User-centered Redesign of an Informational Website about Work and Travel

Jan Pohlmann
Abstract

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*Jan Pohlmann*

This thesis project was concerned with the common problem of redesigning an informational website. A user-centered approach was taken to renew and organize the content and to design the layout of the website in a way that is tailored to the needs of the users. The report describes a design process that is based on existing approaches and how the first three phases of this process were carried out. The first phase was aimed at gaining a better understanding of the business context, the content of the website and the users. An online survey was carried out and a set of four personas was created. In the next phase, this knowledge informed the different aspects of the design of the website. The content, its structure and the layout of the pages were specified and documented using a sitemap, wireframes and a prototype. During the third phase, all aspects of the design were evaluated in a formative usability test. The results showed that, although they were mostly minor, certain problems existed. To eliminate these problems, a number of improvements to the design were suggested. The thesis project ended at this point and it showed how the redesign of a website can benefit from a user-centered approach. Even without large investments, this approach led to a better understanding of the users, which will likely continue to play a role in the ongoing work on the website.
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Chapter 1

Introduction

1.1 Background

This thesis project was carried out for INITIATIVE auslandszeit, a network of several websites that deal with information about different ways of going abroad. Its goal is to inform young people about the various possibilities of living, working, studying and traveling in other countries and to help them organize their trips. Figure 1.1 shows the most important of the network’s websites. INITIATIVE auslandszeit is a subsidiary of moeller eConsult, a small online marketing company from Münster, Germany.

One of the network’s oldest websites was due for a complete redesign, including an update to the content. It is called Auslandsjob.de and deals with Work and Travel in different countries. Because information is all the website is about, information architecture and the findability of information play a critical role.
1.2 Purpose

The goal of the redesign was to expand the information on the website in a direction that is tailored to the needs of the users and to organize and make accessible said information in a usable way.

The project was supposed to be carried out in a user-centered fashion using appropriate user research methods. User research methods are often tailored towards more transaction-based interactive systems. The challenge with purely informational websites is the lack of clearly specified goals and tasks which make research and evaluation more difficult.

Therefore, a process for the project had to be developed, and appropriate methods had to be identified. The final result of the thesis project was supposed to be a website design that is based on and evaluated through user research.

1.3 Scope

While the implementation was of course part of the website redesign project as a whole, the thesis project only covered the user research, design and evaluation phases. Although more user research and redesigns might be carried out later, the report will only deal with the first iteration of this process.

Therefore, no working website was produced as part of the thesis project. The deliverables were mostly limited to static content in the form of sitemaps and wireframes, and any interactive prototypes were purely paper-based. More detailed aspects of the visual design were not covered.

Due to limited available resources, user testing was carried out in a less controlled fashion, often referred to as discount usability. While possible problems with the validity and reliability of the results were avoided as much as possible, these will only be discussed briefly, not in detail.

Because the website is in German, and therefore the research was carried out in German, too, not every last detail could be translated. All important names and wordings that are mentioned in the main body of this text were translated into English, as well as all diagrams. Some screenshots however still show German text and the files in the appendix are mostly in German.

1.4 Outline

First, the theory chapter discusses some of the relevant background to establish the terminology and a context for this work. Associated design processes are explained alongside to serve as a basis for the next chapter, the process overview, which merges them into the approach used here.
The three following chapters form the main part of this thesis. They follow the outlined process through three phases — the research, the design and the evaluation. The research mainly deals with the conduction of an online survey and the resulting insight into the user needs, which were analyzed and used to design personas. Based on these results, the design part discusses the conceptual creation of the website and is structured into five aspects of the design. The third phase, the evaluation, then describes how the different aspects of the design were tested with users. Following a discussion of the results, possible problems are identified and improvements are suggested.
Chapter 2

Theory

2.1 Overview

The field of user-centered design suffers from a lack of common language. Today, many terms are being used with varying meanings. This part aims to explain some of them to lay down the terminology for the rest of the work. In addition, most terms come with their own approach to the process of design. These are looked at to be used as a basis for the process overview of this project in the next chapter.

2.2 User-centered design

The term User-centered design has been subject to much discussion and criticism. User-centered design is best described as an approach to design that focuses on the end users’ needs and involves them in the process.

It was originally coined and described by Norman (1986, p. 61). He pointed out that user-centered design is special in putting the users’ needs above all else:

User-centered design emphasizes that the purpose of the system is to serve the user, not to use a specific technology, not to be an elegant piece of programming. The needs of the users should dominate the design of the interface, and the needs of the interface should dominate the design of the rest of the system.

Since then, a variety of definitions and understandings have been proposed, leading to the criticism of the term being too general. Gulliksen et al. (2003, p. 397) claim that it became “a concept with no real meaning”. Similarly, Constantine & Lockwood (2002, p. 43) call user-centered design a “loose collection of human-factors techniques”.

At the same time however, Constantine & Lockwood (2002, p. 43) also mention a shared “philosophy of understanding users and involving them in design”. This
treatment of user-centered design as an umbrella term for thinking about usability in systems design was suggested even earlier by Karat (1997, p. 38):

I suggest we consider UCD an adequate label under which to continue to gather our knowledge of how to develop usable systems. It captures a commitment the usability community supports — that you must involve users in system design — while leaving fairly open how this is accomplished.

The current definition of the Usability Professionals’ Association (n.d.) shares this view by calling user-centered design an approach — a way of thinking about and dealing with the problem of system design:

User-centered design (UCD) is an approach to design that grounds the process in information about the people who will use the product. UCD processes focus on users through the planning, design and development of a product.

This definition also contrasts user-centered design as an approach with the variety of processes that implement it. Examples for such specific methodologies include Contextual Design (Beyer & Holtzblatt 1998), Usage-Centered Design (Constantine & Lockwood 1999) and the Usability Engineering Lifecycle (Mayhew 1999). According to ISO 9241-210, all user-centered design processes are characterized by adhering to the following principles:

- The design is based upon an explicit understanding of users, tasks and environments.
- Users are involved throughout design and development.
- The design is driven and refined by user-centred evaluation.
- The process is iterative.
- The design addresses the whole user experience.
- The design team includes multidisciplinary skills and perspectives.

ISO 9241-210 also defines a framework for the processes of all specific user-centered design methodologies. It lists four activities arranged in iterative fashion as shown in Figure 2.1.

One of the fundamental principles of user-centered design is that it is concerned with the whole user experience, not just single aspects of it like the usability of the product. Therefore, the next section will further explore the concept of user experience.
2.3 User Experience

A good user experience is the goal of user-centered design. Its concept goes beyond usability by including other aspects of the use of a product and also encompasses the value from a business point of view. This definition used here should not be confused with

Originally, user experience used to describe aspects of a product that go beyond usability, especially subjective ones, but which are still strictly relevant to the user. This is reflected in the definition of ISO 9241-210, which specifies user experience as “a person’s perceptions and responses that result from the use or anticipated use of a product, system or service”. Roto et al. (2011) also follow this view.

Here, a different definition is used, which does not focus exclusively on the user anymore. Instead, it aims to combine user needs and business goals. Morville (2004) suggests six facets to describe user experience, which are shown in Figure 2.2. These show the mentioned inclusion of business aspects into the concept. For a good user experience, a product needs to

- have a use that is important for the user (useful),
- be easy to use (usable),
- appeal to the user, have an identity and transport a brand image (desirable),
- be easy to locate to be used (findable),
Figure 2.2: The user experience honeycomb by Morville (2004)

• be usable by everyone, including people with disabilities (accessible),
• be trusted by the user (credible) and
• provide monetary or non-monetary value to the business (valuable)

Another framework for user experience was introduced by Garrett (2010). It organizes the design of the user experience in five planes of decreasing abstraction from bottom to top. The framework focuses on websites and some of the planes differentiate between a task-oriented and an information-oriented view. These two views represent “the basic duality in the nature of the Web”, the fact that websites often not only provide information, but also let users interact with them (Garrett 2010, p. 27). As shown in Figure 2.3, the five planes from bottom to top are: Strategy, scope, structure, skeleton and surface.

At the bottom lies the strategy plane, which forms the basis for the whole website. It is concerned with understanding the users and the business. The needs and goals of both have to be researched and unified into a vision that works for both sides.

The scope plane specifies the bounds of the website. Based on the strategy, the functional specification defines the feature set, while the content requirements describe the information covered by the website.

On the structure plane, the requirements are transformed into the interaction design and the information architecture. The interaction design specifies how the functionality of the website plays out in response to the user. The required content is put into organized form as part of the information architecture.
Figure 2.3: The elements of user experience by Garrett (2010, p. 29)
The *skeleton plane* gets closer to the final product by defining the general layout of the different screens presented to the user. This covers the information, interface and navigation design. Information design is concerned with displaying the information in a way that is easy to understand. The different interaction elements such as buttons are specified and arranged in the interface design. The navigation design finally describes which parts facilitate movement through the information architecture.

At the top, the *surface plane* concerns the sensory experience that is presented to the user. For websites, this is mostly the graphic design, covering aspects like colors and typography. In general, however, it can also include other aspects, such as those of hearing, smell or touch.

As Garrett (2010, pp.21–24) explains, each of planes depends on decisions made on the planes below it. Therefore, the planes also align to the overall timeline in their order from bottom to top. The process is not strictly linear though — some overlap between the adjacent planes is required to allow flexibility in the decisions made on the upper planes. As a result, the work on each plane should not finish before work on the lower planes has finished first, as illustrated in Figure 2.4.

Information architecture was described as part of the structure plane of user experience in this section. However, different definitions exist — some of them with a much wider scope. This is why the next section covers the concept of information architecture and how it relates to user experience in more depth.


2.4 Information Architecture

As explained in the last section, information architecture in a narrow sense is the structural organization of content items. In a wide sense, it is concerned with the whole process of designing information environments (Morville & Rosenfeld 2007, pp. 4–5). The three main parts of this design are the organization, the labeling and the navigation system.

The term originates from the area of library and information science and was coined by Richard Wurman in 1975 (Benyon 2007, p. 165). Wurman applied principles of architecture to information design to “transform data into meaningful information for people to use” (Dillon & Turnbull 2010, p. 1).

The concept of information architecture as the structural design of information however only grew popular with the rise of the World Wide Web, when it began to be applied to large websites and intranets (Dillon & Turnbull 2010, p. 1). Today, there is no single definition of information architecture. The term is not only used for the practice of designing information spaces but also for the results of this design process and the scientific field concerned with it.

In general, there are narrow and wide definitions of information architecture, known as little IA and big IA. On one end of the spectrum, little IA is similar to the description in the last section — an activity confined to the organization of information. The design of navigation is often included in this narrow definition. On the other end, big IA encompasses the whole process of designing information environments, from the business strategy to the actual implementation (Dillon & Turnbull 2010, p. 2). Parts like graphic design, interaction design and user testing are considered to have some overlap, although, strictly, they are not part of information architecture (Morville & Rosenfeld 2007, p. 10). This wide definition corresponds to most of what was called user experience in the last section, with a focus on the information-oriented, right part of the planes diagram.

These two competing views also show in the multiple definitions suggested by Morville & Rosenfeld (2007, p. 4), which were adopted with minor changes by The Information Architecture Institute. While the first two are examples for little IA, the latter tend towards the big IA view:

1. The structural design of shared information environments.
2. The combination of organization, labeling, search, and navigation systems within web sites and intranets.
3. The art and science of shaping information products and experiences to support usability and findability.
4. An emerging discipline and community of practice focused on bringing principles of design and architecture to the digital landscape.
Morville & Rosenfeld (2007, pp. 24–28) also provide a framework for practicing and understanding information architecture — the *information ecology*, comprised of context, content and users — which is shown in Figure 2.5. It illustrates that information architecture does not exist independently, but is instead influenced by outside factors. To be successful, it has to unite business context, user needs and the changing content.

With big IA covering the whole process of information product design, specific methodologies have been suggested. As shown in Figure 2.6, Morville & Rosenfeld (2007, pp. 232–233) lay out the process in five sequential steps:

1. Research: After kick-off meetings, an understanding of the business context, the content and the audience is gained through review of materials and user studies.

2. Strategy: Based on the research, a high-level framework for the information architecture is created to guide the design.

3. Design: The main information architecture is detailed with various deliverables, such as blueprints and wireframes.

4. Implementation: The actual website is built, tested and launched according to the specified design.

5. Administration: After the website was launched, the existing information architecture is maintained and improved while information is added and removed.

Spencer (2010, pp. 9–11) explains a similar process with only few differences. The research phase is split up into kickoff and research, while the strategy phase
is omitted and included in the design phase. One important difference is that Spencer (2010, pp. 229–244) suggests testing the information architecture during the design phase. Morville & Rosenfeld (2007) make no such remark, although user testing is described in the research part (Morville & Rosenfeld 2007, pp. 259–260). None of the processes however includes dedicated steps for evaluations with users.

![Figure 2.6: The process of information architecture development by Morville & Rosenfeld (2007, p. 232)](image)

### 2.5 Summary

This chapter explored some of the terminology in the field. User-centered design, as an approach to systems design, focuses on the users’ needs and involves them throughout the process. User experience is the goal of user-centered design — a positive, holistic experience for the user when using the product which also meets business needs. Information architecture is one element of the user experience, specifically concerned with the structural organization of information. Although wider definition of information architecture exist, this narrow understanding will be used from here on.

