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# The Persona Party: Using Personas to Design for Learning at Scale

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**Abstract**

This paper describes a method we have developed to engage a group of MOOC designers and developers in collaboratively creating personas to improve the design of learning experiences for future MOOC learners. Building on previous work in user experience design and educational technology design, we describe how three kinds of personas (assumptive, aspirational, and data-informed) can be used to inform the design and development of new MOOC courses and to improve existing courses that are in the iteration phase.

**Author Keywords**

Personas; design; learning at scale; product development

**ACM Classification Keywords**

D.2.2. Design tools and techniques, User interfaces

**Introduction**

This paper presents a method that we have developed to engage a group of Massive Online Open Course (MOOC) designers and developers at the University of Michigan (U-M) in the creation of learner personas. We developed the “Persona Party,” a collaborative workshop with the following goals: (1) to introduce the concept of learner personas to key stakeholders in the MOOC design and development process, (2) to review

learner data from a MOOC about finance from U-M's Ross School of Business, (3) to develop learner personas in teams using a graphic organizer, and (4) to reflect on resulting learner personas with the whole group. The learner personas that were an outcome of the Persona Party were presented to the course instructor in a subsequent design meeting to foster a conversation about modifications and refinements that would be made to subsequent iterations of the course.

### **Motivation**

Embarking on the creation of a new MOOC can be a daunting experience, even for seasoned professors who have taught a similar course in a residential setting. Because MOOCs are by their nature "massive," an instructor knows that thousands or even hundreds of thousands of learners may enroll in their course. Further, because MOOCs can be taken "any time" and "anywhere" and are offered at zero or minimal cost, the individual who enrolls in their MOOC could be anyone with access to the Internet. As a result, course instructors may find themselves wondering who constitutes their learner base and for whom they should be designing the course content, materials, and assessments. Instructors, like in any traditional design setting, may make assumptions about who their learners will be, basing their ideas on *intuition* instead of information about the learner. Many instructors can envision basic characteristics (e.g., a professional business person), but still may not have a clear idea of who they are designing *for*. The motivation for this paper is to consider *How can MOOC instructors and designers use learner information to create content and design learning experiences for such a potentially large and varied learner base?*

We argue that the development of *learner personas* may help to address the challenges of designing for a wide range of potential learners. In the following section, we review previous work that has examined personas in the context of User Experience (UX) design and the characteristics of the learner in the context of the design of educational technologies.

### **Literature Review**

Personas are fictional representations of potential users. They offer a realistic portrait of a user that can be used at critical junctions in the design process, such as when a feature decision needs to be made. Cooper [2] advances the notion of goal-directed design and asserts that personas can provide *focus* when designers have vague or contradictory ideas of who they are designing for. He also argues that personas are especially powerful because they offer a shared means of communication between key stakeholders in the design process. He contends that design decisions are made more salient when they are compared to persona goals. Goodwin [3] further states that personas "encapsulate and explain the critical behavioral data in a way that designers and stakeholders can understand, remember, and relate to."

Personas have been widely used in UX design contexts [4]. Earlier user-centered design approaches that focused on computer usability and the needs of users in a homogenous work culture [5] relied on an *archetypal user* when designing a user-centered tool, because they could assume that users shared a similar measure of expertise and knowledge about a target domain [6].

Learner-centered design approaches expand the principles of user-centered design to create designs for

educational technologies, with the understanding that learners cannot be homogeneous, because they do not necessarily share a common work background, understanding of a content domain, or level of expertise [6]. Therefore, learner-centered design approaches draw on the expertise of domain experts, educators, and learning theories (e.g., social constructivism) to inform the design of a system. While learner-centered design practitioners create learning technologies that are premised on understanding how people learn, they have not relied on learner personas as a methodology in the design process. Typically, systems have been created for an audience that is much more constrained and well-defined, especially when compared to MOOCs (e.g., middle school science learners). Therefore, learner-centered designers have tried to understand the characteristics of the learner they are designing *for* from literature that relates to the traits of a specific learner audience (e.g., misconceptions from science learners of particular age range) or by interviewing educators knowledgeable about specific types or groups of learners.

The use of personas within educational research and design is scarce. However, in one example, Brooks and Greer [1] detail personas that they derived from student admissions data and academic records. They used *predictive modelling* to create learner personas that were derived from data-mining activities. These narrative descriptions detailed the *predicted* activity of new learners at the institution. The goal of these personas was to help “bridge the gap between data scientist and learning specialist” [1]. Similarly, we hope to establish an approach for creating learner personas that can be used to foster productive MOOC design conversations among multiple stakeholders in situations

where the learner audience is much larger than in traditional classrooms.

