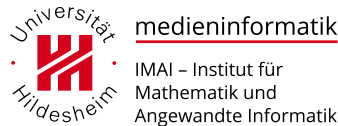


Goal-Directed Design: Modelling Users

Personas and Goals

Jörg Cassens

Contextual Design of Interactive Systems



1 Introduction

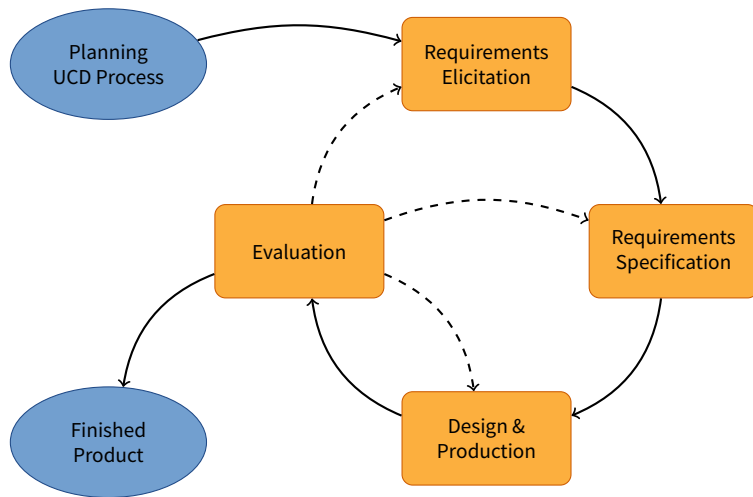
Assignment 6.1: Go & Carroll

- Required reading for week 3
 - Go, Kentaro, and John M. Carroll. "The blind men and the elephant: Views of scenario-based system design." *interactions* 11, no. 6 (2004): 44-53.
- The texts will be discussed in the tutorial 14.05.2019
- Course readings can be downloaded in the learnweb
- Every text has a wiki-page in the learnweb
 - Use it to describe the text
 - Use it to link the text to the course
- Results of the discussion may also be written up

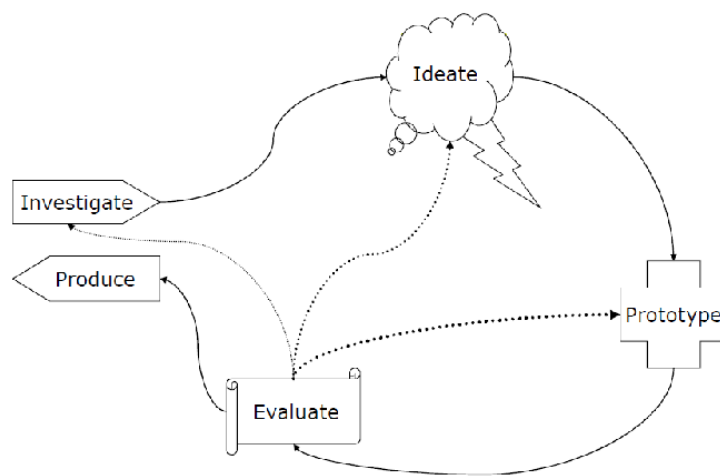
Models

- Models are used in the natural and social sciences to represent complex phenomena with a useful abstraction
- Good models emphasize the salient features of the structures and relationships they represent and de-emphasize the less significant details
- We are designing for users, so it is important that we can understand and visualize the salient aspects of their relationships with each other, what they want, with their social and physical environments, and with the products we hope to design
- Using our research to create descriptive models of users as a powerful tool for interaction design

User Centred Design Revisited



User Centred Design Revisited



Dell (2018)

What are personas?

A persona is a fictional character that is meant to represent a group of users that share common goals, attitudes and behaviours when interacting with a particular product or service. (Dell, 2018)

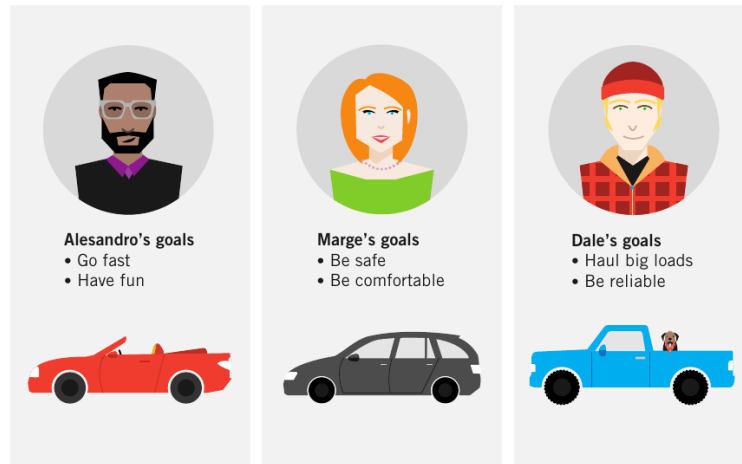
See also our required reading about personas.

