# Child-Personas: Fact or Fiction?

**Alissa Nicole Antle**
School of Interactive Arts and Technology
Simon Fraser University
2400 Central City , Surrey, B.C., Canada V3T 2W1
1.604.268.7500
aantle@sfu.ca

## ABSTRACT

This paper introduces a practice-based, child-centric method of creating child-user archetypes which extends adult-based persona theory to interaction design with children. Persona construction can help interaction designers better understand real child-users and result in rich child-user archetypes which are developmentally situated and contextually valid. Key differences between adult-personas and child-personas are highlighted. A description of an online mentoring application created for CBC4Kids.ca illustrates the value of child-personas in design practice.

## Author Keywords

Personas, user abstraction, user-centred design, children, interaction design.

## ACM Classification Keywords

H.5.m. Information interfaces and presentation: Miscellaneous.

## INTRODUCTION

*"If you will practice being fictional for a while, you will understand that fictional characters are sometimes more real than people with bodies and heartbeats."*

Richard Bach, Illusions [5]

As an interaction designer or researcher working with children, one of the most important questions we can ask is: How do we construct the child-user?

Designers often define static user profiles early in the design cycle based on demographics. Since market segmentation for children is limited, the results are often shallow or over generalized. To remedy this lack of information, designers are often sent out into the field. However, they are rarely trained in methods for user studies. As a result observations or interviews with children are often colored by designers' own childhood experiences and their own relationships with

children. This often leads to self-referential user definitions. In addition, children are often identified with their toys, gear and media, and are seen through the eyes of their adult-caregivers rather than seen as themselves [17, 39]. These factors can distort designers' views of children and the resulting user profiles. Compounding these problems, designers often construct their own versions of users unconsciously, in an ad hoc fashion, during the design process. These elastic constructions emerge in the context of design, changing to suit particular design challenges throughout the product development process. Often these internal and largely unconscious conceptions of users differ radically from the explicitly defined child-users. As a result, the definitions of child-users are often more fictional than factual. If designers misconstruct the child-user, then their designs may fail in the marketplace or succeed based on chance and marketing rather than good design.

How is this different from defining adult user profiles? Imagine you're designing an interactive coffee maker for Philips. While you might have some experiences as a coffee drinker, and may observe and interact with coffee drinkers as part of your research, you likely have little emotional attachment to coffee drinkers. Compare this to children. In the field, our interactions with children are often colored by our own emotionally laden childhoods and our unfulfilled childhood longings. Childhood themes including parental love (or lack of), safety, peer acceptance, rejection, bullying and loneliness are common topics in design meetings where each designer has their own story to tell. Heart-wrenching movies where a young child is separated from their parents (e.g., Sophie's Choice, The Deep End of the Ocean) or a parent dies (e.g., Flower and Garnet, My Life Without Me) attest to the emotionality and protectiveness we feel for children.

In the CBC4Kids.ca project, the difficulties of defining child-users and remaining impartial to them were compounded by other constraints. The team was newly formed at the beginning of a very short development timeline which made it difficult to find or educate designers about designing for children (see [1] and [2] for more details). The team had limited access to children. Together, these constraints made it almost impossible to avoid the common temptations of conceiving of child-users in ways that were self-referential (e.g., when I was a child …), distorted (i.e., short adults

rather than developmentally situated children), elastic (i.e., change from design decision to design decision) and unrealistic (i.e., flat or two-dimensional).

It was in response to these problems and constraints that the team began to adapt Alan Cooper's personas to work with children. This work has been continued in subsequent projects. It first appeared publicly in a half day tutorial conducted at the Interaction Design for Children Conference in 2004. This paper describes the original child-persona method which proposes a form of child-personas that are driven by children's developmental needs rather than other needs more common in adults. Unlike personas created for productivity tools, child-personas created for entertainment or edutainment applications are envisioned based on experiential goals contextualized for the problem at hand. A third difference between adult personas and child-personas is that the resulting child-personas are validated and used in conjunction with real children.

## CBC4KIDS.CA

The CBC4Kids.ca redevelopment project was an experimental web development project completed in 2002 for the Canadian Broadcasting Corporation (CBC) [1, 13]. CBC4Kids.ca is predominantly targeted to a Canadian, 8 to 12 year old audience. Most children's web sites created by broadcasters focus on advertising television shows. In contrast, the goal for the experimental CBC4Kids.ca pilot was to make the brand about children. The brand had to reflect children's voices, their concerns, their energy and their opinions. CBC wanted to create a two-way relationship with the children that watch CBC4Kids television and visit the CBC4Kids web site. The project involved the creation of three applications: one based on stories, one based on news and one based on mentoring. Many online mentoring sites for children and youth already existed in Canada (e.g., Big Brothers and Sisters Online Mentoring Program, Mentors Peer Resources) [8]. With only an eight week development cycle, the project was faced with a great challenge. It was critical to accurately and explicitly represent our target audience.

