The Effect of Experience on Persona Perceptions

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Abstract

User perceptions of personas affect the adoption of personas for decision-making in real organizations. To investigate how experience affects the way an individual perceives a persona, we conduct an experimental study with individuals less and more experienced with personas. Quantitative results show that previous experience increases several important perceptions, including willingness to use, empathy, likability, and completeness. Results suggest that methods that increase experience (e.g., training, workshops, scenarios) should be applied alongside persona deployment, as desirable persona perceptions increase with individuals' experience.

Author Keywords

Persona perceptions; experience; user study

CSS Concepts

• **Human-centered computing~Human computer interaction (HCI)**

Introduction

A persona is a fabricated but realistic person portraying the characteristics of a user group, often the core users or customers of a system, products or services [8, 20]. Personas are traditionally developed using qualitative methods and data collection approaches, such as

surveys and focus groups, typically resulting in a handful of personas that are shown to the end users to improve user-centric decision making. Thus, persona is seen as a design technique [19]. A persona profile tends to include a name, a picture, and a description detailing the persona's attitudes and behaviors [18]. Personas are widely used in a variety of fields, such as software development, design, marketing, advertising, and health informatics [11, 26]. Personas have reported benefits for enhancing empathy towards users and communication about users in decision-making scenarios within real organizations [8, 14].

Studies have shown that an end-user's perception of personas are influential for persona adoption and use in organizations [5, 10, 24, 25]. Such observation has lead HCI researchers to suggest the concept of "persona perception" [15], inspired by the notion of 'person perception' in social psychology [17]. *Person perception* is defined as "a general tendency to form impressions of other people" [22], in other words, attaching beliefs and attitudes to another person. These beliefs can relate to looks, demographics, behaviors, and other human attributes [1]. According to Marsden and Haag [15], persona perception is a subjective experience, in which personas are perceived as real people. According to Salminen et al. [28, 30], the dimensions of persona perception can be considered as affinity constructs that reflect the emotionally loaded impressions of the respondents toward the persona. Measuring different dimension of persona perception is important as there are potential interaction effects between user perceptions [28] — e.g., likable personas may be perceived as more useful.

Despite the emerging interest in studying personas as real people [3, 9, 13], there are notable gaps in HCI research concerning persona perceptions [15]. These gaps relate to the understanding of how users perceive personas. Here, we focus on one aspect possibly impacting the forming of persona perceptions: previous experience with personas. Our research question is: *How does experience with personas affect individuals' persona perceptions?* It is highly interesting to investigate if experience with personas is a factor that supports reception of personas by itself.

While prior HCI research suggests that the experience of the end user may influence attitude towards human-like artefacts [12], the question of experience should be specifically addressed in the persona context to understand its impact on the formation of persona perceptions. *Therefore, investigating the effect of individuals' experience on persona perceptions is an important research gap within persona research and in the wider HCI domain.* Thus, our contribution deals with empirically investigating the effect of experience on persona perceptions.

Related Literature and Hypotheses

Previous HCI literature lends itself to several important hypotheses related to our research (see Table 1). In general, how personas are perceived by their end users affects persona adoption and/or acceptance in organizations [13]. In a study by Matthews et al. [16], the participants found personas misleading and distracting. Anvari et al. [5] observed that persona perceptions actually influenced the design choices by their users. Marsden and Haag [15] postulate that personas are perceived as *real people*, hence, highlighting the importance of investigating persona

H01: Experience with personas increases the perception of empathy towards the persona. Rationale: more experienced persona users would also be more empathetic and have more positive attitudes toward personas, as they understand the nature of the persona method.

H02: Experience with personas increases the perception of likability towards the persona. Rationale: Experience increases positive attitudes toward a persona.

H03: Experience with personas increases the perception of clarity of the persona. Rationale:users with more experience understand the idea of personas better and therefore find personas more clear.

H04: Experience with personas decreases the perception of completeness of the persona. Rationale: experienced users require more information from the persona.

H05: Experience with personas increases the willingness to use the persona. Rationale: experienced users understand the value of personas.

Table 1: Hypotheses and their rationales.

perceptions. Salminen et al. [30] further expand on this notion for the creation of a survey instrument that quantitatively measures persona perceptions.

