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## Using Empathy in Design to Foster Interest in Social Issues

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# **Using Empathy in Design to Foster Interest in Social Issues**

Kofi Opoku

Thesis submitted to the  
College of Creative Arts  
West Virginia University  
in partial fulfillment of the requirements  
for the degree of

Master of Fine Arts  
in  
Art & Design

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2013

Key Words: Empathy, Cognitive, Affective, Emotional, Homelessness,  
Social Design, Interaction Design.

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# **ABSTRACT**

## **Using Empathy in Design to Foster Interest in Social Issues**

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Design has transformed from being merely a product oriented discipline focused on the promotion of consumer goods to become a goal oriented practice seeking to address the needs and challenges faced by people in their communities. Conventionally, most designers have engaged various processes that help identify the real needs of an audience in order to develop effective solutions. Designing for social change presents the interesting challenge of reaching audience members who may not be directly affected by an issue to become invested in community-led transformations. My thesis uses the context of homelessness to examine how empathic techniques can be employed to simulate experiences that foster interest in social issues. It presents a model for generating empathy through design and explores how understanding can lead to emotion and subsequently to a desirable action. This project led to a gallery exhibition including infographics, print layouts, animation and interactive designs. Direct data was collected from the exhibition to determine the affective and cognitive responses of the audience.

# **ACKNOWLEDGEMENTS**

First and foremost, I would like to acknowledge my Lord and Savior Jesus Christ for endowing me with the strength and wisdom to complete my program.

Many thanks to present and former members of my committee, Eve Faulkes, Gerald Habarth, Joe Galbreath, Ron Aman and Chris Barr. Your guidance and willingness to help me succeed is greatly appreciated.

To my wonderful wife Sophia and daughter Efua, thank you for constantly reminding me of the importance of family.

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# INTRODUCTION

I was raised in a culture that was witnessing the massive shifts in the use of art from a functional purpose to a more aesthetic expression. I remember wanting to become a professional painter because I loved to capture the beautiful Ghanaian scenery and its subtleties. I fell in love with design and its ability to appeal to the intellect as well as emotions. My quest to generate these positive human experiences led me into the world of advertising, where I developed a great passion for ideas and learned how a well-informed communications strategy simplifies the design process and produces desirable outcomes. For me, design is more than just a discipline—it is a method and an avenue of expression. Design is similar to art, in that it can contain elements that are purely visceral. However, design is also different from art because it is user-focused rather than introspective. Milton Glaser the renowned New York graphic designer, noted in a 1974 interview that “whereas a design must convey a given body of information, the essential function of art is to intensify one’s perception of reality. He goes on to say that these functions coincide, but

in modern times they have diverged.”<sup>1</sup> My approach has been to use design as the lens through which I filter my ideas. In this context, design may be employed as a problem-solving tactic in modern society. This contrasts sharply with its traditional use as a medium for the fabrication of tangible products.

Although my time in advertising was fruitful and I developed many design products for a host of top brands in Ghana, I still felt unfulfilled in my career. My issues were ethical rather than vocational. Working as an art director in a blossoming economy like that of Ghana, meant that you spent most of your time creating designs that promoted consumerist ideals. My move to the United States in 2010 was an opportunity to rediscover my passion for creativity and develop communications that serve the common good.

Over the past few years, I have developed several communications in the domain of designing for social good—an area that examines how problem solving skills in design can be implemented

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<sup>1</sup> Michael Brady, “Art and Design: What’s the Big Difference,” *Critique, the Magazine of Graphic Design Thinking*, No.8. 1998.

for social change.<sup>2</sup> This requires an understanding of the demographics of our audience as well as the intrinsic and extrinsic factors affecting their behavior. In this regard, I have developed communications that help address issues like water conservation, sanitation and mountaintop removal mining. I have also been conducting research on the theory of behavior change and how it informs designers with better approaches to developing products for the good of society. I have explored how empathy can be used as an ingredient in design to foster interest in social issues. I believe this presents a unique design challenge in our time because, as I have witnessed in my own professional career, it is relatively easy to get people interested in the things that bring them personal benefit (the personal experience), but it can be somewhat taxing to get them to look beyond themselves and think about the good of their communities.

The process required to generate effective results has been an important part of my research. Most of my work has been based on a model developed by the global advertising company Saatchi and Saatchi. The model identifies in Objective, Issue, Insight and Challenge (OICC), as the essential components of a communications brief. This can be further explained as follows:

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<sup>2</sup> "Design for Good," AIGA, <http://www.aiga.org/design-for-good/> (accessed April 25, 2013).

**Objective:** What is the communications objective? What are you looking to communicate to your audience at this time?

**Issue:** What is the issue preventing you from meeting the objective?

**Insight:** What truth about the audience would help overcome the issue?

**Challenge:** What is the desired action from the user to be invoked by the communication?<sup>3</sup>

This process began my research in the development of a framework that can be used to generate empathy in an audience by means of communication design. Although the study of empathy is commonly thought of as a social science discipline, its application to design is not a totally foreign idea. Empathy has a long history in aesthetics dating back to the eighteenth century. The term has been used to describe an aesthetic experience that is elicited in response to a person's interaction to an art form.<sup>4</sup> Designers have primarily

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<sup>3</sup> Saatchi and Saatchi, *A Brief History: Best OIICS from the New York Office*, Saatchi Planners, October 2007, <http://saatchiplanners.wikispaces.com/file/view/First+OICC+Book.pdf> (accessed April 21, 2013).

<sup>4</sup> Merlijn Kuoprie and Froukje Sleeswijk Visser, "A Framework for Empathy in Design: Stepping into and out of the User's Life," *Journal of Engineering Design* (October 2009), [http://www.tandfonline.com/doi/full/10.1080/09544820902875033#.UYB\\_bL9eYyA](http://www.tandfonline.com/doi/full/10.1080/09544820902875033#.UYB_bL9eYyA) (accessed April 21, 2013)



engaged the theory of empathy as a means of better understanding their audience to develop effective products and communications that meet specific needs. This study seeks to present newer ways by which empathy can be

applied to design in order to shape the behavior of an audience. The goal is to use the lens of design to demonstrate the paths and patterns by which an audience can be directed into taking positive action for the common good.

# CHAPTER ONE: THE SCIENCE OF EMPATHY

A significant body of psychological literature identifies two main kinds of empathy—cognitive and affective. Cognitive empathy is the ability to understand how other people feel or what they are thinking. Affective empathy is the ability to feel alongside another person as if their emotions were yours. This distinction helps us to understand human behavior both as a natural disposition and as a situational condition in the context of interpersonal relationships. For instance, a person may have excellent cognitive empathy skills, but may fail to connect emotionally with another person’s feelings. Such a person may be able to understand clearly what the other party is going through, but not have any sympathy towards them.

Paul Ekman, an American psychologist and a leading expert on emotions and empathy, explained in a 2007 interview with Daniel Goleman that affective empathy can be further divided into two forms—emotional and compassionate empathy. According to Ekman, emotional empathy is the ability to be well-attuned to another person’s emotions, being locked into their inner emotional world. Compassionate empathy on the other hand is a special kind of attunement that moves a

person to help another party if needed.<sup>1</sup> Compassionate empathy acknowledges both cognitive and emotional kinds of empathy as essential components that foster action from the empathizer.

Goleman, himself a leading psychologist and the author of the international bestseller “Emotional Intelligence,” comments on the psychological exhaustion that arises as a result of a person’s inability to properly manage their affective empathic abilities. He states that people consciously ‘tune out’ to preserve their own psychological stability, or prevent burnout. However, when this is done over a long period, it could lead to apathy. Goleman suggests that there is an intentionality required from the empathizer to want to empathize. This controlled attunement is what fosters altruism in most cases. This argument is supported by studies conducted in neurology, which show that attunement and empathy are both right-brain controlled functions that are essential for interpersonal relations.<sup>2</sup>

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<sup>1</sup> Daniel Goleman, “Three Kinds of Empathy: Cognitive, Emotional, Compassionate,” Daniel Goleman, <http://danielgoleman.info/three-kinds-of-empathy-cognitive-emotional-compassionate/> (accessed April 21, 2013)

<sup>2</sup> Daniel Goleman, *Social Intelligence*. New York: Bantam Dell, 2007, 84.

## CHAPTER TWO: EMPATHY IN DESIGN

### Empathic approaches

There are two main approaches in which empathy has been applied to the field of design. First, prominent design firms like IDEO are noted for utilizing ethnographic research methods that employ empathy as part of its design process. The approach is different from traditional data gathering in the sense that it does not merely inform the designer of the explicit needs of the audience, but also their latent needs. Design research methods are able to reveal the real needs of the user and thus inspire innovative products or communications. Role playing and shadowing are some common ways that designers have used empathic techniques to understand an audience. For instance, Role Playing may be employed in the development of a new type of automated teller machine to enable the designer to intuitively understand the customer's needs or frustrations in a particular situation. Shadowing a person in a wheelchair can lead to identifying design opportunities to improve their way of life. The foundation of this type of empathic research is rooted in observation. As such, the development of effective products that address the latent and explicit needs of the user hinges on the ability of designers to exercise empathy. The second approach that is increasingly becoming commonplace in today's

design practice is participatory design.<sup>1</sup> This is also a user-oriented approach that requires designers to actively involve the stakeholders or users in the design process to create effective solutions. This is unlike the traditional design approach, where the designer gathers information from the user and then independently develops a solution that is fitting for the situation. With participatory design, there is a special kind of empathy that ensues—the empathy that reveals a tacit knowledge based on the reciprocity of emotions between the designer and the stakeholder.

The common pattern of empathy in design has been to employ it as a means to develop effective products that satisfy an audience's needs. As disparate as observation may seem from participatory design, the two approaches still lean towards the cognitive aspects of empathy, namely, the ability to understand how an audience feels or acts when interacting with a product or communication.

To this end, there is the need to examine exactly how empathy is exercised among designers in a

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<sup>1</sup> IDEO, *Human-Centered Design Toolkit*, 2009, 84. <http://www.ideo.com/work/human-centered-design-toolkit/> (accessed April 30, 2013).

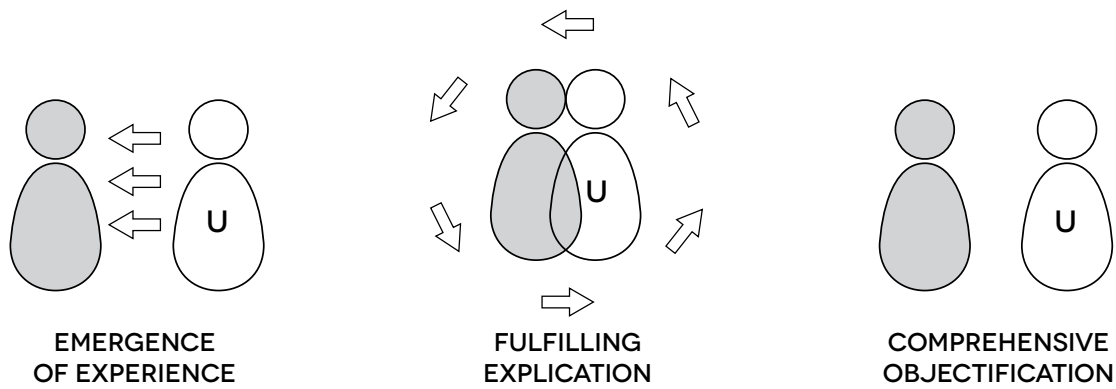


Fig 2.1 Kofi Opoku's interpretation of Stein's approach to understanding empathy (U = user)

normative sense. Merlijn Kouprie and Froukje Visser, in "A framework for empathy in design," identify three main ways by which this is achieved.<sup>2</sup> The first is by observation studies, whereby the designer studies how the user acts, thinks or feels in the context of their own environment. The second is by communication techniques, which are primarily used when direct contact with the user is not possible. In this case, the designer gathers data by research and uses photography, storyboards, storytelling and other memorabilia/realia to foster empathy among the design team. The third approach requires the designer to take on the perspective of the user by engaging in different techniques that enable him to act as the user. Some of these

techniques may include Role Playing, which involves assuming the role of the user in a particular context, or Body Storming, which involves imagining what it would be like if the product existed.

#### Empathic design process

Design firms like IDEO, Frog Design and Participle, generally seek to replicate desirable outcomes by establishing strategically sound patterns to their work process. I believe this is because design is a very objective discipline. As such, there is the need to employ scientific methods that have measurable outcomes.

In 1917, the philosopher Edith Stein proposed an empathic process consisting of three stages (fig. 2.1).<sup>3</sup> The first stage

<sup>2</sup> Merlijn Kuoprie and Froukje Sleeswijk Visser, "A framework for empathy in design: Stepping into and out of the user's life."

<sup>3</sup> Peter Nilsson, "Empathy and Emotions: On the Notion of Empathy as Emotional Sharing," Umeå University, 2003, <http://umu.diva-portal.org/smash/record.jsf?pid=diva2:144419> (accessed April 25, 2013)

is the emergence of the experience—the empathizer perceiving a past experience of someone else. The second stage is termed “fulfilling explication”. This is achieved when the empathizer becomes interconnected with the other party due to the reciprocity of emotions. The third stage, comprehensive objectification, requires the empathizer to withdraw from the other party’s experience, having a better and objective understanding of their situation. Stein believed that the boundary between the empathizer and the other party was necessary to maintain sound judgment. This is similar to Goleman’s theory of attunement that describes empathy as a conscious effort to step in and out of another person’s experience.

Based on this theory, Kouprie and Visser have identified four phases of empathy in design: discovery, immersion,

connection and detachment (fig. 2.2).<sup>4</sup> The first phase, discovery, is a willful act by the designer to engage the user in fostering curiosity and prepare for the exploration of the user’s world. The second phase, immersion, is where the designer observes the user in their environment to identify the various factors that influence their experience. Connection is the phase where the designer assimilates the information acquired from observation to gain meaning and understanding. The final phase, detachment, requires the designer to step out of their connection with the user to make sense of the experience. Kouprie and Visser’s model affirms the importance of both cognitive and affective empathic abilities. For instance, observing or interacting with the user demonstrates an affective kind of empathy, whereas reflecting

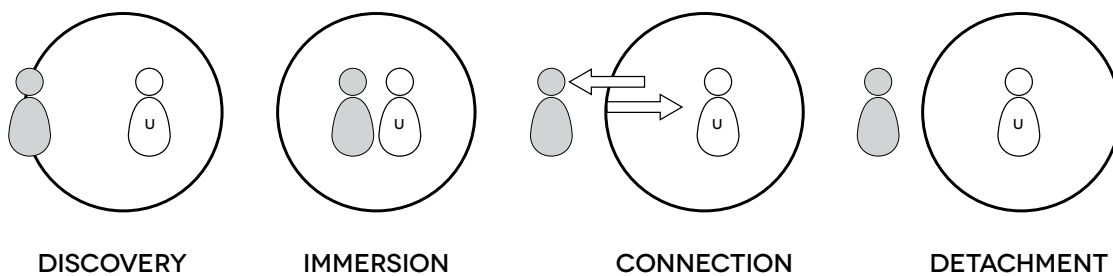


Fig 2.2 Kofi Opoku’s interpretation of Kouprie and Visser’s Four phases of empathy.

