Building Empathy and Developing Instructional Design Experience and Skills

A Case Study of Using Personas to Design Open Education Resources

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This single case study involves the authors’ participation and observation of a massive open online course. To help instructional designers (IDs) develop open education resources for adults attempting to pass a United States high school equivalency exam, we constructed six personas that helped IDs put themselves in the users’ shoes. We begin by providing an overview of the scholarship that connects empathy, empathic design, persona construction, and meaning-making. After presenting our case study methodology and how we constructed six authentic personas, we present eight themes that demonstrate how IDs used the personas to build empathy for users and to develop instructional design skills and experience.

Grown-ups love figures. When you tell them that you have made a new friend, they never ask you any questions about essential matters. They never say to you, “What does his voice sound like? What game does he love best? Does he collect butterflies?” Instead, they demand: “How old is he? How many brothers has he? How much does he weigh? How much money does his father make?” Only from these figures do they think they have learned anything about him. (de Saint-Exupéry, 1943, p. 17-18)

Introduction

De Saint-Exupéry (1943) captures the essence of what matters when we learn and make meaning about a new friend or a companion, a colleague, or someone we may meet on a city street. Learning about and relating to a new friend is not about figures (e.g., “How old is he?”), but rather about finding out why a new friend loves collecting butterflies or what game he loves best. Learning about a new friend means we are able to make meaning of his or her thoughts and feelings. We put ourselves in his or her shoes.

This case study involves our participation and observation of an 18-week Designers for Learning 2016 course on Canvas Network, a massive open online course (MOOC) platform. Designers for Learning was a nonprofit organization that had a twofold charitable purpose. First, Designers for Learning provided instructional design support to underserved social needs and a mission to provide educational resources and service-learning experiences designed to promote all aspects of literacy.

Second, Designers for Learning provided opportunities for instructional designers to gain design experience. Our goal was to study designers who developed open education resources (OER) for adults attempting to pass a high school equivalency exam. To guide the designers, we developed an empathic design process driven by six authentic personas that represented adult learners. Designers followed an empathic design process and received feedback from adult basic education subject matter experts. Empathy is the intuitive ability to identify with other people’s thoughts and feelings (Kouprie & Visser, 2009). A persona is generally written in a narrative and describes a day in the life of a fictional individual who represents a key user group (Dotan et al., 2009). Kouprie and Visser (2009) summarize an empathic design approach as a deep understanding of the user’s circumstances and experiences which involves “relating to,” more than just “knowing about” the user (p. 441).

Because personas are qualitative instruments used in design processes and contextually describe people in specific situations, Vestergaard, Hauge, and Hansen (2016) call for rigorous published evaluations that are best achieved through case descriptions. Chapman and Milham (2006) note that rigorous published evaluations are important for the advancement of persona use. We offer a single, intrinsic case study on the design of OER and examine how designers constructed, authenticated, and used personas to relate to adult learners. We begin by providing an overview of the scholarship that connects empathy, empathic design, persona construction, and meaning-making. After presenting our case study methodology and how we constructed six authentic personas...
personas, we then describe how designers used the personas in an empathic design process to develop OER for adults preparing to pass a United States high school equivalency exam. We were guided by two questions: First, how did designers use personas to build empathy for users during the empathic design process? Second, how did designers use personas to develop instructional design skills and experience while developing OER?

Background

As alluded to previously, the term persona is derived from Latin, and its meaning is close to the idea of a mask worn during drama performances and ritual activities (Goh et al., 2017). To understand how designers build a relationship with their audience of focus, we present how empathy and empathic design, persona construction, and meaning-making are interrelated.

Empathy and Empathic Design

Kouprie and Visser (2009) describe empathy, specifically for design, as an intuitive ability to relate with other people’s thoughts and feelings. Empathic design encourages a designer to get closer to the lives and experiences of learners, and ultimately increases the likelihood that the ID’s service or product will meet users’ needs. Empathy supports a design process as design discovery and exploration informed from rational and practical issues move to design commitment and decisions meeting users’ personal experiences and private contexts (Cross, 2011; Mattelmäki & Battarbee, 2002).

In empathic design, designers must be willing to personally engage with users. Accordingly, our study employed a framework developed by Kouprie and Visser (2009) that breaks the design process down into four phases: “discovery,” “immersion, “connection,” and “detachment.” Kouprie and Visser’s framework helps IDs develop personal engagement strategies as well as empathy in their design practices. To illustrate, designers probe a users’ situations and experiences in the “discovery” phrase. In the “immersion” phase, a designer maintains an open mind and remains nonjudgmental while naming their users and meandering around in the users’ world. In the “connection phase,” a designer identifies with the users on an emotional level by recalling their own feelings and experiences. Finally, in the “detachment” phase, a designer steps back and takes stock of the users’ worlds. This allows a designer to reflect on new ideas and insights to help their users.

Reflecting on new ideas and insights to help users enables designers to bound empathy and creativity together in the design process. Coleman, Lebbon, and Myerson (2003) advocate for empathic design practices that allow designers to discover what makes users tick, thereby allowing designers to also tap into the users’ feelings for sources of insight and inspiration. Thus, an empathic approach to design includes, rather than excludes, people. Coleman, Lebbon, and Myerson reflect, “[e]mpathy is the key word, and, when combined with creativity, it holds the promise of more popular and attractive design solutions” (p. 491).

