



From Persona to Living Persona, Preliminary Data from a Pilot Study in HCI Education

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Abstract. The *Persona* technique consists in introducing, in the process of realization of a product (good or service), one or more fictitious personages representing users of the product to be designed. In this paper, we present a preliminary study on the adaptation of the *Persona* technique to promote the pedagogical quality of practical works in HCI education. These practical works concern the specification using UML and the sketching of interactive systems. We call the variant used: *Living Persona*. The teacher plays the role of the *Persona*; this *Persona* is described in paper form and provided to each student. The teacher interacts with groups of students (each simulating a company), for a better understanding of the user needs. After recalling the history of the concept of *Persona*, we explain how we develop it and introduce it into guidelines of practical works. Then we present a first study with 54 Master's degree students in Computer Science. We end the paper by presenting the implementation of a more complete study to detect other pedagogical contributions of this promising technique.

Keywords: Persona · Living persona · Interactive system · Practical work
HCI education

1 Introduction

During their university studies, students are confronted mainly with three learning modalities: the follow-up of lessons in the classroom (face-to-face teaching), the realization of student projects and internships in companies. Face-to-face teaching, i.e. periods of time with the presence of a teacher leading the session, forms the major part of the students' schedule. For example, the French national educational program of the *DUT Informatique*, an undergraduate diploma in Computer Science [1] defines the distribution of these three modalities respectively in 73,47%, 12,24% and 14,29% of the timetable academic students. Face-to-face teaching is subdivided into three sub-categories: lecture in lecture theater, directed works and practical work. During many years of university teaching, the authors found that classroom teaching are no longer meet the expectations of students. These views are agreed with those of [2, 3].

Indeed, students ask for concrete applications that are close to the professional realities of the knowledge they are studying. They ask that face-to-face teachings prepare them better for student projects, internships and ultimately for their future professional life. In this paper, we are interested in the lessons of practical work in Human-Computer Interface (HCI) in order to make them more concrete and closer to professional realities.

Several researchers have been trying to develop pedagogical techniques to make the lessons concrete and close to professional realities, see for instance [4, 5]. In keeping with this trend, the objective of this paper is to adapt the Persona technique, proposed by [6] in the HCI domain, for practical works of interactive system specification, using the UML language and sketching tools. It should be remembered that Unified Modeling Language (UML) [7] is a specification and design language often used in the development of interactive systems [8]; in this case, it is advisable to associate it with sketching and/or prototyping.

The paper is structured as follows. We first present the classical technique of the Persona and then we explain our implementation in practical works concerning specification and sketching of interactive systems. For this, we make it evolve in a variant called: Living persona. Then we present the preliminary results obtained with regard to the objective of making the practical works concrete and close to professional realities. The paper ends with a conclusion and research perspectives.

2 The *Persona* Technique

The *Persona* technique consists in introducing, in the process of realization of a product (good or service), one or more fictitious personages representing users of the product to be designed. The originality of this technique is that the *Persona* is defined by its psychological components, objectives, motivations and behaviors rather than by demographic or social data.

Cooper [6] was the first to use Persona to define a technique for analyzing end-user behavior when designing an interactive system. Cooper minimizes the involvement of users in building Personas and uses them to promote communication among the development team.

Pruitt and Grundin [9] evolved the technique by defining a 23-point method around the observation and analysis of future users to produce Personas that become descriptive models of user archetypes. They are a synthesis of several people who share the same objectives, motivations and behaviors. A Persona is then defined by two basic deliverables: a list of characteristics and a narrative about the character [10]. Following [11], researchers, such as [12–16] have proposed various techniques for identifying Personas but the Persona principle remains the same.

The use of Personas in the development of interactive systems is an alternative way used in the determination of user needs and high-level conceptual design especially when it is difficult to directly involve users [17]. For example, in the case of e-medicine, it is difficult for engineers to obtain data on patients, as this data is confidential [18]. In the design of e-services on the Web for mass markets, the wide variety of end-users also poses a problem that justifies the use of Personas [19]. During the

development of an interactive system, the Persona technique comes in addition to qualitative and quantitative methods.