## PERSONA-BASED DESIGN

The use of personas or user archetypes in product design was officially introduced by Alan Cooper in his 1999 book "The Inmates are Running the Asylum" [14]. Since their introduction, personas have been developed and applied in tutorials by Kim Goodwin of Cooper Design [21, 22], workshops [34], various newsletters [12, 26, 31], online resources [19, 27] and research papers [10, 16, 24, 35]. Prior to Cooper, other designers used abstract representations of users to guide design [e.g., 25, 29, 34]. However, the representations resulting from these methods are more abstract than personas.

An adult oriented persona is a description of a hypothetical, archetypical user. The focus of the personas is on the hypothetical user's goals and tasks, typically in work practice. However, a persona is not necessarily the most common user type. Cooper proposes that it is often more strategic to develop a product to satisfy a set of personas which have divergent characteristics than to build a product which satisfies the most common user [15]. He suggests that by satisfying one or more divergent personas the design will satisfy fringe groups as well as the most common use types. For example if grocery store shelving is designed based on the average American woman who is 5'5" tall, the design misses out on many things including: placing candy and treats at children's eye level or placing hardware slightly higher to correspond to average male heights.

Personas then are a set of fictional, representative user archetypes based on the behaviors, attitudes, and goals of the people who were interviewed in the pre-design phase. They have names, personalities, pictures, personal backgrounds, families, and, arguably most importantly, task specific goals. They are fictional characters. A persona is a stand-in for a unique group of people who share common goals. Persona characteristics also include attributes of people in widely different demographic groups who may have similar goals. A good introduction to creating personas can be found in Kim Goodwin's article, *Perfecting Your Personas* [20]. The creation of personas is typically done in the pre-design phase as a precursor to the development of scenarios.

One variant of Alan Cooper and Kim Goodwin's method is proposed by Jonathan Grudin and John Pruitt of Microsoft. They argue that personas should be based on real people and evolve throughout the design process in response to field studies, focus groups, interviews, observation and usability studies. This way, personas turn into a powerful means of communicating feedback from real people to the design team. Pruitt and Grudin suggest a "persona foundation document" in which persona characteristics are mapped back to the original data source [35]. To date there have been no published attempts to apply or adapt personas to work with children.

## CHILD-PERSONAS

Child-personas are a new approach that borrows from Cooper's personas. Like adult-personas, child-personas have names, personalities, pictures, personal backgrounds, families, hobbies, favorite things and friends. However, the most important aspects of child-personas are their developmentally based needs rather than task oriented goals. The personas are developed around an exploration of children's needs, at an appropriate developmental level and in the context of the experiential goals of the site (as described in detail in [4]). Like adult-personas, child-personas are created using a variety of empirical methods including: interviews with experts, interviews with children, observations and market research. To overcome self-references, personas were validated with real children throughout the design cycle.

### Needs Not Goals

Most successful products for children are not so much goal or task oriented (as adult products are) but instead meet specific

needs which are common to large groups of children in a particular age range [18, 28]. Interactive product development for children is more about meeting needs, expectations and desires than something goal focused. And while designers may have to consider adults' goals for children, they do not have to consider this in the creation of child-personas. The first main difference between child-personas and Cooper's personas is that child-personas are not focused on goals. Instead, they focus on children's needs determined at a developmentally appropriate level.

**Experiences Not Tasks**

Like adult personas, child-personas are created with a particular design problem in mind. This sets the context for persona creation. However, the context for adult personas is often related to specific tasks related to work or domestic practices. Although tasks may form part of a children's product, and may need to be tested later, the overall context is often more experiential than task specific. While this may not hold for curriculum-based learning applications, it does hold for most entertainment and edutainment applications. Focusing on children's experiential desires during design often results in deeper interactions and more engaging experiences than design which has a task-oriented focus.

