

# How Can Personas Support Online Advertising Process? Proposing 'Persona-Based Online Advertising Optimization'

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# **How Can Personas Support Online Advertising Process? Proposing 'Persona-Based Online Advertising Optimization'**

## **Abstract:**

Personas represent different kinds of users belonging to a particular demographic, behavior, and/or attitude group. Personas supposedly bring customers closer to marketing management. Personas have been used in marketing for decades but their potential in online advertising optimization is still to be shown. In this research, we determine what an online advertising process (OAP) is and we propose a model for Persona-based online advertising optimization (PbOAO) to conceptually examine personas' value in each step of the OAP. We conclude by proposing next steps for empirical testing of the PbOAO model.

**Keywords:** personas, online advertising, customer understanding

**Track:** Digital Marketing & Social Media

## 1. Introduction

Personas are narrative representations of different kinds of users belonging to a particular demographic, behavior, and/or attitude involved in using a product, site, or brand (Singh, 2019). Personas are used in marketing (Salminen et al., 2019, 2020, 2022), Human-Computer Interaction (HCI) (Caballero et al., 2014; Petsani et al., 2020; Wilson et al., 2018), and other domains. In marketing, personas represent groups of target users or customers that share common attributes, needs, characteristics, and goals (Salminen et al., 2021). Personas are created using manual means (qualitative personas), numerical methods (quantitative personas), or a combination of both (mixed-method personas).

In prior literature, personas are argued to have many benefits (Haas & Kunz, 2009; Long, 2009; Matthews et al., 2012; Salminen et al., 2020), such as (1) bringing empathy to the design process and understanding the customer; (2) reducing the self-centered bias of the decision-maker (i.e., decision makers' tendency to project their own preferences into their thinking of customers (Adlin & Pruitt, 2010); and (3) facilitating internal communication about a company's customers.

In addition to these generic strategic marketing/market orientation -related benefits, personas could have marketing communications -specific benefits, especially concerning online advertising. This research focuses on these benefits, presented within a conceptual model called 'Persona-Based Online Advertising Optimization' (PbOAO). PbOAO refers to the systematic employment of personas in the entire online advertising process (OAP), including segmentation, ad creation, targeting, ad testing, and optimization for increased marketing performance, which is the measurable performance of an online advertising campaign (Clarke & Jansen, 2017).

The aim of PbOAO is to be helpful in (a) providing guidance for persona application for digital marketing, an area that is currently lacking in marketing literature; (b) providing a structure and process for gathering evidence on tangible gains of personas for marketing performance (or lack thereof), which is crucially needed for establishing proof of whether personas actually "work" in marketing (Salminen et al., 2020); and (c) leveraging personas in online marketing beyond the persona creation process, on which previous research has often focused (Salminen et al., 2022).

Related to the last rationale, there have been repetitive calls among scholars for shifting the research emphasis from persona creation to persona application, which is visible in phrasing such as *putting personas to work* (Pruitt & Adlin, 2006) or *persona is applicable* (Nielsen & Storgaard Hansen, 2014). To this end, earlier research argues that personas have untapped

potential for various marketing tasks, including brand creation, targeting, copywriting, campaign reporting, product development, and service design (Duda, 2018). Nonetheless, thus far, the efforts of using personas for marketing have been fragmented, and the value of personas for marketing has not been systematically studied or integrated into theoretical or conceptual models. Therefore, two propositions are made here. First, that there is a need for a persona-based model for marketing optimization. Second, the effect of such a model on marketing performance needs evidence; in other words, it needs to be testable. As this research focuses on the OAP, we address these propositions particularly from the perspective of online advertising.

To this end, the purpose of this research is to investigate (a) the definitions and activities related to the OAP and (b) personas' potential value in the OAP. We pose the following research questions (RQs):

- **RQ1:** What is the online advertising process (OAP)?
- **RQ2:** How can personas be of potential value in the OAP?

## **2. Literature review**

Personas have been used in marketing to describe the imagined, real, or aspirational target audiences ever since the 20th century (Cooper, 1999). Personas give a face to anonymous target groups (Jansen et al., 2021) and a figurative 'voice' to the buyer or a potential buyer (Revella, Adele, 2015) and "shift decisions toward user-centered thinking" (Salminen et al., 2020, p. 151). In general, the value of personas for marketing is to bring the potential customers closer to marketing management, a goal that is compatible with increasing the company's level of marketing orientation (Kohli & Jaworski, 1990).

