dialogue, and determine a timeline to achieve their goals. The next section of this paper shares the results of this process and highlights how participants conceived of designs’ role in improving OHS communication in Qatar’s construction industry.

6. OHS proposals

The workshop series’ anticipated output was a collection of new safety media, inclusive of multilingual translations and accessible iconography. However, the OHS proposals generated during the workshop moved well beyond the initial goal of using visual language and graphic forms to improve workplace safety. Instead, the participating designers approached the topic of safety more holistically, perhaps due to their familiarity with Qatar’s socio-cultural complexities or due to their collective interest in resolving inequities past traditional forms of communication design. In either case, the proposals engage with a broader understanding of community needs and recognize critical gaps in OHS as related to workers’ wellbeing. Thus, the following workshop proposals provide a glimpse into the synergistic potentials of both design research and creative action as an avenue towards social change in Qatar.

To begin, the “Rest-and-Relax Tent” aims to improve workers’ day-to-day lives by minimizing the impacts of heat stress and focusing on positive strategies to help people relax during their breaks (Figure 4). The team behind this idea based their concept on interview data collected from Doha-based safety experts who suggest that a “welcoming environment” could encourage people to take preventative measures to mitigate heat stress. The resulting OHS proposal invites employees to take regular breaks by supplying worksites with large tents furnished with items such as radio, sink, fridge, water, fan system, and medical kits. The team went on to recommend that the shelters should employ colourful visuals inspired by the Bollywood industry to ensure workers identify with safety messaging embedded within the tent.

The second concept developed during the workshop aims to celebrate construction workers’ achievements using a badge reward system (Figure 5). After interacting with interview data from safety experts, this group of designers became inspired by the suggestion to address workers’ mental wellbeing as a core component of health and safety in Qatar. The team responded by conceptualizing a system for recognition, much like those employed by organisations such as the Boy Scouts of America. The designers explained that a similar achievement system could be used in the construction industry by adding permanent badges, semi-permanent removable patches, and optional stickers to people’s helmets, vests, and uniforms. The resulting “Employee Achievement Program” highlights the importance of recognising a worker’s accomplishments and the emotional benefit of supervisors acknowledging a “job well done.”

The final OHS proposal produced during this pilot study responds to the need for workers to seek relief from the sun throughout the workday. This team observed that workers on construction sites often sit under the scorching summer sun without shelter when their bodies should be recovering from the intense heat. This excessive exposure to the sun can have an adverse effect on employees’ mental health, physical health, and productivity. “Mi.Pod” aims to combat this occurrence with a simple, easy-to-assemble shelter that is compact, portable, sustainable, and cost-efficient (Figure 6). Mi.Pod would be made from polypropylene foam, a sturdy and lightweight material that is flexible in a wide range of temperatures and is moisture-resistant and chemical-resistant. The panels would be equipped with industrial Velcro to connect the different panels, creating a folding frame mechanism to provide shade and comfort to the user.

Overall, the purpose of generating the collection of OHS proposals during the workshop series was to add to a recommendation packet developed for government agencies and construction companies in Qatar. While only designers were involved in the workshop series, safety experts’ viewpoints play an equally prominent role within the recommendations packet, without overshadowing the proposed creative interventions. By sharing these cumulative ideas with various stakeholders, the aim is to increase awareness about practical and actionable areas to support workers’ welfare.

Figure 4 *Workshop Proposal 1: Rest-and-Relax Tent. This proposal uses images found online to help justify the need for increased preventative measures to protect workers from heat stress in Qatar’s harsh desert climate. Within the proposal, the team highlighted examples of other cities with multilingual construction environments that provide workers with inviting spaces to take regular breaks (as shown in the image on the right).*

Figure 5 *Workshop Proposal 2: Employee Achievement Program. This proposal aims to celebrate construction workers’ achievements using a badge reward system. The system would include permanent badges, semi-permanent removable patches, and optional stickers to adhere to people’s uniforms, vests, and helmets.*

Figure 6 *Workshop Proposal 3: Mi.Pod. This proposal suggests that an easy-to-assemble shelter can help provide workers with relief from heat stress in a compact, portable, and cost-efficient manner.*

The recommendation packet makes a case for needed improvements in the dissemination of OHS information and shares critical insights from the following collected data:

1. Visual analysis of OHS graphic forms collected from construction worksites
2. Interview data from Doha-based safety experts
3. Survey data from participating communication designers
4. OHS proposals presented in this section

The visual analysis reveals, “there is a critical need to provide clear, accessible, and detailed safety information in the workplace.” The interview data adds to this finding by providing a glimpse into the ways in which language barriers can hinder how safety topics are understood. Safety experts suggest a crucial component of educating people about OHS is through a combination of static, experiential, and interactive media. The proposals developed during the workshop series similarly indicate a need to move beyond merely identifying hazards or presenting adequate warnings to construction workers. Altogether, these collective findings expose an obligation to provide richly informed design strategies to communicate vital health, safety, and wellbeing information to construction workers from various linguistic and cultural backgrounds.