The use of Personas in HCI education is not new. In [11] the authors ask their students to create Personas in the context of pedagogical workshops concerning HCI design. They highlight models of effective Personas and models of bad Personas and end with advice about how inciting the students to create good Personas. Our work does not concern the creation of Personas but their use as a support to the living representation, i.e. by a teacher, of these Personas.

In [20] the authors use *Personas* to teach the issue of accessibility on ICT. They complete the textual descriptions of *Personas* by videos staging the described *Personas*. They conclude that this text-video coupling is a good communication channel to detect accessibility issues better and to promote the use of knowledge about accessibility in inclusive development.

The *Persona* technique allows project stakeholders (particularly designers) to feel empathy for the individuals they represent [9, 16]. This feature is characteristic of engaging pedagogies [21] which are not based solely on mechanisms of sanctions and arguments. Our approach is to bring the *Persona* to life through the teacher, within a framework of HCI Education.

3 Implementation of the Persona Technique: Living Persona

3.1 Structure of Our Persona

We have introduced and adapted the technique of the Persona in our practical works of specification and sketching of interactive systems. During these practical works, the Persona synthesizes the profile of a set of users. Called Living Persona, it is played by the teacher. The students must interact with the Living Persona to arrive at a product conforming to the requirements and characteristics of the Persona.

The description of the Persona is visible in Fig. 1. The psychological structure chosen for our Persona was that of [22] who architect their Personas around ten components: Identity, Status, Goals, Knowledge and experience, Tasks, Relationships, Psychological profile and needs, Attitude and motivation, Expectations, Disabilities. Details can be found in [14, 23].

A “living persona” is defined as follows: it is a physical person who plays a role corresponding to a description of objectives, motivations and behaviors in relation to the product to be developed and its contexts of use. This physical person has to interact with the learners by having reactions corresponding to the description of the Persona. The physical person has to learn the role to play with the learners because the description of the Persona is provided to the learners.

3.2 The Dual Task of the Teacher

In a typical use, the *Persona* is represented by a sheet, which is most of the time displayed on a wall. It aims to improve the communication between the stakeholders. In the case of our practical works with the *Living Persona*, we have extended the



James Dany Boonde during a demo on interactive tabletop with virtual and tangible objects at the World Play festival 2015 in Tokyo

James Dany Boonde, of Planet Entertainment Inc., is available to companies responding to a call for tender for the design of an innovative interactive kitchen system. He is 49 years old, married and has nine children (4 boys and 5 girls) who all love the conviviality of a good meal. James Dany Boonde is representative both of users of the system targeted in the invitation to tender (because his hobby is cooking), as well as analysts, designers and project managers in connection with such systems. In his various positions within the company, his aim has always been to help the company invent new systems, both innovative and profitable, allowing its users to be entertained (in the broadest sense of the term), alone or in groups. Its motto is: "Nothing beats a good user experience". But one day he witnessed an accident in connection with an innovative system of assistance for displacement (car in a ditch) and understood that any system also has to be safe for its users.

James Dany Boonde holds a Master's Degree (with distinction) in Computer Science from the University of Valenciennes, France and followed a creativity management module at Harvard University, Cambridge,

Massachusetts. He rose through the ranks of Planet Entertainment Inc. Hired as a programmer in 1990, he subsequently experienced a lot of positions, as an analyst, designer and project manager, always at the heart of innovation. He has worked in various subsidiaries of the group, both in France and abroad (Germany, United States, Netherlands and Tunisia).

As a project manager, he likes to surround himself with creative people coming from different disciplines to facilitate the brewing of ideas. It is no coincidence that his teams have deposited more than 20 patents at the international level and that he has received an Innovation Golden Globe from the INNOV'2012 show in New York in connection with a fun and personalized information system in the field of transport. Among other things, he has proposed new pedagogical simulators in the field of surgery, a card game for the blind and several applications related to interactive tabletops with tangible objects.