**Gathering Information**

Adult-based persona creation proceeds after the collection of empirical data (e.g., using interviews, surveys, observations) in tandem with market research. Gathering the information required to build child-personas is often more difficult than gathering the information required to build adult-based personas. It is hard to reveal children's needs, attitudes, and behaviors using interviews. According to Piaget [32, 37], children that are less than ten years old have great difficultly with abstraction and conceptual problem solving, skills which are integral to most interviewing and participatory design techniques. They can easily articulate concrete goals and needs about themselves (e.g., I want a funny cartoon.), but they cannot easily articulate their goals with respect to an abstract concept like a new media product and they cannot easily articulate their deep, underlying needs and emotions. As well, designers not trained in child development often have difficulty interpreting children's behaviors and articulations.

A solution is to use a framework which guides information gathering. The framework must provide insight into what to look for, how to organize information and help with the interpretation of observations and interviews in the context of the design problem at hand. The persona template discussed below provides such a framework.

**Persona Template**

Bringing ideas from developmental, social and learning theories into practice is hard. Translating theories and concepts into guidelines that designers can use quickly and easily in practice is a challenge that faces all human computer interaction work. While other researchers have recognized the value of utilizing research from the field of developmental psychology in designing for children (e.g., [6, 40]), most of this work has related to ensuring that interactions are well-matched with children's abilities. To create personas which are based on children's needs and experiential desires, a template was created which allowed designers to explore these needs and experiential goals at the appropriate developmental level. The template was used in conjunction with summaries of key aspects of needs, experiences and developmental abilities. An example from the template for a ten year old boy is shown in Table 1. Templates also contain descriptive information such as name, age, family status, school, aptitudes and hobbies.

| Need | To find security | When does he feel safe? |
| --- | --- | --- |
| | | What behaviors exhibit his attempts to find safety? |
| | | What makes him feel insecure? How does he cope with feeling insecure? |
| | | How have these feelings and behaviors changed in the last year? |
| Exp. | To shape and impact his world | When does he feel like he's made a difference in his world? |
| | | How does that feel to him? |

**Table 1. Template example.**

A review of children's development literature reveals agreement on the common needs of childhood [4]. As children develop they have emotional and psychological needs which last through childhood (and often remain with them as adults). The need for love, safety, security, independence, competence, responsibility, development of identity, positive social relationships, mastery in learning and the attainment of power, knowledge and social skills are common needs of childhood [7, 9, 11, 33]. Depending on the design situation at hand, one or more of these needs can become the focus of persona development. Using descriptive summaries, this subset of needs is then situated in the physical, cognitive, social and/or emotional development stage of children in the target age group. Finally, these needs must be mapped to the experiential goals developed for a particular design project. Taken together, this structure can form a template for the construction of rich child-personas as well as the framework required for observations and interviews with children in the user group.

**Validation**

Cooper suggests that personas may be used to replace real users in the design process [15]. However, for design work with children, this may not work. Using personas in conjunction with real children allows the team to validate child-personas empirically throughout the design process [3]. This can help overcome the "emotionality problems" noted earlier. By comparing personas to real children, personas remain at the forefront of the design process. If they are

modified, it is done explicitly and in response to more empirical information rather than informally or inter-mentally. Validation can happen informally. For example, when a designers says "That's a Rachel!" (referring to the behavior of a child that corresponds to something they think a persona called Rachel would do) the team can respond, critique or validate this observation. Validation should also happen more systematically through observation and interviews. It was helpful to use a teenaged interviewer to interview children using questions based on the experiential goals of a site. Results from these interviews are often rich, deep and move beyond superficial responses. This information is useful for constructing and validating personas.

## CBC4KIDS.CA PERSONAS

The CBC4Kids.ca project was targeted at Canadian children, aged 8 – 12, who regularly watched CBC4Kids.ca television. The team created a set of personas for the entire project rather than a set for each activity. By satisfying our core personas with all the activities, the entire site would be successful rather than just one component of it. The CBC4Kids.ca personas are illustrated in the context of a mentoring application, called WalkAbout (http://archived.cbc4kids.cbcr3.com/) developed during the CBC4Kids.ca redevelopment project.

### Experiential Goals

The CBC4Kids.ca redevelopment project mandate was about creating an online environment where kids could have their voices heard in ways that were meaningful. It was about an environment where kids could see diversity and see people like themselves. It was about an environment where kids could learn about their world. The brand positions being smart and being real (or true to yourself) as admirable characteristics. Being smart is about being interested, involved and active in the world. Being real is about being yourself and being what's inside of you.

