How Do Designers and User Experience Professionals Actually Perceive and Use Personas?

Tara Matthews
IBM Research - Almaden
San Jose, CA, USA
tlmatthe@us.ibm.com

Tejinder K. Judge[1]
Google Inc.
Mountain View, CA, USA
tejinderjudge@google.com

Steve Whittaker
UC Santa Cruz
Santa Cruz, CA, USA
swhittak@ucsc.edu

ABSTRACT

Personas are a critical method for orienting design and development teams to user experience. Prior work has noted challenges in justifying them to *developers*. In contrast, it has been assumed that *designers and user experience professionals*—whose goal is to focus designs on targeted users—will readily exploit personas. This paper examines that assumption. We present the first study of how experienced user-centered design (UCD) practitioners with prior experience deploying personas, use and perceive personas in industrial software design. We identify limits to the persona approach in the context studied. Practitioners used personas almost exclusively for communication, but not for design. Participants identified four problems with personas, finding them abstract, impersonal, misleading and distracting. Our findings argue for a new approach to persona deployment and construction. Personas cannot replace immersion in actual user data. And rather than focusing on creating engaging personas, it is critical to avoid persona attributes that mislead or distract.

Author Keywords

Personas; design tools; evaluation; methods; user study.

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms: Design

INTRODUCTION

Personas are a critical method for orienting design and development teams to user experience. They are especially useful when constraints, e.g. large development teams or diverse users, exclude participatory design methods. Personas can engage teams in thinking about users during the design process, making efficient design decisions without inappropriate generalization, and communicating about users to various stakeholders [5,6,7,21,22].

Researchers and practitioners have shown personas live up to these claims, at least in some settings [9,14,16,20].

However, personas are controversial [4,24]. They are challenging to construct and existing guidelines involve as much creativity as science [20,22]. It is difficult to verify that a persona accurately reflects user data [4] and to define the right personas [4,14]. It can be hard to convince development teams to use personas [1,21] and there are some socio-political settings where they may be impractical [24].

Personas literature discusses at great length the important, difficult task of introducing personas to developers and stakeholders, and of getting buy-in from decision makers [14,21]. However, this literature seems to take for granted that designers and user experience (UX) professionals—whose goal is to focus designs on targeted users—will understand and exploit personas.

Amidst this controversy, how do experienced designers and UX practitioners actually use and perceive personas? What do existing practices say about how personas should be used, or modified in the future? Prior work on personas presents case studies of personas' use with inexperienced designers [1,9,14,24], personal critiques of personas [4], or anthologies of best practices from persona advocates [5,6,7,20,21]. However this work consists of authors' opinions or examples of how people who are not user-centered design (UCD) professionals react to personas in particular project case studies. We lack actual data about how *experienced* UCD practitioners use personas as part of their jobs.

This paper examines how UCD practitioners at one company perceive personas' use and value in real industrial product design. It is the first study exploring perceptions of personas in UCD practitioners with prior experience using personas. We interviewed 14 experienced practitioners—10 designers and 4 UX professionals—about their use and perceptions of personas. We found that most of these practitioners do *not* use personas in their own design processes. Rather, they use personas mainly to *communicate with others*, to build support for a chosen design or more generally to advocate user needs.

We also found multiple reasons why designers do not use personas for their own design work:

1. Personas are *abstract* – it is hard to understand the abstraction process from user data to persona, so personas come across as lacking critical detail.

2. Personas are *impersonal* – the personifying details in personas fail to provide a sense of empathy.

3. Personifying details *mislead* – it is difficult to select personal details that do not create false constraints on the design problem.

4. Personifying details *distract* – personifying details make it hard to focus on the aspects of a persona that are critical for the design problem.

To avoid these problems, our practitioners wanted first-hand experience with users, or personal access to user study data. They viewed this as necessary to derive the rich understanding of users required for design.

Practitioner's training affected perception and use of personas. Those with formal design training had the most negative and skeptical opinions about personas, whereas those with specialized training in personas had more positive opinions and experiences using personas. This latter group found benefits in using personas both for their design processes and communication with others, indicating there is value in the method when used in certain ways. For the skeptics, personas seemed to clash with the practice of design itself. For example, for these designers, certain user-supplied constraints are critical, but the creative process should not be unnecessarily constrained by a persona's personifying details, which were perceived as arbitrary.

Our results can refine the deployment of personas in industrial design. Other work has abstractly argued that personas are not a panacea for UCD [20,21]. However our work identifies specific, concrete limits to the persona approach, as experienced by our participants. We cannot presume that *experienced UCD practitioners* have the expertise or motivation to use personas, even in groups that actively develop and disseminate them. UCD practitioners need a significant level of persona know-how, and it is important that personas do not completely *replace* immersion in actual user data. Researchers have rightly noted the difficulty in making personas as engaging as real people [20]. However the bigger problem we discovered is making personas that do not mislead or distract, arguing for a different emphasis in persona creation. Taken together, this argues that personas may be most effective for UCD practitioners for communication rather than for design activities.