All Users



(Cooper et al., 2014)

Specific Users

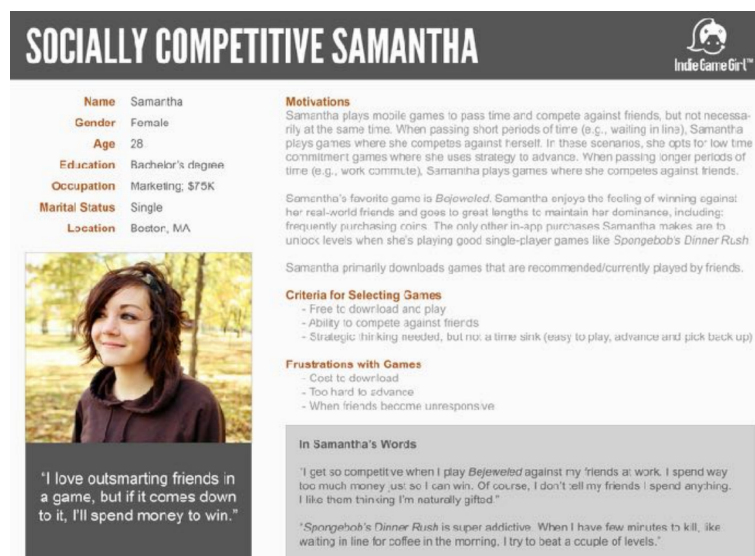


(Cooper et al., 2014)

2 Personas

Personas as a design strategy

- Allows you to focus on the specific needs and goals of specific, archetype individual based on user research
- The archetype should be specific and precise so that it can be used to make decisions with regard to scope and design
 - **Not** a real person, but a composite archetype (“typical” user)
- Each persona represents a group of users
- Designing for such an archetype allows us to do really well at making this person happy
- Often, it results in something that ends up working well for others, too.
 - E.g. bags with wheels, originally intended for commercial airline pilots



Dell (2018)

Why Personas are effective

- **Empathy** – We are engaged by fictional characters all the time in movies and books.
- **Focus** – Personas provide a precise way of thinking about...

- how users behave
- their motivations
- how they think
- what they wish to accomplish (goals)
- why they want to do what they do
- **Communication** – Provides a way of conveying a broad range of quantitative and qualitative data
- **Assumptions** – about users made explicit

Why develop personas?

Within the design/engineering team:

- provides a shared understanding
- engage in empathy of design towards a target user
- helps communicate who you are building the product for
- helps determine what the product should and shouldn't do
- serves as a stable reference point during the design process
- provides focus
- a stand-in for actual users
- testable via walkthroughs

Assumptions

Strengths of personas as a design tool

- **Determine** what a product should do and how it should behave
- **Communicate** with stakeholders, developers, and other designers
- Build **consensus and commitment** to the design through a common language
- **Measure** the design's effectiveness
- **Contribute** to other product-related efforts such as marketing and sales plans
- It addresses common problem in user-centred design
 - Elastic user, self-referential design, edge cases

The Elastic User

- The term user causes trouble when applied to specific design problems and contexts
- Imprecision makes it dangerous as a design tool, because every person on a product team has his own conceptions of who the user is and what the user needs
- Designing for the elastic user gives a product team license to build what it pleases, while still apparently serving "the user"
- Even focusing on user roles or job titles rather than specific archetypes can introduce unproductive elasticity to the focus of design activities

Self-referential design

- Self-referential design occurs when designers or developers project their own goals, motivations, skills, and mental models onto a design
- The audience doesn't extend beyond people like the designer
- Fine for a narrow range of products but is inappropriate for most others
- Similarly, developers apply self-referential design when they create implementation-model products

Edge Cases

- Another syndrome that personas help prevent is designing for edge cases—situations that might happen but that usually won't for most people
- Typically, edge cases must be designed and programmed for, but they should never be the design focus
- Personas help in prioritizing features

Reminder: Qualitative and Quantitative Research



Personas are based on research

- Personas, like any models, should be based on real-world observation
- Primary source of data used to synthesize personas should be in-context interviews borrowing from ethnographic techniques, contextual inquiry, or other similar dialogues with and observation of actual and potential users
- Quality of the data gathered following the process impacts the efficacy of personas in clarifying and directing design activities
- Other data can support and supplement the creation of personas
 - Interviews outside of context
 - Information supplied by e.g. SME
 - Market research
- Base your personas on real data, not assumptions
- Make sure your personas do not fall into your stereotypes of people in your target user groups!