In digital marketing and advertising, personas have been employed in multiple ways. Klepek (2019) described personas in marketing as a tool for copywriting, promotion, product development, and presentations. Salminen et al. (2020) name online ad creation as one usage for personas in the field of marketing. Personas have given focus to marketing planning and marketing strategy creation by reducing the complexity of the planning process (Klepek, 2019). Online advertising has also been studied with personas (Figueiredo et al., 2020). In their study, Figueiredo et al. (2020) found evidence of behavioral targeting in online advertising for children, for example in fast food marketing.

Salminen et al. (2020) used a persona-based system in comparison to other methodologies, namely to an analytics system, to reveal differences in efficiency and effectiveness in a task for user identification (i.e., identifying a predefined user group). User identification has been valuable in online marketing (Salminen et al., 2020). Their findings revealed that personas

enabled faster completion of the user identification task compared to the analytics system and outperformed the analytics system in accuracy. These findings support using personas to learn more and faster about users than when using number-oriented analytics systems.

The emergence of online marketing and online platforms has made it possible to examine the use of personas with large-scale online web analytics data (Salminen, Nielsen, et al., 2018). Ideally, personas can capture personal attributes of the whole customer base, and to tackle this, Salminen, Nielsen, et al. (2018) examined the validity and value of personas in marketing in the era of online analytics. Salminen et al. (2018) formed personas from these online analytics data and questioned if personas are relevant in the era of digital analytics, concluding that that personas work best for processes involving strategic-level human decision-making.

Salminen et al. (2021) found that using personas created from real user online analytics data can alter the preconceptions of company staff towards social media users of a company. This finding strengthens the idea that using quantitatively created personas in design and marketing processes can have a positive impact among the marketers and designers work and thus on the outgoing product for the end-users (Salminen et al., 2021). In the field of e-commerce, personification of target customers with the help of personas has been studied by Märtin et al., (2021) who used eye-tracking and facial expression techniques and wristbands to measure the different emotional states of test subjects. The findings strengthen the view that using personas to modify customer journeys in an e-commerce environment could improve the customer experience and help the company achieve its business goals (Märtin et al., 2021).

Overall, researchers have investigated multiple opportunities that personas enable in areas related to digital marketing. However, none of the extant studies show rigorous empirical support for the use of personas in online advertising. This indicates a notable research gap that our study addresses.

### **3. What is the online advertising process?**

The OAP (see Table 1) refers to the collection of essential tasks related to implementing online advertising. These tasks can be initiated and managed by human marketers, ad platform algorithms, or the two in collaboration. Additionally, the OAP can also be managed by artificial intelligence (AI) alone (Qin & Jiang, 2019). The OAP might vary slightly from one company to another, but in general, all companies tend to follow the same (or highly similar) steps where:

- a target audience of an offering being advertised is determined (*segmentation*), the ads for the offering are created (*ad design and copywriting*),
- the ads are organized in a campaign structure with target segments assigned (*targeting*),

- the results of the campaign are analyzed (*reporting*),
- and decisions for future online advertising are made, including reallocation of budget between ads and target groups as well as other campaign fine tuning (*optimization*).

According to the above definition, the OAP specifically focuses on the *advertiser's* point of view. Therefore, it is distinctly different from marketing process models that describe consumer processes, such as the customer journey metaphor (Märting et al., 2021).

#### 4. How can personas be of potential value in the OAP?

Personas can potentially contribute to each stage of the OAP (see Table 1).