RELATED WORK

The concept of a *persona*, introduced by Cooper [5], significantly expanded upon by Pruitt and Adlin [21], and further developed by Neilson [20], is a hypothetical archetype of an actual user, describing that person's goals, aptitudes, and interests. Personas are intended to be used during the design and development of technology to avoid the problem of designers, developers, or stakeholders invoking the "elastic user" who can be bent and stretched to suit the needs of the invoker. Cooper estimates that each design problem will require between 3 to 12 personas.

Persona advocates commonly claim that personas are useful "for *design*" or can help designers "to design" [6,14,20,21]. Examples of design activities include helping designers to internalize a mental model of users as they design, featuring personas in storyboards and scenarios, guiding the designer's process of sketching and prototyping, and enabling iterative evaluation of prototypes, e.g., through cognitive walkthroughs from the persona's perspective. Another common category of persona use is *communication*, both within and outside a design team [5,6,21,22]. Examples of communication activities include aligning large development teams toward specific user issues, making decisions about requirements, and advocating for particular designs approaches.

Cooper originally intended that personas be used by people without UCD training. Despite Cooper's original intention, many other authors have lauded the benefits to designers and UX practitioners of using personas [7,14,21]. It is very common that design and UX practitioners use personas—at the company studied and in many other companies.

Pruitt and Grudin are open about the challenges of implementing personas in a large industrial software development environment [22]. First, the persona characters are not always seen as credible, i.e., as being based on real data. Second, it is difficult to communicate the persona so that all members of a team understand the character. Third, practitioners do not always understand how to use personas. Fourth, high-level support is needed for a team to have the time and resources to implement personas successfully.

To solve the credibility problem, Pruitt and Grudin propose using rigorous user studies to create personas and linking them to "foundational documents," which include the user study data backing up the persona. Faily and Flechais enhance the concept of foundational documents in a tool that connects personas directly to coded user data [11]. To address the communication problem, they describe ongoing persona "campaigns," where information about the characters is regularly sent to the team. Regarding the usage challenge, they advocate that persona creators provide tools and instructions for how to use personas.

Despite some treatment of challenges, an issue with this literature is that it generally takes a position of advocacy and lacks objectivity. To explore the effectiveness of the persona approach, a few research studies have been conducted. Several studies have examined the use of personas by small project teams in short, focused field studies [16,23], or sessions facilitated by the researchers

Table 1. Participant demographics and categorization of their use and opinion of personas. Shading highlights similarities.

Part.	Role (*Lead)	Product Division	Years[1]	Training[2]	Opinion/Use of Personas (*Creator)
D1	UX	A	14	CooperU, HCI	Champion*
B1	Design*	A	10	CooperU, Engineering	Champion*
M2	Design*	B	22	Other	Champion*
V1	UX	B	12	Computer Sci.	Moderate*
J1	Design*	B	6	Engineering	Moderate
E1	Design*	B	13	Computer Sci.	Moderate
E2	Design	B	2	Design	Moderate
N1	Design	B	8	Design	Moderate
A2	Design	C	3	HCI	Moderate
M3	UX	B	5	HCI	Pessimist
L1	UX*	C	20	HCI	Pessimist
M1	Design	B	13	Design	Pessimist
E3	Design	R	11	HCI	Pessimist
A1	Design	R	5	Design	Pessimist

[1] Total years experience in a design/UX position.
[2] Training is reported categorically to protect anonymity.

[3,9,20]. These studies demonstrate that personas possess many of the advantages outlined above.

However, other studies also suggest limits to personas. Rönkkö examined the use and perception of personas by three 17-member student design teams who used personas during a 20-week project [23]. They were instructed to use personas during their design processes and to communicate with a development team. Design teams in the study also had ready access to users throughout the design process. Rönkkö found students were hesitant to replace the users with personas for design work. This suggested that students found personas primarily useful for communicating end-user characteristics and design decisions to developers.

However, most prior empirical research has studied non-designers and non-UX practitioners, or student designers. Even when studies have recruited UX and design professionals, most participants were unfamiliar with personas prior to the study [1]. Our study is the first to focus on the use and perception of personas by experienced *user-experience and design practitioners* representing multiple teams. Our practitioners all had some experience (many with extensive experience) using personas in their careers.

Finally, there is disagreement between authors on how to create and present personas to practitioners. Cooper [5] advocates creating personas based on limited information about users, aiming to fit the goals of the design team. In contrast, Pruitt, Grudin, and Adlin [21,22] emphasize using

rigorous user studies to create personas and foundational documents of user study data. They also advocate including key decision makers in the creation process to reinforce their buy-in. Others build on this approach, to present techniques for developing personas from user data [19,25]. However, the main focus has been the problem of making personas acceptable to stakeholders, developers, and others *outside the UCD team*. Exceptions are Neilson [20], who emphasizes story-telling characteristics and personifying details to make personas engaging to designers; and Chang et al. [3], who report on a small survey about the varying practices of practitioners during the persona creation process. However, this prior work does not evaluate which of these differing approaches are most useful to UCD practitioners in a software product design setting, a question explored in this study.