The goals for the site were based on the mandate and brand but were developed to reflect children's goals not business or marketing goals. Based on our early market research, a two day workshop with children at Playdium (a games centre) and past experience, four experiential goals were defined. These were validated with children by hiring a 15 year old to interview children on questions related to them. The four goals held ground and two more were added. The final experiential goals of children included: wanting to know about the world; wanting to do or be active in the world; wanting to shape or impact the world; wanting to find a sense of belonging in the world; wanting to connect to others in the world; and wanting to dream about their place in the world. They were abbreviated: to know; to do; to shape; to belong; to connect and to dream.

The goal for the entire site was to support children to achieve these experiences.

### Creating Personas

We created personas in workshops that were held after our brainstorming sessions that produced our brand values and experiential goals. Fifteen personas were written up based on the team's detailed literature review, immersion exercises, child user profiles, day-in-the-life timelines, home visits and interviews. This set was then narrowed down to two main personas and four minor ones. For an initial process, we followed guidelines based on (but not limited to) Kim Goodwin's suggestions in the article *Perfecting Your Personas* [20]. However, the content for the key personas for CBC4Kids.ca was heavily influenced by mapping the needs of children to the brand's experiential goals [4]. The framework for a persona requires that we acknowledge needs which are ubiquitous in childhood, understand how they are instantiated in a particular persona and how they may be met, concretely, within the context of the design task at hand. We later found that recording the data source for persona characteristics, as suggested by Grudin and Pruitt, was valuable as a quality control measure [35].

Construction of our personas began by agreeing on what the dominant needs of children were that could be met by CBC4Kids.ca. The brand supports values of family, children's voices and children's roles in knowing, doing, shaping, belonging, dreaming and connecting in the world.

### Need Themes

For the CBC4Kids.ca project, needs were grouped to create four need themes of childhood which were aligned with the brand. Two of these are described below and situated developmentally for 10 and 11 year olds. Stories, products or other artifacts built around these themes are given.

*Love and Security versus Independence*
Children's need for love from their caregivers and the security of stable family relationships are fundamental to a successful childhood [7, 11, 33]. In juxtaposition to these attachment needs are children's needs to be independent. To develop successfully, they must explore beyond the world of their families and be exposed to a range of new experiences. From toddlers to teenagers, children fluctuate between their need for attachment to their family and their need for exploration and independence [7, 11, 23, 28]. Children need ways to cope with leaving the security and safety of home and parents to enter to the riskier but more exciting world of peers, school and other extracurricular activities. These opposing needs form one of the most important themes of childhood. This theme is seen in many popular children's stories including Harry Potter, the Lemony Snicket series, the Wizard of Oz, The Lord of the Rings and even the Simpsons.

In Piaget's concrete operational stage, children need concrete models and mentors of how to find this balance [37]. According to Vygotsky, children in this age range are also deeply involved in a process of constructing knowledge about the world [38]. Compared to most adults, they are in a fluid, rapidly changing state where their ideas, thoughts and feelings about love, security and independence can change

radically moment to moment. Within this context, they need concrete examples of how to handle these rapidly changing, opposing forces.

*Responsibility and Control*

Children have little control over the events and routines of their lives. Often surrounded by adults and older children, children rarely have opportunities to exercise power or control, either physically or socially. Children need to learn to take responsibility for their decisions, to be given opportunities to be in control and understand the consequences of their actions [7, 28, 33]. They crave experiences where they can play out their own control or power over their environment or others. The wild commercial success of action figures with superpowers including power rangers, transformers, various cartoon-based superheroes, the rescuers and the like, attest to this need for kids to imagine they are extraordinarily powerful.

In the concrete operational stage, children again need concrete models, mentors or ways in which they experiment with responsibility and exert control over their environment or others. At this age children are in Erickson's fourth stage of social-emotional development, called competence [30]. As children enter school, they develop some of the more formal life skills including learning about the rules of relating to peers, progressing from free play to rule-based games and mastering their academic studies of reading, writing, mathematics and social studies. Children whose needs are supported in this stage are likely to become industrious while children who meet with excessive failure, criticism or rejection are likely to develop life-long feelings of inferiority.

**Excerpts**

As we brainstormed and fine-tuned each persona, we focused on how each persona would personify and respond to these needs themes. Each persona's needs were then mapped to the experiential goals of the site. The complete persona description contains a photograph, personal attributes (e.g., name, age, grade, family members, school), an overview of behavioral, cognitive, social, and emotional characteristics, technical abilities, hobbies and activities, a narrative which describes them in the context of the needs themes, and their desires relative to the experiential site goals. Short excerpts from two of the CBC4Kids.ca personas are given below.