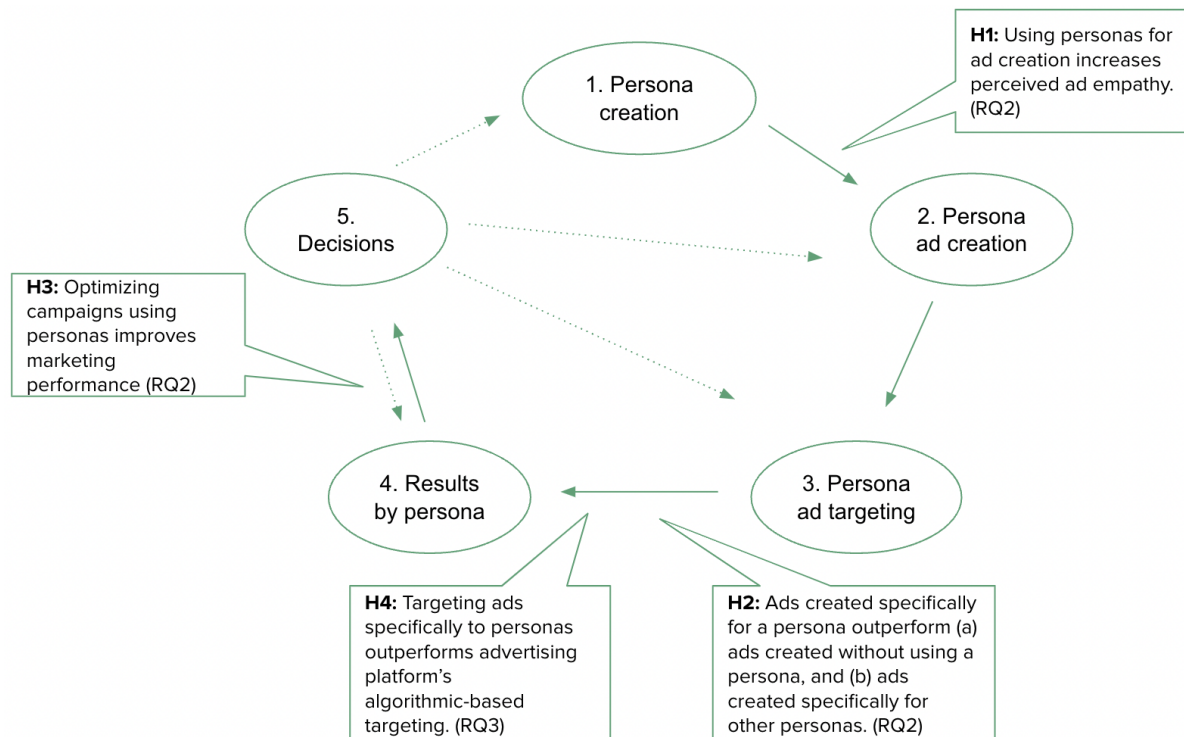
**Table 1:** PbOAO's correspondence with and potential value in OAP.

<b>Phase in PbOAO</b>	<b>Corresponding concept in OAP</b>	<b>How could personas help?</b>
Persona creation	Segmenting	Dividing the total target market into addressable segments that are represented by personas can foster empathetic understanding of who the most likely customers are (Salminen et al., 2020).
Persona ad creation	Ad design and Copywriting	Personas can help translate the understanding of target segments' needs into ad texts that effectively address those needs (Salminen et al., 2020).
Persona campaign creation	Targeting	Personas can help operationalize campaigns by creating the campaigns around the metaphor of persona (Salminen et al., 2020).
Results by persona	Reporting	Results can be examined by persona, thus gaining quick understanding of what target groups best responded to the ads.
Decisions	Optimizing	Personas can help find the best performing ads for each target group thus helping find the most appealing content for the target group which determines budget reallocation between personas and ads.
Iteration	Optimizing	Personas can help find the match between the ads and the target audience, i.e., improve advertising results by budget reallocation between personas and ads.

As mentioned in the introduction, it is essential that these potential (hypothetical) sources of value be tested empirically. To this end, we propose the following hypotheses (H) to study personas' potential value in OAP:

- **H1:** Using personas for ad creation increases perceived ad empathy. (RQ2)
- **H2:** Ads created specifically for a persona outperform (a) ads created without using a persona, and (b) ads created specifically for other personas. (RQ2)
- **H3:** Optimizing campaigns using personas improves marketing performance (RQ2)
- **H4:** Targeting ads specifically to personas outperforms advertising platform's algorithmic-based targeting. (RQ2)

Figure 1 demonstrates the connection between the hypotheses and the PbOAO model. Five stages of the model are presented and stages' connections to hypotheses. Personas will be created in the first stage (*Persona creation/modification process*). In the second stage, ads will be created (a) with personas (b) without personas (*Persona ad creation*). In stage three, campaigns will be created (a) with personas and (b) without personas (algorithm-based ad targeting) (*Persona campaign creation*). Campaign results will be analyzed in stage four (*Results by persona*). In stage five, optimization will be made for campaigns after which results will be measured against results before optimizing.