METHOD

Organizational Context
All participants were from a global enterprise offering technology products and services to businesses. They were all based in North America. The company has a large, influential UCD community. Personas were in widespread use by practitioners across multiple product divisions and were supported by management in those divisions. Participants were distributed across three product divisions and Research, all with varying adoption of personas. All of the divisions created software aimed at different business user populations. Each product division was comprised of multiple groups who focused on different products with variations in their persona use. We describe this below.

Participants and their Job Roles
We recruited 12 participants from the three product divisions, plus 2 designers from Research. We recruited an initial sample of 9 via direct email solicitation based on our network of contacts. We then used snowball sampling to recruit the remaining 5 participants.

Detailed information about our participants is shown in Table 1. The 10 designers focused on either visual or interaction design. Their work first involved communicating with development teams, managers, UX professionals, and/or users to understand the design problem and users. This process involved creating design briefs, storyboards, scenarios and/or sketches to clarify requirements. Next came design activities: they made decisions about how to translate user requirements into designs and then created low and/or high fidelity prototypes, iterating to more refined designs over time. Feedback from managers and developers outside the design team was iteratively incorporated throughout their design process. The details of this process varied for each individual and design problem.

The 4 UX professionals' roles spanned user research and design. They conducted user research; translated their understanding of users into design and communication tools

e.g. personas, scenarios, storyboards, and user roles; and/or participated in design activities as outlined above. They had a range of involvement in design activities, ranging from little to very active contribution. Where we discuss persona use during design, we include all participants, though UX professionals spent less time doing this than designers.

Interview Procedure and Analysis

Interviews were conducted within a 90-minute session as part of a broader study to evaluate two types of personas. Two sessions were conducted in person and the rest by phone. Time in each session was allocated as follows: (a) interview—a 20-min interview about the participant's experience, role, design process, and use and opinion of personas; (b) study task—a 40-min task using two personas to complete cognitive walkthroughs of a company product; and (b) debrief—a 20-min discussion about their experience using the personas for the task. The interview provided data exclusively for this paper, but the study task and debrief also provided significant additional data, since participants continued to offer their general opinions about and use of personas throughout the session. We do not discuss the details of the study task further because it is not relevant to our results. For more details about the task, see [15].

During the interview, participants were asked to read one of product division B's personas and a second persona created for the study task. They occasionally referred to these personas when illustrating points made in their discussion. However, our goal was to understand how participants use and perceive personas in their work, so we were clear to differentiate—with the participant—whether their comments were about the two study personas or personas in general. The results in this paper exclude comments specifically about the study personas, except when those personas were evoked as an example in a more general comment. All persona names used in quotes below were changed to protect anonymity (including "Gerard" which is a pseudonym for the study persona name).

Two researchers attended each session, one leading and the other taking detailed notes. Study sessions were audio recorded. Loose transcripts and notes from the sessions were initially analyzed using open coding. We next examined our initial codes and data to identify and formalize recurring themes, which represented meaningful aspects of the empirical material that occurred repeatedly. For example, one theme was that only a few, distinctly different perceptions of personas were expressed repeatedly and we discovered that we could categorize participants by these repeated viewpoints. We performed a second coding pass through the data focused on the formalized themes. Two analysts who had conducted the interviews together went through the themes with examples. Where there was disagreement they discussed the themes and examples until agreement was reached. Our presentation of results focuses on these themes, including quotes that support each theme and illustrate important nuances.

RESULTS

In what follows, we present the ways personas were perceived and used by participants. We also describe the reasons participants gave for not using personas in their own design processes.

Perception and Use of Personas Across Product Divisions, Roles, and Training

We categorized our participants into three groups based on the way they described their use and opinions of personas (see Table 1, right column):

1. *Persona Champion* – made fully productive use of personas as described in prior literature [5,6,21,22] and had an enthusiastically positive opinion of personas (3 participants).

2. *Persona Moderate* – focused on user role information in personas for design. They had a moderately positive or neutral opinion of personas (6 participants).

3. *Persona Pessimist* – did not use personas to design and had an indifferent or negative opinion of them (5 participants).

Participants who have created personas are marked with an asterisk in column 4 of Table 1, and include all the Champions and two Moderates.

Persona adoption varied across the three product divisions represented in the study. Practitioners from product division A had sent a number of designers, UX professionals, managers, and developers to 'CooperU' which provides a focused personas training program. This group had subsequently adopted the personas methodology and were deriving great benefit from doing so. Unsurprisingly, the two participants from product division A were Persona Champions. This group had an extensive cast of personas and shared foundational user study data upon request. Product division B, had 11 personas that were backed by management support and were publicized through internal advertising "campaigns" [21], but most participants in this group described their own work as focusing on user roles in personas and ignoring the personalizing details. Foundational data for their personas was not widely available. This group included the largest faction of Moderates (5 out of 7), as well as one Champion and 2 (of 5) Persona Pessimists. Product division C had personas that were little more than user roles with names and photographs (i.e., they included no other personifying details). One participant from product division C was a Moderate who did not currently use personas but had in the past; the other was a Persona Pessimist.

Considering *job role*, designers and UX professionals seemed equally likely to fit into the three opinion and use categories. However, considering formal training painted a different picture. Designers with formal training in a visual or interaction design program (Graphic Design, Information Design, Visual Communication, or HCI) made up all of the Persona Pessimists. All but one of the rest were Moderates.