Additionally, process concepts and frameworks from the different areas were discussed. These form the basis for the next chapter, which locates the work done in this project within these existing structures.
Chapter 3

Process overview

The scope of this project consists of the lower four planes of the user experience — strategy, scope, structure and skeleton — explained in section 2.3. It is divided into three phases: Research, design and evaluation. The research phase covers the planes of strategy and scope, while the design and evaluation phases both concern the structure and skeleton planes.

The process used for this project is based on the information architecture development process explained in section 2.4. Due to the smaller nature of the project, the strategy phase is omitted. After the design phase, an evaluation phase is added for dedicated user testing activities that were missing from the original process. If the results of the evaluation are not satisfactory, the design is improved on and evaluated again, making this an iterative process. Eventually, the implementation and administration phases follow. Figure 3.1 shows all the different phases and the scope of this thesis project, which is limited to the research and a first iteration of the design and evaluation phases. With its iterative nature driven by evaluations with users, this process can claim to follow the approach of user-centered design.

Each of the three phases covered in this report involves a set of specific methods and resulting deliverables, as shown in Table 3.1. The first part — the research phase — aims to explore and understand the information ecology of

![Project scope diagram]

**Figure 3.1:** Adapted user experience process and the scope of this thesis project
context, content and users. A user survey and a content inventory were carried out. The results of these methods were combined with the business strategy into personas and an additional survey report. Regarding the planes of user experience, the activities of this phase concern the strategy and scope. The next phase — design — deals with the creation of first versions of the information architecture, navigation, information, interaction and interface design. Based on the personas, they were detailed using a sitemap, wireframes and an interactive prototype. These design concepts were then tested during the evaluation phase. A usability test was carried out to identify possible problems. The findings and suggested improvements were recorded in a test report. Together, these two phases form the structure and skeleton planes of the user experience.

<table>
<thead>
<tr>
<th>Phase</th>
<th>Methods</th>
<th>Main deliverables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Research</td>
<td>User survey, content inventory</td>
<td>Personas, survey report</td>
</tr>
<tr>
<td>Design</td>
<td>—</td>
<td>Sitemap, wireframes, prototype</td>
</tr>
<tr>
<td>Evaluation</td>
<td>Usability test</td>
<td>Test report</td>
</tr>
</tbody>
</table>

Table 3.1: Methods and deliverables in the different project phases
Chapter 4

Phase 1: Research

4.1 Overview

The goal of the research phase is to gain a better understanding of the information ecology — the context, the content and the users. The context, with aspects such as business goals and technical limitations, was discussed in a meeting with the different stakeholders. The content side had already been explored by means of a content inventory, which lists all the pieces of content existing on the old website and those already planned for the new version. The biggest part of the research phase was a survey carried out with 132 current and potential users to understand their needs and goals regarding the website. Its results were documented using a research report and personas.

Regarding the context, generating revenue through affiliate marketing is the primary business goal of the website. There are two main channels for this. One are specialized travel agencies that offer to organize Work and Travel trips. They are commonly called organizations. Users can order catalogs or book trips with them through Auslandsjob.de. Nowadays, more and more people are planning their trips without an agency, however. Therefore, the second channel of affiliate marketing for Auslandsjob.de deals with single products, such as flights or insurance policies, which the users can book through the website as well. Because of this trend, it is also important for the website to not appear as being run by a travel agency and thereby risk scaring off users. Instead, it should offer independent information for both those users interested in agency services and those who are not.

The secondary business goal is to increase the number of visitors to the website. This should mainly be done by supplying useful content which leads to more links from other websites and results in better search rankings. Again, offering independent information is very important for this. Additionally, users
should be encouraged to spread the word about the website on social networks. The primary and secondary business goals were also considered during the design of the personas, as explained in subsection 4.5.2.

Technical limitations that influence the design are mostly a result of the content management system that will be used. Its main aspect is the hierarchical organization system which all pages need to fit into. However, additional alternative organizations using tags and links across the hierarchy are also possible.

Learning about the content that already exists is important for a number of reasons. Spencer (2010, p. 123) names the following: Understanding the topic of the website, looking at it with fresh eyes, cleaning up, migrating it and managing progress. In this case, especially the aspect of migrating content is very important. Although the existing content is limited, a number of pages have acquired good search engine rankings for relevant keywords. Thus, these pages are crucial to attracting new visitors and will continue to be very important for the success of the website. The redesign has to acknowledge this and incorporate them in the new structure while keeping the URLs and most of the content of these pages intact to not affect search rankings negatively.

For this reason, a spreadsheet with the initial content plans had already been compiled by the company. It can be found in Appendix A.1 and lists both existing websites and those to be created for the new version of the website. The document resembles what is called a full content inventory (Spencer 2010, p. 124) by listing the name of the page, the URL, its location in the navigational hierarchy and any additional comments. For existing pages, the old URL is specified as well. Unlike a traditional content inventory, however, it shows the structure of the pages as it was initially planned for the new website, not as it can currently be found on the old one. As explained in section 5.2, the content inventory was considered when developing the information architecture during the design phase later in the project.

In the following, the focus will be on the main research performed during this phase of the project — the online survey.

4.2 Objectives

The goal of the survey was to gain insight into the users’ attitudes towards and experiences with Work and Travel and their information needs. More specifically, the following research questions were supposed to be answered:

- What do users associate with the domain name?
  - What does the term Auslandsjob mean for users?
  - What do people expect on a website called Auslandsjob.de?
• How do users understand relevant terms?
  – What does the term Work and Travel mean for users?
  – What does the term Working Holidays mean for users?

• What experience with going abroad do users have?
  – Which kind of trips have users already done?
  – Which kind of trips are users planning to do in the future?

• What feelings do users have towards Work and Travel?
  – Why do users want to do Work and Travel?
  – Why do users not want to do Work and Travel?
  – What fears do users have regarding a Work and Travel trip?

• How far along with planning their Work and Travel trip are the users?
  – When, where and for how long are users planning to go?
  – Which important parts have users already organized?
  – Based on which criteria did people select their destination?

• How do users feel towards travel agencies for Work and Travel?
  – How many users have booked or want to book an trip with an agency?
  – Why do users book with an agency?
  – Why do users want to plan it themselves?
  – Which services would users be interested in booking separately?

• Which information needs do the users have?
  – Which kind of information are users looking for at the moment?
  – Which other features do users expect from a website about Work and Travel?
4.3 Method

4.3.1 Rationale

A survey is a quantitative research method that is commonly suggested as a research tool and a basis for personas (Morville & Rosenfeld 2007, Spencer 2010, Mulder 2006). A disadvantage of a survey can be the lack of richness in the responses due to its automated and non-interactive nature (Spencer 2010, p. 68). Therefore, Mulder (2006, pp. 39–54) suggests it as a validation tool for hypothesis which were created by means of more qualitative research, such as interviews and field studies.

It was still chosen as the main method of user research for this project because of the ease of access to survey participants. While a large number of users — more than 15000 per week on Auslandsjob.de and related websites plus more than 7500 subscribed to related Facebook pages — was available for recruitment, they were geographically spread out and no direct contact had been established. This made an online survey much easier to carry out than face-to-face research like interviews. To counteract the mentioned disadvantages, the survey included many open-ended questions with text fields for the participants to fill in. It can therefore be seen both as a qualitative and as a quantitative study.

4.3.2 Survey design

Overview

The survey was created using the free open-source software LimeSurvey (http://www.limesurvey.org) and hosted on one of the network’s domains. It follows the research questions closely and is structured in a similar fashion. An initial introduction explained the survey to the participants, listed the incentives and assured the anonymity and privacy of the collected data. Afterwards, the questions were divided into nine parts which were each shown on a separate page. Conditional statements were used to only show relevant questions to the participant, based on earlier answers. Such questions are called contingency questions (Babbie 2010, pp. 279–280). Most importantly, many of the questions regarding Work and Travel were skipped for those participants who are not interested in such a trip.

Types of questions

The types of questions used were free text fields, single select fields, multi select fields and Likert scale questions. Text fields came in both single and multi-line format. To not annoy participants and provoke junk responses, they were never
mandatory. Single and multi select fields came in the form of radio buttons and checkboxes respectively. Both contained an additional other option where appropriate, allowing the participant to fill in a choice that was not listed. Likert scale questions were always arranged in groups of four to seven items, referred to as a matrix (Babbie 2010, p.280). They asked the participant to rate their agreement with the statements on a five-point scale from strongly agree to strongly disagree, as suggested by Graziano (2004, pp.312–313). This type of question was used frequently to gather a multi-faceted picture of the participant’s view on a topic while still allowing for easy evaluation of the answers. As Babbie (2010, p.281) points out, grouping many similar questions into a matrix format makes it easier to compare between questions for both the participant and the researcher. An example of a Likert scale question group is shown in Figure 4.1. This particular matrix aims to find out about the reasons behind pursuing a Work and Travel trip. Possible motivations are listed as statements. In addition, this question is followed by a text field that allows the participant to list further reasons.

Order effects

In an attempt to average out order effects, all groups of Likert scale questions were displayed in random order. The overall structure followed general guidelines: General to specific, behavior before attitude and spontaneous before prompted (Brace 2004, p.51). In many cases, possible order effects had to specifically be
addressed. One example are the questions about the associations with the domain name — they had to be asked at the very beginning, before any mention of Work and Travel and other topics of the survey.

**Length**

The original version of the survey consisted of a total of 50 questions, of which a maximum of 45 are shown to any single user due to the conditional statements. A pilot test with an employee showed that, with a completion time of 18 minutes, this version was longer than the maximum time of 15 minutes suggested by Babbie (2010, p. 302). The revised version shows a maximum of 35 questions and was completed by another employee in 13 minutes, which was deemed acceptable. Table 4.1 shows the total, minimum and maximum number of questions for both the original and the revised version, broken down by their type. The full survey can be found in Appendix A.2.

<table>
<thead>
<tr>
<th></th>
<th>Original survey</th>
<th>Revised survey</th>
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<tr>
<td></td>
<td>Min</td>
<td>Max</td>
</tr>
<tr>
<td>Text (single-line)</td>
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<td>14</td>
</tr>
<tr>
<td>Text (multi-line)</td>
<td>0</td>
<td>4</td>
</tr>
<tr>
<td>Single select</td>
<td>4</td>
<td>6</td>
</tr>
<tr>
<td>Single select + other</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>Multi select</td>
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<td>2</td>
</tr>
<tr>
<td>Multi select + other</td>
<td>2</td>
<td>2</td>
</tr>
<tr>
<td>Likert scale (groups)</td>
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<td>11</td>
</tr>
<tr>
<td>Total</td>
<td>15</td>
<td>45</td>
</tr>
</tbody>
</table>

Table 4.1: Number of survey questions by answer type

**4.3.3 Participants**

To gather participants, the survey was advertised on a number of websites. In addition to Auslandsjob.de, pop-ups were installed on four other websites that are part of the network. All of these have related topics — going abroad to travel, work and study — and similar audiences — mostly young people interested in other countries. The pop-up was shown randomly to a tenth of the visitors and never more than once to the same person. It is depicted in Figure 4.2. There are also three Facebook pages associated with these websites on which a link to the survey was posted. As an incentive to fill out the survey, one video camera and
Figure 4.2: Pop-up advertising the user survey

<table>
<thead>
<tr>
<th>Websites</th>
<th>weekly visitors</th>
<th>subscribed users</th>
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<tr>
<td>Auslandsjob.de</td>
<td>7706</td>
<td></td>
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<td>Auslandsjahr.org</td>
<td>2405</td>
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<td>Auslandszeit.de</td>
<td>1942</td>
<td></td>
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<tr>
<td>Farmarbeit.de</td>
<td>1979</td>
<td></td>
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<tr>
<td>Working-Holiday-Visum.de</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Facebook</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Auslandsjahr</td>
<td>3757</td>
<td></td>
</tr>
<tr>
<td>Auslandszeit</td>
<td>3173</td>
<td></td>
</tr>
<tr>
<td>Farmarbeit</td>
<td>257</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>15784</strong></td>
<td><strong>7187</strong></td>
</tr>
</tbody>
</table>

Table 4.2: Usage data for the websites and Facebook pages advertising the survey (data from March 13\textsuperscript{th} 2011)

five Amazon vouchers of 20€ each were raffled off among all participants. To give an idea of the reach of this campaign, Table 4.2 shows all the different channels including the number of weekly users of the websites and the number of users subscribed to the Facebook pages.

The survey was launched on March 13\textsuperscript{th} and was planned to run for about one week. If less than 100 submissions had been received by that time, the duration would have been extended. However, this was not necessary with 132 completed surveys on March 21\textsuperscript{th}. 72 participants had chosen the long version of the survey by indicating they were interested in Work and Travel. Thus, enough responses for all questions were available. An average completion time of 9:21 minutes and only 89 canceled surveys — of which 28 were canceled right after the first question — show that the length of the survey was appropriate.
4.4 Results

4.4.1 Preparations

After the conclusion of the survey, the raw data was first exported from the software into a spreadsheet format for use in Microsoft Excel. This format allowed for an easy distribution of the results inside the company. At the same time, it could be imported into SPSS for further processing, if necessary. The raw result data can be found in Appendix A.3.

Of the 89 incomplete submissions, 15 were selected for inclusion in the results. These submissions contained a reasonable amount of data and could be used for parts of the survey. The missing data was treated as if the questions had been skipped, which is described in subsection 4.4.2.

Before proceeding with coding the responses, the data first had to be cleaned up. This includes removing junk data from verbatim text fields and removing responses which follow a clear pattern (Mulder 2006, pp. 106–108).

Respondents often enter text into text fields although they do not have an opinion on the matter. These answers have to be removed because they only distort the data set. Examples from this survey include “nichts” (nothing), “keine Idee” (no idea), “dsadf” (random letters).