A designer is active during an empathic design approach. Kouprie and Visser (2009) point to three key elements that involve the designer. First, motivation is critical for an effective empathic design process. If designers do not embrace the advantages of empathic design, they can experience unsatisfying results. Second, as designers engage in the four-phase framework of empathy, they are able to experience stepping into and out of users’ lives while simultaneously reflecting on these results. Kouprie and Visser contend that the stepping in and stepping out may be a key element of empathic design. Lastly, empathic design requires a structured investment of time. Designers must be committed to the empathic design process by leading the process among others involved in the design.

Persona Construction

Again, empathic design is an attempt to get closer to the lives and experiences of users, so personas are a way to drive the design process (Cooper, 1999; Miaskiewicz & Kozar, 2011). In an authentic, engaging, and practical way, personas communicate a key user group’s goals, behavior, and what the users want to accomplish. Personas are memorable representations that are conspicuous in a designer’s mind throughout the design process (Pruitt & Adlin, 2010). Additionally, personas are helpful because they are constraining by determining who is and is not the audience of focus. Miaskiewicz and Kozar (2011) used a Delphi methodology to examine the benefits of incorporating personas into a design process. Design experts agreed on five design process areas that would most significantly benefit from persona use: (a) audience focus, (b) product requirement prioritization, (c) audience prioritization, (d) the challenging of assumptions, and (e) the prevention of self-referential design (i.e., a way of helping designers realize how the audience is different from the designer).

Understanding end users during the entire design process facilitates the development of empathy because the designer puts himself or herself in the shoes of the users. Persona construction should therefore be an ongoing activity throughout the empathetic design and development process (Nielsen, 2012; van Rooij, 2012). Although a persona is not a statistically significant representation of a group of learners, a persona can be authentic and an engaging tool (Vestergaard et al., 2016).
Authenticity can help motivate designers and allow them to remain on a path to design for actual needs. Designers must accordingly construct personas from context and real-life people. This requires validating personas and recognizing that personas are dynamic, thus implying that they also must be revisited and redrafted at regular intervals (Grudin, 2006; Vestergaard et al., 2016). This begs the question, “do personas appear realistic to the people they are supposed to represent?” When personas are not credible and not associated with methodological rigor and data, Pruitt and Adlin (2010) suggest that personas can fail.

Nielsen (2012) suggests that personas’ engaging perspective stems from the ability of narrative to foster insight and involvement. Nielsen explains, “[t]he purpose of the engaging perspective is to go from [IDs] seeing the user as a stereotype with whom they are unable to identify and whose life they cannot envision to actively involving themselves in the lives of the personas” (p. 16). In persona construction, the goal is to create empathy, engagement, and identification with users so that IDs understand the users’ worlds, allowing them to create effective solutions for those worlds. Stereotyping and categorization work in opposition to that overarching goal and results in the creation of “flat characters,” (p. 62). A flat character could be an elderly woman with a cane or a businessman in a navy suit.

An engaging perspective points to complex persona descriptions that draw from screenwriting, fiction writing, and narrative design (Nielsen, 2012). Flat and unrealistic characters are a risky thing in narrative design (Bell, 1997). When discussing narrative as modular design, Bell compares the assembly of a persona’s narrative to the work of a mosaicist. The writer assembles fragments of social and cultural contexts to make a more lifelike narrative. This allows the writer to throw off the chronology burden, and, rather, show relationships between events, people, motifs, or themes that are not generated by sequences of cause and effect. When constructing authentic and engaging personas, a ID adopts some of these writer strategies and assembles fragments of user characteristics. A persona must tell a story. As Baxter (1997) notes, “We understand our lives, or try to, by the stories we tell,” (p. xii).

Meaning-Making

Personas can often fail by failing to engage designers on an emotional level (Hanna & Ashby, 2016). When the story around a persona provides narrative tension and an element of surprise, designers find it easier to talk about users, remember users, and get a shared view of users (Blomquist & Arvola, 2002; Hanna & Ashby, 2016). Gotschall (2012) explains the desire for a personal story as humans evolved to crave a story and the human mind is addicted to meaning.

Bruner (1986) notes that there are two modes of thought- a story mode and an argument-logics-scientific mode. A story must simultaneously construct two landscapes, one of action and one of consciousness. A landscape of consciousness is what those involved in the action know, think, or feel, or conversely, do not know, think, or feel. Bruner (1990) later contends that a central concept of human psychology is meaning as well as the processes and transactions involved in the construction of meanings. Bruner believes that people participate in symbolic systems of culture in which meanings achieve a form that is public and communal rather than private. Bruner concludes that cultural psychology has folk psychology at its base. Folk psychology is narrative in nature rather than logical or categorical. Moreover, folk psychology’s (Bruner, 1990) premises characterize human nature in the following ways:

- People believe that the world is organized in certain ways. People want certain things, and some things matter more than others.
- People hold beliefs about the past, present, and future.
- These beliefs should unite and form a whole in some way.
- Lastly, when human beliefs and desires become sufficiently coherent and well organized, they become called “ways of life” (p. 39).

Bruner (1990) contends that people have an innate predisposition to narrative organization. Through the traditions of telling and interpreting in which people come to participate in, people quickly and easily comprehend and use narrative. Bruner sums up the human desire to make meaning by claiming that “[i]n the end, even the strongest causal explanations of the human condition cannot make plausible sense without being interpreted in the light of the symbolic world that constitutes human culture” (p. 138).

Kearney (2002) talks about the double vision of narrative imagination: empathy and detachment. With similarities to Kouprie and Visser’s (2009) framework for empathy, one vision enables designers to empathize with the characters in a story who act and suffer, while the other vision provides designers with a certain aesthetic distance from which to view events unfolding. With stories, designers know what it is like to be in someone else’s head, shoes, or skin. The double attitude of empathy and detachment means designers are distanced, and designers are involved in the action to feel that both matter.