In what follows, we describe in more detail how personas were used by participants, presenting three fundamental problems with personas.

Personas were Not Used by (Most) Designers to Design

Our first finding is that many of our participants did not use personas significantly in their own design work. We defined *design* as work that occurs when the designer or UX professional directly uses the persona *themselves*. In contrast, *communication* is when the persona is used to communicate *with others* who may then enact the design process or take other action.

Persona Pessimists (five participants) did not exploit personas for their own design work, as described by designer B1:

> *To be honest with you, I rarely use personas myself… I find them useful for requirements gathering and I actually find them useful for the client. But I don't design with them or design off of them. The reason is that it's a great tool to get people to start thinking about the thing they are building in terms of users but in my experience, personas tend to be overly optimistic. They describe the best-case scenario for the perfect user who is incredibly enthusiastic about the system… Personas are not helpful because the users don't match up to the personas.*

> *It [a persona] is basically useful for non-designers trying to comprehend the design process. Or maybe if they are designers and they are trying to simplify the process for non-designers. Personas are helpful if you have never designed to start thinking about users. But it is different if you are talking to a professional designer who does this for a living.*

In contrast, Persona Champions (only 3 participants) were enthusiastic persona users and importantly, persona creators. All 3 of the champions were in charge of creating personas, so they were heavily invested in the personas and the process of using them. One designer and Persona Champion, B1, described how personas fit into his design and communication processes. Notice in the quote below how he says he will "bend and stretch" the persona, something he feels comfortable doing since he is intimately familiar with the user data that ground the persona, a theme mentioned by two Persona Champions:

> *What I like about the personas that we've written in [division A] is that they are very grounded in people. And that is intentional. A lot of our personas, you know the first paragraph is actually just like an introduction to who the personality is, so… all those people we were talking to, they start to come through and come alive…*

> *This [gestures to persona] may start me, but then I start blending... I'm also very creative and I will bend and stretch things as I go along as well. I come out with solutions that Gerard never even thought of that might be based on him and based upon his pain points or his goals or his use cases, but they're my creativity blended in with that, from the conversations.*

Persona Moderates (7 participants) focused on very specific user role information in personas for design:

> *I sometimes use personas but I can't say that I use them deeply. In the course of developing design, I am trying to define audiences… When I go to the end user audience, it is a matter of using the level of technical savvy of the persona to get an understanding of what I need to do in order to provide the feature… Is this feature going to be used by someone technically savvy or with less savvy so we can optimize the feature for each case. –J1, Designer*

Defining the ways in which practitioners 'use personas' for design is a complex issue. Persona Pessimists clearly did not use personas in their design work, whereas the Champions did. However, Moderates' use was more ambiguous. Our data show they did not make full use of personas in their design work, since they ignored the personifying content that really defines a persona and *instead focused just on the role information*. Thus, we consider Moderates as not fully using personas, since they do not exploit the key aspects of the persona.

Our results indicate that the majority of our participants did not use personas significantly for design. What information about users did the majority of practitioners use instead?

What User Information did Designers use to Design?

To support their design activities, most participants turned to a combination of actual users and/or user study data, and user role information (usually embedded within a persona). First-hand experience with actual users and user study data was viewed as the primary way to derive the rich, personal understanding of users required for design. A persona might be used if time or resources did not permit them to gather such first-hand experience, but was viewed by many as sub-optimal. These points are supported by many of the quotes throughout the results section.

User role information includes job responsibilities, skills, educational background, and tools used. This information represented the critical design constraints. Designers found it useful to have it summarized to remember and focus upon during design. Moderates were an interesting group who used the role-specific information in personas to design, but not the personifying details aside from name and photo. They found this role-based information invaluable during design. Furthermore, they all found value in the name and photo of their personas. Unlike Pessimists, Moderates did not have negative opinions of the additional information in the personas. Persona Moderate and designer, A2, describes focusing on user roles instead of personas:

> *When they were first developed… I think they were much more personas. People would say oh 'Paul' or 'Jim' or whomever. Now I think they're much more roles, oh 'the test manager' or 'the tester'... I don't necessarily feel like anything was lost because… in a fast-paced environment... we care much more about the role and what they're doing, which sounds terrible, like 'we don't really care about you, Paul, we just care about what you're doing at work.' But so it's very much more role based, but I wouldn't say anything has necessarily been lost... I think the stuff that was lost was the extras, like 'Paul likes to*

go on bicycle rides,' not the 'Paul uses Microsoft Word to import his existing test plan.'

We have seen that the majority of our participants did not use personas significantly for design. How then were personas used by the majority of practitioners?