After removing the junk data, the data set was scanned for obvious response patterns — answering all questions in the same way, for example by selecting the first option. Such patterns are usually an indication of someone just wanting the incentive and not filling out the survey seriously. Therefore, Mulder (2006, p. 108) suggests deleting those respondents from the data set completely. For this survey, no such patterns were found and therefore no data was removed.

4.4.2 Coding

Overview

Coding a questionnaire or survey is the process of transforming all responses into numerical format so they can be analyzed (Babbie 2010, p. 361). Closed-ended questions are usually pre-coded, whereas open-ended questions have to be post-coded. Besides the original variables answered directly by the survey, additional variables can be derived for further analysis. The codes of all possible answers for all post-coded and derived variables are summarized in a code book, which can be found in Appendix A.4. For the coded data, please see Appendix A.5. In the following, certain aspects of the coding are explained in more detail.
Missing values

The consistent coding of missing values is very important. It was chosen here to not differentiate between different reasons for missing values because it made no difference for the evaluation. All of them were coded as blanks. According to Buckingham & Saunders (2004, p. 144), there are three possible reasons for the occurrence of a missing value:

- Oversight: This is not possible with automated surveys such as this one.
- Skip: This occurred frequently due to the conditional statements for many questions.
- Refusal: This happened often with text questions because those were not mandatory.

Closed-ended questions

Closed-ended questions were pre-coded and included Likert scales and both single and multi select questions when they did not have an other option. The coding was done automatically by the export function of LimeSurvey, using the assigned question codes and sub-codes as variables names. The values were coded as one (strongly disagree) to five (strongly agree) for Likert scales, one (checked) and zero (not checked) for multi select fields, and as integer values starting from 1 for the different possible options of single select fields.

Open-ended questions

For open-ended questions, i.e. text fields and single or multi select fields with an other option, the coding had to be done manually. This is what Leong & Austin (2005, p. 266) refer to as “open coding”. It involves inspecting the data as a whole first to identify possible themes. In the following, these themes are used to categorize the data. Each theme is assigned a unique code. The categories are often modified and summarized in an iterative fashion later. According to Buckingham & Saunders (2004, p. 142), categories have to satisfy three rules:

- Discreet: Answers should only fit into one category.
- Exhaustive: Every answer should fit into one category. This usually involves having one category for other answers.
- Discriminatory: Summarizing themes into one category should only be done later, not right away.
For text fields and the other option in multi select fields, multiple themes in one answer were possible. As suggested by Buckingham & Saunders (2004, pp. 143–144), these were handled by creating a series of dichotomous variables—one variable for each category, coded with one (theme mentioned) or zero (theme not mentioned). Using this approach, these variables were effectively coded like a normal multi select field. The categories from other options in single select fields did not show this problem and could therefore be treated just like the pre-coded answers to the respective question—by assigning a number value.

There are two exceptions from the normal post-coding of text fields: Those for the participant’s definitions of Work and Travel and Working Holidays. These were instead replaced by two derived variables as explained in the following.

Derived variables

So called derived variables are not directly based on one question in the survey but instead constructed from one or more existing variables (Buckingham & Saunders 2004, p. 192). Here, two derived variables were created: The participant’s definition of Work and Travel and the relationship between his or her definitions on Work and Travel and Working Holidays. Both terms were asked about in the same way—first by asking for a definition in the participant’s own words, then by rating five statements in a Likert scale matrix. All statements related to how much a certain type of trip abroad qualifies as Work and Travel or Working Holidays respectively. The five types of trips were the same for both terms, allowing a comparison of the levels of agreement:

1. Working in a hotel in Paris
2. Doing an internship in the USA
3. Traveling around Australia and working small jobs in different places (the traditional Work and Travel)
4. Voluntary work in Africa
5. Au-Pair in England
6. Working on a farm in Ireland

The first derived variable was the participant’s personal definition of Work and Travel. To identify common themes, a k-means cluster analysis was first run on the five Likert scale variables. This type of cluster analysis attempts to generate a predefined number of segments k that best describe the data (Mulder 2006, pp. 144–149). Experimenting with different values for k, looking at the
generated clusters and at the same time consulting the verbatim statements, four major recurring segments started to emerge:

1. Strict definition
2. Definition as part-time work
3. Definition as working on a farm
4. Loose definition

For each of these definitions, Table 4.3 shows which types of trips are considered Work and Travel. Please note that the definition of working on a farm includes the traditional Work and Travel because this type of work is typically seen as the standard Work and Travel job.

The definitions were coded as integer numbers, with one additional code for other definitions. Assignment to these categories was done manually, not by using the results of the clustering algorithm. This was possible because of the manageable size of the data set and promised to give better results because the verbatim responses could be included to better understand the personal definition of each participant.

<table>
<thead>
<tr>
<th>Type of trip</th>
<th>Definitions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strict</td>
</tr>
<tr>
<td>Hotel-work</td>
<td></td>
</tr>
<tr>
<td>Internship</td>
<td></td>
</tr>
<tr>
<td>Work and Travel</td>
<td></td>
</tr>
<tr>
<td>Volunteering</td>
<td>Included</td>
</tr>
<tr>
<td>Au-Pair</td>
<td></td>
</tr>
<tr>
<td>Farm work</td>
<td>Included</td>
</tr>
</tbody>
</table>

Table 4.3: Segmentation of Work and Travel definitions

The second derived variable was the participant’s definition of Working Holidays in relation to his or her definition of Work and Travel. On the old website, on other websites of the network and on competing websites, the term is used with varying definitions. Usually, it is understood either as a synonym for Work and Travel or as a superordinate term that encompasses even more types of travel. To test the validity of this usage, the survey responses were classified into three categories: Synonym, superordinate and other definitions. The classification was again done manually, looking both at the differences between the two Likert
scale groups and the verbatim responses. When each of the Likert scores for the types of travel showed little difference between Work and Travel and Working Holidays, it was counted as a synonymous definition. If the Likert scores were generally higher for Working Holidays than for Work and travel, this pointed towards a superordinate definition. Lastly, differences in both directions were considered an indication of some other sort of definition. The three categories were again coded with integer numbers.

4.4.3 Report

Overview

Using descriptive statistics and diagrams for visualization, the data was summarized in a survey report, which is available in Appendix A.6. In the following, only the main results are discussed, structured according to the research questions. In addition, some example diagrams are shown.

For the visualization of Likert scale questions, a net-stacked distribution diagram was used (Marritt 2011). It omits the neutral responses in favor of easier comparisons by aligning the responses in the center, with the positive ones on the right and the negative ones on the left. For an example, see Figure 4.4

What do users associate with the domain name?

Regarding the term Auslandsjob, the majority of 70% of the participants associated a short-time job abroad. 21% understood it as a permanent work placement, while 7% would call both a short-term and a permanent job by this name.

Reading the domain name Auslandsjob.de, 62% expected offers by travel agencies while 38% assumed it would give advice on organizing a trip yourself.

How do users understand relevant terms?

The term Work and Travel was defined by 70% participants according to one of the definitions outlined in subsection 4.4.2. Most of them used the strict definition (27%) or the definition as part-time work (24%) as shown in Figure 4.3.

It turned out that only a minority of participants shared the usual views on the term Working Holidays — 24% used it as a synonym for Work and Travel and 7% as a superordinate term. 69% on the other hand had some other definition, showing that the term is not well understood by the participants. The differences to Work and Travel that were most commonly named were a shorter timespan, usually during the holidays only, (18%) and only working in one job instead of multiple different ones (5%).
What experience with going abroad do users have?

The survey showed that the 68% of the participants have some sort of experience with going abroad. By far the most frequent experience is a high school exchange, which 43% have done. 93% of the participants are interested in going abroad, with Work and Travel being the most popular option (56%).

What feelings do users have towards Work and Travel?

For those wanting to do Work and Travel, the most important motivations were getting to know different cultures and people (97% agreement), experiencing an adventure (87%), positive influence on the future career (77%) and becoming more independent (68%). These results can be seen in more detail in Figure 4.4. As further motivation, 23% mentioned unforgettable impressions and experiences; 14% wanted to get away from their normal life and 13% were looking for challenges and personal development.

The participants that did not want to do Work and Travel agreed the most with lack of money as a reason (43%). Most other suggested reasons did not show a high level of agreement, with wanting to focus on career instead (30%) and lack of time (27%) at the top.

Not finding a job was by far the most common worry among participants, with 58% agreement. Other fears included a complicated organization of the trip (35%), the experience being not what they expected (29%) and missing friends and family a lot (24%).
How far along with planning their Work and Travel trip are the users?

Generally, the participants had not yet come very far with their planning for Work and Travel. 64% said their had not started planning at all, while 32% had collected information already. Only 4% were almost done organizing and no one was ready to leave. These numbers were reflected by the answers regarding the timing of the participants’ trips — only 20% of the participants interested in Work and Travel already knew when they were going to do it. On average, the trip was still 10.62 months off as shown in Figure 4.5. Similarly, only few people already organized important things like insurance (21%), visa (6%) or flights (5%).

The planned trip duration was usually either a full year (53%) or six months (18%), with the mean being 9.1 months. The most popular destination was Australia, being mentioned by 55% of the participants. The following ranks were occupied by New Zealand (21%), USA (19%) and Canada (19%). The most important criteria for choosing a destination were an interesting culture (82% agreement), security (78%), stunning nature (77%), low living costs (63%) and the language (54%).
How do users feel towards travel agencies for Work and Travel?

51% of the participants were still undecided whether or not they wanted to book their trip with a travel agency. 31% wanted to organize everything on their own, while 17% were planning to book. Only 1% had already booked with an agency.

Those wanting to book their trip do it mainly for the following reasons: Having an emergency contact (100% agreement), contact to fellow travelers (77%), fear of not finding a job without an agency (69%) and the fear of forgetting something (62%). More detailed results for this question can be seen in Figure 4.6.

![Figure 4.6: Reasons for booking with a travel agency](image)

The participants planning to organize the trip on their own did not want to book with an agency because they think it is less exciting (77% agreement), too expensive (73%) and most services are not necessary (64%). They are, however, quite interested in booking many services separately: A first job and the flight (both 59%), visa and first accommodation (both 55%), credit card (45%) and health insurance (41%).

Which information needs do the users have?

The information that was requested the most was on the topics of destinations (29%), finances (21%), travel agencies (15%), requirements (13%), accommodation (11%), types of jobs and job search (10%) and flights (10%). Additional interesting mentions include help on whether booking with an agency is recommended and the suggested process of planning the trip in form of a checklist. Advanced features frequently asked for by the participants were a job market and reports from travelers (both 18%).
4.5 Analysis

4.5.1 Segmentation

After collecting the research results as a basis, the first step in the process of creating personas was to develop a segmentation. Segmentation is about finding criteria based on which the users can be categorized into groups (Mulder 2006, pp. 117–118). These groups later form the basis for the personas. Mulder (2006, pp. 120–122) describes a number of requirements that good segments need to fulfill:

- The segments explain the key differences that were observed.
- The segments are different enough from each other.
- The segments feel like real people.
- The segments can easily be described.
- The segments cover all users.
- The segments clearly affect decision-making.

These requirements show that the segments not only need to match the research data, but also feel right — otherwise the resulting personas are not believable. Hence, segmentation is as much art as it is science (Mulder 2006, p. 118).

Mulder (2006, pp. 122–132) suggests trying out three different approaches to segmentation, to see which one works best. His suggestions are (1) segmentation by goals, (2) segmentation by usage lifecycle and (3) segmentation based on behaviors and attitudes. Similarly, Pruitt & Adlin (2006, pp. 177–180) advise to differentiate (1) by roles, (2) by goals or (3) by segments, which includes attitudes and behavior.

In this case, a segmentation by role was not possible because there are no jobs, responsibilities or other indications of roles for the users of the website. Data about the behaviors and attitudes of the users was available from the survey, for example about their motivation, their worries and their criteria for selecting a destination. To experiment with a segmentation based on these factors, a k-means clustering was again run on the data with varying parameters. While interesting patterns of related attitudes emerged, this segmentation did not fulfill one of the main criteria: It could not explain key differences in the information needs of the users, which are most important for decision-making later on. However, this data was used for the detailed design of the personas later on.
The approach that was chosen in the end was a segmentation by usage lifecycle. Grouping the users by how far along their planning process they are fulfills all the criteria mentioned above — it explains major differences in the information needs and therefore strongly influences decision-making; it covers all users while distinguishing clearly between them; it is easy to understand, and it simply feels right. At the same time, the usage lifecycle is closely related to user goals. For each segment, each point in the lifecycle, one main, overarching goal was identified.

This segmentation resulted in four different groups of users, a number that is inside the suggested ranges of three to five (Pruitt & Adlin 2006, p.169) and three to six (Mulder 2006, p.118). The lifecycle is mostly linear except for one branch at the end. At first, users are still undecided if they should do Work and Travel. When they are sure, the next step is to decide whether they book their trip with an agency or not, leading to the two end points of the lifecycle. These decisions each form one segment, as illustrated in Figure 4.7. The segments and the primary goals of these users formed the skeleton personas:

1. Users who are interested in Work and Travel but not completely sure about doing it yet
   - Want to decide whether Work and Travel is the right thing for them
   - Want to know alternative ways of going abroad if they cannot or do not want to do Work and Travel

2. Users who are sure about doing Work and Travel but have not yet decided whether to book with an agency or organize on their own
   - Want to decide whether they should book with an agency or not
   - Want to get general information about Work and Travel, e.g. about working and destinations

3. Users who have decided to book with an agency
   - Want to know which agency they should book with

4. Users who have decided to organize the trip on their own
   - Want to book all the necessary things for their trip
   - Want to get more specific information about Work and Travel

As suggested by Pruitt & Adlin (2006, pp. 211–213), these skeleton personas were then prioritized. The prioritization later played a role in decision-making,
when the optimal solutions for different personas were conflicting. Together with the rest of the team, it was decided to make personas 3 and 4 the primary personas because they are the closest to actually doing their trip and therefore most likely to generate revenue. Although the other two personas are only secondary, they would be designed in just the same detail.