Nielsen (2012) connects ideas around meaning-making and narrative when discussing the engaging perspective of personas. Persona descriptions balance data and...
knowledge about real applications and fictitious information that is intended to create empathy. Nielsen explains that people understand their experiences, the social world that surrounds their experiences, and see their ways of life as meaningful stories organized as narratives. The power of stories allows one to peek into another person’s mind and vision, as a participant rather than an observer (Baker, 2016). Therefore, a participatory peek into a day in the life of users offers an opportunity for designers to empathize with their users and design to ensure that the users’ needs are met.

Methodology
In this section, we first describe how we constructed the six personas to ensure that the personas were authentic and engaging. We then present how we introduced the personas and Merrill’s (2002) First Principles of Instruction to the IDs who designed OER lessons. Finally, we describe our observations of designers using personas to design and develop OER.

Constructing the Personas
We worked through multiple rounds of design to ensure that the six personas we created—named “Crystalle,” “Geoff,” “Jamie Ann,” “Malcolm,” “Mary,” and “Robert”—represented adults who were planning to take a high school equivalency exam. To construct and validate six authentic personas, we reviewed personas that had been developed for a Designers for Learning project in 2015, scrutinized the results of a subject matter expert (SME) survey, researched adults preparing for a high school equivalency exam, recruited adult basic education (ABE) SMEs to review early drafts, and examined the persona and fiction literature.

In a previous Designers for Learning project, a designer who was familiar with persona construction and an ABE SME had developed four personas who represented adults who had a desire to complete their general educational development degree. These four personas (Crystalle, Geoff, Jamie Ann, and Geoff) provided a starting point in constructing the six authentic personas.

SME Survey Results and Feedback
In preparation for the MOOC development, the second author conducted an online survey. Completed by 18 ABE SMEs, the survey data helped place us in the shoes of our study population—the adult preparing for the high school equivalency exam. For example, respondents noted that rural areas have little ABE resources and are desperately seeking resources that support instructors and learners. For some reason, underserved ABE students have been unsuccessful in traditional school, and therefore, OER designers should avoid a traditional school approach. The SME feedback illustrated that ABE contexts vary including desperately underserved groups: incarcerated students and adults from rural areas.

After reviewing the SME survey results, the first author became interested in incarcerated ABE students and students from rural areas. We changed Geoff to represent an adult learner from a rural area. Of the original four personas, there was no persona representing an incarcerated learner. The first author found a newspaper article regarding an ABE program at a Texas (USA) County Jail which inspired the construction of Robert (a fifth persona) who was a learner in the Corner Bend County Jail (Figure 1).

During an online design conference, we introduced five personas to four ABE SMEs. Enthusiastic and supportive of the personas, the SMEs provided invaluable, detailed, and constructive feedback that helped us construct the final authentic personas. The SMES recommended that we create personas exhibiting the following ABE characteristics: (a) a student who has a discrepancy in abilities between reading and math; (b) a student who hated school, dropped out, and now realizes it was a mistake; (c) a student who has a high school diploma based on social promotion and not academic mastery; and (d) an 18 to 22-year-old student whose schooling was interrupted because her family migrated to the United States to find work in harvesting crops. This final student also has low levels of English language proficiency or may be illiterate. To this need, Mary (Figure 2) became the sixth and final persona. The other SME feedback was threaded into the existing five persona narratives. For example, we described that Geoff (Figure 3) was tested at a sixth grade reading level and a 10th-grade math level. This fit well with Geoff’s already described challenges in needing more time to understand things that he reads.
We made every attempt to avoid stereotypes, which affect the authenticity of personas. In constructing personas, we had to be cognizant of inadvertently creating stereotypes as humans naturally stereotype as a way of categorizing conceptions of others (Macrae & Bodenhausen, 2001). We therefore presented the personas in a narrative style, rather than in a bullet-point style, to ensure that we were differentiating and humanizing our personas through their goals, motives, and expectations (Macrae & Bodenhausen, 2001; Turner & Turner, 2011). For example, we explained that Geoff’s family expected him to manage the family farm rather than providing a general description of an ABE student in a rural community.

**Introducing the Personas**

As designers worked through the overview and seven modules of the Designers for Learning course, they first dissected the ABE design scenario to explore key aspects of the opportunity. Designers asked themselves the following questions: What are the needs, goals, and constraints of this situation? Who are the target learners described through six authentic personas? What is the instructional context, and how do the personas fit in that context? We introduced Merrill’s First Principles of Instruction (Merrill, 2002) as an instructional design framework that the IDs could follow as they developed the lessons. Designers explained their instructional design solutions with a written design proposal. They then developed a prototype that was subject to a round of formative evaluation from other IDs and adult basic education subject matter experts. As the final deliverable, designers submitted a complete unit of instruction that conformed to the project’s guidelines and incorporated all necessary content presentation, learner practice, and assessment materials. Each course module contained materials for review and activities to complete related to the instructional design project. The module activities included individual practice items, reflection, and assignments, as well as conversation prompts for a MOOC discussion forum.

In Module 1, we introduced the six personas. In modules thereafter, we used reflection prompts to ask designers which (if any) of the six personas from Module 1 continued to be their focus as they considered the audience for the OER. In some cases, designers focused on the same personas throughout the design process. In other instances, designers changed personas, added another persona, developed their own persona, and/or did not focus on any persona as they had not thought about the personas since Module 1.

