THE USER AS A PERSONALITY: A REFLECTION ON THE THEORETICAL AND PRACTICAL USE OF PERSONAS IN HCI DESIGN

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Abstract

A persona is a user model that focuses on the individual's goals in interaction. The model resembles classical user profiles, but with some important distinctions. The persona represents patterns of users' behaviour and goals. The concept has a focus on practical interaction design and is not based on a theoretical HCI perspective, although it implies a distinctive perspective on the role of users and interaction. The purpose of this paper is to examine how this concept relates to some theoretical perspectives on users and interaction. One such theory that I discuss is activity theory, which share the emphasis on that interaction is driven by users' motives and goals. But activity theory is a more elaborated framework for studying activities. The conclusion is that personas have a narrower perspective on users and activities compared to activity theory, but this also makes it more easy to use as a tool to direct design. Also, the role of the user in the persona approach is blurred with the role as a consumer. The issue of interaction design becomes a matter of satisfying the needs of the consumers, not to improve human work and life.

Keywords: persona, goal-directed design, user model, activity theory, interaction design

1 Introduction

A *persona* is a model of a user that focuses on the individual's goals when using an artefact. The model has a specific purpose as a tool for software and product design. The persona model resembles classical user profiles, but with some important distinctions. It is an archetypical representation of real or potential users. It is not a description of a real, single user or an average user. The persona represents patterns of users' behaviour, goals and motives, compiled in a fictional description of a single individual. It also contains made-up personal details, in order to make the persona more "tangible and alive" for the development team.

The idea of personas originated from Alan Cooper, an interaction designer and consultant. It is a part of an approach to software design called Goal-directed design. I refer to it as an approach or idea, because it is not a theory about users or interaction, neither is it a complete process for software development. Cooper has introduced the ideas about personas and goal-directed design in the book *The inmates are running the asylum* [Cooper 1999] and in articles [Cooper 1996]. In addition, goal-directed design is promoted through Coopers consulting firm, so he has a commercial interest in it as well.

1.2 Purpose of the paper

Cooper's book and the idea of personas has been discussed to a certain degree and are often mentioned briefly in for example HCI courses and literature, but has not really made much impact in the academic HCI community. Only a few articles mention it, e.g. Jettmar & Nass [2002] and Muller & Carey [2002]. As the knowledge about personas isn't widespread, I believe there are reasons to take a closer look at these ideas.

Goal-directed design and personas has a focus on practical interaction design. It is not really a theoretical perspective of human-computer interaction, although Cooper's ideas imply a distinctive perspective on the role of users, the usage of artefacts and certainly on design of technology. This makes it interesting to how this concept relates to some theoretical perspectives on users and interaction that is used in HCI. One such theory that I will discuss is activity theory.

I will set the concept of personas in relation with the ideal types of the perspectives and activity theory. First I will analyse some important characteristics of the persona/goal-directed design approach: aim of perspective, relation with design, unit of analysis, and relation between artefact– person.

The persona approach implies a distinctive perspective of the user and it is sprung from a practical approach to interaction design. The purpose of this paper is to examine how this concept relates to some theoretical perspectives on users and interaction.

2 Personas and goal-directed design

The word persona[1] illustrates one of the important characteristics of Cooper's concept – that a model of a user also should have a bit of personality – a life-like character driven by personal motives.

But why should users' personality be important? According to Cooper [1999], it is a solution to a common problem in the design process. Concepts as "user", "designed for the user" and "user-friendly" are too vague and therefore not practical to use as design models or definitions for the communication in the development team. With a blurred concept of "the user" there is easy to design for almost every possible feature. The result is often a bad compromise burdened with usability problems. Cooper [1999, p.126] labels this phenomena as "the elastic user"

Cooper recommends to never referring to "the user" in design. Instead, one should use a very specific individual – a persona – and direct the design for this individual. The reason for this approach is according to Cooper [1999, p.128]: "The more specific the persona is, the more effective they are as design tools. With more specific, idiosyncratic details, the persona becomes a "real" person in the minds of the developers."

Cooper emphasises that a persona is a tool for communication and design within the group of designers, software developers, managers, customers and other stakeholders. The purpose is not to give a precise description or a complete theoretical model of a user. Instead, it is aiming at a simple, but good enough description of the user to make it possible to design the system.