7. Implications and next steps

This study reveals a shared enthusiasm from the two fields of safety management and communication design to promote policy-level change in Qatar’s construction sector through focused and care-filled collaborative efforts. While the study was limited by socio-political restrictions related to migrant rights in the region, it also expands notions of creative action to account for closed contexts with strict authoritarian governments. By correlating OHS communication with the productivity and wellbeing of workers, there is an opportunity to place positive pressure on contractors to improve worksite health and safety practices.

Perhaps one of the most exciting and unexpected results of this study was the creation of OHS proposals that bypass linguistic or semiotic communication with other artefacts that, in and of themselves, provide health and safety. This outcome may be a result of exposing the participating designers to interview data from safety experts, participants’ familiarity with OHS complexities in Qatar, or the integration of *design for inclusion* and *universal design* in the workshop dialogue. To understand this phenomenon more explicitly, the next steps of this study will investigate 1) how the workshop methodologies impacted the OHS proposals and 2) how this strategy might inform future design research in Qatar and across the GCC.

Additionally, the next phase of the study will involve an exhibition of the OHS proposals as a strategy to promote dialogue between government officials, safety experts, and communication designers. A public display dedicated to the topic of worksite OHS could bring awareness to the need for safety legislation at the national level and accessible media on the ground level. Bringing the voices of construction workers into the study at this stage of the process is also a strategy to seek reciprocity between the research findings and the

intended audience. Initiating an open dialogue with all stakeholders has the potential to mitigate some of the tensions around the topic of migrant rights in Qatar and encourage other researchers to build on this initial pilot study. In turn, an informed and educated public can urge policymakers and governmental entities to account for the long-term health, safety, and wellbeing of the country's indispensable workforce.

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8. References

- Adams, A. S., and Foster, J. J. (2013). Finding the Right Symbol: An Annoyed Bibliography of Graphical Symbols Standards. In Annie W. Y. Ng & Alan H. S. Chan (Eds.), *Signs and Symbols for Workplace and Public Use* (pp. 1-10). New York, NY: Nova Science Publishers. Inc.
- AIGA (2018). Emerge. *Interview: Sadie Red Wing*. American Institute of Graphic Arts. Retrieved from <http://emerge.aiga.org/2018/10/02/interview-sadie-red-wing/>
- Akkoc, R. (2015, May 18). BBC journalist arrested for filming Qatar World Cup 2022 workers. *The Guardian*. Retrieved from <http://www.telegraph.co.uk/news/worldnews/middleeast/qatar/11612216/BBC-journalist-arrested-for-filming-Qatar-World-Cup-2022-workers.html>
- Amnesty International (2019). *Reality Check: The state of migrant workers' with four years to go until the Qatar 2020 World Cup*. Amnesty International. Retrieved from <https://www.amnesty.org/download/Documents/MDE2297582019ENGLISH.PDF>
- Amnesty International. (2014, November 12). Qatar: Steps to end migrants' exploitation ahead of World Cup 'woefully insufficient'. Retrieved from <https://www.amnesty.org/en/latest/news/2014/11/qatar-steps-end-migrants-exploitation-ahead-world-cup-woefully-insufficient/>
- Axios, A. (2018). Inclusive Design. Automattic: Inclusive Design Cards. Automattic. Retrieved from <https://design.blog/inclusive/>
- Bachrach, S. and Luckert, S. (2009). *State of deception: The power of nazi propaganda*. Washington, DC: The United States Holocaust Memorial Museum.
- Bardzell, J., and Bardzell, S. (2013). What is "critical" about critical design? Proceeding CHI '13 *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*. 3297-3306.
- Brown, T. and Katz, B. (2009). *Change by Design: How Design Thinking Transforms Organizations and Inspires Innovation*. 1st ed. New York: Harper Business.
- Crépeau, F. (2014, April 23). *United Nations, Report of the special rapporteur on the human rights of migrants*. United Nations Human Rights, Office of the High Commissioner for Human Rights. Retrieved from http://www.ohchr.org/Documents/Issues/SRMigrants/A-HRC-26-35-Add1_en.pdf
- Clarke, A. (2017). *Design Anthropology: Object Cultures in Transition*. Bloomsbury Academic.
- Diop, A., Tessler, M., Trung Le, K., Al-Emadi, D., and Howell, D. (2012). Attitudes towards migrant workers in the GCC: Evidence from Qatar. *Journal of Arabian Studies: Arabia, the Gulf, and the Red Sea*, 2(2), 173–187.
- Dobson, T. and Dobson, S.C. (2016). "Tip of the icon: Socially Symbolic Indexical Signage." *Dialectic*, 1.1 (2016): pgs. 61-90.