## **Method**

Here we introduce the “Persona Party,” a workshop method that we used to engage a design group consisting of multiple stakeholders who are involved in the MOOC design and development process at U-M.

### *Design questions*

1. How might learner personas be used to inform design processes for learning at scale?
2. What methods can we use towards the development of MOOC learner personas?
3. What kinds of learner personas would be most useful and how could they be used throughout the MOOC design process?

### *Participants*

The Persona Party was held at the Digital Education & Innovation Lab that is housed within U-M’s Office of Academic Innovation. All MOOCs that are produced at U-M are created within this lab. We partner with faculty and staff across the University to create exceptional course offerings that draw on tested pedagogical approaches and cutting-edge technological tools.

The Persona Party was facilitated by four team members: a MOOC project coordinator who has a background in UX design, an HCI PhD candidate, a software developer, and a UX designer. The workshop’s participants consisted of multiple stakeholders within the MOOC design and development process:

- 2 learning experience designers

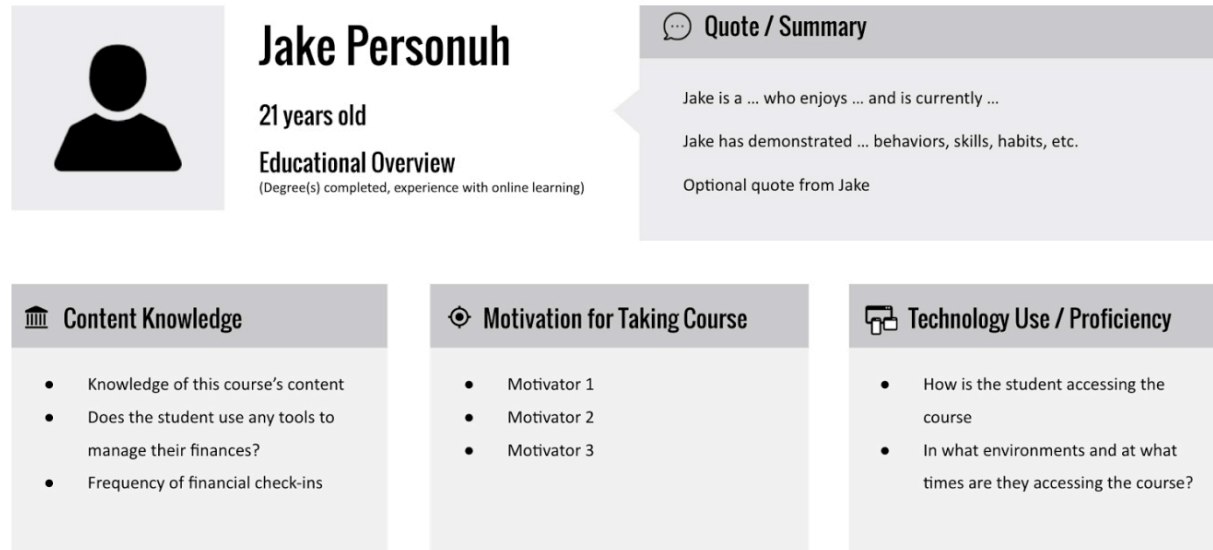
- 4 project coordinators/managers
- 3 instructional media designers/managers
- 6 student interns
- 3 marketing team members
- 1 lab director

The workshop’s participants had a range of experience with persona design and use, from those who were experienced in UX methods to those who were introduced to personas for the first time. Our motivation for bringing this group together was threefold: (1) to introduce the concept of personas to members of our production team for whom personas were new, (2) to give our student interns some “hands

on” experience in UX methods, and (3) to introduce personas into our MOOC design process, beginning with a MOOC that was in an evaluation and re-design phase.

*Context*

We chose to use the learner data generated in “Finance for Everyone,” a self-paced MOOC (i.e., it can be started and completed at any time defined by the learner) with high enrollment and high learner engagement. The data from the course was chosen because the instructor was eager to engage a wide MOOC audience, reaching beyond business professionals (i.e., learners who would likely be interested in a finance course).