Despite the consensus in the HCI literature that persona perceptions matter for the adoption and use of personas [24, 25], little is known about how these perceptions are shaped by user attributes, especially their previous experience with personas. While there is no prior work focusing on the end users' level of experience with personas that we could find, research collineating experience and personas tends to focus on *persona developers'* experience. Putnam et al. [23] state that persona designers tend to share much life experience with users whom the personas represent.

Thus, there is a lack of investigating the effect of *persona users'* experience on their perceptions of personas. From the persona user perspective, a notable dimension of personas relates to their ability to represent the users as "real" people [10, 13], rather than numbers and graphs [3]. This property arguable makes the persona users more empathetic with the user segment that the persona represents [8]. While it is uncertain how a higher level of experience with personas would affect the empathy felt towards a persona, we expect that more experienced persona users would also be more empathetic and have more positive attitudes toward personas, as they understand the nature of the persona method. Thus, we hypothesize that experience increases the empathy toward a persona (*H01*), as well as the personas likability (*H02*). Likability, here, is considered as a proxy for positive attitudes toward a persona.

Boedker et al. [6] find clarity of the shown persona information as a perceptual issue. This may result from personas being patched up from several incomplete data sources. In a study by Salminen et al. [29], the participants, most of which had limited experience with personas, found the personas they were shown confusing. These anecdotal findings lead us to believe that a higher level of persona experience increases the perceived clarity of the persona profiles (*H03*).

Complete (or "rounded" [19]) personas that contain all the important information that the decision makers want to know about the persona are seen as ideal outcomes of the persona creation process. Thus, perceived completeness of the persona profile is seen as an important antecedent to reaching the persona benefits [8]. Here, we expect that a higher experience with personas decreases the perceived completeness of a persona profile, because experienced users are more demanding of the persona content (*H04*). Thus, more experienced persona users would expect to find more detailed, thorough content describing the personas' needs, wants and pain points, beyond what is shown to them in the tested personas (see 'Methodology').

Previous research also emphasizes the lack of credibility of the personas by decision makers [7, 10, 26]. Rönkkö et al. [25] found that decision makers can consider personas as a "fun exercise," not taking them into active use in the organization for which they were developed. Therefore, a particularly important persona perception is the willingness to use (WTU) a persona. Without WTU, adoption of personas for real decision making is troublesome [13, 25]. In our hypotheses, we expect that a higher experience with using personas increases the WTU a persona in the presented decision-

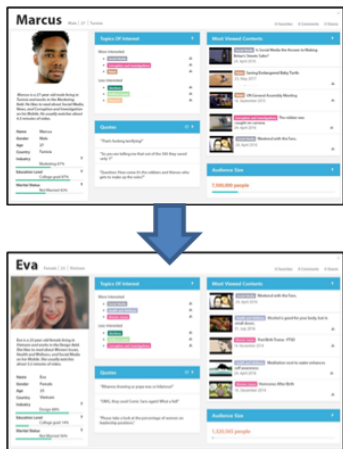| Steps of APG |
|---|
| 1. Creating an interaction matrix with videos as columns and demographic groups as rows |
| 2. Applying non-negative matrix factorization (NMF) to interaction matrix to discern latent video viewing patterns |
| 3. Choosing the representative demographic group (RG) for each pattern by using NMF weights |
| 4. Creating the personas by enriching the RGs with personified information (e.g., name, picture, interests). |

Figure 1: Two personas were shown to participants, such that the participants were randomly assigned to counter-balanced flows (Flow 1: Showing Male persona first, then Female persona; Flow 2: *vice versa*).

making task (*H05*). Findings from previous research suggest that more experience with personas may enhance the perceived utility and value of personas as a decision-making instrument [10, 13].

Methodology

Data Collection and Persona Creation

We generated two personas: "Marcus" and "Eva" (see Figure 2). Different genders and races help control for the gender and race stereotyping that is associated with persona perceptions [9, 29]. We created the personas using automatic persona generation (APG) that generates a set of personas from online user data (see steps in side bar and details in [2, 4]). The data for persona generation was collected from the YouTube channel of Al Jazeera Media Network (AJ+) using the YouTube Analytics API. The dataset includes all the channel's view counts of 13,251 videos published between January 1, 2016 and September 30, 2018.