Even if he is appreciated for his conviviality, his colleagues know that they will always have to surpass themselves because he does not like mediocrity, or banality: each system must stand out, must bring a plus in relation to the competition. He is very demanding, but does not hesitate to spend a lot of time advising and guiding novice analysts and designers, so that they always go further in the concepts, to the service of the projects and objectives of the team. He loves his job and spends his time looking for new ideas, for new systems, whether in nature, in cinema (especially science fiction), by observing the behaviors of people on the street, at work, in means of transport, stores, etc. He would like the new systems to be everywhere, contributing to ambient intelligence, in every room and environment, under all circumstances. He also finds that his hearing is tending to decline over time, while noting that the population is aging in some countries. "It's a factor to be taken into account when it comes to innovation," he often says to his teams.

Fig. 1. Living persona played by the teacher [24]

concept by making the teacher play the role of a user of the deliverable. Thus, the teacher takes part in the experience that students will be living by playing the *Persona* role. Moreover, practical works are teaching modes during which, given the limited number of students, we can easily hold meetings between the students and the teacher in his/her second role, the *Living Persona* (Fig. 2).

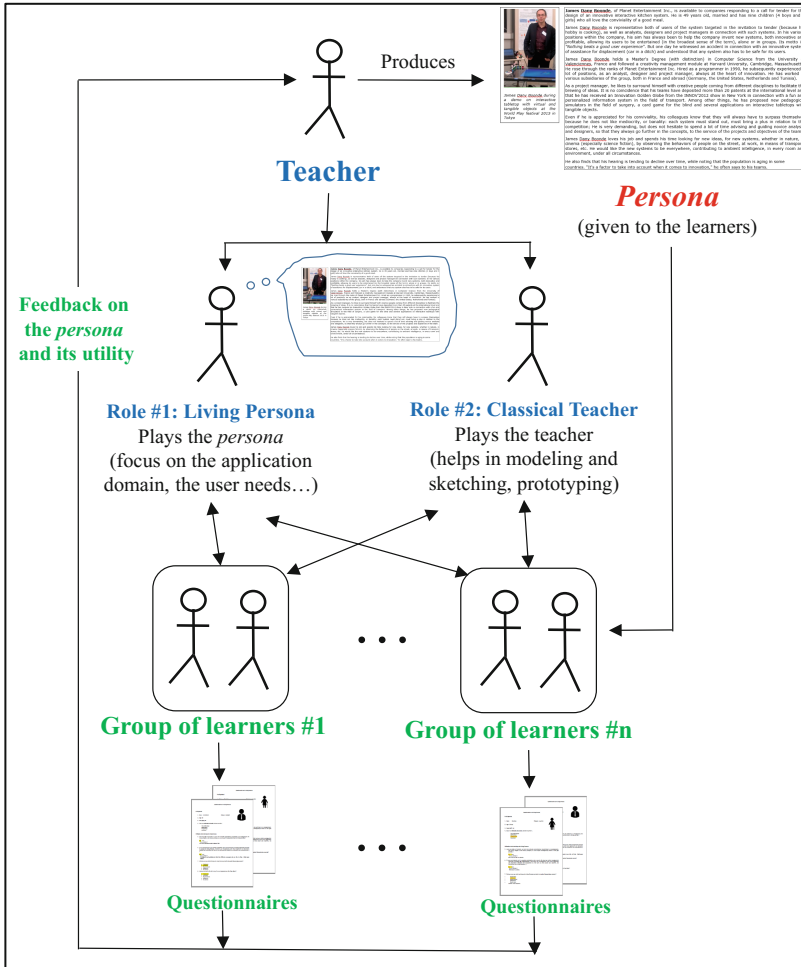


Fig. 2. The two roles of the teacher

Finally, we obtain standard practical works guidelines to which we have added two elements. First we add a description of the *Persona*, then guidelines for students that specify that the teacher will play the *Persona* to represent the archetype of users of the product they have to design. Then, they are invited to interact with the *Persona* in order to design the desired product, which is described to the students.