Personas are product specific

- Although personas are depicted as specific individuals, they represent a class or type of user of a specific interactive product
- A persona encapsulates a distinct set of behaviour patterns regarding the use of a particular product
- You identify these behaviours by analyzing interview data
- They are supported by supplemental data (qualitative or quantitative) as appropriate
- Personas are also occasionally called composite user archetypes
- Because they are constructed from specific observations of users interacting in specific contexts, they cannot easily be reused across products

Personas explore ranges of behaviour

- Target market for a product describes demographics as well as lifestyles and sometimes job roles
- It does not describe the ranges of different behaviours exhibited by members of that target market regarding the product and related situations
- Ranges are distinct from averages:
 - Personas do not seek to establish an average user
 - they express exemplary or definitive behaviours within these identified ranges
- Products must accommodate ranges of user behaviour, attitudes, and aptitudes, so designers must identify a persona set associated with any given product
- Different personas represent different correlated behaviour patterns

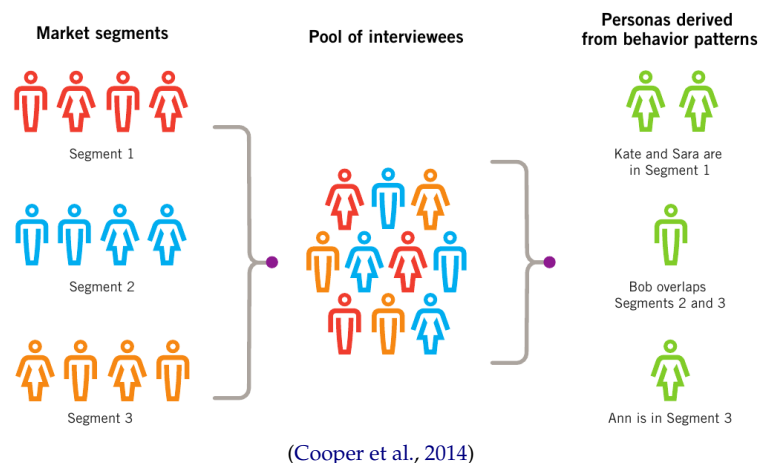
Personas have motivations

- All humans have motivations that drive their behaviours; some are obvious, but many are subtle
- It is critical that personas capture these motivations in the form of goals
- Goals enumerated for personas are shorthand for motivations that not only point to specific usage patterns but also provide a reason why those behaviours exist
- This helps understanding why a user performs certain tasks
- This makes it possible to eliminate activities as long as the goal is still reached

Personas can represent relevant nonusers

- Users and potential users of a product should always be an interaction designer's primary concern
- Sometimes it is useful to represent the needs and goals of people who do not use the product but nevertheless must be considered in the design process
- For example, it is commonly the case with enterprise software (and children's toys) that the person who purchases the product is not the same person who uses it

Personas vs. Market Segments



3 Goals

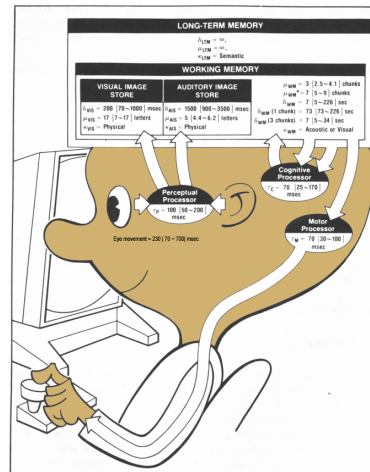
Goals motivate usage patterns

- People's or personas' goals motivate them to behave as they do
- Goals do not just provide an answer to why and how personas want to use a product
- They also can serve as shorthand in the designer's mind for the sometimes complex behaviours in which a persona engages and, therefore, for their tasks as well

Goals should be inferred from qualitative data

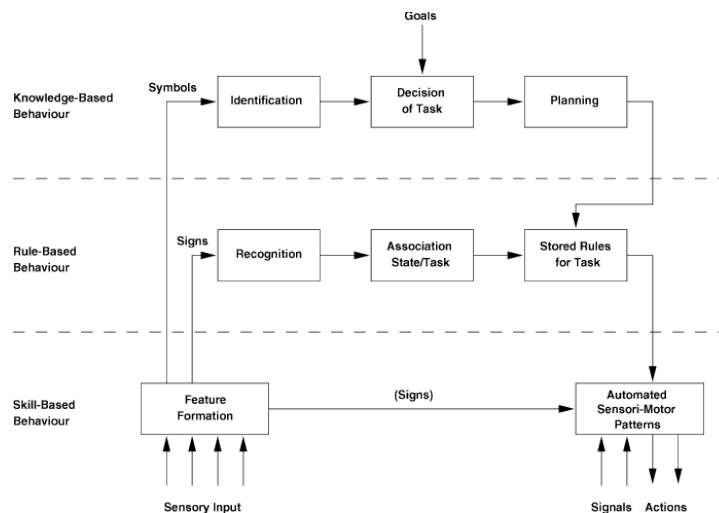
- You usually cannot ask a person what his goals are directly
- Either he'll be unable to articulate them, or he'll be inaccurate or even imperfectly honest
- People simply are unprepared to answer such self-reflective questions accurately
- Therefore, designers and researchers need to carefully reconstruct goals from observed behaviours, answers to other questions, nonverbal cues, and clues from the environment, such as the titles of books on shelves