<sup>4</sup> Merlijn Kuoprie and Froukje Sleswijk Visser, “A framework for empathy in design: Stepping into and out of the user’s life.”

on the experience and assimilating the information may require more of a cognitive kind of empathy. However, there is an intertwining that occurs between the two kinds of empathy. The effectiveness of the product seems to hinge on the ability of the designer to willfully engage both cognitive and affective kinds of empathy in the design process—the ability to understand the problem as well as be emotionally attuned to the needs of the audience.

### **Designing for social change**

Design for social change primarily refers to the use of problem solving skills in design to help address the challenges people face in their communities.<sup>5</sup> In a traditional domain, a similar model to Kouprie and Visser’s process, described above, is applied. In the case of social change however, the emphasis shifts from the mere creation of products to the broader challenge of behavior modification. The designer seeks to find ways of engaging the audience as part of the solution by employing affective empathic methods like immersion, interaction, and cognitive empathic methods such as brainstorming and evaluation. In some cases, designing for social change requires the designer to become an active or transient member

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<sup>5</sup> “Design for Good,” AIGA, <http://www.aiga.org/design-for-good/> (accessed April 25, 2013).

of the community and execute the idea in the context of the audience. For instance, designer, Emily Pilloton, moved to rural Bertie County and engaged in a design-led community transformation.<sup>6</sup> Her project equipped students with design skills to enable them take on the challenges of their community. Based on this premise, three key stages can be identified in the social design process:

1. **Attunement.** This is the stage whereby an intentional effort made by the designer to engage emotionally with the audience.
2. **Understanding.** This stage requires the designer to employ cognitive empathy skills to assimilate the information acquired during immersion and devise a creative strategy.
3. **Execution.** This stage requires the designer to engage the community with a tool that aids the transformative process.

Social strategist Andrea Pellegrino’s project Together Plus, a campaign to end xenophobia in South Africa, is a good example of how these stages are employed in social design. For this

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<sup>6</sup> Emily Pilloton, “Teaching Design for Change,” Ted, July 2010, [http://www.ted.com/talks/emily\\_pilloton\\_teaching\\_design\\_for\\_change.html](http://www.ted.com/talks/emily_pilloton_teaching_design_for_change.html) (accessed April, 21 2013)

project, Pellegrino's team engaged the South African audience emotionally to identify the complexities of xenophobia and how it affects both the proponents and the victims.<sup>7</sup> The team developed a creative strategy based on the needs realized during the immersive experience and finally engaged the

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<sup>7</sup> "Together Plus," <http://www.togetherplus.co.za>, (accessed April 30, 2013)

audience with educational components and community-led activities. Some of the outcomes consisted of children's books, welcome guides, healthcare handbooks and a community mural. Together Plus affirms the theory that an intentional attunement is required by the designer in order to develop a sense of empathy for the audience and thus become invested in the project.

## CHAPTER THREE: DESIGNING CREATIVE EXPERIENCES—THE EMPATHIC APPROACH

It is recommended practice for designers to begin their creative process by engaging in observation.<sup>1</sup> The time spent in the user's context allows the designer to identify their latent and explicit needs. David Kelley of IDEO highlights an important difference between the design of products and experiences. Kelley states that the way to captivate an audience through an experience is to build a context around the design and consider how external factors will affect its perception.<sup>2</sup> This is to say that the design of experiences requires the designer to focus on the relational or interactive functions between the user and the product or the environment in which the experience takes place. For instance, designing a cinema experience is not so much about the promotional posters or interior decoration as much as it is about designing the experience of being at the cinema. Or, designing a pair of headphones is not

so much about the headphone itself as much as it is about the experience of listening to music on-the-go.

This principle can be further explained by examining how Daniel Goleman's theory of the three kinds of empathy applies to experience design. Based on Goleman's exposition, we are informed that cognitive empathy is based on a person understanding another person's situation without necessarily feeling what they are feeling. Emotional empathy is based on a person feeling alongside another person as though their emotions were contagious; and compassionate empathy is when a person feels alongside another person and is simultaneously moved to help. In relating this to experience design, there emerges the need to examine these three kinds of empathy: cognitive, emotional and compassionate, not as absolute states, but as stages in empathic development existing on a single continuum. This explores how cognitive empathy can lead to emotional empathy and how the latter can lead to compassionate empathy. In other words, we need to ask: How can we design experiences

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<sup>1</sup> Tom Kelley, *The Art of Innovation*. New York: Random House, 2001, 25-52.

<sup>2</sup> David Kelley, "Designing Products vs. Designing Experiences," Stanford University, October 2001, <http://ecorner.stanford.edu/authorMaterialInfo.html?mid=685> (accessed April 21, 2013)



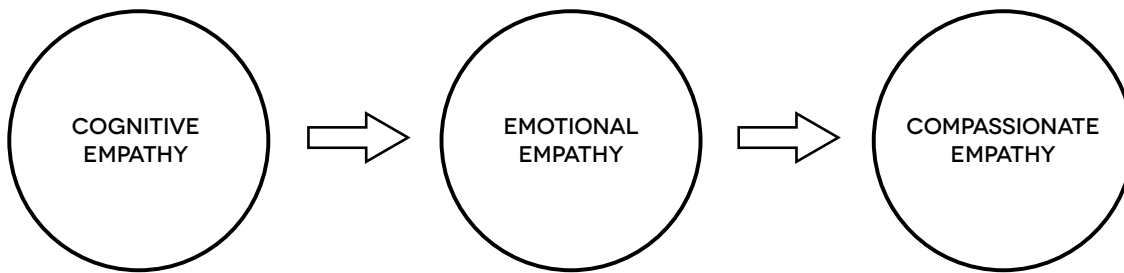


Fig 3.1. Kofi Opoku's proposal of the Empathy continuum.

that transform the user's behavior from a state of understanding (cognitive empathy), to a state of connection (emotional empathy), to a state of action (compassionate empathy)? This also requires a rethinking of empathy not just as a prerogative of the designer, but also as a phenomenon that can be generated in an audience (Fig. 3.1).

**The Data, Information, Knowledge and Wisdom, model of innovation**

Designing creative experiences to create empathy requires more than an exploration of the three kinds of empathy arrayed on a single continuum. It also requires the development of a system that will connect the various stages in empathy creation. The Data, Information,

Knowledge and Wisdom (DIKW) model is a hierarchical arrangement used mainly in information science for knowledge management.<sup>3</sup> The system illustrates how the relationship between the component parts drives innovation by transferring understanding from one phase of the chain to the next (Fig. 3.2). A study of this model shows that it can be applied to experience design to afford the designer a structure by which empathy creation can be optimized. In this model, data can be described

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<sup>3</sup> Jonathan Hey, "The Data, Information, Knowledge, Wisdom Chain: The Metaphorical link." Intergovernmental Oceanographic Commission (UNESCO). December 2004 [http://web.archive.org/web/20071202033948/http://ioc.unesco.org/Oceanteacher/OceanTeacher2/02\\_InfTchSciCmm/DIKWchain.pdf](http://web.archive.org/web/20071202033948/http://ioc.unesco.org/Oceanteacher/OceanTeacher2/02_InfTchSciCmm/DIKWchain.pdf) (accessed April 21, 2013).

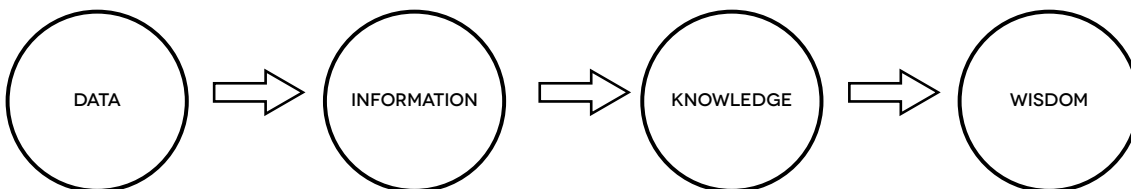


Fig 3.2 Kofi Opoku's interpretation of the DIKW model.

as the raw material for creation. In itself, it has no meaning without examination. Information is the result of data that has been examined and manipulated to create understanding. Knowledge is the contextualization of information to interact with the audience in order to inspire action or provoke emotions. Wisdom is the result of the application of knowledge in a practical and useful way to a particular situation. A cursory explanation of this model will be to say that data is a raw

material, information is data refined, knowledge is information contextualized and wisdom is knowledge applied. The benefit of the DIKW model is that it underscores the importance of both cognitive and affective aspects of empathy. When held in parallel comparison to the empathy continuum, it reveals the pulse points in the design experience and informs the kinds of products or communications that would inspire action from the user (Fig. 3.3).

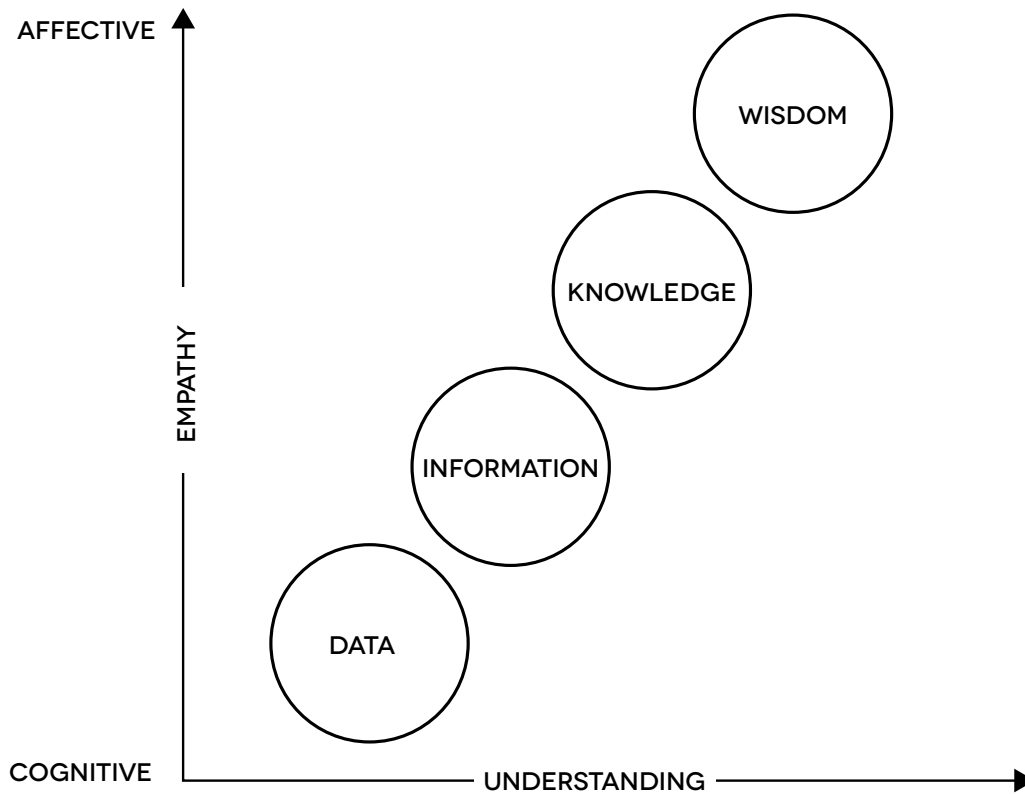


Fig. 3.3 Kofi Opoku's proposal of the Experience Chain model.

## CHAPTER FOUR: MFA THESIS PROJECT

Based on my hybrid use of the DIKW model with the empathy continuum to form the Experience Chain (EC) model, I developed a project to test the effectiveness of this principle and to explore how empathy can be fostered in an audience to advocate the needs of the homeless. The goal was to examine how the EC model inspired communications for the design experience and how that experience, in turn, inspired action from the user. Although existing research

has examined empathy in view of the designer's relationship with the user, the aim of this project was:

- (1) To explore the user's ability to generate empathy for a subject (homeless people) and
- (2) To understand how the reciprocity between the cognitive and affective components can have an impact on the user experience.

As Kouprie and Visser write,

*"For designers, awareness of both components is essential. One of the two components will not suffice for understanding the user's world. Having an emotional response (affective) to another's emotional state and being able to reflect on that by perspective taking (cognitive) seems to be the core mechanism of empathy. Creating the right balance between affective resonance and cognitive reasoning is a basic issue of empathy. We think designers should gain understanding of the user (cognitive), by feeling the user's emotional state (affective)"*

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<sup>1</sup> Merlijn Kuoprie and Froukje Sleswijk Visser, "A framework for empathy in design: Stepping into and out of the user's life."

Students who were not directly affected by the issue of homelessness were the primary target audience for the project. Most of these students, although they perceived homelessness as an important social issue, did not believe they had the responsibility of helping to address the situation. Some had become desensitized to the issue of homelessness and believed that it was a function of policy makers and other high ranking members of government. Therefore, the main challenge for communication was to create an experience that made the audience understand that homelessness is not a personal problem of those who were affected, but rather a community issue that needs to be addressed by all. Built on this premise, communications were developed to match the pulse points of the EC model.

### **Communications Approach**

The first step in the development process was to observe the lifestyles of homeless people and understand the social, economic and personal challenges they faced as a result of being homeless. I conducted online research to identify the common factors affecting the homeless in the United States and spent time interacting with some homeless people in my community, Morgantown, West Virginia. This study revealed an essential truth about the issue—as difficult as it was to prevent homelessness for the many people who are financially

burdened, it was equally difficult for homeless people to escape homelessness due to severities of employment and home ownership. Even with homeless shelters, which most people assume to be an effective solution to the problem, the study revealed that some of the affected were reluctant to lodge at shelters because they felt the stringent rules undermined their dignity.