So, how is the concept of persona defined? Cooper [1999, p.123] defines personas as:

> *"A precise description of our user and what he wishes to accomplish."*

Calde, Goodwin & Reimann [2002] gives a slightly more detailed definition:

> *"User models, or personas, are fictional, detailed archetypical characters that represent distinct groupings of behaviours, goals and motivations observed and identified during the research phase."*

2.1 An archetypal and fictional user

The definitions state that a persona is a fictional, detailed user model that represents archetypical users. This implies that it isn't a description of a real user or an average user. It is not job descriptions or roles, which is common in other user

[1] The word persona is derived from the Latin persona, referring to the masks worn by actors in ancient theatres. Cooper uses the terms persona and archetype, which also are common in Jungian psychology. But in this case, a persona is not really near Jung's definition. In Jungian psychology, a persona is the personality that an individual projects to others, as differentiated from the authentic self. Cooper does not refer to Jung or ancient theatres. However, in his meaning of persona, he is somewhat inspired by the traditional usage of the term.

profiles used in software design, for example actors in use-cases. Though personas are not real people, they represent them throughout the design process.

The fictional ingredient of personas, does not mean that they are just fantasies. Actually, they are not so much "maked up", but discovered during the initial stages of the design. Fictional details are added to make them more concrete and effective for design. For example, name, picture and some personal background details are made up [Cooper 1999, pp.124-128].

2.2 Purposes and people

The definitions also focus on the motives behind the user's actions. Cooper [1999, p.149] argues that good interaction design has a meaning only in the context of a person actually using it for some purpose: "You cannot have purposes without people […] That is why the two key elements of our design process are goals and personas; purposes and people."

A persona is therefore always defined by her goals. The goals are vital as they direct the design of the artefact, which also is reflected in the name – "goal-directed design".

There is an essential distinction between *goals* and *tasks*. A goal is an end condition, while a task is an intermediate process necessary to accomplish the goal. Designing a system by the tasks instead of the goals is a common mistake that leads to ineffective interaction.

Cooper's definition of goals is mainly from an individual's perspective, but some goals originate from the organisation. Goals are on a very high level, for example "spend time on patient care". The individual's goals are an essential part of the persona and the design process. They are categorised in four different types: personal, corporate, practical and false goals. A typical personal goal is for example *to avoid feel stupid when using the financial system*. A corporate goal may be *to increase the profit by using the financial system*. If the different goals result in a conflict, personal goals usually takes precedence over the other types. This is because the goals that are closer to the individual's basic motives are the most important. Of course, this influences the design: "The essence of good interaction design is devising interactions that let the users achieve their practical goals without violating their personal goals." [Cooper 1999, p.150].

2.2.1 Personal goals

Personal goals are simple, universal and personal, e.g. not make mistakes, get an adequate amount of work done and have fun or at least not be too bored.
Cooper [1999, p.156] notes that the personal and common nature of these goals makes them easy to ignore. Paradoxical, they are seldom discussed in the design process or included in other user models.

2.2.2 Corporate goals

These goals are the businesses or work organisation's goals with a particular system, transferred to the persona. They are important as they focus the design on the big issues. But a system must fulfil the personal goals first. Some examples: Increase the market share, and offer more products or services.

2.2.3 Practical goals

Practical goals bridge the gap between the objectives of the organisation and the objectives of the individual. For example, the practical goal of handling the client's demands connects the corporate goal of higher profits with the user's personal goal of being productive.

Cooper [1999, p.157] denotes corporate and practical goals as hygienic goals, which means that they are necessary for the user, but are powerless to motivate by themselves.

2.2.4 False goals

False goals are goals that are not relevant for the user. Many of these are really objectives to support the technical development of a system. Thus motives of the programmers and not of the users. Some examples: save memory, save keystrokes, run in a browser, safeguard data integrity or use new technology.

2.3 A persona example

Calde et al. [2002] has an example of a persona used in their design of a health-care management system. (The example in the article is a summary. In the actual design case, the description of the persona was about a full page.).

> *Persona: Rhonda Wilson, Nurse Unit Coordinator*
>
> *Rhonda is a 36-year-old registered nurse who has worked at several skilled nursing facilities. She started out in acute care but moved to long-term care so she could have more autonomy. Rhonda was promoted to Unit Coordinator four years ago because she is very competent and generally well organised.*
> *Rhonda is entirely overwhelmed and is drowning in paper, even more so than the average nurse. She often misses eating dinner with her boyfriend because she has to work late, filling out forms and reports.*
>
> *Rhonda's goals are to:*
> *Spend time on patient care and staff supervision, not paperwork.*
> *Be proactive. Rhonda needs to understand trends in order to solve problems before they happen, instead of just reacting to crises.*

> *Know that things are being done right. Rhonda supervises the unit because she's good at what she does. If nurses aren't following procedure or documenting things, she wants to know right away.*

3 How to create Personas

3.1 Goal-directed design

Goal-directed design is not a complete, detailed process for software development like for example Rational Unified Process (RUP). Rather, it comprises an approach to design based on personas, goals and scenarios. Cooper does not mention any scientific studies to support his ideas, however his book is full of examples in an entertaining style that is suppose to back up his ideas [Cooper 1999].