Model Human Processor (MHP)



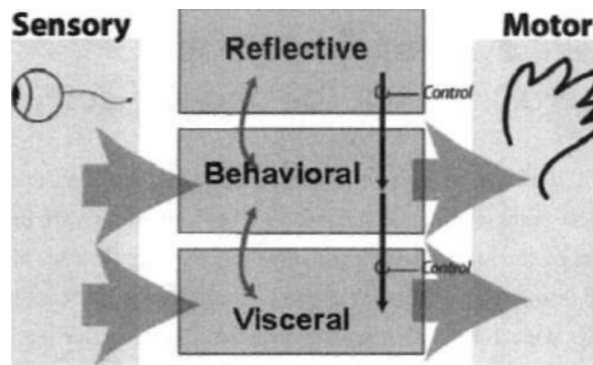
Card et al. (1983)

Three levels of behaviour



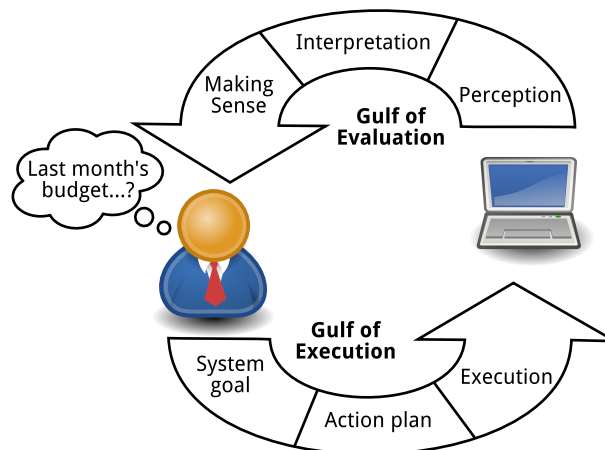
Rasmussen (1983)

Three levels of processing



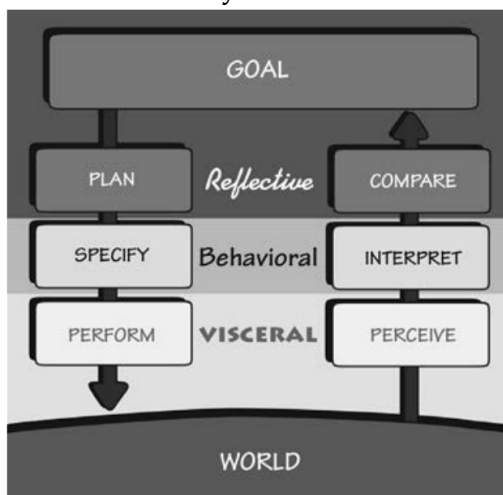
(Norman, 2004)

Gulfs



Adapted from Norman (2013)

Foundations of the Action Cycle



Visceral response is at the lowest level: the control of simple muscles and sensing the state of the world and body.

The **behavioural** level is about expectations, so it is sensitive to the expectations of the action sequence and then the interpretations of the feedback.

The **reflective** level is a part of the goal- and plan-setting activity as well as affected by the comparison of expectations with what has actually happened.

Design for visceral response

- Designing what the senses initially perceive, before any deeper involvement with a product or artefact occurs
 - Visual appearance & motion, sound
- Visceral design is actually about designing for affect, not designing for beauty
- However, in the world of consumer products and services, attractive user interfaces are typically appropriate

- It has been demonstrated that users initially judge attractive interfaces to be more usable, and that this belief often persists long after a user has gained sufficient experience with an interface to have direct evidence to the contrary

Design for behaviour

- Designing product behaviours that complement the user’s own behaviours, implicit assumptions, and mental models
- Perhaps the most familiar to interaction designers and usability professionals
- Getting behaviour design right—assuming that we also pay adequate attention to the other levels—provides our greatest opportunity to positively influence how users construct their experience with products

Design for reflection

- Most challenging aspect of the three levels of processing
- Designing to build long-term product relationships
- What is unclear is the best way to ensure success—if that’s even possible
- Easy to see how products whose value and purpose are, in essence, the aesthetic statements they make appeal strongly to people’s reflective desire for uniqueness or cultural sophistication
- More difficult to see how products that also serve a truly useful purpose need to balance the stylistic and the elegant with the functional