**Figure 1:** The template that Persona Party participants used during the workshop activities

### *Materials*

The Persona Party facilitators provided workshop participants with the following data:

- Aggregated learner data from over 3700 pre-course surveys (a response rate of 9%) from the Finance for Everyone MOOC
- A persona design template (Figure 1, above)

The learner data included multiple-choice responses to questions from each of the following categories:

- Browser
- Operating system
- Gender
- Country that learner lives in
- Race/ethnicity
- Highest level of education completed
- Subject area of academic degree
- Current enrollment in an educational program
- Relationship to U-M
- English proficiency
- Employment status
- Industry
- Previous MOOC experience
- Taking course as individual or with team

For each survey category, there was a slight variation in response rate. We highlight the data from categories that are of particular relevance to the persona creation activity. We report on the most frequently chosen selections. Sixty-two percent of learners identified as male. Learners identified their race and ethnicity as Caucasian (44%), South Asian (15.5%), and Hispanic/Latino (14%). In the category of highest education completed, learners had a bachelor's degree

(39%), a master's degree (30%), and a high school diploma (8.4%). Seventy-five percent of respondents indicated they were not currently enrolled in any educational program. When assessing their current knowledge level of domain content, 41% of learners said they were novices and 38% said they were advanced beginners. In regards to current employment status, 54% were employed full-time and 11% were unemployed and actively looking for work. Eighty-four percent of respondents indicated an interest in course content. In addition, we provided Persona Party participants with responses to the question of *Why did you sign up for this course?* which could be answered by a combination of multiple choice answers and an open-ended response.

The persona design template included the following elements: name, age, educational overview, quote/summary, content knowledge, motivation for taking the course, and technology use/proficiency.

### *Activity design*

The Persona Party facilitators provided participants with a brief introduction to personas, including a definition, and descriptions of their use and utility for design. The facilitators shared several visual examples, including personas that they had developed for use during user testing of a new learning management system.

Additionally, facilitators shared the instructor's previously stated "intended" audience for the MOOC: young female global learners without a business degree who need to be able to make their own sound financial decisions. The accumulation of learner data presented a new opportunity for re-evaluating the previously



Figure 2: Team members gather around a large screen to share the 1-3 personas they created at the end of the party.

targeted learner audience for the Finance for Everyone MOOC.

The facilitators divided Persona Party participants into four groups which were composed of 4-5 members from multiple stakeholder groups, including at least one member who had persona design experience. The facilitators instructed participants to use the pre-course survey data and the persona template to create two personas that could inform the next iteration of Finance for Everyone. Participants were asked to determine which persona would be primary and which would be secondary. Primary personas were described as those that would be most impacted by a design choice (i.e., learners who were most likely to take the MOOC) and secondary personas were described as those whose are also important (i.e., somewhat likely to take the MOOC), but whose needs/opportunities may be different from those in the primary group. Participants were asked to reflect on what would differentiate primary personas from secondary personas and to consider where in the design process personas could be utilized (e.g., assessment design, marketing).

#### *Outcomes*

The four Persona Party participant groups created between 1-3 personas each, with 9 personas created in total. We observed that some participant groups generated personas through a process of *inductive reasoning* [3] using the learner data. These participants scanned the data summaries and looked for the categories with the highest percentage of responses to inform their personas. For example, using the highest education completed categories, participants may have created a persona that had a bachelor's degree. Participants may have created a secondary persona

that had a graduate degree (following the second highest selection in the same category). Participant groups used "creative license" to fill in gaps that were not provided by the data, especially in the "motivation for taking the course" area of the template. Other participant groups chose to create personas that were based on the instructor's previously stated audience for the MOOC (e.g., female). In the final hour of the Persona Party, participant groups shared one or more of their personas (see Figure 2).

A student intern performed a rough analysis of the personas that were created during the Persona Party. She identified several categories that all personas exhibited and selected a characteristic or feature that seemed to be representative of each category. Most personas were female, in their 20s, and had earned a bachelor's degree. Most personas did not have a background in finance and used a laptop to access the course at home during their spare time. We observed other overlaps, including motivations that related to furthering professional interests (e.g., entrepreneurship) and improving personal financial situations (e.g., retirement preparedness). Many of the persona-descriptions included reference to the importance of family.