Personas were Used for Communication

Most participants thought personas were primarily useful for communicating with non-designers and non-UX practitioners about users and UCD. This view is consistent with prior literature [5,6,21,22]. Personas helped practitioners communicate about users and their designs in multiple ways. In some cases personas were used to create common ground between a designer and stakeholders regarding the design problem:

You never work with just the persona by itself. You have managers telling you what they want in the product. You have developers telling you how they want their architecture to work. So there's always these other factors coming in. The persona's there as my rally point if I do get way out in the weeds, I can pull everyone back on 'Hey, Gerard here! What's he need?' –B1, Designer, Persona Champion

I find them useful for requirements gathering, and I actually find them useful for the client, whoever that is, to do them for me. –A1, Designer, Persona Pessimist

Personas were also used to advocate for user needs with the development team:

When we were presenting to… our development team… we would use the personas to put the design in context. And if there was potentially a debate about a particular feature… it's helpful to have the persona as a way to reference what the users would actually be like… If a development team member who's implementing something, they may say something like, 'The design you've proposed looks good, but it's not feasible for these reasons. Can we just do XYZ instead?' We can say, 'Well, that might not be so good because, from a user perspective, this person has the following expertise...' - E1, Designer, Persona Moderate

Personas also enabled practitioners to advocate their designs and prevent stakeholders from making design decisions for themselves:

[Personas] made it easier for designers to get their designs and ideas accepted. So when we started out, the Distinguished Engineer would say, literally... 'I don't like it.' And you know, I'd answer, 'Well, it's not about you, it's about Jennifer, and Bob, and Rose. And you know Rose is this 63 year old secretary who just wants to learn how to use [the tool]... And obviously Rose is not you.' You know, that sort of thing. And so some of our designs made it easier to advocate for [the personas]. –M2, Designer, Persona Champion

As noted above, our three Persona Champions named a much wider range of ways the method had added value to their design processes and interactions with the development team. The benefits they identified were consistent with those advocated in prior literature, such as supporting interaction design activities, determining what a

product should do and how it should behave, and measuring the design's effectiveness [5,6,21,22].

These three participants were a minority, however. Although personas are not intended to be the only tools designers use, it is surprising that so many did not use them for their own design work. In the next section, we explore the reasons why.

Reasons Personas were not used for Design

The reasons many designers in our study did not use personas for design were multi-faceted, including that personas are abstract and impersonal, and that personifying information misleads and distracts. We explain these points in the following subsections.

Personas are abstract

Participants found it difficult to understand the abstraction process from user data to persona, so personas came across as lacking critical detail required for design. Both of the following quotes from Persona Pessimists illustrate that designers considered access to user research data critical and that abstracting user data into a persona was not valuable:

You can't design to somebody else's understanding of the problem. You need to be part of the user research to design something. That is where the best designs come from. –E3, Designer

What I don't like is how distilling something into a persona, so for example if I'm making an e-commerce app and I can take all 40-something women shoppers in the Mid-West and turn that into 'Katie' my persona, I feel like the generalization that is being made at that point, makes me feel slightly uncomfortable, rather than just having the body of research to start with. – M1, Designer

These sentiments imply that no amount of adding to the persona would satisfy these practitioners' needs for first-hand experience with users. But designers were not the only ones who wanted first-hand knowledge of users. User study data helped make the personas believable to developers and others outside the design team:

A lot of the times with the development community, I show them the data and then I introduce them to the persona. So I will walk them through and show them all my variable data... Because if you just hand them something like this (holds up persona), they're never going to believe you. There's not enough data here, these are very engineer-driven guys and girls... They relate better to something like this (points to persona), if they can see that there's data behind it. –D1, UX

Personas are impersonal

Practitioners similarly wanted access to users to feel they truly understood the people they were designing for. This implies that the personifying details in personas do not go far enough to provide a sense of empathy.

I think there are a lot of subtlety or details, things that cannot be conveyed from the description... I don't think you can really think or act like [the persona]... To be frank I always

have doubts about the persona and how they are going to be used... I feel like it's more of a communication tool. – M3, UX

When time did not permit designers to talk with real users, they reported that they might use a persona, but also expressed a desire to simultaneously design from their own experiences. During the design exercise in our study, designers were asked to use the persona. After discussing how the persona might use the tool in the design exercise, we explicitly asked them where they were drawing their assumptions from concerning the persona's behavior. Designers drew from a mixture of the persona and their own experiences:

*I use [the persona] pretty technically in the design, you know all of her information is in the mockups, but I'm trying to think if I use it when I'm designing an interaction or anything like that, specifically. And I think **I** do to some extent. Like I don't always put my Jennifer hat on and think in her shoes, but as designers, people who work in this, we think (pause) we are the users of our products a lot of the times, so that's an easier one to put on. –N1, Designer*

This propensity to use personal experiences to supplement the persona implies an unfulfilled need to understand the person behind the persona. Prior work emphasizes making personas engaging through story-like narratives and personifying details [13,20], which would seem to help with this problem. However, our findings in the next two sections, which discuss issues with the personifying details in personas, raise concerns with this emphasis.

Personifying details mislead
We have argued that personas did not contain enough information for designers to fully understand users. On the other hand, personas included other information that designers felt was irrelevant for the design problem. Prior literature expresses the importance of personifying details in building empathy [6], or an internalized model of users [13] that enables practitioners to predict user behavior and sentiment. However, designers felt the personal details included in personas (such as their home life, interests, personal habits, etc.) created *false constraints* on the design problem. This concern was commonly held by Persona Pessimists.