4.5.2 Persona design

While skeleton personas show the most important aspects of the different user groups, they are still too abstract to really serve the purpose. Personas need to feel like real people who the team can relate to, so they had to be fleshed out with details (Mulder 2006, p. 161).

The details of each persona should of course not be made up, but based on research data. The results of the research that was carried out earlier had to be mapped to individual personas. This is where the results of the clustering mentioned in subsection 4.5.1 came into play. The clustering of attitudes did not make for a good segmentation, but it shows patterns in the data which can now be applied to the personas. For example, the results showed that the two motivations of trying to become more independent and not being sure what else to do tended to go together. It was therefore decided to use them for the same persona. However, the clustering results did not dictate the persona design; they merely informed it. The data was used as inspiration and applied when it fitted in with the persona. As Pruitt & Adlin (2006, pp. 239–240) point out, one should “choose details that are precise and memorable” when in doubt. Crafting personas that feel like real people is more important than being completely true to the data.
because only personas that are believable can eventually have an impact on the design.

This principle was also applied when mapping demographic data to the personas. Based on the survey data, there was no strong relationship between the different personas and certain demographics — which makes sense, because everyone runs the whole lifecycle. Therefore, the assignment of data points to personas was somewhat arbitrary. It followed the goals of (1) illustrating the range of demographics and (2) assigning each data point to the persona that it would fit in with the most. The youngest age, for example, was assigned to persona 1, who is still unsure about things and was also assigned attributes like wanting to become independent and being somewhat afraid of bad things happening during her trip.

With the data in place, it was time to decide which information to include in each persona. Brown (2010, pp. 38–43) organizes the elements of a persona on three layers from required to optional:

1. Those that establish the basic user requirements: Name, key distinguishing feature, descriptive dimensions, objectives and motivations
2. Those that elaborate on the relationship between the user and the website: Concerns, scenarios and quotes
3. Those that paint a more real and believable picture of the user: Personal background, photo, system features, demographic information and technology comfort

In addition to the obligatory first level elements, it was decided to include concerns, one main scenario, a quote, personal background, a photo and demographic information. For the name, the suggestion by Mulder (2006, pp. 168–170) was followed by including a descriptor in addition to the first name. The first name and the descriptor always form an alliteration to make them more memorable, e.g. *Andi der Abenteuerlustige* (Andi the adventurous). To give an overview of the four personas, Table 4.4 shows the most important background information that was devised for them.

At this stage, the business goals discussed in section 4.1 also came into play. For each persona, the relevant ones were noted down alongside the user goals. Drawing from the objectives of both the business and the user, one main scenario was devised per persona. They “are idealistic visions of the persona’s interaction with the site” (Mulder 2006, p. 191). Each scenario therefore illustrates how the user solves his or her main goal and in the process fulfills business objectives. The following are condensed versions of the four scenarios:
<table>
<thead>
<tr>
<th>Name</th>
<th>Age</th>
<th>Occupation</th>
<th>Personality</th>
<th>Motivation</th>
<th>Concerns</th>
</tr>
</thead>
<tbody>
<tr>
<td>Vanessa</td>
<td>16</td>
<td>High school</td>
<td>Insecure, sticks to close friends, annoyed by parents</td>
<td>Become independent, not sure what else to do</td>
<td>Accident or illness, meeting people</td>
</tr>
<tr>
<td>Hanna</td>
<td>24</td>
<td>University</td>
<td>Outgoing, can be relied on, doesn’t like conflicts, wants to help others</td>
<td>Culture, meeting people, new experiences</td>
<td>Finding a job abroad</td>
</tr>
<tr>
<td>Erik</td>
<td>18</td>
<td>Just finished high school</td>
<td>Ambitious, many friends, likes partying, conscious about his looks</td>
<td>Career, improving English</td>
<td>Missing his friends and family</td>
</tr>
<tr>
<td>Andi</td>
<td>19</td>
<td>Civilian service</td>
<td>Outdoor loving, sports enthusiast, looking for a thrill</td>
<td>Adventure, nature</td>
<td>Having enough money</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Persona 1</th>
<th>Persona 2</th>
<th>Persona 3</th>
<th>Persona 4</th>
</tr>
</thead>
</table>

Table 4.4: Persona backgrounds

1. Vanessa comes to know that she is still too young for Work and Travel, but she finds information about alternatives on Auslandsjob.de. Au Pair sounds interesting to her and she orders a catalog.

2. Hanna is looking for information about jobs on Auslandsjob.de when she finds the link to a short questionnaire which tells her whether or not she should book with an agency. It suggests that she doesn’t and leads her right to an interactive checklist that enables her to plan the trip better.

3. Erik is frustrated by the superficial information from the different travel agencies until he finds a comparison on Auslandsjob.de. Two different agencies look good to him, so he checks the reviews of other travelers. Based on those he decides on one of them, orders a catalog and one week later books the trip.

4. Andi is looking for suggested routes on Auslandsjob.de when he sees the link to an interactive checklist. He likes the checklist because it lets him structure his planning better and helps him along the way. He continues to use it throughout the next weeks and in the process learns that he still needs insurance for his trip, which he then orders through the website.
4.5.3 Persona deliverables

For the final presentation of the personas, so called one-pagers were created (Pruitt & Adlin 2006, pp. 329–330). These lay out all the important information in a structured format, separately for each persona. By creating them in one PowerPoint presentation, it was easy to distribute the personas and print them out.

Personas should not look like bullet lists, but like stories about people. Therefore, much of the information is presented in a narrative form, called the profile (Mulder 2006, pp. 181–184). The profiles tell both about the background of the personas and about their attitudes towards Work and Travel and the process of organizing it. Therefore, they build a bridge from the personal, emotional side, which makes personas feel real, to the information that is relevant for designing the website.

Mulder (2006, p. 181) suggests to include small, specific details to, again, make the personas more believable. Vanessa for example is annoyed with her parents for having to keep an eye on her little sister, while Andi wants to make his dream of skydiving come true during his trip in Australia. While these details are very specific and do not come directly from the data, they still fit in with the overall picture of these personas and could very well be true.

To make the personas easier to compare, Mulder (2006, p. 184) also recommends to structure the profile in the same way for each persona. Therefore, the paragraphs of each persona cover, in this order, the following topics: (1) Current occupation and life plans, (2) personality and interests, (3) reasons for work and travel, (4) destination and travel plans, (5) attitude towards Work and Travel agencies, (6) worries and (7) information needs.

In addition to the information mentioned previously, the one-pager also includes a list of relevant search keywords for each persona. They were prepared with the team, based on their knowledge of search engine optimization and the information needs of the persona. When writing the content later, relevant pages would be optimized for these keywords.

An illustration of the usage lifecycle that the persona segmentation is based on was shown earlier in Figure 4.7. A small version is included on each one-pager, with the position of the current persona highlighted. This element serves to illustrate the progressive relationship between the personas, as suggested by Brown (2010, p. 46). To make the personas easier to identify, each of them was assigned a trademark color, corresponding to the colors in the lifecycle illustration. In later deliverables, these colors were used to identify aspects relevant to specific personas.

Please note that, purely for reasons of limited space, the scenarios were not included on the one-pagers. Instead, they were written on a separate page,
which is also included in the full persona documentation that can be found in Appendix A.7. Figure 4.8 shows an example of a one-pager for persona 4, Andi. The following parts can be identified:

1. Photo
2. Name and descriptor
3. Quote
4. Demographic information
5. User goals ("Andi wants...")
6. Business goals ("We want Andi to...")
7. Profile
8. Search keywords
9. Position in the lifecycle

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**Figure 4.8: Example of a persona deliverable**
Chapter 5

Phase 2: Design

5.1 Overview

The design phase is concerned with the conceptual creation of the website, the plan for the actual implementation. It covers the two planes of the user experience as described by Garrett (2010), structure and skeleton. These two planes consist of five elements, according to which this phase is divided into five parts. They discuss, in this order, the information architecture, the navigation design, the information design, the interaction design and the interface design. All of them are grounded in the results of the previous phase, the research.

5.2 Information Architecture

5.2.1 Organization structure and scheme

An information architecture can be described according to two main dimensions – the organization structure, or information structure, and the organization scheme. While the organization structure describes the pattern that the content is grouped into, the organization scheme is concerned with the criteria that the grouping is based on (Kalbach 2007, pp. 210–222).

Morville & Rosenfeld (2007, p. 69) suggest using a hierarchy as the basic organization structure because it is simple and familiar to the users. Since the content management system for the website also lays the pages out in a main hierarchy, this approach was chosen for the overall structure of the website. At the same time however, Morville & Rosenfeld (2007, p. 73) point out that a hierarchy is only one component of the structure and that it usually should be complemented by and combined with other approaches.

It became apparent that certain areas, namely those dealing with country-
specific content, showed a recurring structure. For each main country, the same set of subpages with the same topics was needed, e.g. about financial aspects, visas and accommodation. According to Spencer (2010, pp. 183–186), this kind of pattern invites the use of a database structure. Integrating database structures within a hierarchy is a very common approach for websites, as Spencer (2010, pp. 191–193) also points out. Organization schemes can be classified into two main types: objective, exact schemes and subjective, ambiguous schemes (Kalbach 2007, p. 218). Objective ones, like alphabetical or chronological schemes, group content into exactly defined categories. As Morville & Rosenfeld (2007, p. 59) explains, such schemes support known-item finding very well but are not of much use when the exact properties of the content are unknown to the user. Subjective schemes, on the other hand, use groups that lack strict definitions and are therefore ambiguous, for example based on topic, task or audience. While this makes them more difficult to create, they facilitate exploration and help users who have trouble articulating their exact information needs (Morville & Rosenfeld 2007, p. 61).

Because there is no exact terminology for the topics covered by the website, an objective organizational scheme does not make much sense. Experimenting with subjective schemes based on audience and tasks, i.e. the personas, showed that much of the content fits into more than one category. Therefore, a topical grouping was chosen for the main organization scheme.

As Kalbach (2007, p. 221) points out, a single organization scheme does not always work for all of the content though. This was also the case with this project, when some content such as requirements for Work and Travel, experience reports and alternative ways of going abroad did not fit neatly into the existing topics. However, these items are all related to the first persona, Vanessa, as they deal with introductory information. Therefore, one additional top-level category was introduced to group them together. The resulting miscellaneous organization scheme hence combines topical and audience schemes. While this is not a perfect solution, such compromises often have to be made and do not necessarily present a problem, according to Kalbach (2007, p. 222).
In the end, five top-level categories were chosen. An overview is given in Table 5.1, including a translation of the label into English and a summary of the content.

5.2.2 Grouping of content items

To explore different possibilities for the information architecture, as described in the last subsection, all content items were written on small sticky notes. This included the existing and planned pieces of content identified in the content inventory as well as those resulting from the survey. The notes were then put on a wall and arranged using different approaches, as suggested by Spencer (2010, p. 224). Over time, clusters of related information emerged. With differently colored sticky notes, the clusters were labeled and then regrouped into top-level categories as it can be seen in Figure 5.1.

![Figure 5.1: Sticky notes to structure content](image)

During the exercise, one common theme kept coming up: Information about a topic both on a more general level and specifically regarding certain countries.
One example is the financial aspect of a Work and Travel trip — at the beginning of the planning process, a user might want to get an overview of the costs, while someone further along needs more precise information regarding his or her destination.

The normal hierarchical approach would be to have a parent element with general information and child nodes covering specific destinations. However, that approach would spread out information about one country all over the website. Because the survey showed that many users already have a specific destination in mind, it would unnecessarily complicate information gathering and exploration for them. Therefore, a different approach was chosen: Destination-specific information was grouped by country under the top-level category countries, while the pages with more general information were located in other categories. The general pages would then link to the country-specific ones to help users that arrive there but are looking for more specific information. This is one example of how the hierarchical main navigation is augmented by more contextual types of navigation. More on this topic can be found in section 5.3.

### 5.2.3 Labeling

After arranging all pages in the main hierarchy, each of them still needed a label, a name by which it would be listed in the navigation. The labeling aimed to follow general guidelines, suggested by Morville & Rosenfeld (2007, pp. 98–100) and Kalbach (2007, pp. 123–130):

- Labels should speak the language of the user by avoiding technical terms, abbreviations and wordplay.

- Labels should be descriptive of the content and not use all-encompassing terms like information.

- Labels should be consistent in their granularity and style.

- Labels should be mutually exclusive.

- Labels should use the most specific term possible.

In accordance with the first guideline, Spencer (2010, p. 215) suggests using user research as a source for possible labels. Therefore, the verbatim answers to the survey were consulted during the labeling process and incorporated whenever possible.
5.2.4 Final sitemap

Spencer (2010, pp. 245–250) suggests using sitemaps to document and present an information architecture. Both a conceptual sitemap and a detailed sitemap were created for this project.

