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Building Empathy and Developing Instructional Design Experience and Skills: A Case Study of Using Personas to Design Open Education Resources

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Building Empathy and Developing Instructional Design Experience and Skills

A Case Study of Using Personas to Design Open Education Resources

John Baaki & Jennifer Maddrell

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Open Educational Resources

Empathy

Personas



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, 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 fall flat 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).

Figure 1

Robert Represented an Adult Learner Who Was Incarcerated in a County Jail

Meet Robert



Robert's Story

Robert just celebrated his 32nd birthday as he waits for his trial in the Corner Bend County Jail. He admits that jail is not as depressing as it used to be. He knows, as he has seen a few. The Corner Bend County Jail launched a new program this year where Robert can take classes to prepare for the General Educational Development (GED) test. In fact, the second set of students in the 4-month-long program will graduate this week.

Robert looks forward to the classes. He thinks it will help him get out of jail and put his mind into something different. It is a cool program because it is at a jail. He has heard about GED programs in prisons, but not in county jails. He is lucky that Corner Bend County has a program. Since he is waiting for trial instead of serving out a sentence, he knows it is hard to keep a GED program going in a county jail. Guys are coming and going all the time.

For Robert the toughest part of jail is that he gets depressed and worries a lot. He is not convicted on anything yet, but he worries about his family. Robert's mom is in poor health with diabetes and high blood pressure. His dad's health is not too good either. His younger sister just got out of college and lives across state. So, mom and dad are alone. He has a big problem making fast money. He has a lot of dope cases, a gun case, and an aggravated case. He did not have much of a childhood. He can remember getting his first car early in his junior year of high school. Once Robert got his car, he stopped going to school.

Robert is pretty smart. He even sometimes corrects the teacher. He has a good mind for fractions and percentages. He also started writing a book of short stories. He always liked reading and making up people who have had hard times and then succeed. His favorite part of class is going up to the white board to work out a problem. It can be tough being at the white board. When the answer comes to him, he just breathes a big sigh of relief. He just feels so proud. He doesn't want to sit back down. When the teacher tells Robert to take his seat, he just wants to stay up there and work out another problem.

Robert hopes that a GED will be the first step to something better when he finally gets out. Robert stays in his cell. He doesn't deal with people. He comes out, talks a little bit, watches TV and then goes back to his cell and starts studying or works on a short story. He tries to stay so focused.

In the classroom, Robert sits behind a computer. His computer skills are improving. He wishes he had access to the Internet, but he gets why he doesn't. Robert thinks that he is a pretty good student. He wants to learn. It is his first uninterrupted shot at high school in a real long time.

Robert doesn't want to be a statistic. The class helps keep him straight. If you steal, fight, or cause problems, you get expelled. Robert knows one of the teachers has a friend who works with Goodwill Industries. He can help him get a job across the city once he is released.

When he looks around the classroom, he sees a lot of guys who haven't had success in their life for whatever reason. A GED certificate is something that he can hold in his hand that shows he has had success. There's nothing like success.

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.

Figure 2

Mary Has Experienced Interrupted Schooling Because Her Family Has Migrated to the United States to Find Work in Harvesting Crops

Meet Mary



Mary's Story

Mary is 19 years old. When Mary was 12, she and her family migrated to the United States from Mexico. Her mother, father, and older brother found work harvesting crops throughout the west and southwest in California, Arizona, New Mexico, and Colorado. Once Mary was old enough, she also began working in the fields. The family has always been mobile, moving, seasonally, to where the work is.

Although Mary regularly attended school in Mexico, in the U.S. her schooling has been interrupted at best, and non-existence at worst. Moving from place to place made attending school regularly difficult and finishing high school impossible. Finally, after 7+ years, it appears that the family will have an opportunity to settle down in one place.

Mary is a bright and talented woman. She is very artistic, often sketching the landscapes she has experienced on her many travels. Mary would like to drastically improve her English, get a driver's license, and find a job where she can use her artistic talents. Witnessing firsthand her parent's health issues, she wants healthcare. Mary sees preparing for and completing her General Educational Development (GED) certification as an opportunity to reach her immediate goals.

Mary is eager to learn, and she loves to read history and short stories and write poetry. However, as of right now, she is unable to meet high school requirements for lack of proficiency in math, technology, and English. Mary needs to develop proficiency in conversational English, as well as academic literacy in reading and writing. Mary is between illiterate to low level on the English language proficiency scale. Her poor academic skills are a direct result of her interrupted schooling.