**Figure 1:** PbOAO model and connections to hypotheses. Dashed lines indicate iterative optimization decisions that can continue as many times as needed.

## 5. Discussion and Future Research Directions

The model presented in this paper can be empirically tested with an experiment, for example, on a social media advertising platform such as Facebook Ads or TikTok Ads. Ad empathy can be tested with subject-matter experts who can be recruited to assess all ads created and they will be shown each ad. The assessment results are then compared between ads created with and without personas.

Persona creation for the experiment can be executed by data collection from the current customers of the target company and ad creation process can be crowdsourced with an online survey platform for production of advertisements with personas and without persona. Ads are then targeted (a) manually based on the corresponding personas and (b) algorithmically meaning that the ad platform's algorithm decides how the ads created to any persona are targeted among the possible target group (which, again, correspond to the personas' attributes).

Ad performance can be measured on ads created with personas and without personas, and optimization decisions are made for the ads created with personas based the ad performance. Algorithmically targeted ads are left untouched to measure the algorithm's ability to optimize advertising compared to persona-based optimization. Post-optimization results are measured for differences in marketing performance between ads created with personas and algorithmically targeted ads.

Overall, utilizing personas in the right way can provide competitive advantage to marketers working in the highly competitive online ads ecosystem. Therefore, mapping the different sources of value that personas can yield is a managerially relevant topic and warrants further academic research.

## References

- Adlin, T., & Pruitt, J. (2010). *The Essential Persona Lifecycle: Your Guide to Building and Using Personas* (1st ed.). Morgan Kaufmann Publishers Inc.
- Caballero, L., Moreno, A. M., & Seffah, A. (2014). Persona as a Tool to Involving Human in Agile Methods: Contributions from HCI and Marketing. In S. Sauer, C. Bogdan, P. Forbrig, R. Bernhaupt, & M. Winckler (Eds.), *Human-Centered Software Engineering* (pp. 283–290). Springer. [https://doi.org/10.1007/978-3-662-44811-3\\_20](https://doi.org/10.1007/978-3-662-44811-3_20)



- Clarke, T. B., & Jansen, B. J. (2017). Conversion potential: A metric for evaluating search engine advertising performance. *Journal of Research in Interactive Marketing*, 11(2), 142–159.
- Cooper, A. (1999). *The Inmates Are Running the Asylum: Why High Tech Products Drive Us Crazy and How to Restore the Sanity* (1 edition). Sams - Pearson Education.
- Duda, S. (2018). Personas—Who Owns Them. In V. von Gizycki & C. A. Elias (Eds.), *Omnichannel Branding: Digitalisierung als Basis erlebnis- und beziehungsorientierter Markenführung* (pp. 173–191). Springer Fachmedien Wiesbaden.  
[https://doi.org/10.1007/978-3-658-21450-0\\_8](https://doi.org/10.1007/978-3-658-21450-0_8)
- Figueiredo, F., Giori, F., Soares, G., Arantes, M., Almeida, J. M., & Benevenuto, F. (2020). Understanding Targeted Video-Ads in Children’s Content. *Proceedings of the 31st ACM Conference on Hypertext and Social Media*, 151–160.  
<https://doi.org/10.1145/3372923.3404787>
- Haas, M., & Kunz, W. H. (2009). How to Master the Challenges of Service Mass Customization ? A Persona-Based Approach. In *Handbook of Research in Mass Customization and Personalization* (Vol. 1–0, pp. 603–621). World Scientific Publishing Company. [https://doi.org/10.1142/9789814280280\\_0031](https://doi.org/10.1142/9789814280280_0031)
- Jansen, B., Salminen, J., Jung, S., & Guan, K. (2021). *Data-Driven Personas* (1st ed., Vol. 14). Morgan & Claypool Publishers.
- Klepek, M. (2019). Buyer Personas: Its Use and Limitations in Online Marketing. In *Application of Theoretical Knowledge of Students of Mass Media Studies in practice*. (pp. 886–895).
- Kohli, A. K., & Jaworski, B. J. (1990). Market Orientation: The Construct, Research Propositions, and Managerial Implications. *Journal of Marketing*, 54(2), 1–18.  
<https://doi.org/10.1177/002224299005400201>