The conceptual sitemap, shown in Figure 5.2, is a visual representation of the website’s content and its structure (Kalbach 2007, p. 222). It was created in Microsoft Visio and gives a high-level overview by not showing all pages on lower levels. As advised by Brown (2010, p. 98), it does not include more than three levels of structure beyond the homepage. Some groups of pages were collapsed to not clutter the diagram, for example the mentioned database structure for the main countries. Main countries are separated from other countries in the website structure because the survey showed that only four countries — Australia, New Zealand, USA and Canada — draw by far the biggest proportion of user interest. While these main countries are situated directly in the countries category and include a large number of sub-pages, all other countries are listed one level below and without sub-pages. It should be noted that the diagram only includes pages dealing directly with the topic of the website, Work and Travel. Pages such as about us or contact are not included.

The personas again make an appearance in this diagram. Those pages that can be directly associated with a single persona are highlighted in that persona’s color. It can be seen that some of the categories show a strong focus on one persona, e.g. the getting started category is targeted towards Vanessa, while the planning category mostly includes content for Andi. Many pages serve the needs of more than one persona however, which is a problem that section 5.3 looks at in more detail.

While the conceptual sitemap can give a good idea of the website’s structure, more details are required for the actual development and content writing. Therefore, the detailed sitemap, which can be found in Appendix A.8, lists all pages in a spreadsheet format as suggested by Spencer (2010, p. 247). Further columns beyond the title provide additional information such as content, URL and the importance for the different personas. It also includes information about which navigation elements are used on each page, which is explained in section 5.3. In total, the detailed sitemap lists 128 pages over four levels of hierarchy.

5.3 Navigation design

5.3.1 User needs

Although, as Morville & Rosenfeld (2007, p. 69) put it, the “structure of information defines the primary ways in which users can navigate”, there is more to
Figure 5.2: Conceptual sitemap with translated labels and color-coded persona focus
navigation than just the information architecture. The structural organization of content, in this case in a hierarchy, is one main part, but it should be augmented by other navigational approaches.

To go about navigation design, both Kalbach (2007, pp. 236–237) and Spencer (2010, p. 283) suggest a bottom-up approach. Instead of beginning with the navigation on the homepage, content pages should be evaluated first because these are actually more important to the user. A three-step process is repeated until a representative sample of pages was looked at (Kalbach 2007, pp. 236–239):

1. Select a key content page
2. Determine where users need to get from there
3. Design appropriate navigational mechanisms

This process will not be discussed in detail here. However, the following are the most important results:

- The personas 2–4 each have one key target page: *Do I need an agency?* for Hanna, the agency comparison for Erik and the checklist for Andi.
- Many pages are relevant to more than one persona. From those pages, the key page for each persona should be easy to reach, serving as funnels for the users.
- At the same time, personas often have a focus on the pages inside one top-level category. Vanessa for example is mostly interested in pages grouped under *getting started* while Andi likely spends much time in the *planning* category. Therefore, navigation among pages inside the current category must be well supported.
- Users are unlikely to switch a lot between different countries inside the *countries* category. Instead, navigation among the different sub-pages of each country should be facilitated.
- Pages regarding alternatives to Work and Travel might be irritating to most users because they are outside the main topic of the website. They are only important for the persona Vanessa and, therefore, should only be accessible from certain pages that focus on this persona.
5.3.2 Navigation systems

As Kalbach (2007, p. 239) points out, it is important to design a consistent system of navigation, not separate navigations for each page. Therefore, the requirements from all pages have to be consolidated to come up with a combination of navigational mechanisms that work for the whole website. Navigation system can be grouped into one of three categories — structural, associative and utility — as shown in Figure 5.3. This classification is used here to explain the approaches that were chosen for Auslandsjob.de.

![Figure 5.3: Three primary categories of navigation by Kalbach (2007, p. 86)](image)

Structural navigation is based on the main hierarchy of the website and allows the user to navigate along its structure. For Auslandsjob.de, three types of structural navigation are used:

- Global navigation provides access to the top-level categories of the entire site. It will be included on every page to help the user understand the topic and structure of the website as well as provide orientation (Kalbach 2007, pp. 86–88). In addition to the normal top-level pages, the global navigation for Auslandsjob.de, however, also includes the second level of hierarchy for the countries branch. The main country pages and the more countries page are linked in a drop-down menu, allowing users to quickly access them from anywhere on the page. This exception also has consequences for the local navigation explained next.

- Local navigation links to the pages situated below the global navigation (Kalbach 2007, pp. 89–91). Because it needs to display more than one level
of pages, a tree-like structure is used that indicates sub-pages through indentation (Kalbach 2007, p. 63). Lower levels are only shown for the page that is currently active to not make the navigation too long. The local navigation always shows all levels below those that are part of the global navigation. Because, as an exception, the main countries are included in the global navigation in form of a drop-down, the local navigation starts on a lower level for these pages. Hence, other countries are not shown in the local navigation, making it easier for the users to navigate the different pages about the current one. Naturally, the homepage does not show any local navigation. Navigational pages, pages that only have the purpose of directing users to a content page (Kalbach 2007, p. 105), do not display the standard local navigation either. Instead, they use local teasers, which are explained next.

- **Local teasers** work similar to local navigation as they also show child pages. However, instead of using a compact tree-like view, they use more space and only show the next level of hierarchy. This form of navigation is intended for purely navigational pages that do not have any major content. Here, the links to the content pages are therefore bigger than in the local navigation.

- **Breadcrumbs trails** are a strip of links showing the user’s path through the site (Kalbach 2007, p. 60). More specifically, location breadcrumb trails are used here, which show the position of the current page in the hierarchy by listing and linking to all parent pages. Spencer (2010, p. 271) and Nielsen (2007) recommend the use of this type over history breadcrumb trails, which display the browsing history instead.

**Associative navigation** links between pages based on semantic similarity and across the hierarchical structure of the website (Kalbach 2007, pp. 91–92). Again, multiple types of this category of navigation are used:

- **For every page, a navigation with related links is displayed.** Related links lead the users to pages that might be good for continued reading and those that are important for the business. They are displayed close, but separated from the content itself (Kalbach 2007, p. 92). On Auslandsjob.de, this, for example, includes links from more general pages to those with country-specific information on the topic.

- **To solve the problem of lacking persona focus on many pages, a form of quick link navigation was devised.** Kalbach (2007, p. 96) explains that quick links are contextual for the entire site, not a single page, and provide
access to popular and important content. This type of navigation is used on Auslandsjob.de to funnel the three mentioned personas to their key pages. It is shown in a prominent position on all pages which are conceived for more than one persona, and is referred to as *persona navigation*.

- Another custom solution was designed for the alternatives to Work and Travel. These pages are hidden from all normal navigation to not confuse the users. Instead, they are accessible through a special contextual navigation element, referred to as the *alternatives navigation*, that is included only on the pages for the persona Vanessa. On the different pages about the alternatives, this navigation is also included in place of the local navigation. This behavior serves to create a separate area for users that have decided against Work and Travel. By only showing other alternatives at that point, it tries to lock the users into this part of the website as well as make navigating between the alternatives easier. Because it is a breach of consistency, this aspect was specifically tested later on to see if it confuses users.

- Embedded navigation is similar to related links, only embedded in the content as purely textual links (Kalbach 2007, p. 92). This type of navigation will be used frequently on every page.

*Utility navigation*, or courtesy navigation (Garrett 2010, pp. 122–123), provides access to pages that are located outside the main hierarchy of the website, i.e. those not shown in the sitemap like *contact*. While they are not relevant to the topic, these pages help the users use the website (Kalbach 2007, p. 98).

To document the decisions explained here, the detailed sitemap in Appendix A.8 was expanded with information about the navigation design. For each page, it lists which of the navigation systems should be displayed. Only the exact related links were not decided at this point because they depend too much on the actual content. How the different types of navigation are arranged on the page is discussed along with the information design in the next section.

### 5.4 Information design

#### 5.4.1 Page template

Garrett (2010, p. 124) explains that information design is concerned with the grouping and arranging of pieces of information. Here, it specifically refers to the layout of the website. The layout defines how the different parts such as content and navigation systems are positioned on a page.
Because individually designing every single page is impossible for larger websites, Kalbach (2007, p. 249) suggests a template-based approach. The page template defines modules, possible parts of a page, and under which conditions they are displayed. Thereby, it helps to create a consistent layout and facilitates the reuse of modules across different pages. The range of navigation systems that was designed in the last section already formed an important step towards a page template for the website. The only thing left was arranging these navigation systems and the other areas on the page. Figure 5.4 shows the resulting page template, which is similar to what Spencer (2010, pp. 297–298) calls a reference zone wireframe. It includes all possible modules with mandatory ones highlighted in blue. For optional modules, the pages that use them are stated in brackets. The homepage is the only exception from this template — while most of the mandatory modules are the same as on all other pages, it uses slightly different elements in addition.
The rationale behind the two-column layout with a narrow right column is mostly one of business needs. A dedicated area for advertisements and promotions is required on every page. It should also hold additional features such as social plugins. Setting this area apart from the normal content in a separate column makes it easier for the user to distinguish between the two. The position on the right side is very common for such areas. Because a third column on the left side for navigation systems would limit the horizontal space for content too much, it was decided to include those at the top of the right column. Although not standard, this position generally does not decrease usability, as Kalbach (2007, pp. 242–243) points out. To make sure of that, the navigation was tested during the evaluation phase.

5.4.2 Wireframes

After the page template, a form of very low-fidelity wireframe, more detailed wireframes were needed to document how the described modules would actually look like. Following the suggestion of Garrett (2010, p. 129), one wireframe was constructed for each different configuration of modules to establish a standard design for this type of page. This resulted in a total of five wireframes:

- The homepage
- Australia as an example of a navigational page
- Travelling around in Australia as an example of a content page which also shows the persona navigation
- Requirements as an example of a page with focus on Vanessa, showing the alternatives navigation
- Internship abroad as an example of a page about an alternative to Work and Travel where the local navigation is hidden

The wireframes were designed in Axure, using a sketchy look to communicate lack of finality (Brown 2010, p. 247) and thereby facilitate feedback (Spencer 2010, p. 304). Two of these are explained in more detail here: The homepage and travelling around in Australia. Together, the two include most of the possible modules.

The homepage, shown in Figure 5.5, has a layout slightly different from the template. Above the content area, three columns are used to fulfill the most important roles of a homepage: Communicating what the website is about and highlighting important pages to get users started (Spencer 2010, p. 295). Leftmost, a short introduction tells the user what the website is about and also provides
access to introductory content for the persona Vanessa. The middle column features the three quick links of the persona navigation, allowing the other personas to directly get to the most relevant content. On the right, news from Twitter and a social plugin from Facebook are integrated. These attempt to convey the site as modern and up-to-date as well as hinting at the community behind the website. The mandatory modules can be seen here as well, including the global navigation bar. The fact that the countries navigation item triggers a drop-down is indicated by a small arrow. This aspect was also tested during the evaluation phase to make sure that users are not confused by the inconsistent behavior of the global navigation.

The other wireframe example, traveling around in Australia, is shown in Figure 5.6. It is a standard content page that also shows the persona navigation at the top because there is no focus persona. On the right side, the local navigation can be seen with the current node highlighted by an arrow and bold type. For the current page, the child pages are also shown, indented to the right. Above the tree structure it says Australia to indicate the current top-level category for which the local navigation is shown. The design of this navigation header with a
grey bar in the background is used throughout the website. The three columns on the homepage feature it as well as the related links below the local navigation on this page. By grouping items that belong to the same navigation system or module in a consistent way, an overarching design language is established for the website.

**Auslandsjob.de**

Alles rund um Work and Travel weltweit

**Einstieg** | **Länder** | **Planung** | **Organisationen** | **Jobben** | **Suchen**
---|---|---|---|---|---
Auslandsjob.de > Länder > Australien > Reisen im Land

**Australien: Reisen im Land**

Australien ist immerhin über 20 Mal größer als Deutschland. Insofern gibt es jede Menge Reisemöglichkeiten. Das Land hat so viel zu bieten, dass man dort immer etwas Neues entdecken kann. Hier erfährst Du, wie Du am besten herumreist und was Du auf keinen Fall verpassen darfst!

**Verkehrsmittel**

Australien lässt sich ganz wunderbar auf eigene Faust bereisen. Es gibt nicht DAS Verkehrsmittel für eine Reise durch Australien, zum einen sind die Bedürfnisse der einzelnen Reisenden sehr unterschiedlich und außerdem ist das Land einfach riesig und die Straßenverhältnisse können sehr unterschiedlich sein. Daher sollte man das Fahrzeug immer auch von der gewählten Reiseroute abhängig machen.

Zum Beispiel braucht man bei einer Route von Melbourne nach Brisbane nur einen ganz normalen PKW, der den persönlichen Ansprüchen ausreichend ist, auf der asphaltierten Straße ist ein 4WD nicht notwendig. Für manche Gegenden ist allerdings ein 4WD-Fahrzeug unerlässlich.

Auf Grund der Größe Australiens bietet sich manchmal auch eine Kombination aus verschiedenen Verkehrsmitteln an. Zum Beispiel:

**Highlights**

Sydney muss auf jeden Fall ganz oben auf der "Must See"-Liste stehen. In der größten Stadt Australiens kann man sich vom Trubel der Metropole mitziehen lassen oder die Strände zum Baden, Bräunen oder Surfen besuchen. Insidertipp: Der berühmteste Strand

**Figure 5.6: Wireframe of a content page**

Another example for this design language is the creation of three standard teaser elements. These teaser elements always include a picture and some text, all linking to a certain content page. They are extended forms of links, used in many of the navigation systems on the website, for example the persona navigation, the related links and the local teasers. While the teasers come in three sizes, they all share the same width, as Figure 5.7 illustrates. Therefore, they can be used interchangeably without affecting the page layout. The wide left column can fit
two teaser elements next to each other, and the right column can fit one, allowing
the use of a three-column teaser layout for the persona navigation. The teaser
sizes for each of the navigation systems are standardized — the biggest version
for local teasers, medium size for persona navigation and the smallest for related
links — but exceptions can be made, e.g. to highlight a particular link by using a
bigger teaser.