That [personal] data is not useful at all... The reason why is that, if this were a real human being, yeah, I might care. But given that it's a persona, what it actually does is that it creates the illusion that this is a real person. So it makes me feel more confident I'm actually designing for a person, but I'm not. So it actually is just deceptive... My main critique of personas is that they are not a real person and any sort of dressing that makes it seem like a real person is not helpful. –A1, Designer

I don't do a lot of persona-based work. I actually don't love personas, because I feel like they create a sort of false sense, a lot of times, of people being able to create... I think performing interviews when you have time to do that is really good, but formalizing them as a persona seems (pauses) it's almost like a crutch, in many cases... I think it's actually become a way that people don't think about our customers in

real terms anymore. We now think about Gerard's face, but I don't think that actually helps you understand what people are doing anymore. –M1, Designer

The designers in our study were oriented toward design problems and used UCD approaches. They viewed the personal details about *actual users* as a critical part of the design problem. As the quotes above illustrate, they did not believe personal details in *personas* could play the same role.

The three Persona Champions were notable exceptions to this desire for personal details. They considered personifying details of the utmost importance and they made good use of them in their work. For example, A1 thought our sample persona needed more personal details:

The one thing missing from Gerard is his life story. I want to care about him. I need a cause. I need to want to champion him in the design process. If I can help him do his job better, maybe he can shave some time off his gym time or maybe he won't get paged during his kid's soccer game.

As another example, M2 told a story about how a "secret" personal detail—that two of the group's personas were having an affair—became the basis for designing a privacy feature:

[My colleague] comes in one day and says, 'Bob and Jennifer are having an affair but Bob does not want anybody to know about it.' He created this elaborate story. It makes it fun to design the feature.

Personifying details distract
It was critical to designers to know what user information they should actually use in design. However many participants felt that certain personifying details distracted from key role-based elements:

I'm torn as to how useful [personal information] is from a product design standpoint... I think the bottom line is, it's cool and I love it, I just think sometimes in describing somebody's life, I think it's easy for the reader to miss the point: 'oh ok, Gerard is checking his Blackberry in his car on the way in'... You know the stuff that affects his work. That's my feeling. That's why in my job I've kind of moved away from that level of detail in the personas... I don't necessarily care that he goes to the gym. –A2, Designer

It is possible that the company's target users—workplace and business-focused—resulted in different persona needs, with lesser emphasis on personifying details and more on user roles. Another participant pointed to the types of information that are critical but can get lost in a persona:

The persona brings more aspects that are particular to an individual... with unique qualities... They make a role more real and more easily communicable to the stakeholders... Often what I find in the development of a persona is that those peripheral aspects become more prominent... and you find aspects that are not really that relevant to those critical dimensions... skills, responsibilities/goals, familiarity with software and tools. Those things that are easier to come up with—those more unique aspects—become more prominent

because they are easier to communicate, yet at the cost of substance and losing the essence of what is important... So we end up with these [personas]... with these nice looking pictures and fancy job titles and extremely exciting lives. And soon the medium becomes the message... So the challenge for us is to find this optimum balance of substance, economy, and communication. -L1, UX

Appropriate Training Leads to Benefits from Personas
Our two participants from product division A argued that personas can realize many of the potential benefits lauded in prior literature [5,6,7,21,22]. They described how their group used personas for the full product cycle, including design, development, and testing. Their descriptions of persona use illustrated a true marriage of personifying details and user roles. They talked about their personas as if they were people.

By the time you create a persona, it's like you have given birth to them. You have created a person. It is not very hard for me to relate because I've sat with every person and talked to them. -D1

As you can tell, I'm a storyteller. I like that personal side of it [the persona] because it helps me relate to him [Gerard] and then it helps me relate my design to him. -A1

These two participants, along with select members of the development and management team of product division A, had attended CooperU and received detailed personas training. The way they discussed personas was fundamentally different from all but one of the other participants. They clearly understood the method and had derived benefit from it. However others lacking this training had very different experiences with personas. A potential confound is these participants were also persona *creators* who participated in user research. This means they already had intimate knowledge of users before the personas were created or used.

DISCUSSION
Despite personas commonly being advocated both for *design* and *communication* activities [5,6,7,14,20,21,22], we found that many design and UX practitioners in our study used them almost exclusively for communication and not design. These practitioners found personas too abstract and impersonal to use for design. Furthermore, prior work has focused on making personas *engaging*. Our study identifies problems with adding personifying attributes for design activities—such attributes may mislead and distract—arguing for a different emphasis. The exceptions were people who had participated in intensive persona training and persona creators: these practitioners used personas more heavily in design activities and had more positive attitudes toward personas. We use our results to discuss the use of personas in industrial design.

Personas are Difficult to Create and Use Well for Design
Prior work has acknowledged that persona adoption within an organization requires training [21,22] and that members of a *product team* will resist using them [21]. However, our results emphasize that personas are also difficult to use as a design tool for *experienced UCD practitioners*. In particular they identify specific areas where personas fall short as an aid for design. Despite multiple anthologies of how-to information and personas being taught in user-experience focused educational programs, effective use of personas remains elusive even for experienced practitioners.