Current approaches like *Housing First*<sup>2</sup> are gradually being implemented by some communities across the nation. In Monongalia County, a task force on homelessness has been initiated to advocate such a program as part of a community-wide plan to reduce homelessness.<sup>3</sup> This program seeks to treat housing as a basic human right. It focuses on moving people experiencing homelessness into a suitable home and then working on the issues that prolong and contribute to their homelessness. This is in contrast to the Continuum of Care model that concentrates on moving

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<sup>2</sup> The emotional burdens resulting from homelessness, may lead people to self-medicate. As such, the Housing First seeks to sever the issue at its root rather than to keep financing their rehabilitation, when the actual cause has not been addressed. The program has been experimented in Britain with desirable results and is increasingly being embraced in various places in the United States.

<sup>3</sup> Morgantown/Monongalia Task Force on Homelessness, "Community Wide Plan to Reduce Homelessness," <http://www.morgantownwv.gov/wp-content/uploads/PLAN-TO-REDUCE-HOMELESSNESS.pdf> (accessed April 30, 2013)

individuals through different degrees of housing. For example, this would include the move from the homeless shelter to transitional housing, and from there to permanent housing. The program has been adopted by many cities in the United States and has proven to be economical and more effective in reducing chronic homelessness than traditional approaches.<sup>4</sup>

The second step after observation and research was to assimilate the information and develop a creative strategy for how the issue could be presented to the audience to foster empathy and inspire positive action. The main challenge was that since homelessness is a subjective issue, as there are many reasons why people become homeless, it was impossible to devise a single action that would eliminate homelessness. Therefore, I decided to develop a communication experience that served as a platform to trigger dialogue among the audience members so they could identify their own unique ways of addressing the issue in their respective communities. The creative strategy was built upon the EC model to afford the user a linear experience leading from comprehension to action.

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<sup>4</sup> Jennifer Perlman and John Parvensky, "Denver Housing First Collaborative: Cost benefit analysis and Program Outcomes Report," December 2006, [http://www.denversroadhome.org/files/FinalDHFCCostStudy\\_1.pdf](http://www.denversroadhome.org/files/FinalDHFCCostStudy_1.pdf) (accessed April 21, 2013)

## **Data Collection**

Source material for the communication was gathered from agencies and stakeholders of the homeless. Reports, tables, charts and stories about the homeless were acquired from several online sources to be used for the project. Also, tacit knowledge derived during observation was documented and proved beneficial to the structuring of the communication.

## **Information (data refined)**

The goal of the information phase of the communication was to educate the audience about the state of homelessness in America. The data I collected in the first stage was refined and presented as infographics highlighting the population of homeless people in the United States, the economic factors affecting homelessness, the demographics of homelessness and the major causes and existing solutions to the problem (Fig. 4.1). Statistical data gathered from reports was also refined to create information that was coherent and educational. Infographics are an excellent medium for presenting complex information in a simplified manner. The important consideration I made during this stage was to ensure that the data was represented accurately and that the essence of the information was conveyed using graphics and text to engage the audience.

# WHY ARE PEOPLE HOMELESS?

There are many reasons why people become homeless, but the root cause can be linked to poverty; most people who are homeless cannot afford appropriate housing because they simply do not have the income. The chart below is a snapshot of some of the common reasons why people become and remain homeless, and provides recommendations on how you can begin to take positive action.



## OKAY, BUT WHAT DO YOU WANT ME TO DO?

**IT BEGINS WITH THE COMMUNITY**  
Ending homelessness is going to require more than one solution because homelessness is far more than one problem. The biggest change we can make will be to change our own mind-set and start addressing homelessness as a community issue rather than a personal problem.



**SPEAK OUT**  
One of the biggest challenges affecting the homeless is rejection from society. Speaking out promotes dialogue and fosters education on the topic. Understanding the issue of homelessness will lead to a correction of many misconceptions and stereotypes.



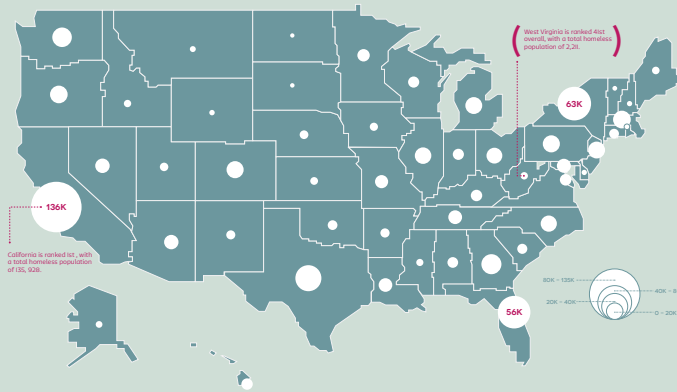
**VOLUNTEER**  
Volunteering at homeless shelters, soup kitchens or other homeless agencies can make a huge difference in the lives of people who experience homelessness. Most of these agencies thrive on volunteering as a means of sustaining their support to the homeless.



**SUPPORT HOUSING FIRST**  
Housing First programs treat housing as a basic human right. The program focuses on moving people experiencing homelessness into a suitable home, and then begin to work on the issues that contributed and prolonged their homelessness.

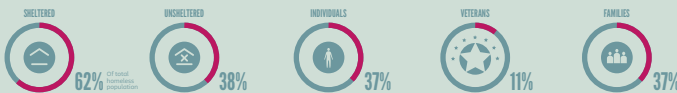
# MAPPING THE INVISIBLE PEOPLE

THE STATE OF HOMELESSNESS IN THE UNITED STATES



## DEMOGRAPHICS

While homelessness affects people of all demographics, there are some groups that are at increased risk. The diagrams below show the percentages of the overall homeless population that make up some of these groups.



## WHO IS HOMELESS IN AMERICA?

The term homelessness can be described as a person's inability to find or sustain a fixed, regular place of residence due to inadequate income, housing or other socio-economic factors. Recent studies show that in America, more than 2 out of every 10,000 persons is homeless. While homelessness affects people of all ages, ethnicities and geographies, there are groups of people that are at increased risk. This chart shows the overall homeless population in the various states as well as highlights its distribution among the most dominant social groupings.

### TOP 5 STATES WITH HIGHEST HOMELESS POPULATION

STATE	HOMELESS POPULATION 2011	HOMELESS PEOPLE PER 10,000
CALIFORNIA	135,928	36
NEW YORK	63,445	33
FLORIDA	56,687	30
TEXAS	36,911	15
GEORGIA	20,975	22

### TOP 5 STATES WITH LOWEST HOMELESS POPULATION

STATE	HOMELESS POPULATION 2011	HOMELESS PEOPLE PER 10,000
NORTH DAKOTA	603	9
SOUTH DAKOTA	826	10
DELAWARE	1,035	12
WYOMING	1,038	18
RHODE ISLAND	1,070	10

Data used in this chart is reported as reported by the homelessness research community. Excluding of the homeless population by demographic, however, associated issues are not and the most recently available national data.

Fig. 4.1 Infographics from the information phase of the thesis exhibition, showing the major causes of homelessness and its spread across the United States.

### Knowledge (information contextualized)

The knowledge phase of the project sought to connect emotionally with the audience by engaging them in personal stories of some homeless people. After having understood the state of homelessness in the information phase, the objective of the knowledge phase was to then personalize the information by presenting the audience with stories that caused them to feel as if they were alongside people affected by homelessness. The stories were brief and highlighted the hopes and aspirations

of the people in contrast to their predicament.<sup>5</sup> In my project, the stories served as the “voice” of the homeless people. It humanized the data presented in the information phase and afforded the audience a means to comprehend the severity of the issue (Fig. 4.2).

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<sup>5</sup> Homelessness stories were used by courtesy of “invisiblePEOPLE.” A nonprofit organization dedicated to changing the way we think about people experiencing homelessness. [www.invisiblepeople.tv](http://www.invisiblepeople.tv)



Fig. 4.2 Print layout of homeless stories from the knowledge phase of the exhibition. The designer emphasized the disparity between the hopes of the homeless people and their current situations.

**I WISH WE  
COULD GET A  
HOUSE, GET  
A CAR, AND  
LIVE HAPPILY  
TOGETHER.**

Courtesy of Inmate 2012, a nonprofit organization dedicated to changing the way we think about people experiencing homelessness. [www.inmate2012.org](http://www.inmate2012.org)

### NEVER LOOKING BACK

After ten years in an abusive relationship, I grabbed my five kids, filled my car with food and ran as fast as I could. I tried to stay with my brother, but my large family quickly became a burden on him. I got an apartment, but the bills were too expensive and soon enough, I and my five kids ended up being homeless. I can understand why women go back to abusive relationships — people don't want to deal with your problems and it's hard raising kids all by yourself. I wish, we could get a house, get a car, and live happily together.



END HOMELESSNESS

**I WISH I COULD  
STRAIGHTEN OUT  
MY LIFE, GIVE TO  
THE HOMELESS,  
AND HAVE A WAY  
TO BRING MY  
SON BACK.**

Courtesy of Inmate People, a nonprofit organization dedicated to changing the way we think about people experiencing homelessness. [www.inmatepeople.org](http://www.inmatepeople.org)

### CHANGE IS GOING TO COME

I became homeless because I was tired of my family telling me what to do. I told them I wasn't going to change my life for them or anyone else. The only person I was going to change my life for, was the man up there in the sky. I survive by begging from fast food chains and getting my clothes from churches in the community. I don't care how you look at me; God has been so good to me. If I had three wishes, it would be to straighten out my life, give to the homeless and have a way to bring my son back.



END HOMELESSNESS





*Fig. 4.3 Animated sequence based on a poem about homelessness. This was used at the knowledge phase of the exhibition.*

I also developed a television animation to encourage the audience about the need to be vocal on the issue of homelessness. The animation used visual metaphor to demonstrate how homelessness affects children, women, men and veterans (Fig. 4.3).

### **Wisdom (knowledge applied)**

The wisdom phase of the project was composed of interactive pieces and aimed to inspire the audience to take action based upon the knowledge accrued from the previous phases of the experience. Human-computer interaction was used to invoke a sense of emotional empathy among the audience and launch them into the

domain of compassionate empathy. I developed two computer games and created an installation of a live audio visualization. The first computer game demonstrated how community effort and dialogue could help avert the issue of homelessness. The audience members were tasked to send tweets with the hash tag “endHomelessness” to advance an on-screen character named John towards his goal of overcoming homelessness.<sup>6</sup> The minions in the game were typified as giant spiked balls descending slowly from the top of

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<sup>6</sup> A tweet is a post or status update on Twitter, a microblogging service. It is composed of 140 characters or less. A hash tag is word or phrase prefixed with the symbol “#” and added to a tweet as a means of grouping messages.



*Fig. 4.4 Twitter game from the wisdom phase of the exhibition. The game demonstrates how virtual actions can create an impact in the real world.*

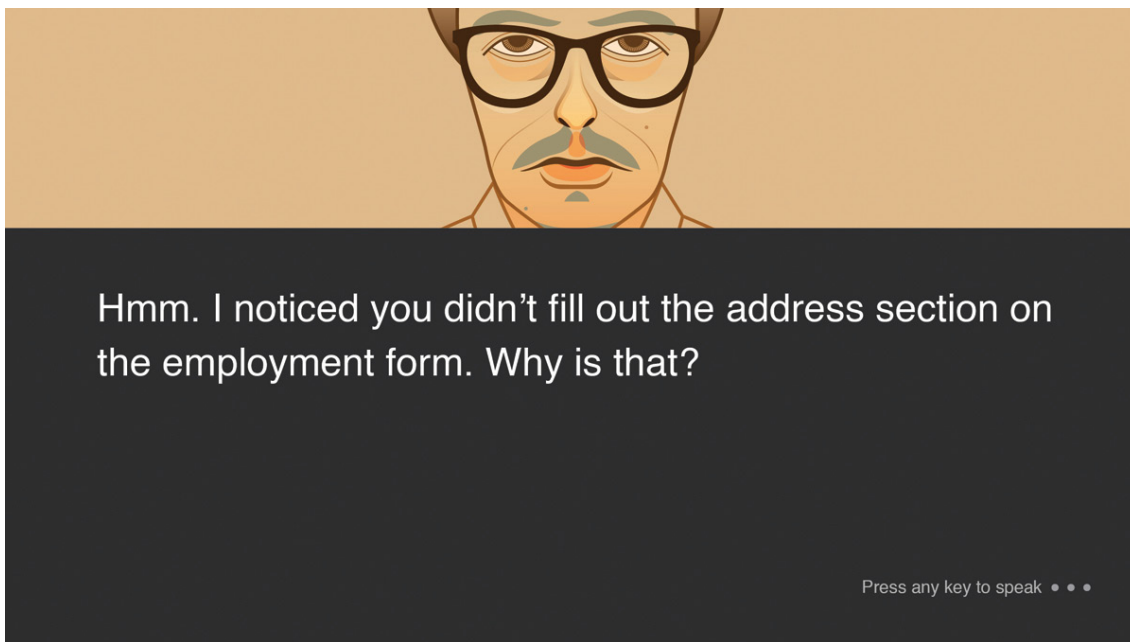
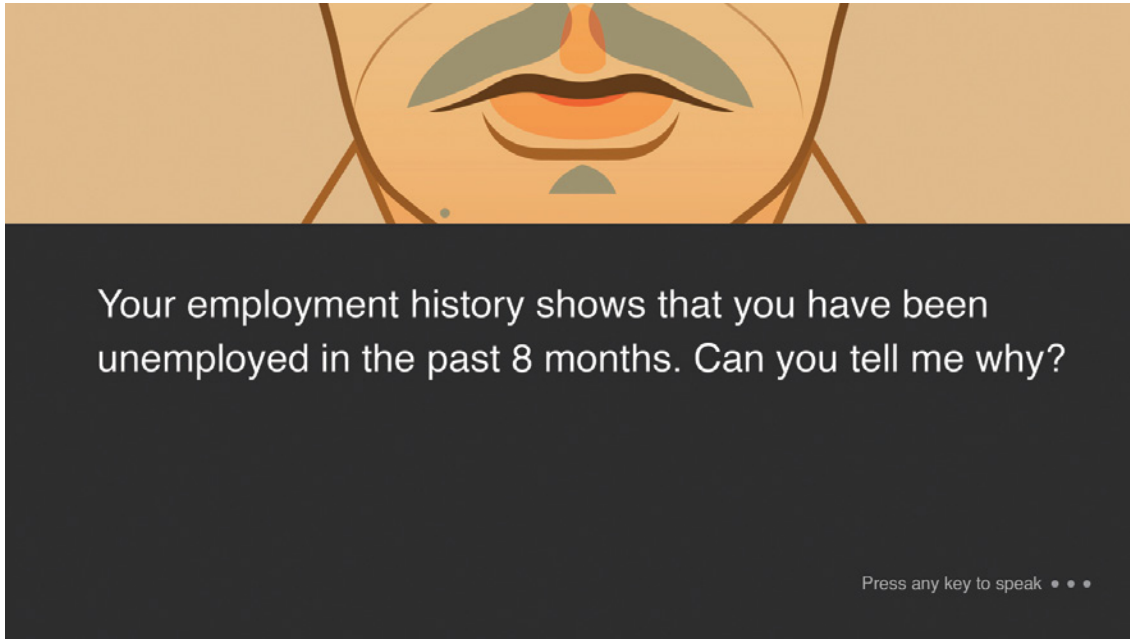
the screen, each of them representing a factor that prevents people from overcoming homelessness (Fig. 4.4). Each tweet advanced John a step towards his goal. If John was kept waiting at a spot for too long, he was crushed by a giant ball and the game was reset. This game demonstrated how a virtual experience could generate a social footprint in the real world.