During system development, a number of personas are created. They are used as main characters in a scenario-based, iterative design process [Cooper 1996]. Even if personas are user models that have fictional elements, they are based on studies of real or possible users. Cooper does not describe in detail how the data for the personas are collected and analysed, but Calde et al. [2002], Freydman, [2002] and Goodwin [2001] gives more profound descriptions.

Ethnographic field studies and contextual inquiry are used in the early phases of the design in order to get data about the users. The result is a number of behavioural patterns for a future or an existing system. The pattern points to the users' goals and motives that is the desired effect of using the system. In business and technical domains, these patterns tend to map to professional roles. For consumer products they tend to correspond to lifestyle choices [Calde et al., 2002].

3.2 The cast of characters

In the next phase, several personas are created, based on the behavioural patterns and its associated goals. By creating a number of distinct personas, the whole range of behaviour is covered. Ideally, the behaviour of the personas should not overlap in order to keep the number of personas to a minimum.

Each persona is elaborated in more detail. Goodwin [2001] suggests that a description of persona should be captured in one to two pages consisting of goals, skills, attitudes, environment and a few fictional personal details to bring the persona to life. The number of personal details must be balanced. Too much "personality" is in the way. With too little, there is a risk that persona will turn into a generic user instead of a precise design target.

Personas are design tools. The persona is unique for the domain and the design problem it was created for. As the persona isn't a complete and general model of a user, it can't be used in other domains or used later for new products [Goodwin, 2001].

Every project gets its own cast of characters, which consists of 3-12 unique personas. Not everyone is designed for, but they are all useful for articulating the user population. Some are defined only to make it clear that we are not designing

for them (a negative persona). Depending how much different personas should influence the design, they are given different status: primary, secondary, supplemental, served and negative. Every cast of characters has at least one primary persona, the individual who is the main focus of the design.

To be a primary, a persona is someone who must be satisfied, but cannot be satisfied with a user interface designed for any other persona. Identifying the primary persona is a vital step in the development of the cast of characters. Cooper [1999, p.137] argues that every primary requires a separate and unique user interface. If two primaries are identified, two different interfaces should be designed.

The following phase of goal-directed design focuses on scenarios that follow the persona's goals. A scenario can be seen a distinct activity set in a specific context. Cooper [1999, p.180] defines a scenario as "a concise description of a persona using a software-based product to achieve a goal". Thus, personas are the main characters of scenarios. Scenarios are also constructed from the information gathered during the initial investigation phase.

Personas are "played" through the scenarios, to test the validity of the design. Through the scenarios, the design could change to fulfil the needs of the persona.

4 Discussion – the perspective of personas and goal-directed design

Goal-directed design and personas are an approach to software design. With is focus on practical interaction design, it is not really a theoretical perspective of human-computer interaction, although Cooper's ideas implies a certain perspective on the role of users, the usage of artefacts and certainly on design of technology. This makes it interesting to discuss Cooper's perspective in comparison to some of the different theoretical perspectives used in HCI, such as activity theory.

I will set the concept of personas in relation with the ideal types of the perspectives and activity theory. First I will analyse some important characteristics of the persona/goal-directed design approach: aim of perspective, relation with design, unit of analysis, and relation between artefact–person.

4.1 Aim of this approach and relation with design

What's the aim of the approach of personas and goal-directed design and what's the relation with design? Cooper's intention is that it should be a practical process for interaction design, which will result in usable products. A persona is a tool for design and communication in the system development team. By using this tool will help the designers to focus on the right users and their motives, including personal goals that can influence the use. The more specific the persona is the more effective it is as a design tool. This addresses the problem with the elastic user, which is common in interaction design.

Thus, the persona-approach aims to give an understanding and a description of the users to a certain degree. It is useful only in the context of a specific design

problem. In this limited domain, the persona model should also be able to predict the users' behaviour in order to direct the design. At least, this is what Cooper says. Exact how this is accomplished is not discussed. Somehow, He assumes that the designers' knowledge of the persona's goals and the context (scenario), combined with design-common-sense, will move the design in the right direction. I think this is a major weakness of goal-directed design. The design process only focuses on the creation of personas, not so much how personas should guide the design. At least, user tests of prototypes in an iterative way, are needed to validate the design. Cooper [1999, pp.205-209] is sceptic to user testing and iterative prototyping, though he does not reject them completely. Instead he argues that interaction design is the far most important part of system development.