In contrast, persona creators and those with specialized persona training had a much more positive outlook and made effective use of personas. In addition to buying into the process, these people had intimate knowledge of users before the personas were created or used, and understood the abstraction process from data to persona. These results imply that making the persona creation process transparent or even participatory to other designers may improve persona uptake for design.

The Critical Role of Exposure to Users or User Data
The practitioners in our study primarily turned to raw user study data for design. They perceived that personas do not convey the deep knowledge of users necessary for design. This result is consistent with Long [16], who found that student designers lacked trust in the data underlying personas if they did not participate in the user research. It is also consistent with Pruitt and Adlin [21], who caution that personas cannot replace other UCD methods. However, our results emphasize the critical importance of *immersion in actual user data* or, if time permits, exposure to users. User data is crucial in enabling designers to appropriately interpret personas or other abstractions.

Accuracy and Focus More Important Than Engagement
Prior literature argues that empathy [6] or internalized models of users [13] are the unique power of personas. With backing from psychological theories [13], controlled field studies [16], and professional experience [5,21], this literature argues that personifying information is critical to making personas engaging and predictive. Nielson takes this furthest by utilizing film script writing techniques in a modification to the method she called *engaging personas* [20]. She argued that designers will not use personas if the personas are not engaging enough.

While we agree it is both difficult and important to make personas as engaging as people, the personifying information used to produce such a persona is problematic. Our results indicate that a bigger adoption problem for personas among designers is that personifying information *misleads* and *distracts*. In design, details about users are seen as constraints on the design problem itself. The personifying details in a persona would wield great power if the designer viewed the persona as a real user. In this way, poorly selected personifying details unnecessarily constrain the design problem. They can also distract from the constraints that matter. These results argue for a different emphasis in personas used for design activities: they must be *accurate* reflections of a user population that *focus* on key aspects constraining the design problem.

How to Best Present Personas? Helping Personas Mesh with Design Practice

Our results confirm Pruitt and Grudin [22], who acknowledge that personas are not always perceived as believable representations of user data and that practitioners do not always understand how to use them. Their solution is to base personas on extensive user studies and to make user data available along with the personas. Other work has extended this notion by providing innovative ways to connect user study data directly to particular persona attributes [11]. This diverges from Cooper [5], who encourages creating personas based on limited information about users and aimed to fit the goals of the design team.

Our results imply that even personas not linked to extensive foundational documents can be useful communication tools. Aside from initial proof that personas are based on real data, people outside the UCD team did not seem to require continued access to user data to buy into personas.

However, designers *did* require continuous access and immersion in user data for their own design activities. Most participants seemed to prefer a less personified abstraction of user data focusing on role-based information to support their design work.

Our findings indicate that it is particularly important to consider how personas are presented to UCD practitioners so they do not clash with design practice. Constraints are critical in design. But how can we create personas that are like real people but do not introduce false constraints? Furthermore, how can personas co-exist with a continuous need for immersion in user study?

To support this style of design work, building on Pruitt and Grudin [22] and Faily and Flechais [11], we suggest a new approach in which user information is presented to designers in three easily separable layers: persona, user role, and user study data. Among these, our results show that access to user study data is critical and cannot be excluded. Linking user study data to the user role can help delineate which information is considered a critical design constraint. Designers can interpret aspects that appear in the persona and not the user role as communication aids and not constraints. Providing designers with all three layers gives them various tools for different activities. However, enacting this proposal in a practical way and evaluating its effectiveness is a topic for future research.

Personas are Incredibly Valuable for Communication with People Outside the UCD Team

Personas seemed to be most valuable as communication tools, especially with people outside the UCD team. Other product group members and stakeholders are often not oriented to user concerns. Methods like personas are incredibly valuable to communicate user needs and advocate specific designs to non-UCD audiences. This may help to explain the relative success of personas in case studies involving students and people in positions outside of UX and design [9,16,20]. However, the very experienced

UCD practitioners in our study required a deeper level of familiarity with users for their design work.

A Place for Personas in Design

It is possible that personas may be more readily adopted for design activities in domains where drawing appropriate insights from user study data is complex or error prone. For example, recent work has proposed collaboration personas, which describe hypothetical groups who collaborate in particular ways [18]. Collaborative groups are sufficiently complex that existing strategies of poring over user study data may not work [12]. However, our current study implies that the model underlying a collaboration persona may be just as useful as the personifying information and should be easily separable.

Furthermore, personas may also be used as a stopgap method when user research is not possible. In such cases, the results of our study may not apply.

Study Limitations and Generalizability

Care should be taken applying our results to other organizational contexts without further studies. There are various critical factors that affect a practitioner's use and perception of personas, and hence the generalizability of this study. These include organizational culture, educational background, persona training, and experience. Our participants represent a range of educational backgrounds, persona training, and experience, improving the generalizability across these dimensions within the company studied. However, our study included only one company. This study represents a first step toward understanding how experienced UCD practitioners use and perceive personas in real industrial product design, a currently understudied topic. We hope future studies will explore this question in other organizational contexts, such as design firms and organizations with greater proportions of designers with specialized persona training.