Designers began practicing how to identify with learners’ thoughts and feelings in Module 1. Designers used the
four-phase empathy framework (Kouprie and Visser, 2009) to discover, immerse, connect, and then detach from Crystalle, Geoff, Jamie Ann, Malcolm, Mary, and Robert. Then, we used a reflection activity to prompt designers to choose a persona that resonated most with them. To that end, it is worth noting that our intention was always to have the designers focus on adult learners and take an empathic design approach. However, we fully understood that the time constraint of Module 1 would not allow designers to construct their own personas. Our solution was to introduce Crystalle, Geoff, Jamie Ann, Malcolm, Mary, and Robert without images and then have the OER designers participate in the persona construction by finding an appropriate image to represent the persona(s) chosen.

Guided by the reflection activity, designers moved onto the “discovery” phase of the four-phase empathy framework. They spent one to two minutes on each of the four separate prompts in order to enter into the persona’s world and discover the persona’s situation and experiences. Next, designers entered the “immerse” phase by responding to a prompt that required them to explore the persona’s world. This phase required designers to withhold judgement so that they could appropriately expand their knowledge about the persona as an adult learner. The prompt in the “connect” phase asked designers to recall their own memories and experiences so that they could create an emotional tie with their one chosen persona. Finally, designers ended the reflection by responding to a prompt that encouraged them to take a step back and make sense of the persona’s world. Known as the “detachment” phase, designers reflected on new insights they gained from the reflective experience and used them to generate ideas to help the persona.

Module 1 concluded with a discussion activity where designers shared their perception of the learners with one another. Using discussion instruction prompts, designers were able to read other’s discussion posts and comment on those posts. The discussion prompts asked designers to share their reflections on the following question: How can you provide opportunities for this learner to engage in learning experiences and activities that can prepare this learner for his or her goals? To move along the design process, we then directed designers to start thinking about possible learning activities that they could design.

Introducing Merrill’s First Principles of Instruction

After a Module 2 explanation of how high school equivalency exams align with high school math and English standards, we did not assume that all designers were instructional designers (IDs) or were proficient in or even aware of instructional design processes. In Module 3, designers explored Merrill’s First Principles of Instruction (i.e., “activation,” “demonstration,” “application,” and “integration”) (Merrill, 2002), which helped them design the instructional experience. Merrill’s principles include activating prior knowledge, using specific portrayals to demonstrate component skills, applying newly acquired knowledge and skills, and integrating the new knowledge and skills into the learner’s world. The goal of Module 3 was to assist designers in creating and developing instructional activities that guide adult learners to process, apply, and integrate new incoming information into their life. For the reflection activity, designers refined their decisions about the instructional experience that they were developing for their target learners. More specifically, designers began by identifying which (if any) of the six personas from Module 1 continued to be the focus as they considered the audience. From there, designers followed Merrill’s principles and completed the following actions:

- They drafted two to four learning objectives.
- They described the problem or task that would frame their lesson.
- They specified the activation, demonstration, application, and integration strategies they used in their design processes.

Observing Designers Using Personas

The goal of the MOOC was to design and develop OER to help adults prepare to take a high school equivalency exam. In return for volunteering in service-level projects, participating designers gain real-world experience and receive support from SMEs in the field of education. Our case study, the free instructional design service MOOC on Canvas Network, was a 12-week course that was extended an additional six weeks (total of 18 weeks) in spring 2016. The MOOC was designed and facilitated by five ABE SMEs and eight experiences instructional designers. A total of 1,866 participants were enrolled, and 37 designers completed instructional materials that were made available for free in the “Adult Learning Zone” on oercommons.com. This case study focuses on the 37 designers who completed instructional materials.

An exciting part of taking a MOOC is the ability to connect, share, and compare experiences with others. In this course, some designers worked or volunteered in ABE programs. Others had academic or work backgrounds as IDs or as educators familiar with the subject matter, possibly in a K-12 or higher education setting.

To get conversations started, we asked designers to reply to a post to provide a brief introduction. This required them to share their backgrounds and to reflect on why they were taking the course. Of the 37 designers who...
completed instructional materials, 24 (65%) were women. Twelve designers (33%) noted that they are working on or have a graduate instructional design-related degree while two designers shared that they are earning a certificate in instructional design.

Why designers were taking the course resulted in a number of responses which are summarized in Table 1. Craig (all designer names have been changed), an art and design instructor who is transitioning to an ID role, wrote, “I’m taking this class to pick up pointers, get some practice, meet some great people, and possibly generate some more portfolio materials.” Carin, a recent instructional design masters graduate, shared, “...as a recent graduate in the instructional design community, I am a novice and am looking forward to the opportunity to gain additional instructional design experience and network with other professionals...” Echoing these sentiments, a veteran educational consultant named Adam posted:

I created two years’ worth of curricula without formal training except for what I’d learned from backwards design and lesson planning as a teacher. The company loved my products. I thought, ‘Wow! I can get paid for this!’ I then completed my second Masters, this time in ID.

Table 1
Reasons Designers Enrolled in Course

<table>
<thead>
<tr>
<th>Number of Designers</th>
<th>Why Designers were Taking the Course</th>
</tr>
</thead>
<tbody>
<tr>
<td>16</td>
<td>Want to sharpen or improve instructional design skills</td>
</tr>
<tr>
<td>13</td>
<td>Want to gain real-life instructional design experience</td>
</tr>
<tr>
<td>8</td>
<td>Want to be part of a service project</td>
</tr>
<tr>
<td>8</td>
<td>Want to gain practical knowledge in instructional design and/or adult education</td>
</tr>
<tr>
<td>7</td>
<td>Want to work and network with other instructional designers (IDs)</td>
</tr>
<tr>
<td>3</td>
<td>Have a desire to move into an instructional design role</td>
</tr>
<tr>
<td>2</td>
<td>Want to generate portfolio material</td>
</tr>
<tr>
<td>1</td>
<td>Have an interest in instructional design</td>
</tr>
</tbody>
</table>

Note. Designers may have chosen more than one reason why they were taking the course

We followed a single, intrinsic case study approach where context is crucial. Designing OER for ABE was a complex endeavor. Our method was to place ourselves in the thick of the design process. According to Stake (2005), an intrinsic case study’s purpose is not to understand some abstract construct or generic phenomenon. Its purpose is not theory building. An intrinsic case study is conducted because one desires a better understanding of the particular case. The study is initiated because of an intrinsic interest. Our method was to detail the case in descriptive narrative so readers can experience what happened and draw their own conclusions.