*Rachel*

This excerpt gives preliminary descriptive information followed by an exploration of the themes of love, security and independence; and responsibility and control relative to a subset of the experiential goals (to know, to do, to shape, to belong).

Rachel, age 10 – almost 11, lives in Toronto, Canada. Rachel is in grade 6 at an elementary school north of Yonge and Bloor streets. She skipped grade 2 and is one of the youngest kids in her class. She is the oldest daughter of a Rabbi and his wife, a teacher. Rachel has 3 siblings: Becky, age 9, Samuel, age 7 and Sally, age 2.

For Rachel, the theme of love, security and independence is paramount. Rachel is torn between trying to meet adult's expectations (and the security their positive feedback gives her) and her desire to find out who she really is. Rachel can't wait to leave home and have her own life. She needs the courage to cope with these dueling desires and often finds this in her choice of books. She reads Lemony Snicket books the way other kids eat potato chips.

Rachel's life outside of school is pretty structured. She has after-school activities—music, languages, Jewish study group—almost every day of the week. Rachel is responsible, studious, serious and disciplined. She wants to be given responsibility far beyond her years but her wings are kept clipped by her conservative family. Although she likes pleasing her father and teachers, she longs to rebel. Rachel secretly wants to be a dancer.

What she really wants is to …

Find out what it's like to be someone else, someone less responsible [to know]

Explore herself in a safe environment; try on other hats [to know]

Find out about the world outside her relatively limited one [to know]

Be a dancer, but her parents would never go for it. They think she'll make a great lawyer. [to do]

*Dodge*

The Dodge persona forms the opposite end of the spectrum of the audience for CBC4Kids.ca. Dodge, age 10, lives in rural Saskatchewan, Canada. Dodge is in grade 4 at Waschicho Elementary School in a mixed class of grade 4 and 5 students. He is quite bright (although he doesn't like to admit it) and excels in science, math, and art. Easily bored, he often listens in on the grade 5 classes, only to drift and get abrupt accusations of daydreaming. He can watch the colors in the sky change for hours and not get bored. He eats spaghetti-Os one at a time. He holds the record for tacoed bike wheels. His stories reveal his sensitivity juxtaposed with his attempts to deal with issues of poverty and isolation.

For Dodge the theme of love, security and independence is also paramount. He is an only child and lives with his single mom Katja, a nurse at Saskatoon General Hospital. Although he can't articulate it, he is deeply attached to his mother and he craves more time with her. Since he can't have this he spends much of his free time alone or with his one best friend, Ben Tzu, who is 12. He longs to be connected to the world but doesn't know how.

Dodge's favorite activity is to ride his BMX bike, a birthday gift from his mom. After school, he tears up to Buffalo Cliffs near Meewasin, where he often stays till dark to see the Northern Lights and smell the rain. No one can bother him when he's on his bike; he can out run all his problems and go anywhere to watch the world unfold. While he is often given responsibility beyond his years, he badly needs guidance.

What he really wants is to …

Explore new places and understand how things work [to do]

Connect with others and share stories, adventures, feelings [to belong]

Know what it's like to be someone else, to be important, and to be stronger [to know]

Become a pilot and fly his mom to Greece [to do]

## MENTORING AND THE CHILD-PERSONAS

The design of the mentoring application, called WalkAbout, was created to fulfill the needs of the Rachel and Dodge personas. From early conception to final task-based usability tests, Rachel and Dodge were used repeatedly. They were used to generate ideas, choose mentors, determine functionality, select user interface style and guide testing. Decisions made based on these personas were often validated using real children. This feedback allowed us to fine-tune the personas, have greater insight into our target audience and provide working material for our out-of-office sessions with children.

### WalkAbout

WalkAbout allows children to experience a day in the life of various personalities of interest to children (e.g., world-class skate boarder; upcoming Ballet B.C. dancer). Users can explore hidden images and sounds to fill a movie timeline (see Figure 1). Using the timeline, they can mix audio and visual material from each personality to create their own experience of a day in the life of that person. They can email mentors with questions. Supplementary material including interviews support the user's exploration of careers, roles and models they aspire to. Children can save their movie mixes, email them to a friend or submit them into the WalkAbout gallery. The application was created to fulfill Rachel and Dodge's experiences of dreaming, doing, knowing and belonging.