After showing the two personas to the participants (see Figure 1), we asked the respondents to answer the statements of the Persona Perception Scale (PPS) (see Table 2), validated in an earlier study [30] and previously applied for similar persona experiments [28, 31]. In addition to the PPS dimensions of Empathy, Likability, Clarity, Completeness, and WTU, we asked about the participants' experience of using personas in their day-to-day job. We gave the respondents an imaginary work task scenario [32] of creating online content for the shown persona.

The respondents were recruited using Prolific (http://www.prolific.ac), a crowdsourcing platform that prior research in social sciences has deployed for online experiments [21].
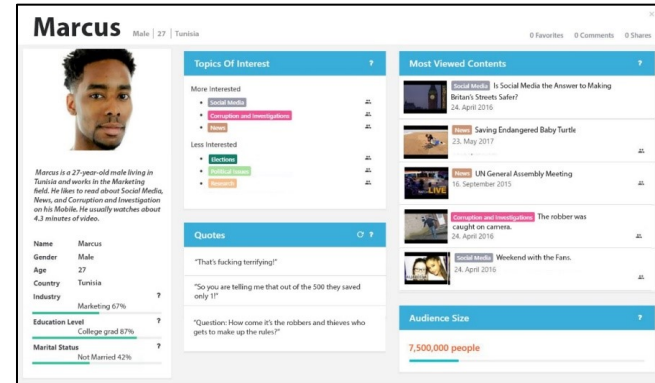

Figure 2: Male persona ("Marcus"). Another persona, "Eva", was also shown to control for gender effects. As common for persona profiles, the profile has (a) textual description, (b) picture, (c) name, (d) demographic information, (e) quotes, (f) topics of interest, (g) content of interest and (h) relative size of the audience the persona represents.

Within the scope of our budget, we recruited 432 respondents, of which 161 were males (37.3%) and 271 females (62.7%), all between the ages of 23 and 50 (inclusive) and having an undergraduate degree or higher. The respondents originated from four English-speaking countries: United Kingdom, United States, Australia, and Canada. We excluded students from the sample, as we wanted to focus on individuals already engaged in work life.

A manual inspection of the data revealed no anomalies, so we kept all the 432 responses. To test our hypotheses, we divided the respondents into two groups by their answers to the question "Please rate your experience using personas." We also asked how the participants had used personas, receiving varied responses relating to difference job scenarios (e.g., "To

Empathy
I feel like I understand this persona.
I feel strong ties to this persona.
I can imagine a day in the life of this persona.

Likability
I find this persona likable.
I could be friends with this persona.
This persona is interesting.
This persona feels like someone I could spend time with.

Clarity
The information about the persona is well presented.
The text in the persona profile is clear enough to read.
The information in the persona profile is easy to understand.

Completeness
The persona profile is detailed enough to make decisions about the customers it describes.
The persona profile seems complete.
The persona profile provides enough information to understand the people it describes.
The persona profile is not missing vital information.

Willingness to use
I would like to know more about this persona.
I could see myself making use of the information about this persona in my work.
This persona would improve my ability to make decisions about the customers it describes.
I found this persona helpful for understanding the people it describes.

Table 2: PPS measurement items. Respondents chose from Strongly disagree to Strongly agree (7-point Likert scale).

map out a customer's journey" (P75); "Understanding people helps me verify which approach to take in communicating with them, solving their concerns, etc" (P33)). The experienced group had 135 individuals (either slightly, moderately, or highly experienced with personas), and the inexperienced group had 306 individuals (no previous experience with personas). This condition of previous experience was used as a dummy variable in testing the hypotheses.

Results

The experience variable was included as a within-subjects factor, and the analysis was carried out using multivariate analysis of variance (MANOVA). The PPS scores were found to differ across respondents with and without persona experience ($F(8, 430) = 3.370$, $p < 0.01$). Thus, we proceeded with univariate tests to identify where these differences occurred.

For empathy, scores are statistically different between experienced and inexperienced respondents ($F(1, 423) = 18.553$, $p < 0.001$). The experienced respondents show higher empathy (Mean=4.379) towards personas relative to inexperienced respondents (M=3.874). Thus, H01 is supported: *Experience with personas increases the perception of empathy towards the persona*.

For likability, scores are statistically different between experienced and inexperienced respondents ($F(1, 423) = 19.120$, $p < 0.001$). The experienced respondents show higher likability (M=4.591) towards personas relative to inexperienced respondents (M=4.092). Thus, H02 is supported: *Experience with personas increases the perception of likability towards the persona*.