4 Preliminary Study of the *Living Persona* Technique

In this section describing a pilot study, we will be focusing on evaluating the pedagogic improvements made by introducing the *Living Persona* technique in our practical works.

4.1 Preliminary Study Goals

Adapting a concept coming from another field is a tedious operation. In other words, adapting the Persona concept to HCI teaching is not trivial. Before conducting a complete study of the Persona concept, we wanted to: (1) ensure students would understand the concept and (2) collect feedback on a Persona's capacity to make practical works concrete and close to professional realities.

4.2 Study Conception

In this pilot study, the guidelines of the practical works were given to 54 students in three different classes, composed of respectively 18, 15 and 21 students preparing a Master's degree at the University of Valenciennes, France. In each of these groups, students were split into teams of two or three. Those teams were competing between each other to win a call for tender. The guidelines were written in two parts:

- The first one described the call for tender. The assignment was to “*create an interactive system, easy to use for the whole family and naturally integrated in the kitchen. It should encourage people to cook healthy, affordable and delicious meals.*” The system had also to be specified using UML diagrams.
- The second part introduced the Persona played by the teacher (Fig. 1).

As this work was a preliminary study (pilot study), we did not conduct the study on a control group. Each team received the same assignment and the same teacher played the Persona as well as performing the classical role of the teacher, helping in modeling and sketching/prototyping.

At the end of the session, a survey was conducted. Eleven questions were asked. Most of them were yes-or-no questions but justifications had to be given. Only three questions were about the preliminary study. We collected 153 surveys amongst 54*3 questions which represents a response rate of 94,5%. The results are presented in the charts shown in Figs. 3, 4 and 5. Next, we analyzed each of the written justifications given by the students according to three points of view:

1. The quality of the teacher's performance when he played the role of *Living Persona*.
2. Persona's capacity to make practical works concrete.
3. Persona's capacity to close to professional realities

We verified that the written justifications corresponded to yes/no answers given by students and whether they showed any nuances or ideas of evolution for the Living Persona. This analysis work forms the basis of the part “Sect. 6” of this paper.

5 Results

The question for Fig. 3 was: “Do you think the Persona played during your practical work was well played? Did it truly match the description given in the guidelines?”. This first question is fundamental. Indeed, in the event of a negative answer, no further deduction would make any sense.

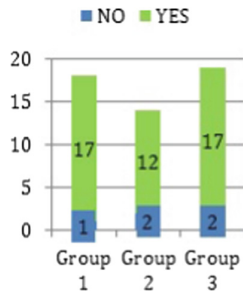


Fig. 3. Quality of the persona performance.

The question for Fig. 4 was: “Do you think the Living Persona technique enables the guidelines to be more concrete?”.

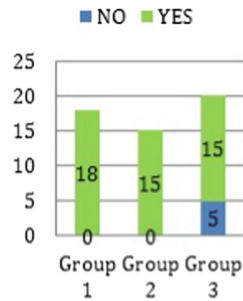


Fig. 4. Impact of the *Persona* on the concreteness of the guidelines.

The question for Fig. 5 was: “Do you think the Living Persona technique enables the guidelines to be closer to professional situations you might experience after graduating?”

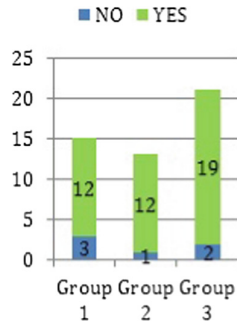


Fig. 5. Impact of the *Persona* on the professional verisimilitude.