Figure 3

Geoff Was Tested at a Sixth-Grade Reading Level and a 10th-Grade Math Level

Meet Geoff



Geoff's Story

Geoff is 51 years old. He grew up in a rural Nebraska community and was a quiet boy who was good with machinery, really good in math, but not very good in school subjects requiring a lot of reading. With five brothers and sisters, he was overlooked a bit. He sort of drifted away from school starting at about sixth grade. He vaguely remembers the teachers and principal were unhappy about this and maybe spoke to his parents a couple times. It did not matter. He hardly went to classes anyway and failed a couple grades before getting old enough that he could quit going completely. He had been happy to stop, because he found reading-based subjects very difficult and it did not seem to relate to real stuff. Geoff's parents had not minded because he moped when he had to go to school. His down moods could get bad enough to be noticed, and it worried his mom and dad. Everyone needed to pitch in and it was better for Geoff to be up and around so that he could help with things.

When Geoff was a young man, he liked spending time all over the county where everyone recognized him as a fix-it man and appreciated his ability to keep farm equipment, cars, and trucks running well. He could put up a pole barn faster and sturdier than most guys. He just generally helped anyone with anything they needed. He did a good job at it. He was not a planner or an organized record-keeper though. He got, and lost, a job at the local hardware store. Although Geoff was dependable and good natured, he was a little too quiet to be an effective salesman; more importantly, he could not keep track of inventory or handle receiving deliveries quickly and correctly. There was too much paperwork. After that, he went back to odd jobs – some of them paid pretty well because of his self-taught skills.

At 24, Geoff moved to a city nearby where he found a job as a mechanic at a truck stop. He met and moved into an apartment with Aileen, who was a waitress there. Aileen got bored with Geoff, left him, and went away with one of the independent truck drivers.

When Aileen left, Geoff sank into a depression. Without her income to help pay for the apartment, he had to move to a cheap rooming house. Soon afterward, he was injured when he was changing a tire for a friend's tow truck. The jack broke, catching his right arm and hand under the truck wheel crushing his forearm and nearly cutting off his hand. Since the accident was not on the job, Geoff was not covered by worker's compensation. To make matters worse, the injury did not heal properly, leaving him with a nearly useless hand for mechanical jobs. He had a lot of medical bills he could not pay, lost the room he was renting, and lost out on public benefits he might have received because he was too depressed to find out about them or apply for them. Geoff is ashamed of it now. He became addicted to the pain killers prescribed after his injury. He lived on the streets for a number of years picking up odd jobs for a dollar here or there and drifting from one soup kitchen to another. When he could pay for pain killers he did. A number of times, though, Geoff panhandled near the bus stops downtown for enough change to buy coffee, [buy a](#) and sometimes enough cheap wine to help him sleep through rainy or cold nights.

Recently, a social worker at one of the shelters connected with Geoff and put him into a program that provides depression counseling, drug counseling, and a place in a residential facility. As his general and mental health have improved, Geoff has reconnected with his parents and a sister and her husband. His brothers have all left the county for jobs elsewhere, but Geoff's parents want him to return home, care for them in their old age, then inherit and run the farm. They know, as he does, that farming is not the same as it used to be. Geoff will have to be able to plan a budget, keep financial records, apply for government programs, make reports to the county using a computer-based system, and keep up with important information from many sources.

As part of the year-long residential program, he has to stay off drugs and alcohol. Plus, he has to take General Educational Development (GED) test preparation courses, take the GED, and apply for jobs. Geoff sees the GED as key to his plan for a meaningful future. He hopes that at 51 he will have more patience for studying now than he did in school. He certainly has a focused goal, but he is also concerned he might not succeed. Geoff was tested at 6th grade reading and at 10th grade math. He thought of himself as a slow reader for so long. He knows he is not dumb, but it takes him time to understand things that he reads.

When he interacts with anyone, he feels that they are waiting impatiently for him to understand, to get what they are saying, and to respond. He has also missed out completely on the computer age, and he is going to have to learn how to use a computer from the beginning. He is pretty sure using a computer is nothing like fixing a tractor or truck. Geoff feels you have to be quick to use computers.

The fact that he has spent many years in depression is also a challenge for him. He does not focus well for long periods. He expects the worst from himself. In spite of this, Geoff is committed to giving the GED test preparation program his best try. The opportunity to go home, hold his head up high, help his parents and be a part of the community is strong motivation for him.