#### *Follow-up*

In a subsequent design meeting for the Finance for Everyone MOOC, we shared the personas that were created at the Persona Party with the course instructor. We indicated which personas were based on the learner data and which were largely based on the instructor's initial intended audience for the MOOC. The course instructor selected one of the data-informed personas to represent the primary learner he would envision for

the future iterations of the course. He reflected that he chose this particular persona because “Joe has no background in finance but has the *right (and real) motivation* for learning — managing his money and saving for an investment (education) in his children. While he may enjoy gambling, he is responsible and pays his bills and, importantly, recognizes that he is not good enough. To my mind, motivation is the key to learning.”

### **Discussion**

We held several internal debrief sessions after the Persona Party. Our post-hoc analysis of these meetings allowed us to delineate three types of personas that we intend to use at specific stages of our MOOC design process: (1) assumptive, (2) aspirational, and (3) data-informed. While the personas types draw heavily on previous persona research [e.g., 3], the descriptions here are tailored to our MOOC design process.

#### *Assumptive personas*

One outcome of the Persona Party was our desire to create personas to represent MOOC learners, even before data has been collected about a specific course. We are working to develop a set of *assumptive* personas that are based on composite data from multiple MOOCs. Although these personas will not be specific to a course, they will still be valuable, because they establish a *baseline* that represents more general ideas about what kind of learners tend to enroll in MOOCs. Some of these personas will include global learners and learners with specific accessibility needs.

We are also working to develop a second set of assumptive personas that are tied to related content areas. Using the demographic/background data and

textual feedback received about the course, we can aim to identify traits of MOOC learner within specific types of MOOCs (e.g., science MOOCs, computer programming MOOCs, medical MOOCs) and map those traits onto different assumptive personas. We are using qualitative analysis methods and natural language processing to identify common learner viewpoints about course benefits and challenges, to create rich, representative quotes for the assumptive personas.

Thus, we can use assumptive personas to “kickoff” our design conversations, and to inform design decisions that are made *before* a course is launched, when the design team does not have a clear vision of who their MOOC audience will be. When possible, we can use assumptive personas that have been developed for a specific content area of the new course.

#### *Aspirational personas*

A second outcome of the Persona Party was our realization that some course instructors may have pre-defined notions regarding the type of learner that they want to engage, some of which are inconsistent with the type of learner that data suggests will enroll. Nevertheless, some course instructors may have strong reasons for wanting to target a certain type of learner due to the specificity of a MOOC’s subject matter. We envision that aspirational personas would be based on what the instructor reveals about their desired audience. By creating space within design conversations with faculty to identify these goals, design teams will have the opportunity to develop aspirational personas that make these goals explicit.

We are already seeing early success in incorporating aspirational personas into our design processes. We

asked each member of a course design team to develop an aspirational persona using our template. Through a clustering activity, the group chose a primary and a secondary aspirational persona. We have observed that the design team has often referenced these personas when faced with a critical decision.

#### *Data-informed personas*

A third outcome of the Persona Party was a “proof of concept” revealing that survey data collected from one course could be used to inform the creation of data-informed personas for that course. To ensure that these personas have an “authentic voice,” we can use data collected from *learner stories*—testimonials that some learners write upon completing the course—which describe a learner’s initial motivations for taking the MOOC and their experiences of the course.

Thus, we envision that data-informed personas will be built based on survey data, learner stories, and information interviews, with the intention of driving future revisions and iterations of courses. They will be a regular part of the MOOC review process and help determine areas where the course may have failed to serve an audience, reveal opportunities to better serve the MOOC’s audience, and help showcase how much overlap exists between data-informed personas and aspirational personas.

#### *Lessons learned*

MOOC design introduces an educational design challenge because the potential learner audience is much larger and diverse than other contexts where instructional approaches are being developed. In many cases, tools like personas have not seen their way to educational design contexts, even though the persona

approach has been shown to be useful in focusing the design conversation in traditional UX design. The Persona Party workshop approach aimed to address this, and take advantage of a unique strength of designing in a MOOC context: the availability of extensive learner data that describes learners’ background and experiences. It was an effective way for MOOC designers and developers to represent different types of learners by creating different personas that provided more direction and ideas about a range of potential learners. The three types of learner personas that emerged from this approach—assumptive, aspirational, and data-informed—essentially describe more general learner audiences (i.e., personas representing the type of learner that typically takes MOOCs), more targeted, desired learner audiences (i.e., personas representing the type of learner the instructor is initially targeting), and more specific, data-driven representations of learners audiences (i.e., personas representing the learners actually taking the MOOC over time). Throughout MOOC design iterations, this emergent and growing set of personas can provide different foci for design teams so that they can think about different aspects of potential learner audiences in a systematic way.

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