Three types of user Goals

- Norman presents a three-level theory of cognitive processing and discusses its potential importance to design
- Cooper et al. (2014) claim that three types of user goals correspond to Norman’s visceral, behavioural, and reflective processing levels
 - Experience goals
 - End goals
 - Life goals

Life Goals (Reflective)	Who the user wants to be
End Goals (Behavioral)	What the user wants to do
Experience Goals (Visceral)	How the user wants to feel

Experience goals

- Experience goals are simple, universal, and personal
- These goals provide focus for a product’s visual and aural characteristics, its interactive feel—such as animated transitions, latency, touch response, and a button’s snap ratio (clickiness) — its physical design, and its micro-interactions
- These goals also offer insights into persona motivations that express themselves at the visceral level
 - Feel smart and in control
 - Have fun
 - Feel reassured about security and sensitivity
 - Feel cool or hip or relaxed
 - Remain focused and alert
- Interaction, visual, and industrial designers must translate persona experience goals into form, behaviour, motion, and auditory elements that communicate the proper feel, affect, emotion, and tone

End goals

- End goals represent the user's motivation for performing the tasks associated with using a specific product
- When you pick up a cell phone or open a document with a word processor, you likely have an outcome in mind
- A product or service can help accomplish such goals directly or indirectly
 - Be aware of problems before they become critical.
 - Stay connected with friends and family.
 - Clear my to-do list by 5:00 p.m. every day.
 - Find music that I'll love.
 - Get the best deal.
- Interaction designers must use end goals as the foundation for a product's behaviours, tasks, look, and feel

Life goals

- Life goals represent the user's personal aspirations that typically go beyond the context of the product being designed
- These goals represent deep drives and motivations that help explain why the user is trying to accomplish the end goals he seeks to accomplish
- Life goals describe a persona's long-term desires, motivations, and self-image attributes, which cause the persona to connect with a product
 - Live the good life.
 - Succeed in my ambitions to...
 - Be a connoisseur of...
 - Be attractive, popular, and respected by my peers.
- Interaction designers must translate life goals into high-level system capabilities, formal design concepts, and brand strategy

User goals are user motivations

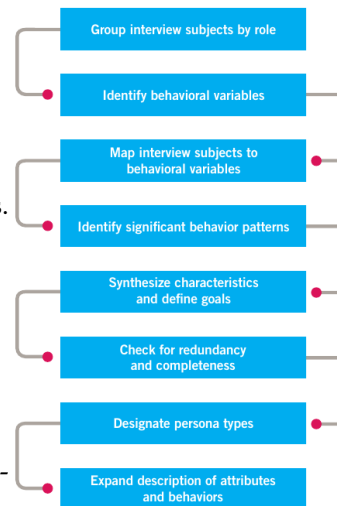
- It is important to remember that understanding personas is more about understanding motivations and goals than it is about understanding specific tasks or demographics
- Linking persona goals with Norman's model, top-level user motivations include the following:
 - Experience goals, which are related to visceral processing: how the user wants to feel
 - End goals, which are related to behaviour: what the user wants to do
 - Life goals, which are related to reflection: who the user wants to be

Nonuser goals

- User goals are not the only type of goals that designers need to take into account
 - Customer goals
 - * Parents, businesses
 - Business and organizational goals
 - * Increase profit, Increase market share, Educate the public.
 - Technical goals
 - * Run in a variety of browsers, Increase application execution efficiency
- User goals most important for success of system

4 Constructing Personas

1. Group interview subjects by role.
2. Identify behavioural variables.
3. Map interview subjects to behavioural variables.
4. Identify significant behaviour patterns.
5. Synthesize characteristics and define goals.
6. Check for completeness and redundancy.
7. Designate persona types.
8. Expand the description of attributes and behaviours.

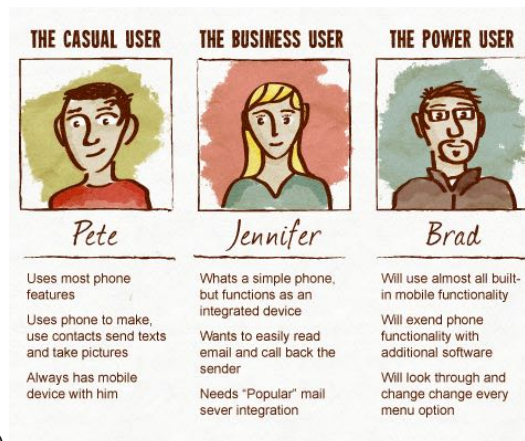


Step 1a: Group interview subjects by role

- After you have completed your research and performed a cursory organization of the data, group your interviewees according to their roles
- For enterprise applications, roles are easy to delineate, because they usually map to job roles or descriptions
- Consumer products have more subtle role divisions, including family roles, attitudes or approaches to relevant activities, or interests and aptitudes regarding lifestyle choices