Data were collected using multiple techniques that directly used human sources (i.e., designers’ responses to electronic reflection prompts and discussion board prompts) and nonhuman sources (i.e., project artifacts that included design proposals, design prototypes, and final lessons). During the entire open ABE MOOC implementation on Canvas Network, we collected data in the form of designers’ reflections and project artifacts as they moved through the design proposal, design prototypes, and final lesson phases.

Reflection prompts and discussion board prompts were included within specific MOOC modules (see Table 2). As designers moved through various prompts, they were asked to reflect on which persona they were using in the development of their OER. Following a thematic analysis (Braun & Clarke, 2016), we used constant comparison (Braun & Clarke, 2016) to analyze and triangulate reflection and discussion board data. We focused on reflection and discussion board responses that clearly referenced at least one persona. Our focus was to investigate how these personas helped build empathy and develop instructional design skills and experience. As we continuously collected data, we simultaneously processed coded reflection information units to understand how designers used personas to build empathy for users during the empathic design process as well as how designers used personas to develop instructional design skills and experience while developing open education resources.

Table 2
Reflection and Discussion Prompts Within Specific Modules

<table>
<thead>
<tr>
<th>Module</th>
<th>Reflection Prompt</th>
<th>Discussion Board Prompt</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>2</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>3</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>4</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>5</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>No</td>
<td>Yes</td>
</tr>
<tr>
<td>7</td>
<td>Yes</td>
<td>No</td>
</tr>
</tbody>
</table>
To inform our guiding research questions and strengthen our case study’s chain of evidence, we dealt with a variety of evidence. Additionally, both authors analyzed data to ensure the triangulation of results (Yin, 1994). We reviewed designers’ responses to both individual reflection prompts within modules as well as to conversation prompts within the whole MOOC discussion forum. We additionally referenced the designers’ three deliverables--design proposals, design prototypes, and final lessons--to provide context and to gain a sense of what actually was being designed. Along with a thematic analysis, we also followed Yin’s elements of high-quality analysis for a case study. Our analysis relied on all the relevant evidence appearing in all seven course modules. As both of us analyzed the evidence, we included both of our interpretations and addressed the most significant aspects of the case study that related to our research questions. Finally, as designers and developers of the course, we brought our own prior, expert knowledge to the case study.

Results

We observed 37 designers who used six authentic personas as well as an empathic design approach to complete ABE OER. We used the following research questions to guide our participation in the study and our observations:

1. How did designers use personas to build empathy for users during the empathic design process?
2. How did designers use personas to develop instructional design skills and experience while developing open education resources?

We now present the themes that emerged as a result of each research question.

Using Personas to Build Empathy

As 37 designers drew upon Crystalle (Figure 4), Geoff, Jamie Ann (Figure 5), Malcolm (Figure 6), Mary, and Robert to guide the development of instructional materials, designers responded to specific reflection prompts and had an opportunity to discuss the progress of their designs with other designers. Table 3 presents how many designers focused on each persona during each module of the design process. In Module 4 and Module 5, designers continued to reflect and receive feedback on the progress of their designs. Since Module 6 did not have a reflection activity, designers did not note which persona was their focus. Four themes emerged from the reflections and discussions that we analyzed: (a) designers made a connection with a persona; (b) designers put themselves in the shoes of the persona, therefore empathizing with the adult learners preparing for a high school equivalency exam; (c) designers engaged with facilitators, other designers, and SMEs about the designers’ own personas and other designers’ personas; and (d) designers stepped out of personas’ shoes and reflected on their own ideas to help the adult learners.

Figure 4

Crystalle Made It Through High School Based on Social Promotion and Not Academic Mastery

Meet Crystalle

Figure 4 Crystalle Made It Through High School Based on Social Promotion and Not Academic Mastery

Figure 5

Jamie Ann Hated School and Dropped Out of High School in Her Senior Year

Meet Jamie Ann

Figure 5 Jamie Ann Hated School and Dropped Out of High School in Her Senior Year

Figure 6

Malcolm Looks Forward to Passing His General Educational Development Test and Eventually Becoming a Counselor for At-Risk Children

Meet Malcolm

Figure 6 Malcolm Looks Forward to Passing His General Educational Development Test and Eventually Becoming a Counselor for At-Risk Children

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Table 3
How Many Designers Focused on Each Persona During Each Module

<table>
<thead>
<tr>
<th>Persona</th>
<th>Module 1</th>
<th>Module 2</th>
<th>Module 3</th>
<th>Module 4</th>
<th>Module 5</th>
<th>Module 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crystalle</td>
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<td>4</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Geoff</td>
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<td>6</td>
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<td>5</td>
</tr>
<tr>
<td>Jamie</td>
<td>8</td>
<td>11</td>
<td>9</td>
<td>4</td>
<td>5</td>
<td>5</td>
</tr>
<tr>
<td>Ann</td>
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<td>7</td>
<td>6</td>
<td>6</td>
<td>6</td>
<td>4</td>
</tr>
<tr>
<td>Malcolm</td>
<td>10</td>
<td>11</td>
<td>11</td>
<td>11</td>
<td>10</td>
<td>10</td>
</tr>
<tr>
<td>Robert</td>
<td>4</td>
<td>3</td>
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</tbody>
</table>

Note. Designers may have picked more than one persona within a module and/or switched personas from a previous module.