The second computer game was designed to connect the audience emotionally with homeless people who struggle to find jobs due to socioeconomic factors such as the lack of a permanent mailing address, poor unemployment history, etc. The player

was asked to imagine being a homeless person applying for a job as a cashier. They were interviewed by the manager of the store, an on-screen character who questioned them about their job experience and homeless situation. The player responded to the questions by speaking directly to the computer. Voice recognition technology was utilized to trigger the next question based on each correct answer. The on-screen character was designed to be condescending and impersonal towards the player. By asking direct and pointed questions, the player was led to a final scene in the game where they were informed of their ineligibility for employment

because they had no permanent mailing address. A statement at the end of the game educated the player as to

how the lack of permanent mailing addresses prevented many homeless people from finding jobs (Fig. 4.5).



*Fig. 4.5 Interview game used at the wisdom phase of the exhibition. The game demonstrated how voice recognition technology can be used to foster engagement and thus increase understanding of an issue.*

The live audio visualization was a central part of the experience and was aimed at inspiring the audience to be vocal about the issue of homelessness. The visualization was designed as an emblem with the words, “It’s going to take our voices to end homelessness.” The illustration was animated based on the audio levels detected in the environment. When the audience spoke, the graphic reacted to reinforce the message. It emphasized the need for

community engagement in the issue; and how it promotes dialogue and helps identify solutions (Fig. 4.6).

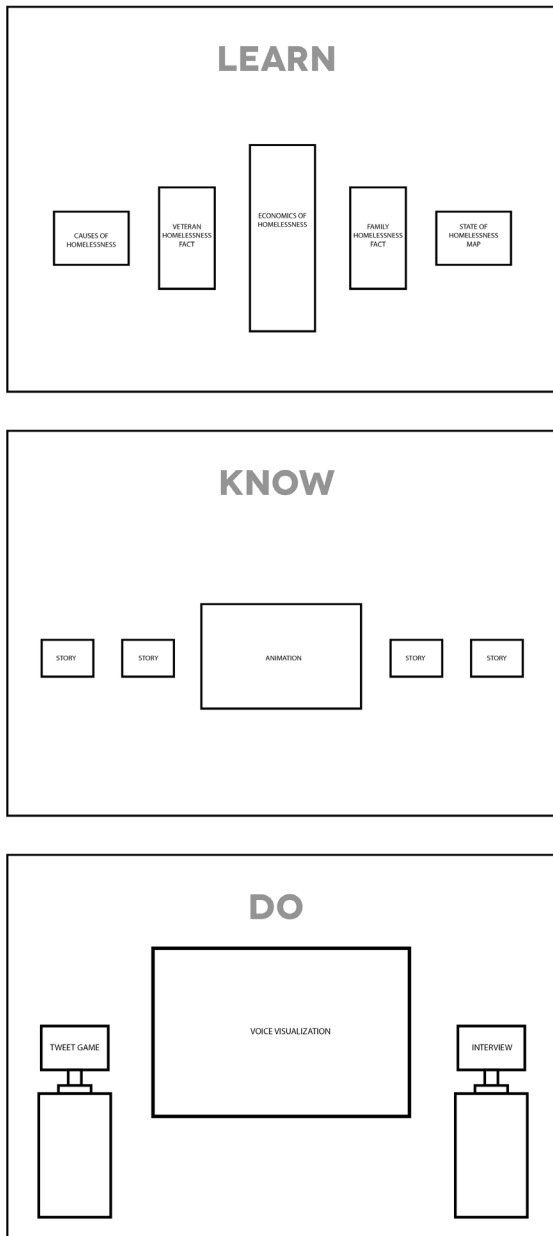
Once the single pieces of the project had been developed, I examined the experience to ensure that each phase of the EC model was apparent and progressed in a logical format. The design experience was conducted in a gallery; and a decision was made to present the communications on three separate walls. Each wall displayed



*Fig. 4.6 Still frame from the live audio visualization. The graphic animated based on the audio levels in the exhibition room. It was designed to inspire community engagement in the issue of homelessness.*

designs pertaining to the phases of the EC model. The walls were labeled to preemptively inform the audience of the actions expected of them as they navigated through the gallery space. The information phase displaying the infographics and data visualizations was labeled “learn.” The wall containing the knowledge phase, which highlighted

the stories of the homeless people as well as the television animation, was labeled “know.” The wisdom phase, which displayed the computer games and live audio visualization, was labeled “do.” This was a more user-friendly and actionable wording of the various phases of the DIKW model (Fig. 4.7)



*Fig. 4.7 Layout sketches of the exhibition room. It details how the communication pieces were to be arranged based on the EC model.*

## **Testing**

To test the efficacy of the EC model, a survey was conducted to determine if there was a shift in the audience's sense of empathy based on their experience. The project also gave the designer the opportunity to observe how the audience responded to the individual design pieces. It also helped gain qualitative data to later be employed in undertaking quantitative assessment.

## **Research goals and methodology**

The primary objective of the project was to educate the audience about the issue of homelessness in the United States and determine if empathy could be generated through a simulated experience designed using the EC model. A paper-based survey was conducted before and after the user engaged the experience to determine the degree of shift in empathy. The survey comprised 25 college students from three different classes and lasted for about 15 minutes.

## **Survey results**

The survey revealed that a majority of people found the experience informative and educational. Out of the 25 students who participated in the survey, about 40 percent of them were shown to

have experienced a positive shift in perspective regarding their sense of responsibility for the homeless. This change suggests that the compassionate empathy of the audience was greatly improved based on the experience.

A few compromises were made in designing the experience, which may have affected the outcome. Most of these were technological pertaining to the interactive pieces used in the show. For instance, the interview game used voice recognition software with a rather low error margin. As such, some members of the audience found it challenging to advance the game to the next stage due to the ambient noise in the room and the software's inability to accommodate differences in pronunciation. However, the biggest compromise was the decision to set up the project as a nonlinear experience rather than the linear and pragmatic approach that was more in concert with the EC model. This was because the presentation covered three walls of the gallery. Two of these walls were opposite each other, making it virtually impossible to restrict navigation of the experience to a linear format, especially considering the presence of many people in the room at a time.

**Survey samples and statistics**



Fig. 4.8 Word cloud showing the common descriptions of homeless people. The most recurrent words appear larger. The audience were asked to describe the average homeless person in three words prior to visiting the exhibition.

Age:

I am from:

---

**Part 1**  
Please fill this part of the survey **before** you see the exhibition.

1. How would you describe the average homeless person in three words?

2. What do you think are the main reasons people become homeless? (Choose all that apply)

Drugs  Alcohol  Lack of motivation  Lack of work skills

3. As a member of my community, I think I am responsible for taking care of the homeless.

1 — 2 — 3 — 4 — 5  
 Definitely agree ————— Definitely disagree

Fig. 4.9 Sample of the paper-based survey. The participants were required to complete the first part (left) before visiting the show; and the second part (below) after.

**Part 2**  
Please fill this part of the survey **after** you see the exhibition.

4. Which piece were you most emotionally drawn to?

Infographics  TV Animation  Homeless stories  Twitter game  
 Interview game  Voice projection

5. How moved were you when you read the stories of the homeless people?

Not moved  Slightly moved  Neutral  
 Quite moved  Very moved

6. The Twitter game demonstrates how our conversations or voices could help solve the issue of homelessness. How did seeing the direct result of your actions make you feel?

Motivated  Neutral  Helpless

7. Based on your experience, how much do you think you learned about the issue of homelessness?

A lot  Moderate  Very little

8. My favorite piece in this show was the:

Infographics  TV Animation  Homeless stories  Twitter game  
 Interview game  Voice projection

9. Based on my experience, I will describe this exhibition as:

Exciting  Informative  Depressing  
 Touching  Empowering

10. As a member of my community, I think I am responsible for taking care of the homeless.

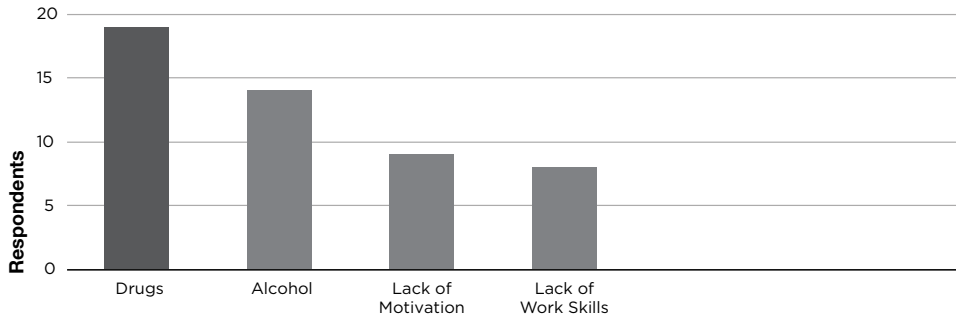
1 — 2 — 3 — 4 — 5  
 Definitely agree ————— Definitely disagree

11. In your own words, how would you describe your overall experience.

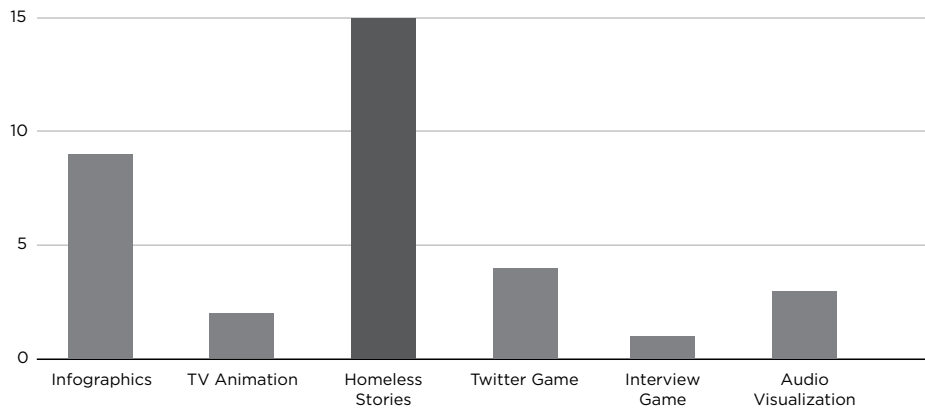


Fig. 4.10 Statistical breakdown of paper-based survey results. It shows how the audience responded to the experience

**1. What do you think are the main reasons why people become homeless?**



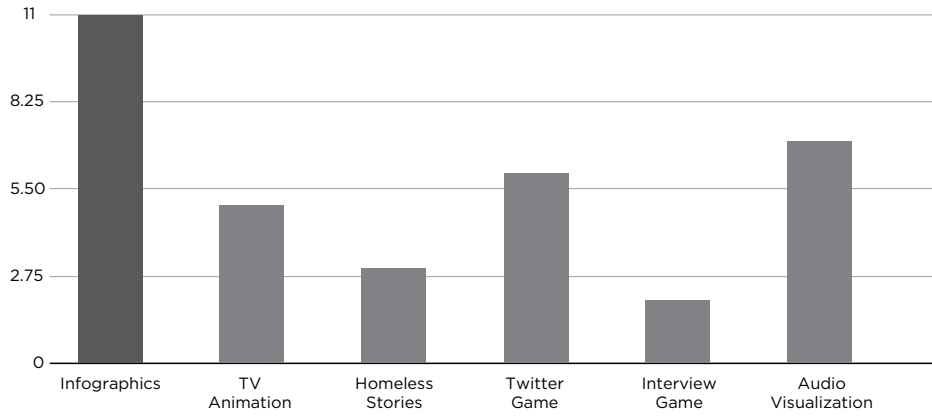
**2. Which piece were you emotionally drawn to?**



**3. Based on your experience, how much do you think you learned about the issue of homelessness?**



**4. What was your favorite piece in the show?**



**5. Based on your experience, how would you describe this exhibition?**

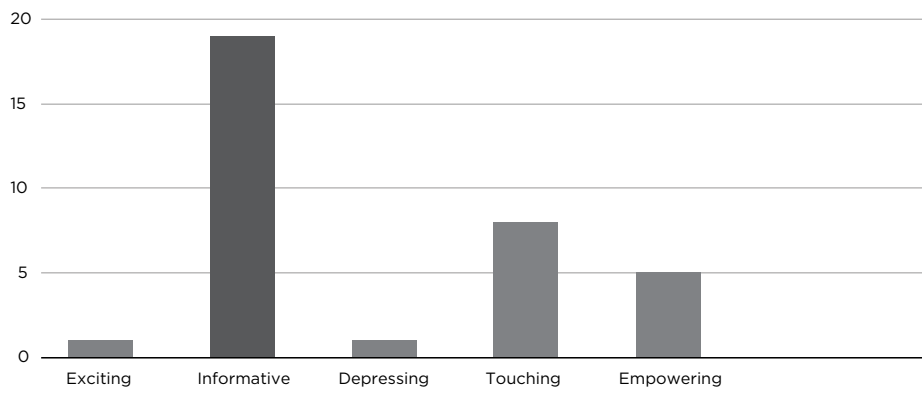
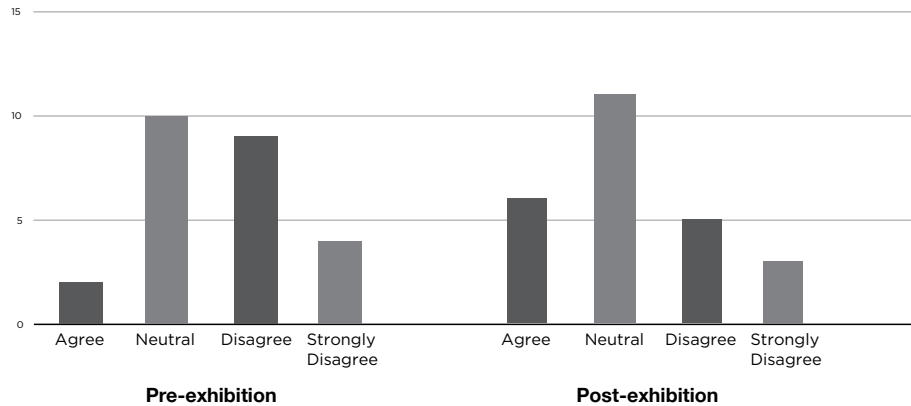


Fig. 4.11 Margin of change regarding views on community responsibility for the homeless. The audience were asked to plot their response to the following statement on a likert scale, both before and after visiting the exhibition:

**“As a member of my community, I think I am responsible for taking care of the homeless.”**



Age	Pre-exhibition score	Post-exhibition score	Difference
20	2	3	-1
21	3	2	1
24	4	4	0
22	3	4	-1
21	3	3	0
22	3	3	0
21	4	2	2
22	3	3	0
22	3	4	-1
23	4	3	1
20	4	3	1
19	2	2	0
22	3	2	1
20	5	5	0
21	5	5	0
20	3	3	0
20	4	2	2
19	4	3	1
20	4	4	0
19	5	3	2
21	3	2	1
22	5	5	0
21	3	3	0
19	4	4	0
21	4	3	1

Total difference: 10

Table showing the margin of change for the audience members based on pre-exhibition and post-exhibition scores. Lower values represent a negative change while higher values represent a positive change. The total margin of change for the 25 respondents was 10.