- Escobar, A. (2018). *Designs for the Pluriverse: Radical Interdependence, Autonomy, and the Making of Worlds*. Duke University Press.
- Everett, D. L. (2012). *Language: The cultural tool*. New York, NY: Pantheon Books.
- Fairclough, N. (2010). *Critical discourse analysis: The critical study of language* (2nd ed.). Routledge.
- Fairclough, N. (1993). Critical discourse analysis and the marketization of public discourse: the universities. *Discourse & Society*, 4, 133–168.
- Frascara, J. (1998). Graphic design: fine art or social science? *Design Issues*, Fall, 5(1), 18–29.
- Gardner, A., Pessoa, S., Diop, A., Al-Ghanim, K., Trung, K., and Harkness, L. (2013). A portrait of low-income migrants in contemporary Qatar. *Journal of Arabian Studies*, 3(1), 1–17.
- GLMM (2019). *GCC: Total population and percentage of nationals and non-nationals in GCC countries* (national statistics, 2017-2018) (with numbers). Gulf Labour Markets and Migration. Gulf Research Center. Retrieved from <https://gulfmigration.org/gcc-total-population-and-percentage-of-nationals-and-non-nationals-in-gcc-countries-national-statistics-2017-2018-with-numbers/>
- ILO. (2018). *Project Office for the State of Qatar. International Labour Organization*. Retrieved from: https://www.ilo.org/wcmsp5/groups/public/---arabstates/---ro-beirut/documents/briefingnote/wcms_648005.pdf
- Irwin, T. (2018). The emerging transition design approach. In: *Proceedings of the Design Research Society 2018*, vol. 3, pp. 968–990.
- ITUC. (2011). *International Trade Union Confederation. Hidden faces of the Gulf Miracle*. Retrieved from <http://www.ituc-csi.org/hidden-faces-of-the-gulf-miracle,9144?lang=en>
- Jones, J. C. (1992). *Design Methods*. New York: John Wiley & Sons.
- Jones, J. C. (1963). A Method of Systematic Design. In C. J. Jones, and D. G. Thornley (Eds.), *Conference on design methods* (pp. 53–73). Oxford: Pergamon Press.
- Jureidini, R. (2017). “The Need for Systemic Reform in Migrant Labour Recruitment” in S. Irudaya Rajan (ed) *India Migration Report 2016*, London, Routledge, p.36-47.
- Kapiszewski, A. (2006). *Arab versus Asian migrant workers in the GCC countries. United Nations Group Meeting on International migration and Development in the Arab Region*. Beirut, 15-17 May 2006. Retrieved from http://www.un.org/esa/population/meetings/EGM_Iltmig_Arab/P02_Kapiszewski.pdf
- Khairat, A., and Modeen, T. (2014, September). Not another space suit: A conceptual hybrid design for the forgotten masses. In D. Laubscher, F. Freschi, C. Luisa, A. Breytenbach, & K. Pope (Eds.), *Proceedings of the Design with the other 90%: Cumulus Johannesburg Conference* (pp. 57–71). University of Johannesburg and Greenside Design Center, Johannesburg, South Africa.
- Knapp, J. (2016). *Sprint: How to Solve Big Problems and Test New Ideas in Just Five Days*. New York: Simon & Schuster.
- Kolko, J. (2012). *Wicked problems: Problems worth solving: A handbook and a call to action*. Austin, TX: ac4d.
- Kress, G., and van Leeuwen, T. (2006). *Reading images: The grammar of visual design* (2nd ed.). London and New York: Routledge.
- Landa, R. (2011). *Graphic design solutions* (4th ed.). Belmont, CA: Wadsworth Publishing.
- Lassen, I., Strunck, J., and Vestergaard, T. (2006). *Mediating ideology in text and image: Ten critical studies*. Amsterdam: J. Benjamins.
- Lee, P. (2009). Communication rights and the millennium development goals. In A. Dakroury, M. Eid, & Y.R. Kamalipour (Eds.), *The right to communicate: Historical hopes, global debates, and future promise* (pp. 129–150). Dubuque: Kendall Hunt Publishing Company.