Step 1b: Segmenting by (other) data

- Logical groupings of users
- Group users that have similar characteristics, motivations, goals, capabilities, experiences, lives, etc.
- Each group represents one “persona”

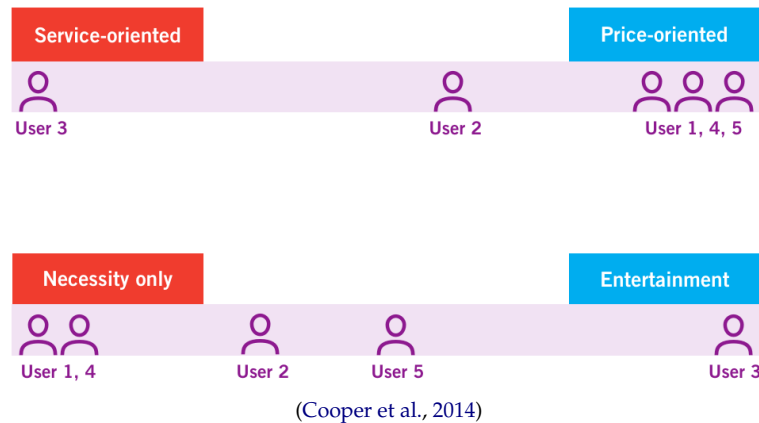


Example: Dell (2018)

Step 2: Identify behavioural variables

- **Activities** — What the user does; frequency and volume
- **Attitudes** — How the user thinks about the product domain and technology
- **Aptitudes** — What education and training the user has; ability to learn
- **Motivations** — Why the user is engaged in the product domain
- **Skills** — User abilities related to the product domain and technology

Step 3: Map interview subjects to behavioural variables



Step 4: Identify significant behaviour patterns

- After you have mapped your interview subjects, look for clusters of subjects that occur across multiple ranges or variables
- A set of subjects who cluster in six to eight different variables will likely represent a significant behaviour pattern that will form the basis of a persona
- Some specialized roles may exhibit only one significant pattern, but typically you will find two or even three such patterns
- For a pattern to be valid, there must be a logical or causative connection between the clustered behaviours, not just a spurious correlation

Step 5: Synthesize characteristics and define goals

- We derive a persona's goals and other attributes from their behaviours
- These behaviours are synthesized from what was observed/identified in the research process as representing meaningful, typical use of the product over a period of time that adequately captures the relevant set of user actions
 - The behaviours themselves (activities and the motivations behind them)
 - The use environment(s)
 - Frustrations and pain points related to the behaviour using current solutions
 - Demographics associated with the behaviour
 - Skills, experience, or abilities relating to the behaviour
 - Attitudes and emotions associated with the behaviour
 - Relevant interactions with other people, products, or services
 - Alternate or competing ways of doing the same thing, especially analog techniques
- Give the persona a name

Step 6: Check for completeness and redundancy

- Your personas should now be starting to come to life
- You should check your mappings and personas' characteristics and goals to see if any important gaps need filling
- This again may point to the need to perform additional research to find particular behaviours that are missing from your behavioural axes
- If you find that two personas seem to vary only by demographics, you may choose to eliminate one of the redundant personas or tweak your personas' characteristics to make them more distinct
- Each persona should vary from all the others in at least one significant behaviour

Step 7: Designate persona types

- By now, your personas should feel very much like a set of real people you know
- What we must do then is prioritize our personas to determine which should be the primary design target
- Goal is to find a single persona from the set whose needs and goals can be completely and happily satisfied by a single interface
 - Primary
 - Secondary
 - Supplemental
 - Customer
 - Served
 - Negative

Step 7.1: Primary persona

- Main target of design
- A product can have only one primary persona per “interface”, but it is possible for some products (especially enterprise products) to have multiple distinct interfaces, each targeted at a distinct primary persona
- In some cases, two separate interfaces might be two separate applications that act on the same data; in other cases, the two interfaces might simply be two different sets of functionality served to two different users
- A primary persona will not be satisfied by a design targeted at any other persona in the set
- However, if the primary persona is the target, all other personas will not, at least, be dissatisfied
- Focus the design for each interface on a single primary persona
- Choosing the primary persona is a process of elimination: You must test each persona by comparing its goals against goals of the others

Step 7.2: Secondary persona

- Is mostly satisfied with the primary persona’s interface
- However, it has specific additional needs that can be accommodated without upsetting the product’s ability to serve the primary persona
- We do not always have a secondary persona
- More than three or four secondary personas can be a sign that the proposed product’s scope may be too large and unfocused
- As you work through solutions, your approach should be to first design for the primary, and then to adjust the design to accommodate the secondary