Figure 5.7: Three sizes of teaser elements — big (left), medium (top right) and
small (bottom right)

5.5 Interaction design

5.5.1 Conceptual model

Because the website is purely informational for the most part, the design as-
pects discussed so far cover almost everything on the website. Navigation and
information design actually are the interface and the interaction the user has
with it. There is one exception to this, however. It was decided to implement
an interactive checklist to help users plan their trips and lead them through the
various steps. This checklist would take the form of a small web application
embedded on one page of the website. Because a web application allows for more
interaction than just navigating, its design is discussed here in more detail.

Garrett (2010, pp. 83–85) suggests the use of a conceptual model throughout
an application to create consistent interaction which users can understand and
anticipate. For this interactive checklist, the model of a real-world checklist on
paper naturally comes to mind. Based on this metaphor, the checklist should include the following features:

- The checklist contains items describing the steps involved in planning a Work and Travel trip.
- The items are arranged from top to bottom in chronological order if possible.
- The user can tick off items to mark them as completed.
- The user is allowed to tick off items in any order.
- The user can adjust the list to his personal needs by crossing out items to mark them as not needed.
- The user can see his or her progress by looking at the portion of checked items.
- The checklist saves the user’s progress, allowing a usage in multiple sessions.

5.5.2 Additional features

Instead of insisting on limitations of the real-world analogy of the checklist, however, it makes sense to use the possibilities of interactive technology to the benefit of the user. Therefore, the checklist should also include the following additional features which go beyond those of a real checklist:

- The user can undo the ticking and crossing out of items, easier than by using a rubber on a real checklist.
- Items on the checklist can expand to give more information on how to complete the step.
- The extended information for each step includes links to relevant pages on the website.
- The checklist visually separates completed and crossed out items from uncompleted ones to make it easier for the user to estimate his or her progress.
- The checklist always shows the progress in percent for the user to see at a glance.
Checklist is started

Checklist waits for user action

User changes item

Progress is updated

Undo action? Items left?

Yes No

Y N

Checklist is completed

Figure 5.8: Flowchart for the interactive checklist

- The progress of the user can be saved to an account, so that it can be accessed from any computer.

- As long as the user has already started using the checklist, a very visible button linking to the checklist should be included on every page to provide easy access. It shows the current progress to motivate the user to continue. The idea was taken from how virtual shopping baskets are used on online shopping websites.

Figure 5.8 shows a flowchart illustrating the interaction between the user and the checklist application on a very basic level. It follows the guidelines for flowcharts suggested by Brown (2010, pp. 124–164). The checklist waits for a user action which can be either (1) ticking or crossing out an item or (2) undoing the ticking or crossing out of an item. In both cases, the application performs the requested action. If an item was ticked or crossed out, the checklist tests whether there are any uncompleted items left. If this is not the case, the checklist was completed successfully. Otherwise, or if an undo action was performed, the application goes back to its waiting state.

5.6 Interface design

After the interaction design defined the features and the overall interaction flow for the user, the interface design is concerned with the actual look and feel of the application on screen.
To explore different possibilities, sketches were first drawn on paper. The main limitation was that the interface should fit in with the rest of the website as it will be embedded on one of the pages. Therefore, after the initial sketching, a prototype was drawn up in Axure, using the layout defined for the wireframes earlier. The prototype was static, however, not interactive. Instead, it would later come to life by hand as a paper prototype for usability testing.

A screenshot of the prototype is shown in Figure 5.9. In the following, the major aspects of the design are explained with references to the markers in the screenshot:

- The general layout consists of uncompleted items on the left side of the screen (1) and completed items on the right side (2). It clearly separates the two and therefore makes it easy for the user to see his or her progress. An earlier idea was to group completed items at the top of the list. It was however discarded because this would clutter the checklist too much and require extensive scrolling from the user.

- Uncompleted items on the left side usually show only a headline (3). When an item is active (4), it expands downwards to show the full description and three buttons: Completed (5), later (6) and not necessary (7).

- Only one item can be active at a time so that the checklist does not take up too much vertical space. There are two ways to change the active item: The user either clicks on the button later (6) to activate the next item or clicks on the headline (3) of another item to directly activate it. The current item is always deactivated at the same time.
• To work through the checklist, the user can use the two buttons *completed* (5) and *not necessary* (7). Both move the item to the right side, marking it as either completed or not necessary.

• A consistent design language is used to indicate if an item on the right side is completed or not necessary. It uses the same icon and color for both the item on the right (2) and the corresponding button (5, 7) — a checkmark and green color for completed, and a crossed-out sign and grey color for not necessary.

• When hovering an item on the right side (2), a button with an undo icon is shown next to the item (8). Clicking this button moves the item back to the left side. The button is not shown permanently to not clutter the interface too much. It also does not include a label because there is not enough space in this location. This detail received special attention during the evaluation phase to make sure that it is usable even without a textual description of the function.

• To visualize the relationship between the two parts of the list, animations are used for the transition of an item from one side to the other. Items will visually move from left to right and vice versa.

• The previously mentioned checklist button is located in the upper right corner of the website (not shown on the screenshot). It will flash when it first appears or updates to make the user notice it and to show the connection to the user actions.
Chapter 6

Phase 3: Evaluation

6.1 Overview

In the last chapter, some aspects of the design that would be tested were already mentioned. This chapter fully explains the evaluation phase, including these and other tests.

6.2 Objectives

The goal during the evaluation phase was to test the design decisions, find possible problems and suggest improvements. More specifically, answers to the following questions should be found:

- Can the users orientate when they arrive on the website?
  - Do the users understand what the website is about?
  - Do the users understand who runs the website?
  - Do the users understand which part of the website they arrived in?

- Do the users understand the different systems of navigation?
  - Do the users understand where the persona navigation will lead them?
  - Do the users see and understand the local navigation?
  - Do the users see and understand the utility navigation?
  - Do the users see and understand the related links?
  - Do the users understand the categories in the global navigation?
- Do the users understand that there is a drop-down for countries in the global navigation?
- Do the users see and understand the alternatives navigation?

• Are the users able to find information in the main hierarchy?

• Are the users able to use the interactive checklist?
  - Can the users mark an item as completed?
  - Can the users activate a different item?
  - Do the users understand what marking an item as not necessary is for?
  - Can the users undo an action?
  - Do the users see and use the checklist button to get back to the checklist from other pages?

• What are the users’ feelings towards Facebook Connect?
  - Do the users know and use Facebook Connect?
  - Would they be willing to use it to log in for the checklist?

### 6.3 Method

#### 6.3.1 Rationale

To reach answers to these questions, it was decided to employ a combination of different methods. This is necessary because the various aspects of the design to be tested are very different and each afford their own approach. Based on the design phase and the elements of the user experience, there are five aspects to the design of the whole website: Information architecture, navigation, information, interaction and interface. These five aspects are all covered by the three parts of the usability test: A tree test, a wireframe test and a paper-prototype test.

The information architecture is difficult to test because it is essentially invisible — it is not directly shown to the user but, instead, defines the underlying structure of the website. Testing the information architecture requires abstracting from any possible implementation and instead exposing the basic content categories. Therefore, a wireframe test or prototype is not the right way to go about this. Instead, some, e.g. Morville & Rosenfeld (2007, pp.255–256) and Tullis & Albert (2008, p. 51), argue that closed card-sorting is a viable method to accomplish this goal. Closed card-sorting has participants assign content items that are
written on index cards to predetermined categories (Kalbach 2007, pp. 186–187). However, as Spencer (2009, pp. 84–85) points out, classifying content and trying to find it are very different tasks, making card-sorting ineffective for evaluating an existing information architecture. Instead, she suggests what she calls *card-based classification evaluation*: Asking participants to find content in a structure that is shown to them on index cards (Spencer 2003). This method, also referred to as *tree testing* (Bowles & Box 2010, p. 107), was used here and will be explained in more detail later.

The navigation and information design are not as abstract. In fact, they have to be tested with visual representations, as that is what they are about. The goal is to find out if users understand the layout of the website and the different systems of navigation that are available. Therefore, wireframes are the right way to test these aspects of the design. Through a number of questions and probing, insight into the participants’ comprehension of the wireframes should be gained. Again, more details of this method will be presented later.

Finally, the interaction and interface design are to be evaluated, specifically the checklist feature of the website. To test an interactive experience, static wireframes are not enough because they cannot capture the dynamic nature of the system. Instead, a prototype is needed here. Although Axure, the software used for the wireframes, supports implementing interactivity to create prototypes, it was decided to stick with a paper-based version. Apart from simply being easier to realize, it stays in line with the other parts of the evaluation, which are entirely paper-based, too. Avoiding the use of a computer makes both the logistics and the interaction with the participant easier. As Moggridge (2007, pp. 705–707) points out, paper-prototypes invite more honest comments and critique due to not looking finished. The test itself follows the approach of a formative usability test, letting the user work on a number of tasks to spot possible problems (Rubin & Chisnell 2008, pp. 29–31). The next section will further explore this and the other parts of the test design.

### 6.3.2 Test design

**Overview**

As described before, the test consisted of three main parts. It was decided to carry them out in the following order: (A) Wireframe test, (B) tree test and (C) prototype test. This design goes from the more general aspects of the website to the more specific, so that later parts are not influenced by the earlier ones. To capture initial impressions of the information and navigation design as a whole, it is necessary to show the wireframes first. Then, the tree test follows. Because the participant has so far only seen the top-level categories in the global navigation
and very few other pages as part of the wireframe test, the tree test is not affected by the previous part. Finally, the prototype test concerns a very specific part of the website that was not touched on before.

Because a pilot test with an employee showed that the test with all questions and tasks would take about 25 minutes, it was decided to not do the whole test with each participant. Instead, the questions and tasks of two of the parts were split up into different versions. Table 6.1 shows the different versions for each part of the test and how many questions each version consists of. In total, the participants were presented a total of 22 to 23 questions and tasks for a planned test length of 15 minutes.

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<td>Part B</td>
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<td>Version 3</td>
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</table>

Table 6.1: Number of questions or tasks for the different versions of the three test parts

There are six possible combinations of the different versions. Each of the combinations was run with one participant for a total of six participants. How the different versions were assigned to the participants is shown in detail in Table 6.2. More on the number of participants and their selection can be found in subsection 6.3.3. In the following, the three parts of the test are described in more detail.

**Part A: Wireframe test**

The first part of the test follows the approach described by Krug (2005, p. 144) as “get it” testing — showing the website to participants to see if they understand it. The wireframes that were created during the design phase were printed out on separate sheets of paper to be viewed by the participants. Four different wireframes were used, given to the participants one at a time. Of the 16 questions in total, seven were asked in both versions, the rest was split up. The order of the
questions goes from initial and general impressions to more specific topics. In the following an overview of the test design is given.

First, all participants were shown the wireframe of the homepage. The goal was to capture their initial impression of the website, similar to what Barnum (2010, p. 131) calls the *look and feel scenario* and Krug (2009, pp. 34–35) describes as “testing the sketch on a napkin”. The participants are asked what they think the website is about and who might be running it.

Afterwards, the attention is turned to the different systems of navigation, following what Krug (2009, p. 36) suggests for wireframe testing. Still viewing the homepage, the participants are asked three questions to check if they see and understand the utility and the global navigation. This also includes asking what they expect to happen when clicking on *countries* to see if they understand the arrow that indicates the drop-down.

After the homepage, the two versions of this part showed different wireframes: One showed the *requirements* page and the *internship abroad* page, the other used the *travelling in Australia* page. For both of them, the first two questions were the same, testing the participant’s ability to orientate and if they see and understand the local navigation.

All other questions differed between the two versions. For the first version, the four questions were aimed at the users’ understanding of the alternatives navigation. To find out whether hiding the local navigation on a page about an alternative confuses the participant, he or she is asked if they notice anything special. The questions for the second version test the participant’s understanding of the hierarchical tree structure of the local navigation, the related links and the persona navigation.

The moderator guide, which can be found in Appendix A.9, lists all questions in detail.

<table>
<thead>
<tr>
<th>Version</th>
<th>Part A</th>
<th>Part B</th>
<th>Part C</th>
</tr>
</thead>
<tbody>
<tr>
<td>Participant 1</td>
<td>1</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Participant 2</td>
<td>1</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Participant 3</td>
<td>1</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>Participant 4</td>
<td>2</td>
<td>1</td>
<td>1</td>
</tr>
<tr>
<td>Participant 5</td>
<td>2</td>
<td>2</td>
<td>1</td>
</tr>
<tr>
<td>Participant 6</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
</tbody>
</table>

*Table 6.2: Assignment of participants to the different versions of the test parts*
Part B: Tree test

This second part of the evaluation, focused on the information architecture, uses the method described by Spencer (2003). All page names were transcribed onto index card by following the hierarchical structure. First, the top-level categories were printed on one card. Then, one card per top-level category listed the pages of the level below. This was continued until all pages were covered. Figure 6.1 shows a few of these cards as an example.