## CHAPTER FIVE: THE ROLE OF TECHNOLOGY IN DESIGNING FOR SOCIAL CHANGE

One of the main challenges in communication design, especially in designs focused on awareness creation, is the over saturation of information in fast-paced economies like that of the United States. This information overload is not merely because of the vast number of communications deployed everyday, but can also be considered as a result of increased self-absorption due to busy schedules and increased competitiveness among people. Goleman suggests that people living in busy environments worldwide are less likely to notice, greet or offer help to others due to this issue of self-absorption. He goes on to say that, “Our priorities, socialization, and a myriad other socio-psychological factors can lead us to direct or inhibit our attention or emotions we feel—and thus our empathy.”<sup>1</sup>

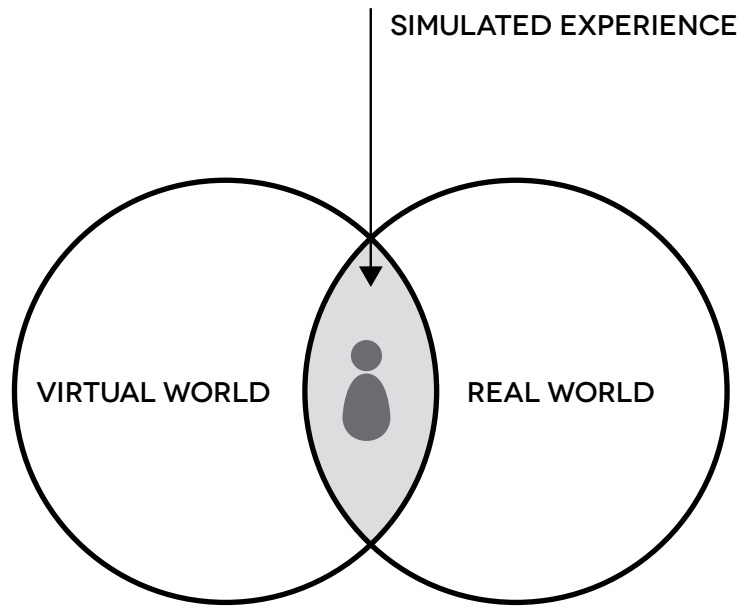
Therefore, the apparent strategy in designing for social change is to develop ways of eliciting attention and maintaining it through a lens that breaks the audience away from a state of self-absorption. It is only when

self-absorption has been removed that altruism is engendered.

As explained previously, designing for social change has primarily been approached by employing design methods like participatory design or other observation techniques that aim to engender empathy for an audience. The EC model presents another perspective on how design can be used to address the social issues of our time—by the creation of simulated experiences. Simulated experiences are not real in and of themselves, but are able to adequately invoke emotions that are similar in quality to those of real-world contexts. The purpose of the EC model is not to create a simulated experience that is purely synthetic in nature, but rather to produce a virtual experience that is predicated on actual truth. This distinction is important largely due to fact that design for social change usually seeks to enable the user to exercise an action in the real world to demonstrate their understanding of the situation. For example, Emily Pilloton’s Bertie County project empowered local high-school students with the ability to design new

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<sup>1</sup> Daniel Goleman, *Social Intelligence*. New York: Bantam Dell, 2007, 51.



*Fig. 5.1 Kofi Opoku's proposal of simulated experiences vs. real worlds.*

opportunities to satisfy the needs of their community.<sup>2</sup> The students were able to apply knowledge from a design-build class conducted by Pilloton, to construct a farmers market. In the same vein, the EC model does not seek to create an experience that is isolated from the real world, but rather demonstrate, how empathy can be fostered in an audience by using a simulated experience to empower them with a means to take social action (Fig. 4.1). To achieve this, there is the need to discuss how

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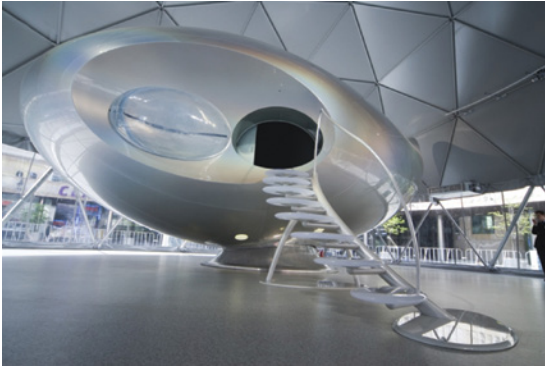
<sup>2</sup> Rebecca Gross, "Spotlight on Studio H. Art Works," December 2007, <http://artworks.arts.gov/?tag=emily-pilloton> (accessed April 21, 2013)

technology enhances the simulated experience and how human-computer interaction fosters emotional empathy.

A substantial amount of research has been done in the field of visual and performing arts about how technology can be integrated into the arts. Margot Lovejoy's research in new media, "Digital Currents", explores how digital technologies have affected aesthetic experiences, and how this relationship between art and technology is changing perspectives in art appreciation.<sup>3</sup>

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<sup>3</sup> Margot Lovejoy, "Digital Currents: Art in the Electronic Age," New York: Routledge, 2004, 206-209.



*Fig. 5.2 Mariko Mori, "Wave UFO", Kunsthaus Bregenz: 1999-2002.*

Mariko Mori's "Wave UFO," explores how brain wave data can be transformed into visual imagery in real-time correspondence with the current activity of the brain (Fig. 5.2). In the field of design, Jonathan Harris and Sepandar Kamvar's social web experiment, "We feel fine," chronicles the live human emotions of users of the social web.<sup>4</sup>

One of the sub goals of the homelessness project was to situate the audience as active participants in the communication experience in order to retain interest and foster empathy. In this regard, two key considerations had to be made. First, examine how spatial considerations can improve human-computer interaction, and second, explore the behavioral indices that are initiated by the technology.

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<sup>4</sup> Jonathan Harris and Sepandar D. Kamvar, "We Feel Fine and searching Emotional Web," 2011, <http://www.wefeelfine.org/> (accessed April 26, 2013).

The designer posits that spatial considerations like matching the vertical height of objects to the human eye-level, could induce anthropomorphism of the communication piece and thus contribute to empathy generation. Also, the coherence between the user and the computer is as important as that between the computer hardware and software. For the homelessness project, the interactive pieces in the wisdom phase were developed in recognition of this insight. To increase participation, the audience was required to exercise certain human actions to initiate responses from the computer. By incorporating social networking, voice recognition and volume detection technology, the user was able to control the output of the communication. This mode of communication, whereby the user engages the computer as they would a fellow human—by speaking or tweeting, helps administer the cognitive and affective actions necessary for fostering empathy. For instance, in the tweet game, the player was able to control John, the on-screen character, by sending tweets from their cellphone. This demonstrated how actions steeped in the real world can increase engagement and induce anthropomorphism. In this case, the player began to identify with the John as a fellow human with emotions rather than as a composition of pixels.

The project also revealed that empathy can be induced when simulated experiences incorporate technology as an extension of normal human actions rather than as isolated mediums of communication. Since the main goal of

designing for social change is to inspire a desirable action from an audience, the purpose of technology is to serve as the 'invisible' medium that bridges the simulated experience with real world where the action is exercised.



*Fig. 5.3 Room view of the thesis exhibition. Laura Mesaros Gallery, West Virginia University, March 2013.*



## Measuring empathy

One of the prevailing discourses on empathy has to do with its measurement. Psychologists generally attempt to theorize this by distinguishing between two major forms of measurable empathy—dispositional and situational. Dispositional empathy measures a person's natural or stable character trait; whereas situational empathy measures a person's empathic reactions in a particular situation.

Practically, situational empathy is measured by questioning an audience immediately after their experience and by gathering tacit information from observation. Most research done in empathy measurement has focused on empathy as a stable character trait (dispositional empathy). Many tools have been developed by psychologists such as questionnaires that seek to increase the cognitive and affective aspects of a person's empathic ability. However, there is still a growing debate regarding the efficacy of these tools. Some of the most commonly used questionnaires are the Hogan's Empathy Scale and the Empathy Quotient developed by Baron-Cohen and Wheelwright.

In the field of design, empathic research techniques are employed primarily to enable designers to develop effective products or communications for an audience. The objective of most design research methods is not to

measure the level of empathy of the designer, but rather to identify the real and latent needs of the audience. Designers use this information to create products that appeal to the cultural disposition of the audience. Culture here refers to the behavioral, environmental and interpersonal indices that surround the audience.

In designing simulated experiences for social good, there is a challenge of how much importance should be placed on measuring the empathy of the audience as opposed to the effectiveness of the communication. In the case of the homelessness project, a paper-based survey was conducted to measure the shift in the audience's thinking regarding their views on whether homelessness was a personal problem or a community issue. The survey measured the situational empathy of the audience since it was conducted in the context of a simulated experience. The designer wanted to find out how the audience responded to the issue in that particular situation. However, since the EC model incorporates cognitive, emotional and compassionate empathy generators, it was difficult to measure how empathy generated in one phase of the continuum was influenced by the previous phase. For example, how was empathy generated at the wisdom phase influenced by what they had absorbed

at the knowledge phase? To avoid this quandary, it is important that empathy in experience design not be handled as an entity in itself, but rather be determined by the efficacy of the simulated experience, namely, its ability to inspire a desired action in the real world. In the case of the homelessness project, this could be as simple an action like sending a tweet about homelessness, beginning to speak openly about the issue, or educating someone else about the topic.

### **Conclusion**

The theory of empathy is essential to understanding human behavior and the way we react to the issues in our society. Prominent scholars in the social sciences have suggested that by intentionally exercising our empathic abilities and reducing self-absorption, we stimulate altruism—an important value necessary for community engagement in social issues.

Designers have engaged the theory of empathy primarily in research methodologies conducted prior to actual creative execution. The parallel

application of the three kinds of empathy: cognitive, emotional and compassionate empathy, to the DIKW model—forming the EC model—presents newer ways of understanding how empathy can be applied to design in order to foster interest in social issues.

The EC model not only informs the kinds of products or communication to be made, but also serves as a means to identify the relationships between the different phases of the experience and how it inspires an action in the real world. This model also demonstrates the important role technology can play in social design when an audience is engaged in a virtual action that has a footprint in the real world. However, legitimate criticism can be made regarding the measurement of empathy in a simulated experience. The designer posits that while the EC model does not guarantee an effective way of measuring empathy in a user, it does provide a clear and systematic means of creating communication experiences that invoke both cognitive and affective kinds of empathy in an audience.

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# APPENDICES

# **APPENDIX A: DESIGN PROCESS OF EXHIBITION PIECES**

For my thesis exhibition, I engaged different forms of media as avenues for creating understanding and fostering interest in the topic of homelessness. This section details the design process I employed for the creation of the pieces. It represents my unique approach based on what I have gleaned from the design classes I have taken and my professional career.

## **List of projects in order of appearance:**

Infographics  
Photography  
Animation  
Interaction Design

# INFOGRAPHICS

Infographics were a key component of the thesis exhibition. It served as a means to graphically present the issue of homelessness by engaging the audience with information punctuated with diagrams and illustrations to increase understanding. While information and data are elements commonly used in most design communications, infographics are unique due to three main reasons:

**4. Infographics are more engaging than plain text.** Most people are overwhelmed with large amounts of information and consciously disregard that which is mundane. Infographics are a way to overcome the barrier of information overload by appealing to people with short attention spans with metaphors that sustain interest and improve understanding.

**5. Information used in infographics are easier to recollect.** Humans naturally are very visual creatures. Our ability to remember visuals is far greater than just recalling plain text. We remember the names of people by their faces and the circumstances of the interaction. We remember the directions to a place once we have a mental picture of what the area looks

like. Infographics are a good way of simplifying information and providing visual contexts for easy recollection.

## **6. Infographics are easier to understand.**

Infographics are a way to present complex information in a simplified way such that the audience can grasp the essence of the information in a quick and engaging manner.

## **Process**

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### **Finding the data**

For the thesis exhibition, the first step in the design process was to find the dataset. This required searching the websites of various stakeholders as well as reading materials with content pertaining to the topic of homelessness. The important factor at this stage is to identify the keywords to input into the search engine to get good results. For example, typing in “homelessness data” may generate results that are too broad or irrelevant; but typing in more specific keywords like, “number of homeless in the United States”, will generate more desirable results. However, getting too specific with keywords could also reduce the number of relevant results. Thus, it is important to maintain to a good balance or keep refining and editing keywords

until the correct results are displayed. Another method of finding data is to search existing reports pertaining to the topic and trace the links listed in the references to data sources. Most research documents of this nature will include a list of data sources unless the data is personally acquired by the group.

### **Verify data**

One of the risks of infographic design is that the medium is susceptible to inaccurate information if data sources are not verified. The second step after gathering data is to verify whether the information is accurate. This also requires verifying the credibility of the website author or the sources for information presented on the website. For the thesis project, data was collected primarily from the *National Coalition for the Homeless*. The organization is dedicated

to providing state and county-level data and information pertaining to the homelessness situation in the United States. Data verification could also include checking for the most updated information pertaining to the topic.