6 Discussion

Considering the number of positive answers (46 out of 51, which is almost 90%), Fig. 3 shows that the teacher played the *Persona* role well for the three groups. The following justifications illustrate the overall feeling: “*I find that Mr. James Dany Boonde had a good acting, and that it well corresponded to the description...*” or “*He answered the questions and suggested some improvements which might interest the users of the app. Moreover, the acting performance was perfect.*”

However, amongst the five negative feedbacks, we can read: “*We don’t really know whether we are talking to James Dany Boond (Persona’s name) or to the teacher who is playing the role and if we’re allowed to interact with the teacher. Thus, we are not sure if the answer is from the client and has to be analyzed and interpreted or if it is the teacher’s advice. That’s the only black spot.*”

A deep analysis of all the feedback and of the context leads us to come up with two recommendations:

- Firstly, playing the *Persona* role is not easy and needs the teacher to be prepared and truly involved.
- Secondly, having two teachers would be ideal. One would be playing the *Persona* role while the other would have a classic teacher role (nevertheless, we should consider that having two teachers available at the same time is not possible in most Universities for financial reasons). If it is not the case, the single teacher should be sure to make it clear which role is being played, when answers are given.

With 48 positive feedbacks amongst 53, which is almost 90%, Fig. 4 shows that the *Persona* technique makes the guidelines more concrete than the traditional guidelines. The following feedback of a student shows the interest of the *Living Persona*: “*To associate with a project a real personality to interact with him as a technical advisor makes the project more concrete. Indeed, we have worked with him by a system of questions-answers on how this project should be realized. This avoids off-topic and helps to get more precision on the task to achieve. In case of doubt the adviser can solve it. We are closer to a real case.*”

However, a deep analysis on the justifications given by the students shows that it is not only the psychological description given in the guidelines that makes the guidelines more concrete but also the fact that a person plays the *Persona* role. The justification given by one of the students clearly illustrates that: *“It seems like we are interacting directly with the person mentioned in the guidelines and that implicitly gives the students the feeling that we are working on real projects.”* This result validates the decision to make a concrete practical work: having short guidelines, three lines describes the topic, to which we add the *Persona* technique as we introduced it before (Fig. 1).

Another thing we learned throughout this pilot study is that students associate the word “concrete” to a situation taking place in a company: *“Thanks to this, it is easier for us to simulate a situation occurring in a company and we forget the academic environment”*.

All the negative feedback (5) came from the same group: the third one. In our future work, we will add to the survey an interview in order to explain that negative feedback.

With 43 positive feedbacks out of 49, which is more than 87%, Fig. 5 shows that the *Persona* technique makes the guidelines closer to professional realities encountered in the professional world than traditional practical works. The following feedback is representative of many feed-backs: *“In the job market, we will have to discuss the work to be done with a company worker, which is similar to the Living Persona technique.”* However, we should note that several student feedbacks indicate that a longer practical work, and a *Persona* whose answers change from one session to another would bring them even closer to the professional realities.

7 Conclusion and Perspectives

The results presented in this pilot study validate our research hypothesis: the students (in this first case, preparing a Master’s Degree) can understand and use a version of the *Persona*, named *Living Persona*, during practical works. They think this technique makes the practical work more concrete and closer to professional realities.

Other more complete studies are envisaged. In fact, a second one is already under progress [24]. More than a hundred students and two other teachers are involved. These two other teachers have been trained in order to keep the level as high as Fig. 3 shows.

New research questions will be added. For instance, one of them will focus on the motivation brought about by a practical work using the *Persona*. *Does a practical work using the Persona technique motivate the students more to study?* Another question will focus on the students’ creativity. Indeed, one of the *Persona*’s characteristics is its tendency to innovate. *Can the Persona personality influence the students’ activity? Is students’ creativity boosted?* Another question will focus on the acquisition of the disciplinary competences. *Have the disciplinary pedagogic goals been reached?* The data analysis should bring insights regarding such subjects.

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