Made a Personal Connection with a Persona

In Module 1’s “connection” phase, designers connect with one or more personas by recalling their own feelings and experiences. Across the first three modules, 28 different designers personally reflected and discussed with one another how they were able to make an emotional connection with their chosen persona(s). The designers’ reflections on these connections were often prefaced with similar statements. The sentiments of these statements generally demonstrated that designers connected with personas who reminded them of people that they knew. Similarly, designers were attracted to personas who had stories that paralleled the designers’ own backgrounds (e.g., “I was like this persona;” “I could have been this persona;” or “I have a similar story to this persona.”). For example, one designer named Jasmine used her reflection to explain how she connected with Geoff in Module 1, stating that “I was homeless at one point too. I was alone and hungry.” Similarly, another designer named Darlene wrote, “[as] a person over fifty, learning to use computers and embrace technology created anxiety. I had to overcome my own fears of using computers and learning various applications.”

The “I-have-a-similar-story” reflections were particularly notable as designers spent time sharing stories that connected to personas’ stories. A designer named Carol wrote an 84-word reflection on how, like Mary, she was sensitive and artistic in high school. Carol also noted that she had a hard time connecting with most people. Yet another designer, Marcel, shared a 117-word story to illustrate his similarities to Crystalle. Marcel explained that he was indifferent in high school and that none of his teachers or courses “really [stuck] out as life changing.” Writing about a specific memory that resonated with the persona “Mary,” Leslie included a 485-word reflection on how, as an American student studying Spanish abroad, she found herself out of place and alone in Portugal with no way to communicate with people. Leslie ended her story explaining that “I can imagine that Mary, like any other immigrant to the U.S. without English skills, feels homesick and out of place frequently while living here.”

Beyond Preparing for a High School Equivalency Exam

As we mentioned previously, designers were tasked with developing OER on specific topics meeting the College and Career Readiness Standards (CCRS). Several designers developed these resources through a lens of teaching skills in the context of future use. They began to develop the instructional experiences in Module 1 and Module 3, and ultimately, 17 different designers shared ideas on how to teach skills that would benefit adult learners by transferring to future contexts. Additionally, to recall, in the “detachment” phase of the empathetic design model, a designer steps back and takes stock in the users’ worlds. This practice allows a designer to reflect on new ideas and insights to help the users. For all six personas, we observed designers reflecting and discussing on how to help the personas beyond just preparing high school equivalency exams. For example, designers noted that: Malcolm wants to work with at-risk kids; Robert is looking for a fresh start after jail; Jamie needs to discover what she wants to do with her life; Mary confidently communicates in English at the supermarket or bank; Crystalle earns a college degree for herself and her daughter; and Geoff successfully runs the family farm.

Engaged with Others

Throughout the course, designers engaged with course
facilitators, other designers, and course SMEs to discuss their own personas as well as other designers’ personas. Designers’ empathic connections with personas made discussions engaging and seamless. Everyone involved with the course (designers, facilitators, and course SMEs) knew the six personas so when one discussed a specific persona the others understood. In discussions across the first five modules, we witnessed 14 different designers, collaboratively, using personas to drive their empathic design process and help drive other designers’ empathic design process.

We observed designers discussing how they agreed with another’s assessments of personas, confirming their perspective of walking in the learners’ shoes. In other instances, designers looked to one another for more insight into a persona. A designer named Linda responded to another designer to confirm her view of Malcolm and then commented, “This is an interesting concept – usually in higher or adult Ed classes I feel students have more control over which teachers they take classes from[.]” Linda then followed up by asking, “…[D]o you think Malcolm is aware enough about this issue to gravitate towards choosing female teachers for himself?”

Sometimes, a post like Linda’s led to more discussion around what instructional strategies are appropriate for a persona and how a particular insight may add to or change an instructional idea. When discussing the details of a lesson with a course facilitator or SME, the designer communicated the lesson by putting the persona in the middle of the lesson. For instance, Wayne, a designer participating in our study, responded to an ABE SME’s questions regarding his activity:

Thanks. I appreciate your comments. I am still thinking of tightening this. The idea of using graph paper is to allow Malcolm to see concretely how the area of a regular polygon is calculated. For example, if the length is 6 inches and the width is 4 inches, he can actually see 24 boxes (squares) on the graph. Thus, he is engaging in something practical. Then, we can move to the more abstract area of a rectangle with length 16 and width 12. The answer will be in square units. We will go on to examine more complex polygons.

**Reflected on Ideas to Help**

In the final phase (“detach”) of the empathetic design framework, designers stepped back to take stock in the users’ worlds, allowing them to both reflect on new ideas and gain insights to help the users. We observed two different ways in which 19 different designers discussed and reflected on how they could help learners across the first five modules. First, some designers demonstrated a desire to linger in the connection phase and not completely detach. These thus designers shared instructional approaches that connected with personas but varied in focus. Some approaches aimed to ensure positive reinforcement; some presented achievable learning tasks, while others provided motivation driven by real-life scenarios. Lastly, some approaches encouraged interpretation and meaning-making through fiction and nonfiction passages. To this end, Penny reflected on a specific novel:

My thought is to build up to an excerpt from *The House on Mango Street* by Sandra Cisneros. My recollection is that this novel is required reading during the high school years. Also, I think that the cultural context portrayed in the novel would be one Mary could relate to.