### **Refine data**

Data culled from different websites rarely contains consistent units of measurement. It is usually refined to correlate its units and modify the language so it is easier to read and understand when removed from its original context. For example, the homelessness demographics data used in the exhibition was originally reported as a mixture of percentages and actual counts. The designer had to convert them all to percentages for purposes of consistency and clarity.

<b>State</b>	<b>Number of homeless People</b>
Alabama	5,558
Alaska	2,128
Arizona	10,504
Arkansas	3,424
California	135,928
Colorado	15,116
Connecticut	4,456
Delaware	1,035
District of Columbia	6,546
Florida	56,687
Georgia	20,975
Hawaii	6,188
Idaho	2,199
Illinois	14,009
Indiana	6,196
Iowa	3,134
Kansas	2,511
Kentucky	6,034
Louisiana	9,291
Maine	2,447
Maryland	10,208
Massachusetts	16,664
Michigan	13,185
Minnesota	7,495
Mississippi	2,306
Missouri	8,989
Montana	1,768
Nebraska	3,548
Nevada	10,579
New Hampshire	1,469
New Jersey	14,137
New Mexico	3,601
New York	63,445
North Carolina	12,896
North Dakota	603
Ohio	13,030
Oklahoma	4,625
Oregon	17,254
Pennsylvania	15,096
Rhode Island	1,070
South Carolina	5,093
South Dakota	826
Tennessee	9,113
Texas	36,911
Utah	3,130
Vermont	1,144
Virginia	8,816
Washington	20,439
West Virginia	2,211
Wisconsin	5,785
Wyoming	1,038

*Fig. A-1 Refined data of homelessness counts across the United States.*



## Analyze data

Analyzing data allows for recognition of patterns and stories in the dataset that can be useful for shaping the idea of the project. It also allows for identification of the essential parts of the data. The key questions to ask are:

1. What is this dataset telling me?
2. How can I answer that question?
3. Which parts of the dataset can support my answer?

## Sketching

Sketching helps to visualize how the information can be presented to the audience so it is engaging, memorable and easy to understand.

The main questions to ask are:

1. What is the story of this infographic?
2. How can I use emphasis and variety to lead the audience from the very beginning of the story to the end of it?

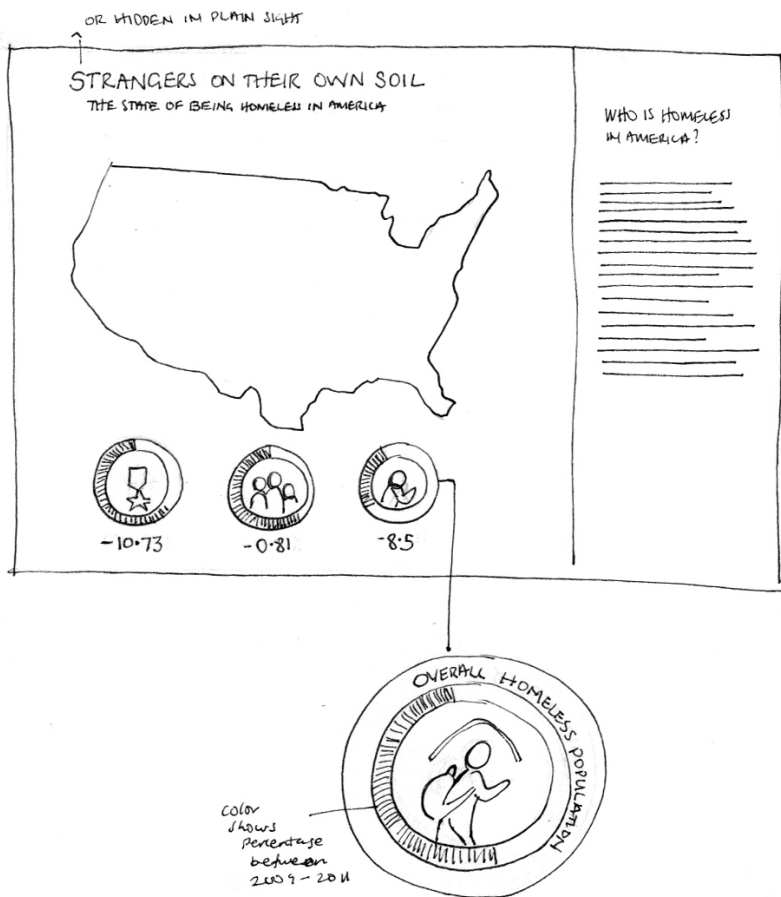


Fig. A-2 Layout sketch of an infographic showing ideas for icons, headlines and treatment of compositional space.

## Style guide

The style guide serves as the template that helps determine the mood of the infographics. At this stage, the designer makes decisions regarding color, fonts and textures to be used in the final execution. The style guide is an experiment in the aesthetics of the infographic. Therefore, multiple guides can be created with each experimenting

on a different part of the visual story. For the thesis exhibition, the designer experimented with an aesthetic that had a retrograde look, but at the same time was subtle enough to divert all attention to the content. Also, a cool color palette was employed with one highlighted color to draw the audience's attention to key components of the infographics.



Fig. A-3 Style guide experimenting with the color, font and shapes to be used in the infographics.

## Asset creation

Assets are the visual expressions of data or information prepared for use in the infographic. They provide a visual context for the information so that there is ease of recollection. Assets mostly make use of a visual metaphor that connect the information to an idea or context relevant to the audience. It builds on the idea that much of our ability to recall information is based on the context in which it is presented. This can be further understood in Roland Barthes' theory of semiotics where he explains the use of the "signifier" and the "signified". The signifier refers to

the denotative message of an image or text while the signified refers to the connotative message. Barthes posited that the opposition that arises between the signifier and the signified is where meaning is usually derived. He states; "...The words in the field derive their meaning only from their opposition to one another (usually in pairs), and that if these oppositions are preserved, the meaning is unambiguous."<sup>1</sup>

<sup>1</sup> Roland Barthes, Elements of Semiology, New York: Hill & Wang, 1964, 38.

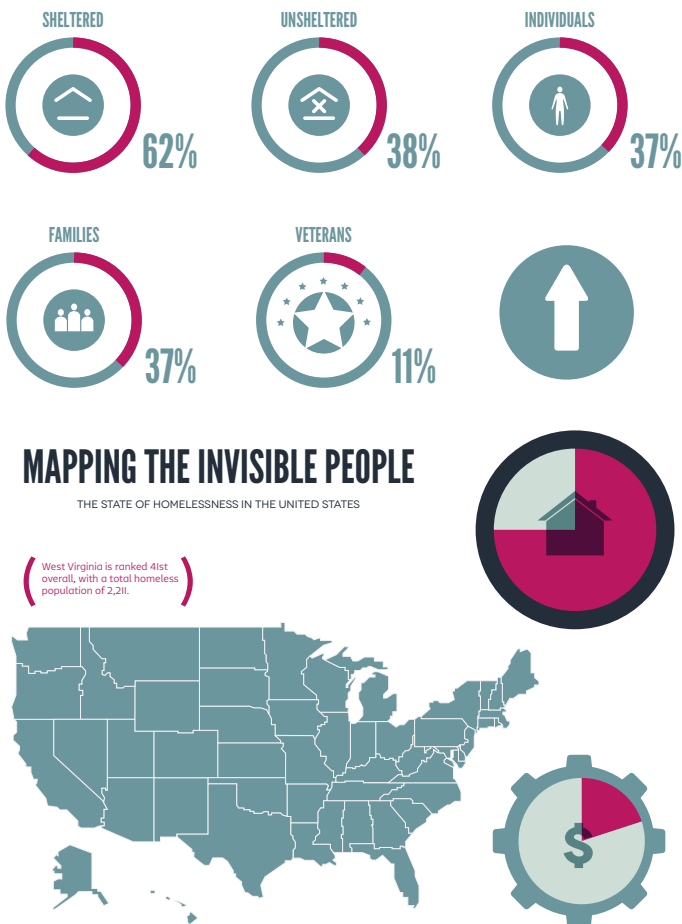


Fig. A-4 Assets using a visual metaphor to allow easy recall of information.

## Execution

The final stage of the process is where the designer makes technical decisions regarding the right tools for the infographic creation. One of the major points to consider at this stage is how to present measured data accurately in their correct proportions. For the thesis

project, the designer used visualization software like Apple Numbers and Many Eyes to graphically plot the data before exporting it to Adobe Illustrator for fine-tuning. Non-measured data was rendered directly in Adobe Illustrator along with the rest of the layout elements.

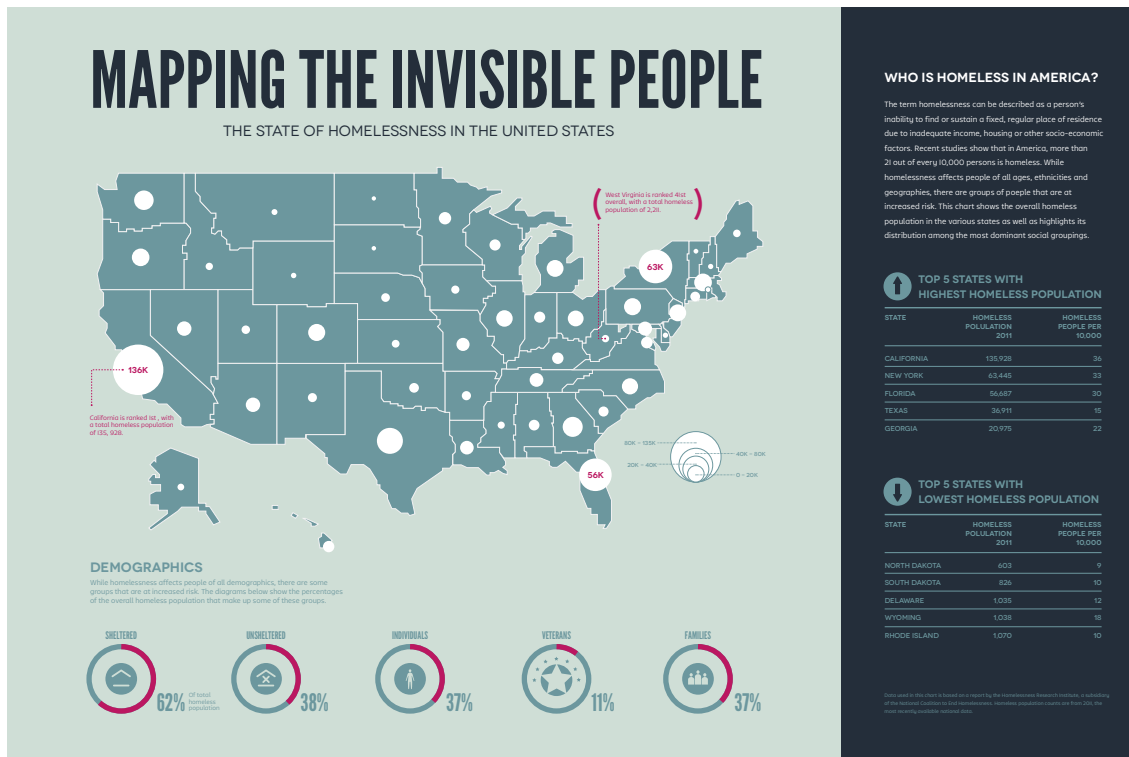
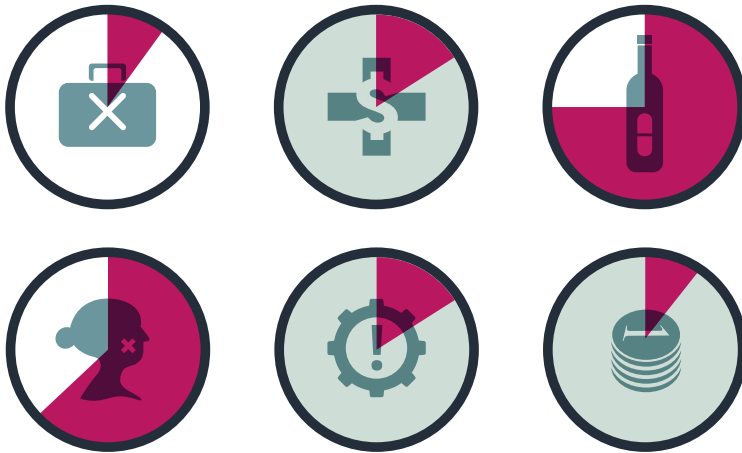


Fig. A-5 Rendered infographic showing the culmination of different elements to form a visual story.



# WHY ARE PEOPLE HOMELESS?

There are many reasons why people become homeless, but the root cause can be linked to poverty; most people who are homeless cannot afford appropriate housing because they simply do not have the income. The chart below is a snapshot of some of the common reasons why people become and remain homeless, and provides recommendations on how you can begin to take positive action.



## WHY SHOULD I CARE?

With unemployment rates remaining high, jobs are hard to find in the current economy. Even if people can find work, this does not guarantee an escape from poverty. Many employers are reluctant to recruit homeless persons, due to their lack of a fixed mailing address and also their long track of unemployment.

Families and individuals without health insurance are at increased risk of becoming homeless in the event of a serious illness or disability. Work-based health insurance has become rare in recent years, especially for workers in the agricultural or service sectors.

For people who are already struggling to pay their bills, the problem of alcohol or drug addiction may cause them to lose their housing in many situations. However, substance abuse is a result of homelessness rather than a cause. People who are homeless often turn to drugs and alcohol to cope with their situations.

Battered women who live in poverty are often forced to choose between abusive relationships and homelessness. Survivors of domestic violence are often isolated from support networks and financial resources by their abusers.

Many mentally ill homeless people are unable to obtain access to supportive housing and other treatment services. The mental health support services most needed include case management, housing, and treatment.

Homelessness and poverty are inextricably linked. Poor people are frequently unable to pay for housing, food, childcare, health care, and education. Due to their struggle to maintain affordable housing, most poor people end up living a paycheck away from becoming homeless.

## OKAY, BUT WHAT DO YOU WANT ME TO DO?

**IT BEGINS WITH THE COMMUNITY**  
Ending homelessness is going to require more than one solution because homelessness is for more than one problem. The biggest change we can make will be to change our own mind-set and start addressing homelessness as a community issue rather than a personal problem.