4.2 Unit of analysis

What's the unit of analysis presented by the persona and goal-directed design perspective? The users are working to accomplish their goals by using a software-based tool. The focus is on the user and her goals. The activity is something that happens when the user is trying to achieve her objectives. The activity (or scenario) is the context in where the user and tool are interacting, but this is somewhat outside the scope. Cooper describes the focus of his perspective as "people and purposes – personas and goals".

4.3 Relation between artifact and person

What's the relation between artefact and the user in the persona approach? The main focus is on the user and her goal. People and things are not equal. Artefacts are mere tools. Though the tool does not just exist – it is designed for a specific purpose.

By contrast, the persona is created only to be an instrument for design of an artefact. The artefact is then the tool for the user to accomplish her goals. So there is a dualistic relationship. The purpose of the artefact is to be designed to satisfy the user's need. The persona is an archetype of the users, unique for every design project and artefact. Therefore the existence of the persona is dependent on the specific designed artefact.

The view on the artefacts has a narrow perspective. In his book, the artefacts to be designed are almost always regarded as "software-based products" or just "products" [Cooper 1999]. The products are either consumer products used by individuals, e.g. a scanner, or software applications used in business or office work, e.g. an electronic calendar or a spreadsheet. Mainly, the products are used by a single individual without relation to other user's or other systems. The action happens between the individual and the single tool/product. This makes the perspective very distant from the distributed cognition perspective [Hollan, Hutchins & Kirsh 2000]. It should be interested to wider the perspective of personas to include a group of user's working together with distributed computer systems.

The relation with person and artefact implies a view that has some similarities with the tool perspective [Kammersgard 1990]. Both perspectives focus on the individual use, where the artefacts are seen as tools. But, the tool perspective emphasises more on the user's tacit knowledge, and personas focuses explicit on the users' motives. According to the tool perspective, tacit skills cannot and shall not be described. For personas, skills and goals are described on a very high level, so there's a risk that tacit knowledge of the users are overlooked in the design. Another difference is in the design process. In the tools perspective, the ideal is to involve user's actively in the design of their tools. In goal-directed design, the users are only used as sources for the design.

The relation between the user and the artefact raises the question of the role of the user in the persona approach. Cooper says that a persona isn't a job description or a role. But what is it then? His opinions imply that it is a user of products, which is close to think of the user as a consumer, either as a private consumer or a professional worker. As a consumer, the product has to meet our goals, but the persona's goals are dependent on the product, excellent designed or not. The process does not ask the question if the product is needed in the first place. Maybe our goals are completely different if we don't have the product at all or if we have a completely different artefact? The restricted perspective of Cooper's approach may lead to better designed artefacts, but may also lead to completely wrong artefacts for human work.

4.4 Comparison with ideal types

The ideal types of HCI perspectives (system theoretical, humanistic and socio-technical) are characterised by a number of properties, amongst them person, division of labour, relation man-machine and system development [Nurminen 1987].

Cooper's focus on the user and her goals is close to the humanistic perspective, where the persona is an intentional actor and fully visible [Nurminen 1987]. In the socio-technical perspective, the emphasis is on the interaction between person and information system. This is also included in Cooper's approach, but the interaction is always a means for the user to achieve her goals. The idea of a fully integrated system (the systems perspective) or a distinction of social and technical systems (the socio-technical perspective), is not prominent in goal-directed design.

The view of system development also places goal-directed design close to the humanistic perspective, where system development is focused on the use of the system and on the user's jobs. A difference is that Cooper also emphasises on users' personal motives, not only the needs of their job roles. Another difference is that the persona isn't a real person; it is an archetypical and fictional representation of users. Cooper argues that real people are of great interest as raw data, but are frequently useless – and often disadvantageous – to the design process. As a design tool, it is more important that a persona is precise than accurate. All extreme/odd users in the population are not that important to design for [Cooper 1999, p.129]. This is another example of consumer-view of users.

4.5 Comparisons with Activity theory

As described above, the persona/goal-directed design approach share some similarities with the humanistic and socio-technical ideal types perspective, as well as the tool perspective. Another perspective that is interesting to compare to is activity theory, as both approaches focuses on the goals and motives of the user or the activity.