The second way, conversely, saw designers “detaching” from the personas. This detachment allowed designers to describe a specific CCRS that would benefit the learner. Focusing on identifying and choosing a CCRS, Module 2 was lengthy, complex, and, at times, difficult to navigate through. Some designers slowly walked through the CCRS in the shoes of a persona. For example, one designer named Charles wrote the following discussion post in Module 2: “I plan to make a lesson to suit the learning preference of the persona ‘Jamie Ann’. Reading like a Historian, Unit 12: Cold War Culture/Civil Rights explores recent history through text. It is a CCSS.ELA-Literacy.W. 11-12.9b unit.” He continued, “I chose this because it uses secondary sources and images which will give the unit a blended delivery style of which I am a strong advocate and will aid Jamie Ann’s concentration and engagement levels.” Charles stepped out of Jamie Ann’s shoes and reflected on ideas to help her learn as she cannot concentrate in a traditional classroom setting. Charles coming up with instructional ideas transitions to our second research question: How did designers use personas to develop instructional design skills and experience while designing open education resources.

**Using Personas to Develop Instructional Design Skills and Experience**

As presented in Table 1, the top two designers’ responses as to why they were participating in the course were that designers wanted to sharpen or improve instructional design skills and that designers wanted to gain real-life instructional design experience. As a result, we asked designers to provide feedback on the following statement in the Module 7 reflection: “I gained relevant design experience during this service-learning project.” Of the 28 designers who responded to the statement, 26 (93%) designers answered agreed or strongly agreed.

Designers view empathic design methods as tools for developing instructional design knowledge and abilities (Hanington, 2003; Mattelmäki, 2008; Mattelmäki et al., 2014). We were interested in learning how designers used personas as a tool to cultivate instructional design
skills and experience while developing OER. A purpose of the course was therefore to guide designers through the instructional design process using an empathic framework.

We observed our study participants’ instructional design processes through a lens informed by Richey, Klein, and Tracey’s (2011) domains of the instructional design knowledge base. Richey, Klein, and Tracey break the instructional design knowledge base down into six content domains: (a) learners and learning processes, (b) learning and performance contexts, (c) content structure and sequence, (d) instructional and non-instructional strategies, (d) media and delivery systems, and (e) designers and design processes. We analyzed reflection and discussion board responses using the Richey, Klein, and Tracey framework to investigate how personas helped build empathy and develop instructional design skills and experience. Our investigation of the reflections and discussions yielded: First, designers put themselves in personas’ shoes when structuring content and sequence. Second, designers put themselves in personas’ shoes when developing instructional strategies. Third, designers put themselves in personas’ shoes when choosing media and delivery systems. Lastly, designers put themselves in the personas’ shoes when engaged in Merrill’s First Principles of Instruction (year). Based on these themes, personas clearly provided a context that designers could return to as they worked through the instructional design process.

Structure Content and Sequence

Across Modules 1-4, 15 different designers shared how they structured OER content and sequencing around one or more persona(s). In Module 4, designer Nicole described a five-part lesson series with each lesson lasting 30 minutes. Putting herself in Mary’s shoes, Nicole’s content centered on social stratification and the American dream. Nicole’s sequence of five lessons ended with students presenting their experience learning about social stratification and whether the American dream is achievable or not.

Marcel also focused designing for Mary’s situation and aligned his content directly to CCRS standards. In the Module 2 discussion, he offered two instructional content options for Mary’s persona: a speaking lesson focused on grammar in use or a social studies lesson focusing on Hispanic history and immigration. In both cases, Marcel was designing to Mary’s Hispanic background and her desire to learn English.

Develop Instructional Strategies

In Modules 1-3, 21 different designers described their instructional activities and/or experiences centered one or more specific persona(s). The ABE SMEs who helped facilitate the course consistently led designers to create real-world, practical activities and experiences. Therefore, when reflecting on and discussing instructional strategies, designers stressed activities and experiences that:

- engaged adult learners
- chunked information that was simple and practical
- provided constant feedback
- focused on critical thinking skills
- presented problem-solving and scenario-based situations

To illustrate, a designer named Cedric connected the empathic design approach with the development of instructional strategies for Jamie Ann when he noted, “[t]he empathy framework provided a good way of thinking about the challenges facing Jamie Ann and her possible motivations.” He continued, “[i]n designing the ideal learning experience for Jamie Ann[,] I think it is important to keep in mind she is a motivated learner and has the supports and skills to succeed.” Cedric noted that his learning experiences for Jamie Ann would emphasize “practicality and variety.” He also concluded:

If the learning opportunities are varied enough to have a practical element[,] I believe Jamie Ann can be made to succeed in her own learning and realize the value of being able to take in, use, and create things all as part of a larger learning process in developing her skills and attitudes for the job market.

Choose Media and Delivery Systems

Most designers came to the service-learning experience wanting and expecting to develop e-learning lessons. Designers who put themselves in the shoes of the adult learners appreciated the realities of choosing media and delivery systems. Low digital literacy skills and lack of internet access among adult learners influence the feasibility of e-learning as a viable media and delivery system. Designer Arlene captured this reality when observing the following about Robert, a persona who is incarcerated in a county jail:

Robert will not have access to the internet, so many learning modules will need to be stand-alone. He would benefit from a blended environment where an instructor is present for a limited amount of time to introduce concepts and topics, and then Robert will be encouraged to work independently on his own. He is a quick thinker but needs to use repetition to ‘cement’ his learning.
As demonstrated by Arlene’s analysis of Robert, the 16 different designers who discussed the media and delivery systems as it related to the adult learners grasped that, for whatever reason, many adult learners working toward high school equivalency exam success did not fit in a traditional classroom. Designers focused on alternate media and delivery systems like asynchronous, blended, computer based training, and traditional face-to-face.