Additionally, short scenarios were developed and written on a different set of index cards. The scenarios each explain a certain information need, which the participant in the test is asked to pursue. As Spencer (2010, pp. 232–233) advises, they use terminology that is known to the users but different from the page names. The following is a translated example of a scenario, asking the participant to find the page requirements:

Earlier today, you’ve heard of Work and Travel for the first time from your friends. It sounds quite exciting, but you’re not sure if you’re old enough yet. Please find out what the minimum age for Work and Travel is.

Figure 6.1: Some of the index cards showing the website hierarchy
A total of 12 scenarios were written, of which each user was presented four. For each of the three different versions, Table 6.3 lists all the pages the participants were asked to find. To counteract learning and order effects, each version never asked for more than one page from the same top-level category. Also, the index cards were shuffled before each test to randomize the order of the scenarios.

<table>
<thead>
<tr>
<th>Version</th>
<th>Pages</th>
</tr>
</thead>
</table>
| 1       | Getting started > Requirements  
              Countries > Australia > Traveling around > Accommodation  
              Jobbing > Important documents  
              Organizations > Opinions and experiences > Travelworks |
| 2       | Getting started > Experience reports  
              Countries > Australia > Finances > Bank account  
              Planning > Insurance > Health insurance  
              Organizations > Should I book with an organization? |
| 3       | Countries > Other countries > England  
              Jobbing > Income  
              Planning > Finances > Living expenses  
              Organizations > Comparison > Australia |

Table 6.3: Pages to locate during the tree test

Before the tree test, it was explained to the participants how this part of the test works:

1. The index card with the top-level categories is put in front of them.
2. They draw a scenario and read it.
3. From the index card, they choose the category that they think contains the information they are looking for.
4. They are presented the index card containing the pages inside the chosen category.
5. They again choose one option.
6. This continues until they arrived at a page that has no more sub-pages.
7. Whenever they feel they are on the wrong path, they can go back a level.

The full explanation as well as all 12 scenarios are included in the moderator guide, which can be found in Appendix A.9.
Part C: Prototype test

A formative usability test of the interactive checklist is the last part of the evaluation. For this, a paper-based prototype was created using the design explained in section 5.6. All parts of the interface that can change were printed and cut out separately. Where necessary, multiple versions of the same element were created, e.g. checklist items both inactive (headline only) and active (folded out). Figure 6.2 shows the different parts of the prototype in a photo.

![Prototype example](image)

Figure 6.2: Paper-prototype of the interactive checklist

For the test, six scenarios were printed on index cards and handed to each of the participants. They were always in the same order, following the natural usage of the checklist. Therefore, any learning effects are part of how the application works and not a threat to the validity of the test results. If a participant was not able to successfully complete one of the scenarios, the moderator put the prototype in the correct state to allow the participant to continue with the next task. The following gives an overview of the tasks that the scenarios describe:

1. The participant was asked to indicate that he or she already checked the requirements for Work and Travel. This item was already activated at the beginning. The task should find out if the users can find the correct button.
2. The participant was asked to say how many percent of the checklist he or she had already completed. After the last task, a button appeared in the top right corner that showed the progress. The task should find out whether the users see and understand it.

3. After the last task, a different screen was shown, also displaying the progress button in the top right. Now, the participant was asked to get back to the checklist. The task tries to find out if the users understand that they can click the button to accomplish this.

4. Back on the checklist page, the participant was asked to indicate that he or she booked a flight. Because a different item was active at the time, this task is aimed at the users’ ability to activate an item and mark it as complete.

5. The participant was asked to indicate that he or she did not need to book a first accommodation. The task should find out whether the users can find the correct button for this and, therefore, understand the difference between marking something as complete and as not necessary.

6. The participant was asked to indicate that his plans for the first accommodation have changed and he or she now still needs to book one. Hence, the task should find out if the users can undo a previous action.

After these tasks, those participants that use Facebook were asked a few more questions regarding Facebook Connect. This feature allows users to login on a website using their Facebook account. The website connects with the Facebook profile of the user and can retrieve data from it. Facebook Connect was considered as a way of persistently storing the progress of a user without forcing them to create a separate account on Auslandsjob.de.

First, the users were shown a screenshot of an example dialog of Facebook Connect, which asks for permissions from the user. The participants were asked whether they have ever seen something like that and whether they chose to accept it. This question was aimed at the general acceptance of users. Last, they were asked if and under which conditions they would use the feature for the interactive checklist.

### 6.3.3 Participants

The evaluation was performed with six participants between the ages of 17 and 27. They were recruited as an ad hoc sample in the cafe where the test was held. The incentive for their help was a free coffee.

As for the number of participants, Nielsen (2000) suggests to test with no more than five users. He argues that most serious problems are found even when
testing few people. Considering the exploratory nature of the evaluation and therefore the low required degree of confidence, Rubin & Chisnell (2008, p. 126) also agree with a smaller number. To stick with the discount usability approach of the project, it was hence decided to limit the test to six participants. As a result, most questions and tasks were done by at least 3 participants, the number that Krug (2009, p. 43) settles for. Only part B has three different versions, meaning that each was only performed by two users. However, because there are many overlaps between these tasks — all of them test the same page hierarchy — this was deemed acceptable.

Since the participants were not randomly selected, the test uses an ad hoc sample (Graziano 2004, p. 205). As suggested by Krug (2009, pp. 40–42), no strong emphasis was put on recruiting representative users. The website is essentially aimed at anyone interested in traveling abroad, with a focus on younger people. When acquiring the sample, the main selection criteria was therefore the age. The participants were recruited on the spot from the general public (Bowles & Box 2010, p. 101). The venue was a cafe as described in more detail in the next section. Customers that fitted the profile — roughly between 16 and 30 years old — were approached when they queued at the counter or sat alone at a table. The test was then carried out right away.

The participants were offered a free coffee of their choice as an incentive. If they agreed to take part in the test, they were given a voucher. They could then either redeem the voucher right away to drink it during the testing session or keep it for later.

### 6.3.4 Conduction

The evaluation was carried out by a team of two, one moderator and one note taker. The venue for the test was a cafe in the inner city of Münster, Germany.

The moderator was the one handling all the interaction with the participant — from approaching him or her for recruitment to asking questions and handling the paper prototype. The note-taker was responsible for writing down the actions and comments of the participants and his own observations. He also started and stopped the audio recording of the session.

Each testing session was started with a short explanation of the different parts of the test and the general purpose. The participant was then asked to think aloud. This technique reveals the thought process of the participant to gain a better understanding of his or her actions and answers (Rubin & Chisnell 2008, p. 204). Then, a consent form for the audio recording of the session was given to the participant to be signed. Before starting with the main parts of the test, some introductory questions were asked to get the participants comfortable talking (Krug 2009, p. 73). These concerned some demographic information about the
participant as well as the participant’s internet usage. The whole introduction is part of the moderator guide, which can be found in Appendix A.9.

Afterwards, the three main parts of the evaluation were carried out as described earlier. Throughout the test, the moderator probed the participant whenever an answer or action was unclear or when the user forgot to think aloud. The probing questions focused on the expectations of the user and the rationale behind their behaviors, as suggested by Rubin & Chisnell (2008, pp. 206–208).

At the same time, the note taker recorded the answers and actions of the user. To make the data easier to use, this was done directly on a laptop. For each participant and therefore each different version of the test, one separate document was created. The recordings included the most important statements made by the participants in part A, the order that categories were selected in for part B and the errors made in part C. For every part, additional observations and comments by the participant were also written down. Right after each session, a short review was done by the moderator and the note taker, as suggested by Rubin & Chisnell (2008, p. 241). The notes were checked to see if anything was missing or unclear. If necessary, the audio recording was consulted later to complete the notes.

As mentioned earlier, the test was carried out in a local cafe. It was chosen because it is popular with younger people, especially students, and was successfully used for a usability test by the company earlier. Although such a public venue cannot offer the same level of control as a usability lab, this was deemed acceptable considering the exploratory nature of the study. Bowles & Box (2010, p. 102) actually suggests a cafe as a good “undercover alternative”.

All test materials, such as the index cards and the prototype, were set up at a big private table inside the cafe. The table allowed the participant to sit between the moderator and the note taker to make for both easy interaction and observation.

6.4 Results

6.4.1 Preparations

As mentioned in the last section, all notes were initially collected in separate documents for each participant. All of these documents can be found in Appendix A.10.

After the test was complete, the notes were transferred from the documents into a single spreadsheet. Having all the data in one place and the same format made the analysis much easier. During the transfer, the notes were cleaned up and put in a more consistent form. From the notes, for each participant and task, a success rating was derived. This binary measure indicates whether the
participant was able to solve a task successfully or answer a question with the expected response. By color-coding the success ratings in the spreadsheet, the results were made easier to understand at a glance. Figure 6.3 shows a screenshot of a small part of the spreadsheet including some of the success indicators. The full spreadsheet can be found in Appendix A.11.

Figure 6.3: Screenshot of the spreadsheet for collecting the evaluation results

6.4.2 Report

Overview

In line with the *discount* nature of the usability test, no formal, written report was produced from the test results. Instead, the mentioned spreadsheet was used as the sole deliverable. In addition to the raw results, it was later expanded to also include problems and suggested improvements. The goal was to have all the important information in one place to make it easier to connect the results and the analysis and to not overwhelm anyone with an elaborate report. This approach is similar to what Krug (2009, p. 108) suggests as a “small, non-honkin’ report”. Next, the results are explained in more detail, structured according to the research questions.
Can the users orientate when they arrive on the website?

Only two of the six participants completely understood what the website was about at first glance. Three thought it would solely deal with jobs abroad and act as an intermediary between users and employers. One participant understood the website as a more general resource about going abroad, without a focus on Work and Travel.

The fact that the website was not run by an agency that tries to promote its services was realized by only two participants. They thought it was an informational website of an independent carrier.

All of the participants were, however, able to orientate on the sub-pages of the website. They were able to say which part of the website they arrived in by looking at the headlines and the highlighting of the current page in the global and local navigation.

Do the users understand the different systems of navigation?

Of the three participants that were shown the persona navigation, only one completely understood how it works and that it leads to more general pages outside the current part of the website, e.g. a checklist that is not specifically for Australia. The other two assumed that the links would lead to country-specific pages, such as a checklist just for Australia. They also thought that the link for the persona Erik would lead to a community forum instead of the comparison of agencies.

The local navigation was seen and understood by five of the six participants. The one other participant did not realize that it was a navigation. However, it took the participants a few seconds to find the local navigation. One of the participants noticed the related links before the local navigation. The hierarchical nature of the local navigation was understood by all three participants that it was shown to.

When asked to find information that was part of the utility navigation, five of the six participants were able to find it. The one other did not see the set of links in the top right and gave up after a short while.

The related links were easily found and understood by all three participants they were shown to.

Although the global navigation was immediately recognized by all six participants, four of them had trouble explaining the categories. The biggest confusion was caused by the two categories planning and organizations. Three of the participants were not able to tell the difference between the two. All but one participants understood that the category countries would show a drop down menu, as indicated by the arrow.
Regarding the alternatives navigation, two of three participants noticed and understood it when asked to find alternatives to Work and Travel. The other participant would instead look in the planning category of the global navigation. Once on a page dealing with an alternative, all three understood where they were. The lack of local navigation was noticed by one participant but he commented that it was not a problem.

Are the users able to find information in the main hierarchy?

Seven of the 12 tasks were completed successfully by all, usually two, participants. Due to a mistake made by the moderator, one incorrect task was handed to one participant. As a result, one task was performed three times and another was performed only once.

The other five pages were not found by at least one of the two participants and sometimes proved to be difficult to locate for everyone:

- Jobbing > Important documents
  One of the participants chose the page requirements to look for this information.

- Countries > Australia > Traveling around > Accommodation
  Both participants first looked inside the planning category but did not find what they were looking for. One of them then found the correct page; the other chose the introduction page for Australia.

- Countries > Australia > Finances > Bank account
  One of the participants chose the living costs page inside the planning category.

- Organizations > Do I need an organization?
  One of the participants first checked the planning category and then chose the page searching for jobs in the jobbing category.

- Organizations > Opinions and experiences > Travelworks
  Both participants looked for the information on the experience reports page in the getting started category.

Are the users able to use the interactive checklist?

The participants did not have any major problems with the interactive checklist. All six of them were able to complete the basic tasks like marking an item as completed and activating a different item.
One of the six participants did not correctly mark an item as not necessary and instead used the later button. Because of this, the participant was not able to undo this action as planned and instead simply activated it again. Undoing an action was done successfully by all other participants, although one of them commented that the icon was not completely clear. She would still click it however.

All of the participants noticed and understood the progress button and that it showed the progress. When asked to get back to the checklist from another page, only four clicked on the button, however. The other two remembered where the checklist was located and clicked on planning in the global navigation.

What are the users’ feelings towards Facebook Connect?

Four of the participants recognized the Facebook Connect prompt, while one did not know it and another thought it was a friend request. One of the four commented that she only accepted the prompt for websites she trusts, and another participant commented that she never accepted it.

Regarding the usage of Facebook Connect for the interactive checklist, only one of the six participants answered that he would never accept it. The other five commented that they would; two of them however demanded further explanation of the feature. They wanted to know what exactly would happen to their data and why it was needed, and they did not want the application to post anything to their profiles. One participant mentioned that he thought it was a good idea to use Facebook Connect because he would not want to create a separate account just for the checklist.

6.5 Analysis

6.5.1 Possible problems

Overview

Based on the results gathered in the last section, possible problems with the current design were identified. For each task or question that a participant did not solve correctly, an error analysis was performed (Rubin & Chisnell 2008, pp. 260–261). Due to the relatively short tasks, the think aloud protocol and the probing by the moderator, identifying the underlying reason for the errors turned out to be rather easy. The problems were noted alongside the tasks in the results spreadsheet that can be found in Appendix A.11.