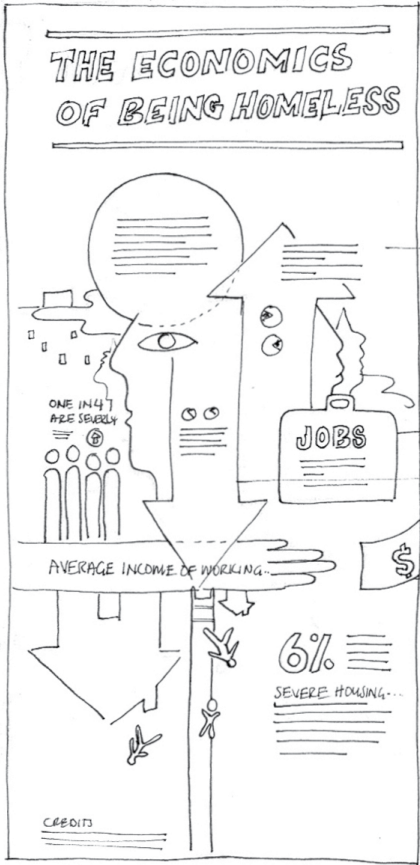
**SPEAK OUT**  
One of the biggest challenges affecting the homeless is rejection from society. Speaking out promotes dialogue and fosters education on the topic. Understanding the issue of homelessness will lead to a correction of many misconceptions and stereotypes.



**VOLUNTEER**  
Volunteering at homeless shelters, soup kitchens or other homeless agencies can make a huge difference in the lives of people who experience homelessness. Most of these agencies thrive on volunteering as a means of sustaining their support to the homeless.



**SUPPORT HOUSING FIRST**  
Housing First programs treat housing as a basic human right. The program focuses on moving people experiencing homelessness into a suitable home, and then begin to work on the issues that contributed and prolonged their homelessness.



# THE ECONOMICS OF HOMELESSNESS.

Although homelessness is often ascribed to characteristics of individual homeless people, the root cause of homelessness can largely be explained by economics: people who become homeless have insufficient financial resources to obtain or maintain housing. This is especially the case for 83 percent of the homeless population who experience episodic, transitional, or temporary periods of homelessness.

**HIGH HOUSING COSTS**  
75 percent of households at or below the poverty line are severely burdened by housing costs.

**LOW INCOME**  
Workers in poor households earn only 20 percent of the national average for all workers.

**JOBS**  
With unemployment rates remaining high, jobs are hard to find in the current economy.

**1 IN 4 PERSONS ARE SEVERELY BURDENED BY HOUSING COSTS**

**\$5.30** /HR Factoring in inflation in the last 20 years, a full-time minimum wage worker earns 25% below the poverty level for a family of three.

**\$7.25** /HR

**UNEMPLOYMENT RATE**  
Line graph showing rates from 2008 to 2010.

**HOMELESSNESS RATE**  
Line graph showing rates from 2008 to 2010.

## LIVING BELOW THE LINE

Households below the poverty line face the most acute cost burden and spend a considerably larger fraction of their incomes on rent.

**75%**

**SEVERELY BURDENED BY HOUSING COSTS**  
75 percent of households at or below the poverty line are severely burdened by housing costs. When housing accounts for 50 percent or more of a household's resources, any unexpected financial crisis could jeopardize housing stability and lead to an increased risk of homelessness.

**RATE OF HOMELESSNESS FOR THE 5 MOST SEVERELY HOUSING COST BURDENED STATES (PER 10,000)**

California 36, Nevada 39, Hawaii 45, Florida 30, New Jersey 16

**INCREASED HOUSING COST BURDEN ON POOR RENTERS**  
The percentage of persons who are severely burdened by housing costs have continued to worsen. In 2010, the national population of the severely housing cost burdened, increased by 6 percent: 75 percent of that population were working poor persons.

Year	Population	Percentage
2007	7.9M	74%
2008	7.9M	74%
2009	8.2M	75%
2010	8.2M	75%

As bad as it is for the 44% of homeless people who have jobs and can't escape homelessness, climbing out of homelessness is virtually impossible for those without a job.

Data used in this chart is based on a report by the Homelessness Research Institute, a subsidiary of the National Coalition on Anti-displacement, Homeless Population Counts and based on the most recently available census data.



**BATTLING  
FOR COVER.**

**40%**

**OF HOMELESS MEN  
HAVE SERVED IN THE  
ARMED FORCES.**

END HOMELESSNESS



**FAMILIAR  
FACES.**

**23%**

**OF THE HOMELESS  
ARE FAMILIES  
WITH CHILDREN.**

END HOMELESSNESS



**NO GAMES  
HERE.**

**52**

**MON COUNTY  
CHILDREN ARE  
HOMELESS  
ON A GIVEN DAY.**

END HOMELESSNESS



**CLOSE  
TO HOME.**

**125**

**MON COUNTY  
RESIDENTS ARE  
HOMELESS  
ON A GIVEN DAY.**

END HOMELESSNESS



# PHOTOGRAPHY

Photography has always been an important medium of expression in design. It provokes different emotions in people and presents unique perspectives to appreciating the common things in life. For the thesis exhibition, photography served as the means of engaging the audience emotionally on the issue of homelessness. It provided a context for understanding the hardships that many homeless people go through, in contrast to their hopes and aspirations.

One of the important considerations I made during this process was to establish a unique thematic that connected the different stories. I approached this phase of the project by

capitalizing on the insight that there is a disparity between the present situation of the homeless and their hopes and aspirations. This insight inspired the visual strategy of using natural divisions in the environment as a background to the story layouts. I photographed surfaces divided by cracks or by the spontaneous placement of objects. The photographs were then converted to grayscale and combined with text for the final composition. The division in the image separated the two parts of the text—a means to contrast the present predicament of the homeless with their hopes and aspirations.

**I WISH MY FAMILY DOESN'T STRUGGLE WITH ANY ADDICTIONS WHILE THEY ARE OUT THERE.**

**STRUGGLING TO FIND HOPE**

I lost my job, schooling and eventually became homeless due to alcoholism. My first day of being homeless, I didn't know what to do or who to call. I thought the hospital would be the place to go, so I went there and slept on three different bathroom floors that night.

Sleeping in a hospital bathroom floor was not something I considered to even be possible in my life, but all these things can happen when you're homeless. I wish my family doesn't struggle with any addictions while they are out there. I wish nobody struggles with addictions and homelessness.

 END HOMELESSNESS

Courtesy of InvisiblePEOPLE, a nonprofit organization dedicated to changing the way we think about people experiencing homelessness. www.invisiblepeople.tv

**I WISH I COULD LIVE A LONG LIFE, HAVE A LITTLE MONEY, AND BE ABLE TO EAT EVERY DAY.**

**LONG WAY FROM HOME**

I've been on and off the streets since I was eleven years old. In 1996, I lost my arm in a train accident. Life on the street has been rough — we sleep on the concrete, hang out anywhere and take each day as it comes. The only way I survive is by "flying a sign" on the exit ramp.

I'm all messed up man... I'm sick, got HIV, Hepatitis A, B and C. I've been to every hospital in this city at least six times. After each hospital stay, they discharge me right back to homelessness. I wish I could live a long life, have a little money and be able to eat everyday.

 END HOMELESSNESS

Courtesy of InvisiblePEOPLE, a nonprofit organization dedicated to changing the way we think about people experiencing homelessness. www.invisiblepeople.tv

Fig. A-7 Print view of stories about homelessness employing a unique visual strategy.

**I WISH WE  
COULD GET A  
HOUSE, GET  
A CAR, AND  
LIVE HAPPILY  
TOGETHER.**

**NEVER LOOKING BACK**

After ten years in an abusive relationship, I grabbed my five kids, filled my car with food and ran as fast as I could. I tried to stay with my brother, but my large family quickly became a burden on him. I got an apartment, but the bills were too expensive and soon enough, I and my five kids ended up being homeless. I can understand why women go back to abusive relationships — people don't want to deal with your problems and it's hard raising kids all by yourself. I wish, we could get a house, get a car, and live happily together.



END HOMELESSNESS

Courtesy of InvaluableCOLE. A nonprofit organization dedicated to changing the way we think about people experiencing homelessness. [www.invaluablecole.org](http://www.invaluablecole.org)

**I WISH I COULD  
BRING MY SON  
BACK, GET  
EVERYBODY  
WHAT THEY  
NEED, AND  
CREATE JOBS.**

**NO FAVORS**

I became homeless because I didn't want to live with people asking too much of me. I wanted to be on my own, and I'll rather stay out on the streets than to give sexual favors to sleep inside someone's apartment — that is the way it is for women out here. You have to do too much to get help. You have to have income before you can get government assistance. If I had three wishes, it will be to bring my son back, get everybody what they need, and create jobs.



END HOMELESSNESS

Courtesy of InvaluableCOLE. A nonprofit organization dedicated to changing the way we think about people experiencing homelessness. [www.invaluablecole.org](http://www.invaluablecole.org)

**I WISH I COULD  
STRAIGHTEN OUT  
MY LIFE, GIVE TO  
THE HOMELESS,  
AND HAVE A WAY  
TO BRING MY  
SON BACK.**

Courtesy of Invisible People. A nonprofit organization dedicated to changing the way  
we think about people experiencing homelessness. [www.invisiblepeople.tv](http://www.invisiblepeople.tv)

#### CHANGE IS GOING TO COME

I became homeless because I was tired of my family telling me what to do. I told them I wasn't going to change my life for them or anyone else. The only person I was going to change my life for, was the man up there in the sky. I survive by begging from fast food chains and getting my clothes from churches in the community. I don't care how you look at me; God has been so good to me. If I had three wishes, it would be to straighten out my life, give to the homeless and have a way to bring my son back.



END HOMELESSNESS

# ANIMATION

Unlike live-action footage, animation allows for the portrayal of complex scenarios in a simplified manner, increasing engagement and fostering understanding. For the thesis exhibition, the role of animation was to connect with the audience emotionally by engaging them with metaphors depicting the hardships faced by the different segments of homeless people.

## **Research**

The first step in developing an animation is to identify the target audience and create information and reasoning about how the challenge should be

approached. It is also important to state the objective and explore the relevance of the topic to the audience, identifying their needs and emotional proclivities.

## **Animation script**

After the research has been completed and documented, the next stage is to develop a script that details the sequence of events as they are to unfold. The script generally focuses on the visual to be displayed and its accompanying audio. If the animation includes an audio voice-over, it is best to prepare that as a separate script.

# LIFT

Lift. Lift up the child who rises each day to the sound of a crying mother.

The child who prays to have someone to call a friend.

The child who longs for a warm bed to call her own.

Lift. Lift up the man who walks hundreds of miles in search of happiness.

The man who longs to be noticed, but rather gets passed by.

The man who finds comfort and safety within the walls of emergency rooms.

Lift. Lift up the woman who fights to protect her dignity.

The woman whose joy has been stolen.

The woman who longs for love, but gets abused.

Lift. Lift up the veteran who battles sickness and disease each day.

The veteran who kneels by the sidewalk rather than his bed.

The veteran whose courage has been shattered by pain and suffering.

Lift up your voices.

Lift up the homeless.

---

*Fig. A-8 Audio voice over script for the animation piece used in the exhibition.*

## Storyboarding

Storyboards help organize thoughts and identify potential issues with the visual narrative. For the thesis exhibition, I sketched the scenes described in the animation script, detailing the visual metaphors to be used and how each scene transitioned to the next. I began the storyboarding phase with a quick mental visualization

of the aesthetic of the sequence, the pacing and the movement or transitions between elements. The most important measure of a storyboard's effectiveness is its continuity. I made sure that the theme of the animation was characterized by a single visual style and compositional layout.

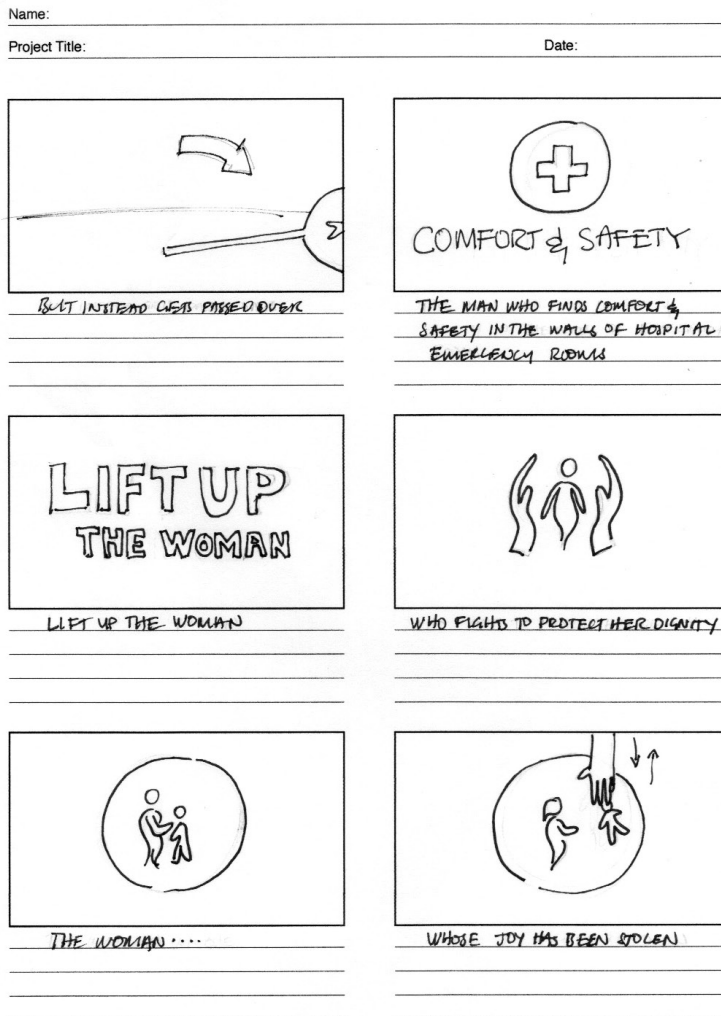


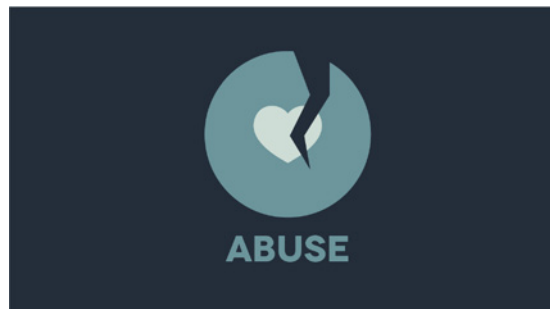
Fig. A-9 Storyboard showing the sequence of the events and their corresponding audio.