Persona and Fiction Literature

We integrated effective principles (i.e., providing direction that we interpreted, applied, and adapted situationally in context [Patton, 2011]) from the persona and fiction literature in constructing the six personas. For instance, we used third person instead of first person when we wrote our personas' narratives. First person narratives can detract from

authenticity as it can be unrealistic for a person to have certain insights about him or herself (Bell, 1997). Guided by the persona literature (Nielsen, 2012; Vestergaard et al., 2016; van Rooij, 2012), we gave each persona a name and had IDs select an image to represent each persona. Nielsen (2012) maintains that images evoke empathy of real people in real situations. Therefore, we described Crystalle, Geoff, Jamie Ann, Malcolm, Mary, and Robert in contexts that said something about their everyday life. IDs then searched for images that showed personas in their situation.

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 always was 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 experienced 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

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

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

Module	Reflection Prompt	Discussion Board Prompt
1	Yes	Yes
2	Yes	Yes
3	Yes	Yes
4	Yes	Yes
5	Yes	Yes
6	No	Yes
7	Yes	No

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 lessons. Since Module 6 did not have a reflection activity, designers did not note which persona was their foci. 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



Crystalle's Story

Crystalle is 20 years old and was a below-average student in high school. She received her high school diploma, but barely. Her neighborhood public school pushed her through. Throughout high school, she lived with her mom who made sure Crystalle got to school every day, and that she did not hang out on the street afternoons or weekends. Right after graduation, her mom lost her job at a local factory. With no steady income coming in, plans for the local community college were put on hold.

Crystalle soon left home to live with her boyfriend in a cheap apartment. Crystalle worked a year at a convenience store, and supported her boyfriend. Truthfully, she was feeling pretty good about her "adult" life getting started. Then, she got pregnant and gave birth to a daughter named Treasure. Her boyfriend was not happy with a baby in the apartment, or the loss of her income when she had to stay home to care for the baby, so he threw her out. Crystalle's mother found another job, and welcomed her and Treasure back. With the help of her mom, a steady job at the grocery store, and support from friends who help babysit, Crystalle now has plans for community college.

Crystalle recently took the community college placement exam. She scored so low that she was referred to a General Educational Development (GED) test prep program. It is her only option. If she doesn't attend the program, she will be forced to pay for remedial math and English classes to prepare for the math and English 101 classes. She and her mom can barely pay for the introductory classes. Financially, remedial classes are out of the question.

Crystalle sees community college as her ticket to getting a decent job, which is key to a good life for her and Treasure. She is trying to stay focused on this goal and, for the most part, she cooperates with the tutoring and study schedules involved in preparation. She reads and writes at about a 7th grade level, and she shows real improvement when she applies herself. Crystalle is somewhat comfortable with technology, having used a cell phone for calls, Facebook, and Web searches. She does not have much computer experience with applications like Word or Excel, and she does not type well, either. She admits she gets frustrated and bored quickly when she doesn't understand new things, and she hates being judged or looked down on. Crystalle likes tutors and instructors who demonstrate patience and concern for her, but also challenge her. She does better understanding stuff on her own at her own pace, and taking breaks when she get frustrated. She loves to show off what she learns.

Figure 5

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

Meet Jamie Ann



Jamie Ann's Story

Jamie Ann is 21 and lives with her parents. She was raised in a well-educated, financially stable family. While she was definitely the under-achiever in her family of two sisters and a brother, Jamie Ann has always been too unfocused to settle down at anything – including school. Her family has always stepped in and helped her when she needed it.

Jamie Ann's unique approach to life showed early. She was an energetic little girl, very smart, eager to learn, and bounced from one activity to another. Teachers talked to her often for too much talking and for getting out of her seat. They also praised her for learning quickly. In junior high school, this energy began working against her. Jamie Ann had trouble concentrating long enough in class to learn the more complex material like science and advanced math. In high school, she could read two or three books a week, but she hated school. She hated sitting in school all day bored out of her mind. She hated dealing with, what she called, idiot kids and teachers. By the first semester of her senior year, even though her grades were not bad, she was so miserable that she dropped out of school. She soon got a job as the receptionist at a local commercial plumbing contractor and supplier. Her parents had arranged for her application to this job, and they did their best to find new jobs for Jamie Ann every few months when boredom or a bad error due to inattention caused her to lose job after job.

Jamie Ann has been jobless for two months. It has been two and half years since she dropped out of high school, and she realizes it was a mistake. She wants to move out. She wants to find a job that she will like, and now sees that she first needs her General Educational Development (GED) certification so she can get on a path to start making more money. She is getting ready to prepare for and tackle the GED.