4.5.1 Activity theory and personas

In activity theory, the unit of analysis is the activity, composed of subject, object and operations. The object/objective held by the subject, motivates activity [Nardi 1996]. According to Kaptelinin [1996], activities are oriented to motives. Each motive is an object, material or ideal that satisfies a need. This emphasis on motives and objectives seems to be a resemblance between activity theory and personas/goal-directed design. However, there are also many differences, for example the aim of the perspectives. Therefore it is interesting to see if the different approaches have more in common.

Activity theory is a framework for studying different forms of human practices as development processes, with both individual and social levels [Kuutti 1996]. This is a different and much wider aim than Cooper's approach. Goal-directed design and personas only deals with describing users in order to create a tool for design. Therefore, personas and scenarios are fictional and hypothetical, not actual users in a real context.

A persona is a high-level model of a user, mainly on an individual level. The persona include descriptions on a social level, for example, goals as "not to feel stupid", implies that the persona are acting in an social environment. Other goals originate from the organisation. However, the persona's activity (scenario) is concentrating on the individual's interaction with a product.

The activity is the focus in activity theory. In goal-directed design/personas the focus is on the user and her goals. The "activity" in goal-directed design is something that happens when the user is trying to achieve her objectives – this is described in a scenario. So, the activity in activity theory could be compared to the scenario in goal-directed design. Though, the activity (in activity theory) is a much richer framework for describing the context. Activity theory has a very specific notion of context – the activity itself is the context. Context is both internal and external to people [Nardi 1996]. The internal context involving specific object and goals is included in the persona as personal goals, skills and background. The external context is the scenario, but Cooper does not describe in detail how scenarios should be constructed.

The persona is related to the subject in activity theory, and the "product" is related the artefact/instrument. In an activity system, the artefact has an essential role as a mediating instrument [Kuutti 1996], which is not explicitly described in goal-directed design. The mediating artefact can be both physical as a hammer, and cognitive as language. This distinction is not made by Cooper.

The persona's goals are related to the object/objective of the activity system. The object of an activity system is a complex concept. The object can both be an object

(physical or cognitive) of the subject's work and the objective of the activity. Objects can also be transformed in the course of an activity [Nardi 1996]. The goals of a persona belong mainly to the individual, and are not an attribute of the activity system. Also personas does not have the more complex nature of object/objectives, found in activity theory.

The activity of an activity system is a three-level hierarchical structure [Center for Activity theory and Developmental Work Research 1998]. Activities on the highest level consist of actions, which in turn consists of operations (table 1].

Level	**Oriented towards**	**Carried out by**	**Related goal type in personas**
Activity	Object/motive	Community	Corporate goal
Action	Goal	Individual or group	Personal / practical goal
Operation	Conditions	Routine	–

Table 1. The hierarchical structure of activity and related goal types in personas.

The objective that the different levels are oriented to, can be related to different types of a persona's goals. The object/motive (activity level) can be related to corporate goals; goal (action level) can be related to personal and practical goals. Conditions (operation level) are on a low level that is not described in goal-directed design. Goals in activity theory are conscious and different actions may be undertaken to fulfil the same goal [Nardi 1996]. This view is also shared by Cooper.

There is a distinction between motives, goals and tasks in activity theory. But the hierarchy is dynamic. The levels can move up and down, so when actions have been performed many times they can be automated operations. Objects remain fixed for an activity system, but goals, actions and operations can change as condition change [Nardi 1996]. This dynamic is not a part of personas/goal-directed design, though Cooper says that tasks change when technology (the artefacts) changes, but goals remains the same. That's why system development should design to meet the goals, not the tasks.

5 Conclusion

The main contribution of using personas in interaction design is that the process will be focused on the user's goals instead of tasks. The design process also regards personal objectives as important, which often is neglected in design methods and in theoretical models of users. The risk with personas is that the designers may easily be carried away and more or less make up personas without careful analysing real users. Cooper has a commercial interest to promote goal-directed design as a straightforward and effective design process. So it is important to remember that personas are not a complete and accurate tool for user modeling. Another weakness is that the relevance of his ideas isn't confirmed in scientific studies.

The role of the user in Cooper's approach is blurred with the roles as a consumer and a marketing target. The issue of usability and interaction design becomes a matter of satisfying the needs of the consumers, not to improve human work and life.

Activity theory and personas/goal-directed design share the emphasis on that interaction is driven by users' motives and goals. But activity theory is a much more complete and elaborated framework for studying activities. Goal-directed design has a more narrow view on users and activities, but this also makes it more easy to use as a tool to direct design. This, naturally, is the main aim of the approach. It should be possible to combine the two approaches. Activity theory could for an example be used in the investigation phase of design as a framework for describing the users and their behaviour. Personas could be used in activity theory as a comprehensive model for describing the subject in an activity system.

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