## Animatics

An animatic is a pre-rendered video sequence of the animation using the scanned storyboard frames set to the music score and audio voice-over. The importance of this phase of the process is to help the animator examine the effectiveness of the message, the pacing of the sequence and the appropriateness of the visual and shot selection. The animatic also serves as an excellent way to present ideas to clients and help point out errors in the sequence before time is invested in the final execution.

## Look and Feel

The “Look and Feel” stage helps to establish a firm idea of the design aesthetic to be used in the sequence. For my thesis project, I took the scenes from the storyboard and detailed the color scheme, font choices, and illustration style to be used. This was an important step in forming the visual mood of the sequence.



*Fig. A-10 “Look and Feel” frames detailing the design aesthetic to be used.*



## Execution

The final stage requires the selection of tools or computer software to generate the sequence. For my thesis project, I used Adobe After Effects because of its good integration with other Adobe products. Assets were first created in Illustrator, then imported into After Effects to be used in the animation. The actual animation phase can be

a bit technical and usually requires a good understanding of the intended number of images displayed every second of the sequence (frame rate), the size and proportion of the output screen (frame size) and the software settings to affect the resolution of the final output (rendering settings).



*Fig. A-11 Frames from the final animated sequence.*

# INTERACTIVE

The main goal of Human-Computer Interaction (HCI) is to find ways of adapting digital products or environments to the behavior patterns of people. Interaction design, like other design disciplines, is goal oriented and concerned with meeting the needs of an audience. For the thesis exhibition, the interactive pieces served as a platform to demonstrate how positive human behavior can be induced by computer software to gain understanding about an issue. The key steps to developing the interactive pieces were as follows:

## **Statement of objective**

It is important to begin the process by stating the desired result from the interactive experience. For example, the main objective for designing the Twitter game used in the exhibition was, “to get people to Tweet more about the issue of homelessness.” The objective should be clear and measurable. It serves as the vision for the interactive piece and informs both the design aesthetic and the functionality of the product.

## **Concept development and mechanics**

At this phase, the designer determines the user actions or behavior required for the objective to be met and how technology can induce that response. For my thesis exhibition, I concluded that providing a platform that engaged the user by showing how their tweets directly affected the issue of homelessness would be a motivational factor in helping people continue to spread the message through social media. The importance of this phase is to outline the actions required from the user and the responses needed from the computer.

## **Interface design**

After the mechanics of the piece have been clearly articulated, the next phase is to design the interface detailing the icons and graphics needed to provide user response and foster engagement in the user experience. At this phase, the designer also establishes the aesthetic of the piece, as well as focus on how the compositional elements enhance the user experience to provide clarity of information and increase engagement.



Fig. A-12 Interface design of the live audio visualization.

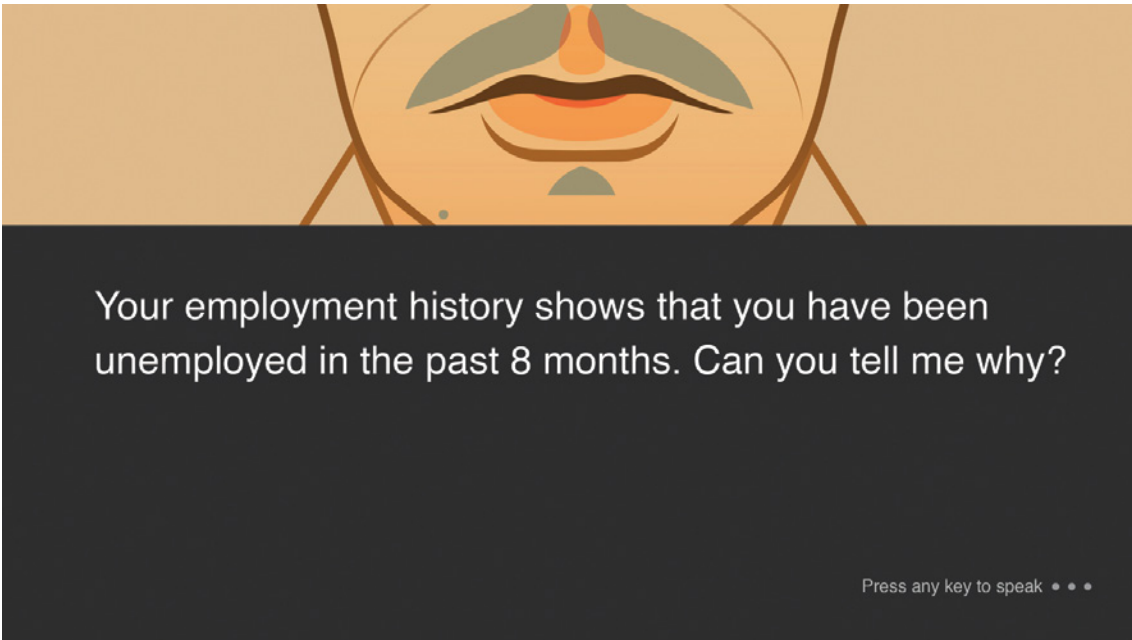
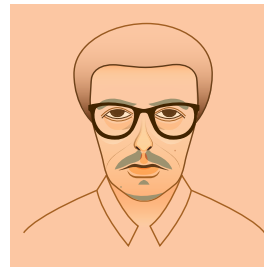
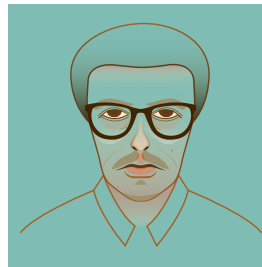
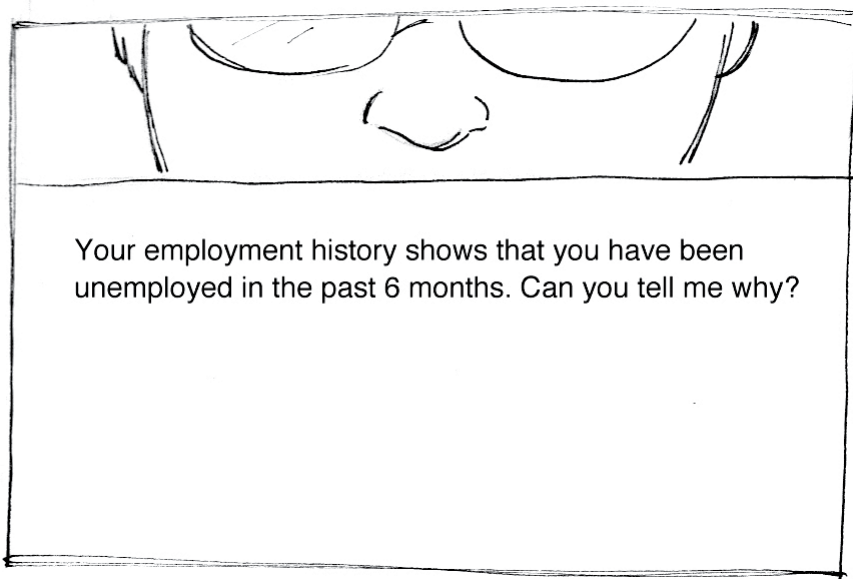


Fig. A-13 Interface design and character experimentation for the interview game.



Fig. A-14 Interface design of Saving John: A game powered by social media.

### Implementation

Implementation marks the phase of the process whereby the visual design and mechanics of the piece are programmed to add functionality or responsiveness to the interface. For my thesis exhibition, I used Processing, an open-source software for interaction design and

visualizations. Color, fonts, motion and responsiveness were all implemented by computer code in the Processing environment. Once the program had been written, it went through a process known as debugging, whereby errors in the program were resolved.

```

if(live(result) && q2 == false) {
  fill(#3B3B3C);
  rect(0, 248, width, 484);
  fill(255);
  myTextarea.setText("So where are you living now?");
  myTextarea2.setText("Hint: The floor gets really hot during the day and very cold at night");
  myTextarea3.setText("");
  myTextarea4.setText("");
  image(image03, 0, 0);
  q2Conf = expo;
  fill(125);
  textSize(14);
  text("You said:" + " " + result, 72, 280);
  fill(255);
  textSize(12);
  text("Hold down Space Bar to speak", 1095, 660);
  q3 = false;
}

if(employment(result) && q3 == false) {
  fill(#3B3B3C);
  rect(0, 248, width, 484);
  fill(255);
  myTextarea.setText("Hmm. I see. So how do you survive?");
  myTextarea2.setText("Hint: It is a kitchen. Not the one you have in
your home, but the one most homeless people go to.");
  myTextarea3.setText("");
  myTextarea4.setText("");
  image(image01, 0, 0);
  q2Conf = expo;
  fill(125);
  textSize(14);
  text("You said:" + " " + result, 72, 280);
  fill(255);
  textSize(12);
  text("Hold down Space Bar to speak", 1095, 660);
  q4 = false;
}

```

---

*Fig. A-15 Sample code from the interview game utilizing the Processing language.*

**User testing**

This phase of the process helps determine whether the actions or behavior of the user correspond to that which was conceived in the development phase. It also serves as a means to

identify further errors in the piece, which may not have been apparent during programming. Implementation and user testing are iterative phases, repeated until the desired results are achieved.

## **APPENDIX B: GALLERY SHOTS FROM THESIS EXHIBITION**





LEARN



# KNOW

THESE PEOPLE COULD LIVE A LONG LIFE IF ONLY THEY HAD A LITTLE MORE MONEY TO GET THEM TO THE NEXT CITY.



THESE PEOPLE COULD LIVE A LONG LIFE IF ONLY THEY HAD A LITTLE MORE MONEY TO GET THEM TO THE NEXT CITY.

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THESE PEOPLE COULD LIVE A LONG LIFE IF ONLY THEY HAD A LITTLE MORE MONEY TO GET THEM TO THE NEXT CITY.

**I WISH MY FAMILY DOESN'T STRUGGLE WITH ANY ADDICTIONS WHILE THEY ARE OUT THERE.**

**STRUGGLING TO FIND HOPE**

I lost my job, schooling and eventually became homeless due to alcoholism. My first day of being homeless, I didn't know what to do or who to call. I thought the hospital would be the place to go, so I went there and slept on three different bathroom floors that night.

Sleeping in a hospital bathroom floor was not something I had ever considered a possibility in my life, but all these things can happen when you're homeless. I wish my family doesn't struggle with any addictions while they are out there. I wish nobody struggles with addictions and homelessness.

  
END HOMELESSNESS

DO



## Send a tweet with your tweet live or crushed by the f

### How to play the game

John has been chronically homeless for the past two predicament, he is hit with yet another situation that

Help make John's dream of getting out of homeless homelessness with hash tag #endHomelessness. Eo finding a home. Hurry, the forces of homelessness one spot for too long, he will be crushed and fail hi

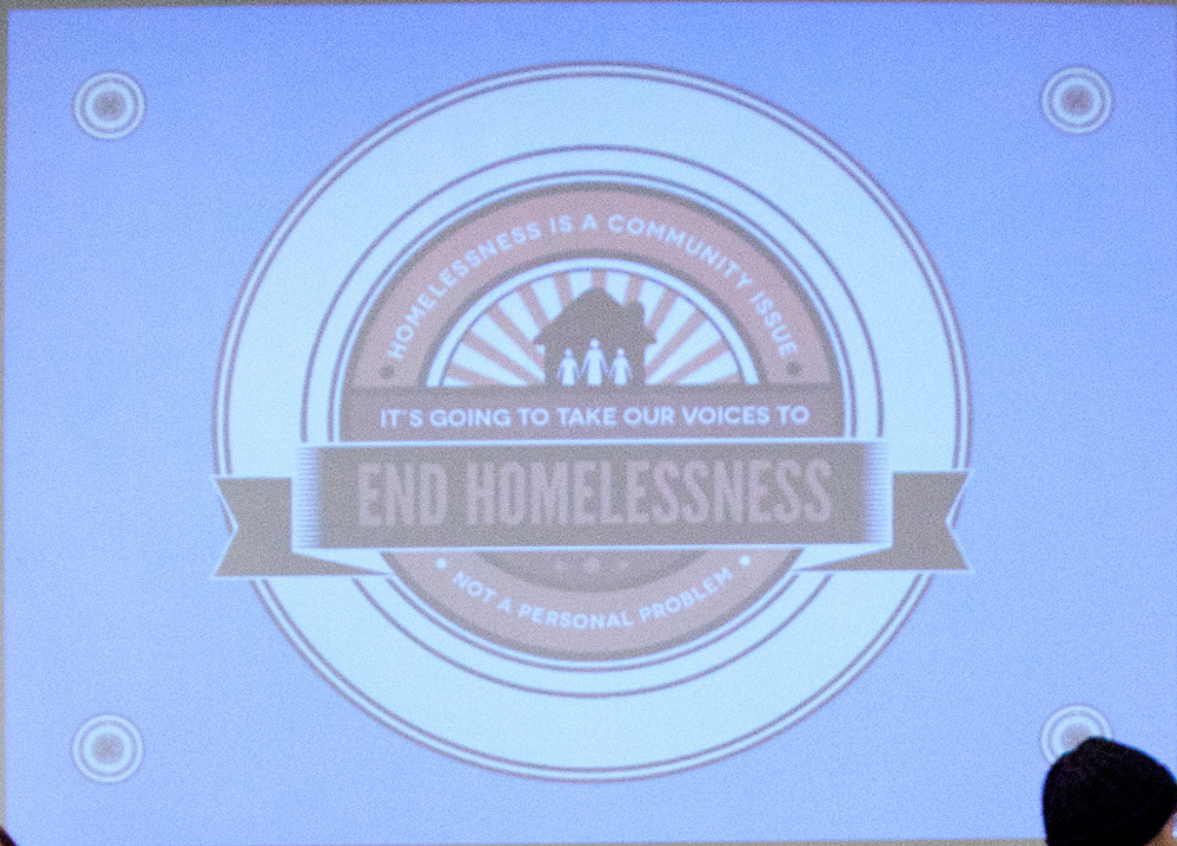


**Cashier wanted. Would you  
for this position?**

**How to play the game**

Imagine yourself as someone who has been homeless and unemployed in the six months. You have been sleeping "rough" in the streets because you have run out of all available options. You just saw a posting in the newspaper about an opening at a local store for a cashier. You applied for it and have been invited to an informal interview. Here is your chance to get a job. Good luck with the interview.

**Read the hint to each question. When you are done, speak out your answer.**



## IT TAKES A COMMUNITY

Homelessness is a very complex and subjective issue. As such, the best way to initiate change is to put aside our misconceptions and begin a dialogue on how we can help the homeless in our community. Give it a try. Speak out loudly about homelessness to see the graphical projection respond to the volume of your voice.

How loud can you shout? :