- Lloyd, P. (2017). From design methods to future-focused thinking: 50 Years of design research. *Design Studies*, 48, A1–A8.
- Lobel, M. (2015, May 18). *Arrested for reporting on Qatar's World Cup labourers*. BBC News. Retrieved from <http://www.bbc.com/news/world-middle-east-32775563>
- Lo, L. (2014). The role of language and communication for the migrant community integration into host society: A case study on the Chinese community in UK. *GSTF International Journal of Law and Social Sciences*, 3(2), 46–51.
- Machin, D., and Mayr. A. (2012). *How to do critical discourse analysis: A multimodal introduction*. London: SAGE Publications.
- Maguire, P. (1987). *Doing participatory research: A feminist approach*. Amherst, MA: The Center for International Education (University of Massachusetts).
- McCoy, K., Triggs, T., & Van Toorn, J. (2002). Undiscovered delights. *Visual Communication*, 1(3), 326–335.
- Pattison, P. (2013, September 25). *Revealed: Qatar's world cup 'slaves': Abuse and exploitation of migrant workers preparing emirate for 2022*. The Guardian UK. Retrieved from <http://www.theguardian.com/world/2013/sep/25/revealed-qatars-world-cup-slaves>
- Platoniq (2019). October 12, 2019. Platoniq Instagram.
- Purao S., Rossi M., and Sein M. K. (2010). On Integrating Action Research and Design Research. *Design Research in Information Systems*, Vol 22, 179-194.
- Reason, P. W., and Bradbury-Huan, H. (2007). *The SAGE handbook of action research*. SAGE Publications Ltd.
- Saikaly, F. (2005, March). Approaches to design research: towards the designerly way. Paper presented at the *6th International Conference of the European Academy of Design: Design System Evolution*, The University of the Arts Bremen, Germany.
- Shey, B.K. (2005). *Queering the Universal Rhetoric of Objects: Myth, Industrial Design, and the Politics of Difference*. Sight Lines Thesis Projects 2005 Graduate Program in Visual criticism, CCA.
- Simon, H. (1969; 1996). *The sciences of the artificial* (3rd ed.). Cambridge, MA: MIT Press.
- Snoj, J. (2019). *Population of Qatar by nationality - 2019 report*. Priya Dsouza Communications. Retrieved from <http://priyadsouza.com/population-of-qatar-by-nationality-in-2017/>
- Swann, C. (2002). Action Research and the Practice of Design. *Design Issues*, Vol. 18, No. 1, pp. 49-61.
- The Center for Universal Design (1997). *The Principles of Universal Design*. Retrieved from https://projects.ncsu.edu/ncsu/design/cud/pubs_p/docs/poster.pdf
- Tunstall, E. (2012, June). Design anthropology as bridge between respectful knowing and making. Paper presented at the *2012 SEGD (The Society for Experiential Graphic Design) Academic Summit*, New York, NY.
- van Dijk, T. A. (2001). Critical discourse analysis. In D. Schiffrin, D. Tannen, & H. E. Hamilton (Eds.), *The handbook of discourse analysis* (pp. 352–371). Oxford: Blackwell.
- van Dijk, T. A. (1993). *Elite discourse and racism*. London: SAGE Publications.
- VCUarts Qatar (2014). *Migrant worker housing: A portable architecture for Qatar*. Retrieved from <http://www.qatar.vcu.edu/research/projects/a-portable-architecture-for-qatar>
- Wodak, R. (2009). Critical discourse analysis: history, agenda, theory, and methodology. 2nd ed. In R. Wodak, & M. Meyer (Eds.), *Methods of critical discourse analysis* (pp. 1–33). London: SAGE Publications.
- Zahra, M. (2015). The legal framework of the sponsorship systems of the Gulf Cooperation Council countries: A comparative examination. *Gulf Labour Markets and Migration* (GLMM), 10. Retrieved from http://gulfmigration.eu/media/pubs/exno/GLMM_EN_2015_10.pdf

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