**Figure 1. Explore mode (skateboarder mentor).**

### Concept

Creating a compelling online application to support mentoring is difficult. Many early ideas were vetoed because they would not be accepted by either Rachel, Dodge or both. Our early informants [36] didn't like traditional mentoring

approaches either but had difficulty articulating why. "They're boring." This much was clear but these comments didn't help us come up with new ideas. In contrast, the richness of our personas helped us generate new design ideas. By comparing Rachel and Dodge's needs we realized that while Dodge longed for adult company and advice, Rachel would rebel against it. A design solution had to find a single way to meet their very different styles of dealing with their needs for attachment and independence. At the same time they needed concrete examples of career choices. This led us to the idea that we needed to disguise mentoring as something more interesting, active and less adult-like. Our solution was to present information about mentors as the multimedia content for movie making.

### Mentors

When the team queried children about who they would like as mentors, many responded with names of pop stars. This wasn't fitting with the CBC4Kids.ca mandate. We had trouble getting them beyond this thinking. Again, we turned to our personas. Both personas longed for access to a world slightly older than themselves. Rachel responded to her need for responsibility and control by wanting to be older. Dodge responded by wanting to connect with older peers. To reach both of them, we saw that it was critical to choose mentors only slightly older than them (i.e., teenagers or young adults). To support the developmental goal of industry (versus inferiority) we wanted to present mentors whose careers were accessible – something our personas could achieve within a few years (versus established professionals or pop stars). As a result we chose a teenage skateboard champion and an aspiring young dancer as our first mentors. Children validated these choices.

### Functionality

Neither Dodge nor Rachel would spend much time on a static, informational web site. Both had strong aspects of "doing" in their archetypes. They wanted to make things. Rachel would want to share her creations with her peers, while Dodge would not. Their need for independence and control meant that they wanted to explore people's lives rather than be presented with information. This led us to the idea of letting users create movies based on exploring images and sounds of the mentors engaged in their respective careers (i.e., skateboarding, dancing). Children use their cursor to reveal hidden images and sounds. A trail of footprints shows them where they have been (see Figure 2). There footsteps seed a movie timeline. They can then rearrange their movie using an edit feature which displays the image and sound timeline. Movies can be saved, emailed to friends or posted for public viewing. Our user sessions confirmed that children loved finding the hidden images and sounds. This would have been enough for them. Children were awed by seeing a movie made from their explorations of the sights and sounds of the mentors' lives.

**Figure 2. Footsteps in explore mode (dancer mentor).**



**Figure 3. User interface for editing movie timeline.**

### User Interface

We opted for a visual and symbolic interface for the timeline and editing control features (see Figure 3). This was largely in response to the way we imagined that Dodge would relate to the world, his visual orientation and his limited computer abilities. We were confident that Rachel would figure out almost any interface. Our informant-based sessions with children bore this out. However, it took several iterations of the user interface design to get the exact layout and control functions working for most children in our group. Personas gave us the style. Children validated the style and tested the usability.

### Usability Testing

Rachel and Dodge were also used as model users for cognitive walkthroughs and to educate the usability team contracted to test the final site. As we sorted through bugs, we used the personas along with the results from child-usability tests to determine priority.

### DISCUSSION

A brand about children's voices required a commitment to user-centered design methods. In the absence of daily interactions with children and with a team not trained in designing for children, we needed a way to help the team accurately, explicitly and richly construct user profiles and use them in daily practice. Personas were a good candidate. The team quickly realized that adult-oriented methods for constructing personas were not suitable, predominantly

because they focused on workplace goals and used adult-oriented data collection methods. Personas were a way to bring the wealth of information available about children's development to the design process. The method outlined in this paper is an exploration of a way to create child-personas. The only evaluation has been informal. Observations of the ways the personas impacted the design of the mentoring application, WalkAbout, are a starting point. It would be premature to formally evaluate the method after a single iteration.

The Rachel and Dodge personas are fictional characters based largely on theoretical and empirical information. They are not real children. Rather they are composites of characteristics of real children, combined, often imaginatively, into fictional archetypes. What is interesting is that as Rachel and Dodge were used throughout the design cycle, the team found that they often became more real than the real children we were interacting with. Designers frequently could be heard arguing about what mentor Rachel might relate to or how Dodge would react to a visual interface. Are they fact or are they fiction? While this confusion can be construed as negative, there are many positive aspects.

Anecdotally, the impact of these personas can be gauged by how often they were evoked, how often they influenced a design decision and the range of design tasks they were included in. As described above, Rachel and Dodge were instrumental in the development of many aspects of WalkAbout. They were called on repeatedly in discussions of concept, content, functionality, user interface and usability. This is the most obvious value of personas.