Step 7.3: Supplemental persona

- User personas that are not primary or secondary are supplemental personas
- Their needs are completely represented by a combination of primary and secondary personas and are completely satisfied by the solution we devise for one of our primaries
- Any number of supplemental personas can be associated with an interface
- Often political personas — the ones added to the cast to address stakeholder assumptions — become supplemental personas

Step 7.4: Customer persona

- Customer personas address the needs of customers, not end users
- Typically, customer personas are treated like secondary personas
- However, in some enterprise environments, some customer personas may be primary personas for their own administrative interface

Step 7.5: Served persona

- Served personas are somewhat different from the persona types already discussed
- They are not users of the product, but they are directly affected by the use of the product
- A patient being treated by a radiation therapy machine is not a user of the machine's interface, but she is very much served by a good interface
- Served personas provide a way to track second-order social and physical ramifications of products
- Treated like secondary personas

Step 7.6: Negative persona

- Negative personas (also sometimes called anti-personas) are used to communicate to stakeholders and product team members that the product is not being built to serve specific types of users
- Like served personas, they aren't users of the product
- Their use is to help communicate to other members of the team that a persona should definitely not be the product's design target
- Good candidates for negative personas are often technology-savvy early-adopter personas for consumer products, criminals, less-harmful pranksters and "trolls," and IT specialists for business-user enterprise products
- As such, they can be used to explicitly rule out functionality

Step 8: Expand the description of attributes and behaviours

- Your list of bullet-point characteristics and goals arrived at in Step 5 points to the essence of complex behaviours but leaves much implied
- Third-person narrative is more powerful at conveying the persona's attitudes, needs, and problems to other team members
- It also deepens the designer/authors' connection to and empathy for the personas and their motivations
 - Narrative
 - * This narrative should be no longer than one or two pages of prose (or slides)
 - * The persona narrative does not need to contain every observed detail
 - * Ideally, the designers also performed the research, and most people outside the design team do not require more detail than this
 - Photo
 - * When you start developing your narrative, choose photographs for your personas
 - * Photographs make them feel more real as you create the narrative and engage others on the team when you are finished

Putting it together

- Photo
- Name – first name starts with the first letter of the segmentation (e.g., Garrett the gamer, Peter the parent)
- Quote that describes the user goals with the product
- Goals - a priority rating and specific objectives are also suggested
- Biographical profile and personal information that affects usage
- Computer, internet and other technology usage are common components
- Key Point: Back up persona with data whenever possible!

Checklist

- Each persona should each have three to four goals
 - Life goals, which are personal aspirations
 - * e.g., wanting to retire before the age of 50
 - Experience goals describe how the user wants to feel while interacting with a product; they are personal and universal
 - * e.g., wanting to be competent while using the product
 - End goals, which are tangible outcomes the user has in mind when using the product
 - * e.g., want to be updated about finances over last month
- Typically experience/end goals are more helpful to designers

Tools & Templates

Full Name

Trait Trait Trait Trait Trait

Goals

- The goals this user hopes to achieve.
- A task that needs to be completed.
- A life goal to be reached.
- Or an experience to be felt.

Frustrations

- The frustrations this user would like to avoid.
- The obstacle that prevents this user from achieving their goals.
- The problems with the solutions already available.
- The product or service that currently does not exist.

Bio

The bio should be a short paragraph to describe the user journey. It should include some of their history leading up to a current use case. It may be helpful to incorporate information listed across the template and add pertinent details that may have been left out. Highlight factors of the user's personal and of professional life that make this user an ideal customer of your product.