For clarity, experience is not statistically significant. Thus, there is no support for H03. For completeness, scores are statistically different between experienced and inexperienced respondents ($F(1, 423) = 3.912$, $p < 0.05$). However, the experienced respondents perceive personas as *more* complete (M=5.152) than the inexperienced respondents (M=4.931) (we expected the reverse). Thus, H04 is not supported.

For WTU, scores are statistically different between experienced and inexperienced respondents ($F(1, 423) = 4.531$, $p < 0.05$). The WTU is higher for the experienced respondents (M=4.754) than for the inexperienced respondents (M=4.484). Thus, H05 is supported: *Experience with personas increases the willingness to use the persona*.

Results (see Figure 3) show that the differences between the experienced and inexperienced users is largest for empathy (an increase of 13.0% from inexperienced to experienced) and smallest for completeness (+4.5%). This indicates that the "experience gain" is the highest for empathy and the lowest for completeness. Likability increases by 12.2% going from inexperienced to experienced individuals, and WTU increases by 6.0%.

In summary, H01, H02, and H05 are supported, while H03 and H04 are not supported. The effects of the supported hypotheses are significant for both the male and the female persona, indicating that the gender or race of the persona does not change the impact of experience on the user perceptions. We leave the investigation of demographic variables of the respondents (e.g., age, gender) for future research (see Table 3).

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Open Research questions

- Why does experience shape persona perceptions?
- Is the effect of experience consistent across demographic user groups? (age, gender)
- What are the best methods to enhance user experience with personas?
- Does the effect of experience vary by persona use case?
- How does experience with personas impact how the user processes persona information?

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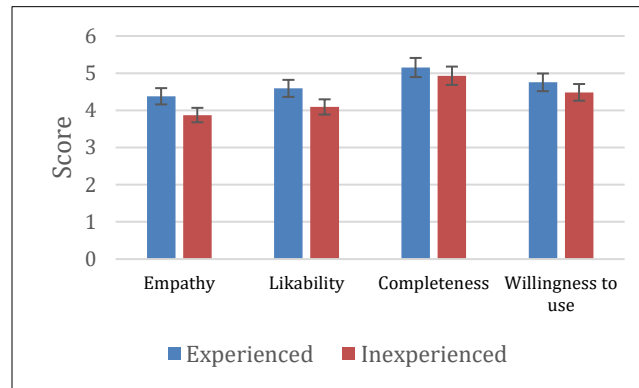**Table 3:** Future research questions concerning persona experience.

Figure 3: Average perception scores of experienced and inexperienced users. Only significant differences are shown (α = 0.05).

Discussion

Interestingly, from a design point of view, all "desirable" perceptions (apart from clarity) increase by experience. This has important implications for persona design and adoption. Our findings suggest that experience represents a peripheral route to obtaining the widely cited empathy benefits, possibly because more experienced users have the ability to perceive personas as real people. Likability, while not a design goal *per se* (i.e., unlikable personas can be important for understanding user groups that are different from the designers' worldview and attitudes), can affect other perceptions [28]. Thus, the finding that experience increases likability is interesting and corroborates the notion that people with less experience in personas are more likely to consider personas as "inanimate" profiles rather than real people they could like and empathize with.

The results suggest that experience with personas is a factor that supports reception of personas by itself. Consequently, the focus on persona developers (UX professionals and consultancies) should be on applying techniques that *increase the exposure and experience of stakeholders with personas*. For this, several possibilities exist: training courses, presentations, workshops, experimenting with personas via controlled experiments such as marketing campaigns, and so on.

Exposing stakeholders to personas such that they can try out personas for real or simulated scenarios can enhance experience and thus make personas more valuable. From our experiences in the field (some of which are reported in [27, 29]), decision makers often face a "mental obstacle" of getting started with personas, involving uncertainty and resistance. Thus, accumulating more experience seems like a hygiene factor for persona adoption. Experience enhances the understanding of the persona technique (*What are personas? How are they used? What information should I pay attention to?*) and can improve the use of personas by managers, designers, and software developers for user-centric decision making.

Conclusion

Based on our empirical findings, experience is an important antecedent to realize the full value of personas. While previous research alludes to this same point [10, 13], this research empirically quantifies the impact of persona experience on user perceptions. Further research is called for to find the most effective tools and techniques for enhancing persona experience among stakeholders.

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