- Long, F. (2009). Real or imaginary: The effectiveness of using personas in product design. *Proceedings of the Irish Ergonomics Society Annual Conference, 14*.
- Märtn, C., Bissinger, B. C., & Asta, P. (2021). Optimizing the digital customer journey—Improving user experience by exploiting emotions, personas and situations for individualized user interface adaptations. *Journal of Consumer Behaviour*, cb.1964. <https://doi.org/10.1002/cb.1964>
- Matthews, T., Judge, T., & Whittaker, S. (2012). How do designers and user experience professionals actually perceive and use personas? *Proceedings of the 2012 ACM Annual Conference on Human Factors in Computing Systems - CHI '12*, 1219. <https://doi.org/10.1145/2207676.2208573>
- Nielsen, L., & Storgaard Hansen, K. (2014). Personas is applicable: A study on the use of personas in Denmark. *Proceedings of the SIGCHI Conference on Human Factors in Computing Systems*, 1665–1674.
- Petsani, D., Konstantinidis, E., Carroll, J., Lombard-Vance, R., Hopper, L., Nikolaidou, M., Diaz-Orueta, U., Kniejski, W., & Bamidis, P. D. (2020). Creating a Feedback Loop Between Persona Development and User Research Towards Better Technology Acceptance. In C. Stephanidis, A. Marcus, E. Rosenzweig, P.-L. P. Rau, A. Moallem, & M. Rauterberg (Eds.), *HCI International 2020—Late Breaking Papers: User Experience Design and Case Studies* (pp. 282–298). Springer International Publishing. [https://doi.org/10.1007/978-3-030-60114-0\\_19](https://doi.org/10.1007/978-3-030-60114-0_19)
- Pruitt, J., & Adlin, T. (2006). *The Persona Lifecycle: Keeping People in Mind Throughout Product Design* (1 edition). Morgan Kaufmann.
- Qin, X., & Jiang, Z. (2019). The Impact of AI on the Advertising Process: The Chinese Experience. *Journal of Advertising*, 48(4), 338–346. <https://doi.org/10.1080/00913367.2019.1652122>

- Revella, Adele. (2015). *Buyer Personas: How to Gain Insight into Your Customer's Expectations, Align Your Marketing Strategies, and Win More Business*. Wiley.
- Salminen, J., Jansen, B. J., An, J., Kwak, H., & Jung, S. (2018). Are personas done? Evaluating their usefulness in the age of digital analytics. *Persona Studies*, 4(2), 47–65. <https://doi.org/10.21153/psj2018vol4no2art737>
- Salminen, J., Jung, S., & Jansen, B. J. (2021). Are Data-Driven Personas Considered Harmful? : Diversifying User Understandings With More Than Algorithms. *Persona Studies*, 7(1), Article 1. <https://doi.org/10.21153/psj2021vol7no1art1236>
- Salminen, J., Kaate, I., Kamel, A. M. S., Jung, S., & Jansen, B. J. (2020). How Does Personification Impact Ad Performance and Empathy? An Experiment with Online Advertising. *International Journal of Human-Computer Interaction*, 0(0), 1–15. <https://doi.org/10.1080/10447318.2020.1809246>
- Salminen, J., Nielsen, L., Jung, S., An, J., Kwak, H., & Jansen, B. J. (2018, April 21). “Is More Better?”: Impact of Multiple Photos on Perception of Persona Profiles. *Proceedings of ACM CHI Conference on Human Factors in Computing Systems (CHI2018)*. <https://doi.org/10.1145/3173574.3173891>
- Salminen, J., Sengun, S., Jung, S., & Jansen, B. J. (2019). Design Issues in Automatically Generated Persona Profiles: A Qualitative Analysis from 38 Think-Aloud Transcripts. *Proceedings of the ACM SIGIR Conference on Human Information Interaction and Retrieval (CHIIR)*, 225–229. <https://doi.org/10.1145/3295750.3298942>
- Salminen, J., Wenyun Guan, K., Jung, S.-G., & Jansen, B. (2022). Use Cases for Design Personas: A Systematic Review and New Frontiers. *CHI Conference on Human Factors in Computing Systems*, 1–21. <https://doi.org/10.1145/3491102.3517589>
- Wilson, A., De Paoli, S., Forbes, P., & Sachy, M. (2018). Creating personas for political and social consciousness in HCI design. *Persona Studies*, 4(2), 25–46.