Engage in Merrill’s First Principles of Instruction

Merrill’s First Principles of Instruction (year) aligned very well with the ABE SMEs’ insistence that lessons needed to be problem or task focused rather than a lesson that merely teaches a topic associated with a subject. Most designers had little experience using Merrill’s principles. However, Module 3 broke down the four phases (i.e., “activation,” “demonstration,” “application,” and “integration”) and had designers work through each phase as they began to relate the empathic design approach learned in Module 1 with the CCRS learned in Module 2. We observed five designers center a specific persona in each phase of Merrill’s First Principles. For example, Wayne designed a self-paced lesson for adult learners like Malcolm who tended to have challenges in distinguishing between area and perimeter. For the integration phase, Wayne designed specific situations (e.g., painting a wall and tiling a floor) where Malcolm could practice calculating the area to determine how much paint and tile is required.

Discussion

In this section, we discuss the strengths, weaknesses, and limitations of using personas to build empathy for adult learners and to develop instructional design skills and experience while developing OER. Personas ultimately helped designers put themselves in the shoes of the adult learners and so that they could understand who adult learners really are. Adult learners are not graduate students. Adult learners are adults who have not completed high school and/or have low basic literacy and/or math skills. This characteristic of adult learners thus required ABE SMEs to put stereotypes when they constructed personas, especially with regard to the well-known high school dropout stereotype. For multiple reasons, underserved ABE students have been unsuccessful in traditional school, so we found that OER designers should avoid a traditional school approach. Avoiding traditional school approaches approved to be a constraint that our study participants had to face. Designers embraced this constraint and explored all possibilities for real-world, practical OER.

Using personas to build empathy for adult learners helped surface important design elements that may have been ignored. As mentioned before, Robert, a persona who represented a desperately underserved group, is incarcerated in a county jail. Robert has no access to the internet. When focused on Robert, designers had to work within this constraint. Similarly, many designers picked up on the personas’ low digital literacy skills. Some designers developed digital literacy skills OER, while others were careful when including technology with the OER. Designers ultimately created simple digital interactions and/or have a brief section of the OER that helped to improve digital literacy skills.

Module 2 (College and Career Readiness Standard) and Module 3 (Merrill’s First Principles of Instruction) were difficult modules to navigate. Focusing on a persona(s) helped designers connect and keep the persona centered in their work throughout the course, no matter the module’s focus. Designers stepped back and took stock in the adult learners’ world. Detaching as part of the four-phase framework of empathy allowed designers to reflect on CCRS ideas and insights to help the adult learners.

As designers engaged in the four-phase framework of empathy, they practiced stepping into and stepping out of the adult learner’s life. Kouprie and Visser (2009) contend that stepping in and stepping out of another individual’s life may be a key element of training designers at designing with empathy. Kouprie and Visser also note that empathic design requires a structured investment of time. When designing the course, we created an environment where designers would continuously step into and step out of personas’ worlds. Lasting four and half months, 37 designers participated in a structured empathic design process that resulted in instructional materials that were made available for free in the “Adult Learning Zone” on oercommons.org.

Designers had limited involvement in constructing personas. In Module 1, we directed designers to choose one of the six personas that resonated with them, work through the four-phase framework with the persona, and then select an image for the persona. We intentionally did not involve designers in persona construction. Knowing the 12-week course would demand a commitment from designers, we could not envision how a designer could engage with the four-phase framework of empathy and at the same time construct a persona. For all reflection prompts, when asking which persona the designers were focused on, we allowed designers to choose that they had created their own persona. For the Module 7 reflection (Table 3), eight designers marked that they had constructed their own persona. We had no way of viewing a persona that was constructed by a designer.

Kouprie and Visser (2009) state that motivation is critical for empathic design. If designers do not embrace the advantages of the empathic framework, then designers can experience unsatisfying results. Our intent was to have designers participate in an empathic design process.
driven by authentic and engaging personas. We consistently engaged designers with the six personas, the four-phase framework, and an empathic approach. However this does present the following question: Although we observed designers embracing an empathic design process, without the constant prompting, would designers have stayed engaged with personas and the empathic design process throughout all seven modules? Our case study provides no answers to this question and is one avenue for future scholarly inquiry.

Another limitation of our case study was selection bias. We observed 37 designers who completed the course and submitted instructional materials. Of the 1,829 people who registered for the course but did not complete OER, we do not know why they did not finish the course. Yet another limitation of our case study is that we participated as designers of the course and facilitators to the course. Yin (1994) noted that as a source for collecting evidence, there is a tradeoff to observing as a participant. The opportunities are two-fold: gain access to events that are inaccessible and perceive reality from the viewpoint of an insider. The problems of observing as a participant are becoming a supporter of the group (37 designers in our case) and assuming advocacy roles (i.e., designers and facilitators of the course). Knowing this, we triangulated data to increase the trustworthiness of the study.

Conclusion
Designing OER for adults who have a desire to pass a high school equivalency exam was a complex process. The strengths of using personas to help designers gain empathy for adult learners outweighed the weaknesses. Personas helped designers gain an understanding and empathy for adult learners, facilitate the empathic design process, and ensure that adult learners’ needs were met. We observed why a friend collects butterflies and what games he loves best does matter when we put ourselves in his shoes and reflect on ideas and insights to help him.

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