In ways that were less tangible the process of creating the personas was highly educational for the design team. The team learned basic concepts from developmental psychology, learned to apply that information to children they observed and worked with, and dove deeper and deeper into needs-based design as the project proceeded. The personas were also educational for new members joining the team and served as a record for future projects targeted at this market segment.

There is some debate about whether real users are needed in the design process when personas are used (e.g., [27]). What we found was that using personas during design sessions with children enhanced the value of these sessions for several reasons. First, it provided content for the sessions. The team came to the sessions with design ideas created "for" the personas which we could show to the children. Second, by positioning questions relative to the personas, we were able to reduce the power imbalance between adults and children. Children were comfortable criticizing designs the personas "suggested" (i.e., the personas were seen as a peer) where they might not have been comfortable challenging an adult. Third, the personas gave our informants users other than themselves to relate to and to design for. For example, in an informant based session, a 10 year old girl said, "Do you

think Rachel would like this?" helping herself and her peers to abstract the user beyond themselves.

Other researchers who have evaluated personas attribute their success, in part, to the process by which they were integrated into practice (e.g., [10]). In this project, we followed a standard process [15] for introducing and using personas to the design team. I don't think this was the key to their success. Using theoretical knowledge combined with empirical information to fill a needs-based framework resulted in extremely rich and intimate descriptions of our personas. This brought them to life. Continually validating personas with real children and allowing the personas to evolve in a controlled way ensured that they were realistic and explicit. Were they factual or fictional? They were both. The method presented here provides one way to ensure that they are both deeply factual and richly fictional.

## CONCLUSION

The method of constructing child-personas outlined in this paper provides a framework for field and interview work; provides a way to systematically incorporate concepts from developmental psychology into design; allows archetypical users to be present throughout the design cycle; provides a method to empirically validate user abstractions and provides a way to capture design knowledge for subsequent projects.

Exploring children's needs at an appropriate age-related developmental stage helps designers create rich and accurate archetypal users. However, the process of mapping these needs to experiential product goals and making them relevant to the specific design challenge is still largely subjective. In part, this is why it is important to continually validate child-personas with real children.

This approach is one technique which can be used by designers to construct accurate, realistic and stable user archetypes. It provides designers with a way to quickly and dynamically build rich user profiles while educating them at the same time. Persona templates helped the designers focus their thoughts as they moved back and forth between internal construction and explicit reflection. The process outlined here allows personas to be contextualized relative to the particular design situation as shown in the section on WalkAbout. The method ensures that designers create and use an explicit and stable representation rather than an individual "intra-mental" construction of the child-user. Above all, the personas helped our team have empathy for and a deep understanding of our target audience.

This paper documents early attempts to create and use child-personas. The focus is on the method and not an evaluation of the method relative to practice or outcome. These will come with later projects.

## REFERENCES

1. Antle, A.N. Case study: The design of CBC4Kids' StoryBuilder. *Proc. of Interaction Design for Children* (2003), ACM Press, 59-68.

2. Antle, A.N. Supporting children's emotional expression and exploration in online environments, *Proc. of Interaction Design for Children* (2004), ACM Press, 97-104.

3. Antle, A.N. Child-user abstractions. *Ext. Abstracts of Human Factors in Computing Systems* (2006), ACM Press, 478 - 483.

4. Antle, A.N. Child-based personas: Need, ability and experience. *Cognition, Technology & Work, Special Issue on Child Computer Interaction: Methodological Research*, submitted.

5. Bach, R. *Illusions*, Dell, New York, NY, 1977.

6. Baumgarten, M. Kids and the Internet: A development summary. *Computers in Entertainment*, 1,1, (October 2003).

7. Bee, H. *The Developing Child*, Harper Collins, 1995.

8. Bennett, D., Tsikalas, K. Hupert, N., Meade, T. and Honey, M. The Benefits of Online Mentoring for High School Girls: Telementoring Young Women in Science, Engineering, and Computing, 1998. http://www2.edc.org/CCT/publications_report_summary.asp?numPubId=77 Accessed January 5, 2005.

9. Berger, K.S. *The Developing Person Through Childhood and Adolescence*. Worth Publishers, NY, USA, 1986.

10. Blomquist, A. and Arvola, M. Personas in action: Ethnography in an interaction design team. *Proc. NordiChi* 02, ACM Press (2002), 197 – 200.

11. Brazelton, B.T. and Greenspan, S., *The Irreducible Needs of Children*, Perseus Publishing, A Merloyd Lawrence Book, 2000.