Afterwards, the found problems were prioritized. Although it was pretty clear that all problems would be possible to fix, prioritizing was still considered useful to give a better overview over the state of the design. As suggested by Rubin &
Chisnell (2008, pp. 261–263), each problem was given a criticality rating. However, the issues were only sorted into two criticality categories — major problems and minor problems — instead of a more elaborate system. As both Rubin & Chisnell (2008, pp. 261–263) and Krug (2009, pp. 104–105) explain, the criticality depends on the severity of the problem and the estimated frequency of occurrence. The severity describes how disruptive to the use of the website an occurrence of the problem is. Krug (2009, p. 105) points out that there are no hard and fast rules for determining criticality — in the end, it is always a judgment call. For this project, a problem was considered major if it did not just irritate the participant, but potentially limited his or her ability to use the website, and if it occurred for at least half of the participants. The other problems were classified as minor. All identified problems are explained in detail below, along with some non-problems. These sometimes confused participants but were not considered in need of fixing for different reasons.

**Major problems**

The following were identified as major possible problems with the current design:

1. The term *organizations*, used for a top-level category and elsewhere on the website, is too similar to *organization* and therefore often misunderstood as a synonym for *planning*. The users are often not able to tell the difference between the two categories, leading to problems in finding the pages in the main hierarchy.

2. The logo that shows the URL *Auslandsjob.de* leads to a misunderstanding of the website’s topic. Although the earlier survey indicated otherwise, the users often associate a strong emphasis on jobs abroad to the URL, instead of Work and Travel as a whole.

3. There is no information about accommodation in the general *planning* section of the website, although this is the place that the users search for it first.

4. The page on *experience reports* in the *getting started* category does not contain information about opinions on the different travel agencies, although users look for it there.

**Minor problems**

Further possible problems include:

1. The website lacks obvious indications on who it is run by, leading the users to believe it is made by a travel agency.
2. The contact and imprint pages do not contain background information on who runs the website and why, although some users search there for it.

3. The local navigation does not stand out enough and is, therefore, often only seen rather late by the users.

4. The persona navigation does not communicate clearly enough where the links lead.

5. The alternatives navigation does not stand out enough and is, therefore, sometimes not noticed.

6. The page requirements in the getting started category does not contain information about important documents for working abroad, although some users look there for it.

7. The page living costs in the planning category does not contain information about opening a bank account, although some users look there for it.

8. The progress button of the checklist in the upper right corner does not indicate clearly enough that it links to the checklist.

9. The icon on the button to undo an action on the checklist is not completely clear to all users.

10. Not all users are familiar with Facebook Connect.

11. Many users need to be convinced to use Facebook Connect for the interactive checklist.

12. Some users will not be willing to use Facebook Connect under any circumstances.

Non-problems

The following issues were discovered but not considered a problem worthy of a change to the website:

1. One participant did not understand that countries in the global navigation shows a drop down menu. Because everyone else understood this, and because a user should notice it when hovering the link to click it, this was not considered a problem.
2. One participant clicked on the *later* button when asked to mark an activity as not necessary on the checklist. Although it is not intended, this divergence from the normal usage does not lead to any problems for the user. To undo this action, the participant simply reactivated the item.

### 6.5.2 Suggested improvements

**Overview**

For each of the identified problems, possible suggestions for improvement were developed. Because the recommendations influence each other, Rubin & Chisnell (2008, pp. 278–279) point out that those with the widest impact should be considered first. Here, however, none of the problems required any large-scale changes. Instead, a number of smaller adjustments should be able to solve the problem — *tweaking* as Krug (2009, p. 115) calls it. Table 6.4 gives an overview over all suggested improvements, each of them associated to the problem it attempts to fix. In the following, these changes are explained in more detail.

<table>
<thead>
<tr>
<th>Problem</th>
<th>Suggested improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Major</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Replace the term <em>organizations</em> with <em>agencies</em></td>
</tr>
<tr>
<td>2</td>
<td>Change the logo to highlight <em>Work and Travel</em> aspect</td>
</tr>
<tr>
<td>3</td>
<td>Add page</td>
</tr>
<tr>
<td>4</td>
<td>Add related link</td>
</tr>
<tr>
<td><strong>Minor</strong></td>
<td></td>
</tr>
<tr>
<td>1</td>
<td>Change the logo to highlight independence from agencies</td>
</tr>
<tr>
<td>2</td>
<td>Add information to contact and imprint pages</td>
</tr>
<tr>
<td>3</td>
<td>Change local navigation design to stand out more</td>
</tr>
<tr>
<td>4</td>
<td>Change link texts in the persona navigation</td>
</tr>
<tr>
<td>5</td>
<td>Change alternatives navigation design to stand out more</td>
</tr>
<tr>
<td>6</td>
<td>Add related link</td>
</tr>
<tr>
<td>7</td>
<td>Add page</td>
</tr>
<tr>
<td>8</td>
<td>Change progress button design</td>
</tr>
<tr>
<td>9</td>
<td>Add tooltip</td>
</tr>
<tr>
<td>10</td>
<td>Add explanation about Facebook Connect to the checklist</td>
</tr>
<tr>
<td>11</td>
<td>Add explanation about Facebook Connect to the checklist</td>
</tr>
<tr>
<td>12</td>
<td>Allow saving of checklist progress through cookies</td>
</tr>
</tbody>
</table>

*Table 6.4*: Suggested improvements by problem
Replace the term organizations

The term organizations should be changed to something that cannot be mixed up with planning. The best solution seems to be the German term Anbieter (agency). Although it has a bit of a negative, commercial ring to it, the term is one that all users should be familiar with. The old term should be replaced throughout the whole website.

Change the logo

The logo should be changed to emphasize the Work and Travel aspect of the website. The URL should still appear in the logo to not confuse users but be less prominent to not mislead them about the topic. A way to do this would be to label the website Work and Travel and add a smaller by Auslandsjob.de to it. Additionally, the logo should indicate that the website is not run by an agency, but instead independent and free of charge. A stamp effect could be added to the logo that lists these adjectives as a sign of approval.

Change local and alternatives navigation design

The design of the local and the alternatives navigation, which is currently the same, should be changed to stand out more. This could be achieved by making the headline of the navigation bigger and by differentiating it from other page elements through a distinct visual design, e.g. a specific color.

Change link texts in the persona navigation

The texts of the teaser elements in the persona navigation should be changed. They should better explain where the link leads, e.g. that the checklist is a general checklist for Work and Travel and not country-specific.

Add two pages

Two new pages should be added to the information architecture: One is accommodation in the planning category which contains general information about cheap forms of accommodation and links to the country-specific pages about accommodation. Similarly, the page bank account should be added as a sub-page to finances in the planning category, again with links to the country-specific pages.
Add related links to two pages

For two pages, certain related links should be added. On the requirements page, a link to the important documents page should be included. The experience reports page should, similarly, link to opinions and experiences in the agencies category.

Add information to contact and imprint pages

For both the contact and the imprint pages, a short text explaining the background of the website, i.e. who it is run by and why, should be included. Additionally, they should link to the about us page.

Change progress button design

The visual design of the progress button in the upper right should be changed so that it looks more like a button. For example, a 3D effect could be added to indicate that it is clickable.

Add explanation about Facebook Connect

Along with the button for Facebook Connect, the interactive checklist should include an explanation of the feature. The text should outline what Facebook Connect does, that only minimal information about the user will be retrieved, and that nothing will be posted to the user’s profile. Also, it should be explained that it offers the user the benefit of permanently saving his or her progress.

Allow saving of checklist progress through cookies

Because not all users will be willing to use Facebook Connect, the application should not completely rely on it. Instead of requiring the user to log in with Facebook Connect, cookies should be used as a backup solution to save the user’s progress.
Chapter 7

Conclusion

7.1 Summary

In this thesis project, a process tailored to the redesign of an informational website was developed and executed. Both an online survey and a usability test were identified as appropriate user research methods and carried out, to inform and evaluate the design respectively.

One important outcome of the process was a set of four personas, which represent the website’s users, segmented by their position in the lifecycle. These personas proved to be a very useful tool to guide the design and played a role in many of the decisions regarding the information architecture and the navigation design.

Although the thesis project did not cover the whole redesign of the website from start to finish, it still ended with a satisfying outcome — the realization that the design did not show many severe problems in the evaluation with users. For those problems that were found, improvements to the design were suggested. As a result, the project as a whole is now set on a solid foundation, which is grounded in user research, and can continue with the more detailed design and the implementation.

All in all, the project can be seen as a success. The user research allowed the company to gain a deep insight into their user base that was never possible before. Especially the personas were received very positively by the whole team. It also showed that research such as this does not require large investments, but instead can be carried out with few resources.
7.2 Outlook

Judging from the positive reactions, the results of this work will continue to play an important role in the project. Especially the personas and the other insights from the survey can guide the future work on the website, e.g. when writing the content and selecting relevant related links for each page.

However, the user research should not stop at this point. While the design is off to a good start, much can still go wrong. Changes will undoubtedly be made during the implementation, and the effects of these changes have to be evaluated. Especially the interactive checklist should be tested again when a more detailed prototype is available. And even beyond the launch of the redesign, the website will always have to accommodate new content and features. While the developed information architecture is structured to be easily expandable, user testing is the only way to be sure about its usability.

During the time of writing this report, the development of the website has continued. The suggested improvements to the design have been implemented and much work on the visual design has been done. For an impression of what it currently looks like, please see the screenshot in Figure 7.1.

With some luck, the project will also influence the future work of the company beyond this project. Since it has shown the effectiveness of user-centered design, a similar approach will hopefully be taken for future projects, to both the users’ and the company’s benefit.
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Appendix A

Electronic appendix

A.1 Content inventory

The content inventory can be found as a Microsoft Excel document at:
http://www.janpohlmann.de/thesis/appendix/content_inventory.xls

It lists both existing pages and those to be created for the new version of Auslandsjob.de. The name of each page, the URL, its location the navigational hierarchy and any additional comments are shown. For existing pages the old URL is specified as well.

A.2 Survey questions

The full survey can be found as a Microsoft Excel document at:
http://www.janpohlmann.de/thesis/appendix/survey_questions.xlsx

The questions are listed in correct order and grouped according to the pages they appear on. Each question has a code by which it is referenced in the results. Some questions contain sub-questions — statements for Likert scale questions and the different options for multi select questions. These are each given a sub-code which they are references by. The spreadsheet then lists the text of the question, the type, the options for single select questions and the conditional statements. The document is in German.

A.3 Raw survey data

The raw result data of the survey can be found as a Microsoft Excel document at:
http://www.janpohlmann.de/thesis/appendix/survey_data.xls
The data was exported from LimeSurvey in this format. It includes all submissions, both complete and incomplete. The first eight columns contain additional data about the submission, such as start and end date. The following columns hold the actual responses identified by the question code in the first row. All verbatim answers are in German.

A.4 Code book

The code book for the survey can be found as a Microsoft Excel document at: http://www.janpohlmann.de/thesis/appendix/survey_codes.xlsx

It includes all open-ended and derived questions, those for which the coding could not be done automatically by the system. For each, all possible answers are listed with a code and a description. The description is in German.

A.5 Coded survey data

The coded result data of the survey can be found as a Microsoft Excel document at: http://www.janpohlmann.de/thesis/appendix/survey_results.xls

In this spreadsheet, only those submissions that were included in the results are listed. For all open-ended and derived questions the original verbatim data has been replaced by codes.

A.6 Survey report

The report that summarizes the results of the survey can be found as a Microsoft Powerpoint document at: http://www.janpohlmann.de/thesis/appendix/survey_report.pptx

Using appropriate diagrams, the data from all questions is visualized. The report is completely in German.

A.7 Persona documentation

The persona documentation can be found as a Microsoft Powerpoint document at: http://www.janpohlmann.de/thesis/appendix/persona_documentation.pptx
On the first slide, it gives an overview of the lifecycle which the personas are aligned to. Then, the one-pagers of all four personas follow. The last slide contains the main scenario for each persona. The whole document is in German.

A.8 Detailed sitemap

The detailed sitemap can be found as a Microsoft Excel document at:
http://www.janpohlmann.de/thesis/appendix/detailed_sitemap.xlsx

The spreadsheet lists all planned pages of the website, one in each row. The first columns visualize the main hierarchy and show the page titles. Additional rows show the content each page should contain, comments and the URL for the page. For each page the document also shows whether or not it should display each of the possible elements of the template and how relevant it is for each persona.

A.9 Test guide

The moderator guide for the usability test can be found as a Microsoft Word document at:
http://www.janpohlmann.de/thesis/appendix/test_guide.docx

It contains instructions for each part of the usability test, including the full task descriptions and questions given to the participant. The guide is completely in German.

A.10 Test notes

The notes taken during the usability test for each participant can be found as a Microsoft Word documents at:
http://www.janpohlmann.de/thesis/appendix/test_notes.docx

For each participant, the data is arranged in a table with the question or task on the left and the notes on the right. The document is completely in German.

A.11 Test results and analysis

The document containing the results and the analysis of the usability test can be found as a Microsoft Excel document at:
http://www.janpohlmann.de/thesis/appendix/test_results.xlsx
In the first columns, the spreadsheet summarizes the results of all questions and tasks of the usability test separately for each participant. The following columns summarize the results by task and list suggested improvements to solve the identified problems. The document is completely in German.