As a learner, Jamie Ann is still as eager as she ever was. It excites her to absorb new information, and she has plenty of technology skills to call on for navigating lessons on the computer. The problem is she assumes she understands everything once she has learned a little, so she often races on to another topic before she has fully grasped the current one.

She hates when people criticize her work. Although her reading level is 12th grade, she is missing some of the background knowledge that a high school graduate should have. She admits that she focuses on herself. While Jamie Ann likes to learn new things, they do not mean much to her unless she can relate them directly to her own interests or needs.

Her goals now are to pass the GED. She concludes that she is almost done with high school anyway, so it won't be hard. Then, she wants to get into college, and find a well-paying job that she likes. She is motivated to succeed and achieve her goals. Some people say she has too much confidence. She thinks it is better than having too little.

Figure 6

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

Meet Malcolm

Malcolm's Story

Malcolm is 24 years old and has been on his own since he was 16. He dropped out of school at the beginning of his junior year, and ran away from his foster home. He was placed in a foster home when he was 12 because his mother died of cancer and his father was in prison. He left his foster home because of abuse he experienced over two years at the hands of his foster mother's brother who had moved into the apartment next door. He did not tell his foster parents because he thought that no one would believe him. Plus, he felt ashamed and afraid. This abuse made him feel worthless.

He moved in with a school buddy whose mom, Helen, was using and selling drugs to help pay for her habit. She told Malcolm he could stay, but he needed to pay his own way giving her \$200 a week. He got a part-time job at a party store making about \$160 a week before taxes. But, he needed more money than that to stay with his friend. Helen introduced him to her dealer who allowed him to sell drugs at places where the high school kids hung out.

Malcolm became a successful dealer, and began to use drugs himself. After about six months, the dealer Malcolm was working for was sent to prison for five years, so Malcolm took over the entire area. He made a lot of money and moved into his own apartment when he was 18. To get more buyers, he began hosting parties at a warehouse just three blocks from the high school. By the time he was 20, he had begun to feel he could do anything, so he began smoking crack cocaine. He threw himself a big 21st birthday party, which hundreds of young kids from neighboring schools attended. The police broke up the party and arrested Malcolm, charging him with several felonies. He was convicted and sent to prison for two years.

He continued to use any drugs he could get while in prison. When he was released at age 24, he tried to go back to his old neighborhood to deal drugs again. However, his territory had been taken over by a gang. Malcolm had no way to make a living and had no place to live. He stole scrap metal and sold it to get money for drugs. One night a community-based homeless shelter worker and drug counselor found Malcolm asleep in a doorway of a vacant store. The worker took him to the shelter for the night. The next day, the worker convinced him to stay for another night. Although Malcolm was anxious to leave, he liked being warm and talking with the worker, who seemed to understand him. The worker convinced Malcolm to enter the one-year residential program sponsored by the shelter. He is a little afraid of living in a dorm setting with other men due to his past experience with his uncle. He doesn't want anyone to know about his past. He has a hard time trusting people and believing they really want to help him.

Because Malcolm did not finish high school, the residential recovery program requires him to take General Educational Development (GED) test preparation courses and take the GED test before the year is over. He was an average student in high school where he participated in some extra-curricular activities, including chess and computer club. He really liked working with computers, but it has been eight years since he was in high school. Except for using a cell phone, Malcolm has fallen behind in computer technology, knowing very little about the Internet or Web tools.

He tests at 10th grade reading skills. However, he is really behind in science and math knowledge. Plus, he has a hard time seeing the relevance of subjects like algebra, calculus, and science. He does better when instruction is connected to the real world. He is a little afraid that he is too far behind to succeed. He is willing to try, but he doesn't want to have anyone know about his past failures. His self-esteem is low due to his family's background, the abuse he experienced, his drug dealing and use, and his time in prison. He wants to finish the program, obtain his GED, get a job, and work his way through college to become a counselor at a community center that focuses on at-risk kids.

Table 3

How Many Designers Focused on Each Persona During Each Module

Persona	Module 1	Module 2	Module 3	Module 4	Module 5	Module 7
Crystalle	4	4	1	1	1	2
Geoff	8	9	6	7	7	5
Jamie Ann	8	11	9	4	5	5
Malcolm	5	7	6	6	6	4
Mary	10	11	11	11	10	10
Robert	4	3	5	3	3	3
Own Persona	0	3	6	7	7	8
No Persona	1	1	2	3	5	2
Total	40	49	46	42	44	39

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. During that time, I was so overwhelmed and frightened." Similarly, another designer named Darlene wrote, "[a]s 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 appeared 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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