12. Brechin, E. Reconciling market segments and personas. http://www.cooper.com/newsletters/2002_02/reconciling_market_segments_and_personas.htm.

13. CBC Fact Sheet. http://www.cbc.radio-canada.ca/htmen/pdf_rtf/CBCfacts.pdf.

14. Cooper, A. *The Inmates are Running the Asylum*, Sams, Indianapolis, ID, USA, 1999.

15. Cooper, A. and Reimann, R. *About Face 2.0: The Essentials of Interaction Design*, John Wiley & Sons, San Francisco CA, 2003.

16. Don, A and Patrick, J. User requirements by any means necessary. In: Laurel, B. (ed.) *Design Research*, MIT Press, 2003.

17. Druin, A. The role of children in the design of new technology. *Behaviour and Information Technology*, 21, 1 (2002), 1-25.

18. Fishel, C. *Designing for Children: Marketing Design that Speaks to Kids*. Rockport Publishers, Gloucester, MA, USA, 2001.

19. Freydenson, E. Bringing your personas to life in real life. Boxes and Arrows. http://www.boxesandarrows.com/archives/bringing_your_personas_to_life_in_real_life.php

20. Goodwin, K. Perfecting your personas. http://www.cooper.com/newsletters/2001_07/perfecting_your_personas.htm

21. Goodwin, K. Getting from research to personas: Harnessing the power of data http://www.cooper.com/content/insights/newsletters/2002_11/getting_from_research_to_personas.asp

22. Goodwin, K Goal-directed methods for great design. *CHI tutorial* (2002) http://www.acm.com/sigchi/chi2002/tut-sun.html#9

23. Grossmann, K.E. The evolution and history of attachment research and theory. In S. Goldberg, R. Muir & J. Kerr (Eds.) *Attachment Theory: Social, Developmental and Clinical Perspectives*, The Analytic Press, Hillsdale, NJ, USA, 1995.

24. Grudin, J. and Pruitt, J. Personas, participatory design and product development: An infrastructure for engagement. *Proc. Participatory Design Conference* 2002, 144-161.

25. Hackos, J. and Redish, J. *User and Task Analysis for Interface Design*. John Wiley and Sons, New York, NY, USA, 1998.

26. Holtzblatt, K. Personas and contextual design. http://incent.com/community/design_corner/02_0913.html

27. Houriban, M. Taking the "You" out of user: My experience using personas. Boxes and Arrows. http://boxesandarrows.com/archives/002330.php

28. Just Kid Inc. An environmental scan of children's interactive media from 2000 to 2002: An executive summary prepared for the Markle Foundation, 2002. http://www.markle.org/markle_programs/project_archives/2002/justkidinc.php

29. Mikkelson, N. and Lee, W.O. Incorporating user archetypes into scenario-based design. *UPA Workshop,* 2000.

30. Myers, R. Stages of social-emotional development in children and teenagers. http://www.childdevelopmentinfo.com/development/erickson.shtml.

31. Nielsen, L. From user to character – an investigation into user-descriptions in scenarios. *Proc. Designing Interactive Systems* 2002, ACM Press, 99 – 104.

32. Piaget, J. *Psychology and Epistemology: Towards a Theory of Knowledge*, Viking Press, New York, NY, USA, 1971.

33. Pringle, M.K. *The Needs of Children*¸ Routledge, State, USA, 1986.

34. Pruitt, J., Jamesen, H. and Adlin, T. Personas, user archetypes, and other user representations in software design. *UPA Workshop,* 2001.

35. Pruitt, J. and Grudin, J. Personas: practice and theory. *Proc. DUX*, 2003, ACM Press, 1-15.

36. Scaife, M. and Rogers, Y. Kids as informants: telling us what we didn't know or confirming what we knew already? In A. Druin (ed.) The Design of Children's Technology, Morgan Kaufman, San Francisco, CA, State, USA, 1998.

37. Singer, D.G. and Revenson, T. *A Piaget Primer: How a Child Thinks*, Plume Books, NY, USA, 1996.

38. Van Der Veer, R. *The Vygotsky Reader*, Blackwell Publishers, Cambridge, MA. USA, 1994.

39. Wartella, E., O'Keefe, B. and Scantlin, R. Children and interactive media - A compendium of current research and directions for the future. Markle Foundation, May 2001. http://www.markle.org/news/digital_kids.pdf

40. Wyeth, P. and Purchase, H. Using developmental theories to inform the design of technology for children. *Proc. Interaction Design for Children* 2003, ACM Press, 93-100.