CONCLUSION

We present the first study of how personas are perceived and used in industrial product design by experienced design and UX practitioners who have prior experience using personas. Despite personas commonly being advocated both for *design* and *communication* activities, we found that most of our participants used them almost exclusively for communication and not design. These practitioners found personas too abstract and impersonal to use for design. The exceptions were people who participated in intensive persona training and persona creators: these practitioners used personas more heavily in design activities and had more positive attitudes toward personas.

Our results have implications for the deployment and creation of personas in industrial contexts. We cannot assume that *experienced UCD practitioners* have the motivation or expertise to use personas, even in groups that actively develop and disseminate them. Not only is a significant level of persona know-how needed by the UCD

practitioners, it is important that the personas not completely *replace* immersion in actual user data. Researchers have rightly noted that it is difficult to make personas as engaging as people [20]. However the bigger problem we discovered in the workplace setting studied is creating personas that do not mislead or distract, arguing for a different emphasis in persona creation in this context. To make them more usable by designers, we proposed layering user study data, user roles, and personas during the persona creation process. To generalize these findings beyond the particular organizational context studied, we encourage future work on this topic in other organizational contexts.

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REFERENCES

1. Blomquist, A., Arvola, M. (2002). Personas in action: Ethnography in an interaction design team. *Proc. of NordiCHI*. 197-200.

2. Bødker, S. (2000). Scenarios in user-centred design – Setting the stage for reflection and action. *Interacting with computers, 13*(1), 61-75.

3. Chang, Y., Lim, Y., Stolterman, E. Personas: From theory to practices. *Proceedings of NordiCHI*. 439-442.

4. Chapman, C.N., Milham, R. (2006). The personas' new clothes: Methodological and practical arguments against a popular method. *Proc. of HFES*. 634-636.

5. Cooper, A. (1999). *The inmates are running the asylum: Why high-tech products drive us crazy and how to restore the sanity*. Sams Publishers.

6. Cooper, A., Reimann, R. (2003). *About face 2.0: The essentials of interaction design*. Wiley Publishing.

7. Goodwin, K., Cooper, A. (2009). *Designing for the digital age: How to create human-centered products and services*. Wiley Publishing.

8. DiMicco, J., Millen, D. R., Geyer, W., Dugan, C., Brownholtz, B., and Muller, M. 2008. Motivations for social networking at work. In Proc. CSCW 2008. ACM Press.

9. Dotan, A., Maiden, N., Lichtner, V., Germanovich, L. (2009). Designing with only four people in mind? – A case study of using personas to redesign a work-integrated learning support system. *Proceedings of INTERACT*. 497-509.

10. Ehrlich, K., Shami, N.S. (2010). Microblogging inside and outside the workplace. *Proc. of ICWSM*.

11. Faily, S., Flechais, I. (2011). Persona cases: A technique for grounding personas. *Proc. of CHI*. 2267-2270.

12. Grudin, J. (1994). Groupware and social dynamics: Eight challenges for developers. Communications of the ACM, 37(1), 92-105.

13. Grudin, J. (2006). Why personas work: The psychological evidence. In J. Pruitt and T. Adlin (eds.) *The persona lifecycle: Keeping people in mind throughout the product design,* 642-664. Morgan Kaufman.

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

15. Judge, T., Matthews, T., Whittaker, S. (2012). Comparing collaboration and individual personas for the design and evaluation of collaboration software. *Proc. of CHI*.

16. Long, F (2009). Real or Imaginary; The effectiveness of using personas in product design. *Proc. of the Irish Ergonomics Society Annual Conference*. 1-10.

17. Matthews, T., Whittaker, S., Moran, T., Yuen, S., Judge, T. (2012). Productive Interrelationships Between Collaborative Groups Ease the Challenges of Dynamic and Multi-Teaming. *Computer Supported Co-operative Work*, doi=10.1007/s10606-011-9154-y

18. Matthews, T., Whittaker, S., Moran, T., Yuen, S. (2011). Collaboration personas: A new approach to designing workplace collaboration tools. *Proc. of CHI*. 2247-2256.

19. McGinn, J., Kotamraju, N. Data-driven persona development. *Proceedings of CHI*. 1521-1524.

20. Nielsen, L. (2004). Engaging Personas and Narrative Scenarios. Copenhagen, *Samfundslitteratur*. Ph.D. Dissertation.

21. Pruitt, J., Adlin, T. (2006). *The persona lifecycle: Keeping people in mind throughout the product design*. Morgan Kaufman.

22. Pruitt, J., Grudin, J. (2003). Personas: Practice and theory. *Proceedings of DUX*.

23. Rönkkö, K. (2005). An empirical study demonstrating how different design constraints, project organization, and contexts limited the utility of personas. *Proc. of HICSS*.

24. Rönkkö, K., Hellman, M., Kilander, B., Dittrich, Y. (2004). Personas is not applicable: local remedies interpreted in a wider context. Proc. of Participatory Design Conference. 112-120.

25. Sinha, R. (2003). Persona development for information-rich domains. *Proceedings of CHI*. 830-831.

26. Skeels, M.M., Grudin, J. (2009). When social networks cross boundaries: A case study of workplace use of Facebook and LinkedIn. *Proc. of GROUP*. 95-104.