Personality

Introvert Extrovert

Analytical Creative

Conservative Liberal

Passive Active

Motivations

Incentive

Fear

Achievement

Growth

Power

Social

Brands

Preferred Channels

Traditional Ads

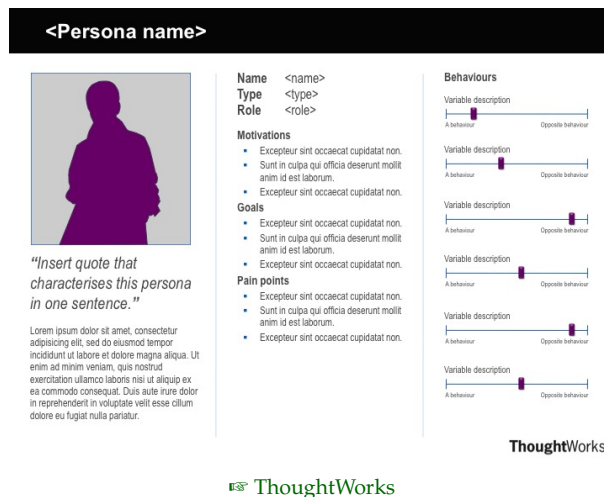
Online & Social Media

Referral

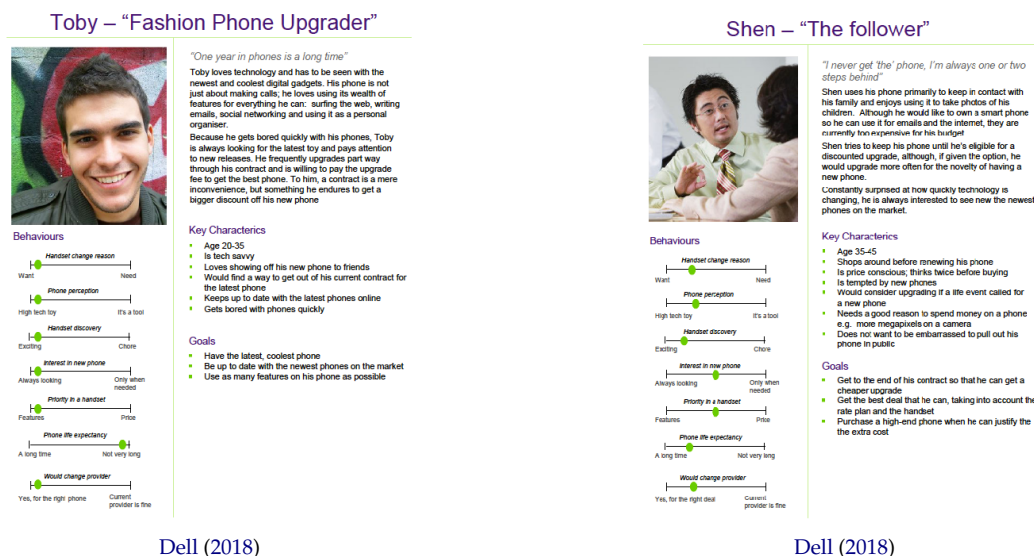
Guerrilla Efforts & PR

Xtensio

Tools & Templates



Examples



5 Closing

Misconceptions

- Designers “make up” personas
 - Persona goals are constructed from inferences and deductions made by the designer when interpreting this data
- Not as useful as involving real people
 - Participatory design might focus too strongly on individual users rather than aggregated sets of user behaviours and makes it more likely that you may miss key behaviours that your individual user (with his idiosyncratic behaviours) just doesn't happen to do—or does differently than most users
- People don't do tasks
 - Tasks are not the center, goals are
- Personas are traceable
 - If you receive pressure to ensure traceability, counter that personas are traceable to the patterns seen across research, not from specific, idiosyncratic interviews

Quantifying Personas

1. Revisit your behavioural variables and interviewee mappings to them.

2. For each variable, construct a multiple-choice question, the answer to which will distinguish between the different personas
3. Construct two to four more questions for each variable that ask the same question in a different way
4. Arrange the survey questions in random order.
5. Field the survey to participants
6. Tabulate each participant's responses, tracking how many answers match each persona.
 - The persona with the most responses for a given participant is the persona that participant has an affinity to.
7. Tabulate how many participants have an affinity to each persona, and divide this number by the number of total participants
 - This is the market size (percentage) for your personas.

Organizational "personas"

- Personas are a tool for characterizing people's behaviour patterns
- Similar but much simpler concept can be useful for describing the behaviours of organizations that our personas are employed by or affiliated with
 - If you are designing a payroll system, the needs of a small business and how the personas in it interact are different from those of a multinational corporation
- As you gathered information for your personas, you also captured information about the organizations they worked for or were otherwise associated with
- It is often helpful to develop aggregate, fictional organizational "personas" with which to affiliate your personas, using similar narrative approaches
- Usually an evocative organization name and one or two paragraphs describing the organization's behaviours and pain points regarding the product or service being designed are enough to provide the necessary context

Assignment 5.2: Contextual Inquiry

- Form pairs of 2 who do not know each other well
- Use a system you are acquainted with and research your use of it
 - You actually have to do the task
 - You would actually do the task on campus on the device you're using
- The other person conducts a contextual inquiry on their task:
 - Focus. Decide what to pay attention to.
 - Partnership. You act as an interested learner, they act like a knowledgeable expert.
 - Perform the inquiry. Ask probing questions. Have them teach you. Don't generate questions in advance; think of them as you observe. Focus questions on what you see happening in context.
- Document your findings
- Present your findings in the course
 - Due date: 07.05.2019

Assignment 6.2: Persona Construction

- Form groups of 4 out of the pairs from Assignment 5.2
- Imagine you are re-designing the system used in the previous assignment
- Create at least two different personas
 - For example a primary and a negative
- Focus on
 - Characteristics
 - Experiences
 - Motivations
 - Goals
- Feel free to use a templates
- Present your findings in the course
 - Due date: 21.05.2019

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