

Usability Engineering Assignment

MODULE CODE: CS2511

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INTRODUCTION

The purpose of this report is to analyse the usability and accessibility of an existing website. We will be discussing in depth a wide variety of aspects all relating to how accessible the site is, and its usability for those who use it. For example, a few questions we will be looking into are,

- Who the page is aimed at ?
- How successfully does it appeal to and meet the needs of the target audience.
- What interaction styles are used?
- How easy is it navigate around the website and find all the services it offers?

We will also be creating a limited functionality prototype to address the issues that we discover throughout the evaluation. The prototype will show how we can address the discovered issues and how we can improve the sites overall accessibility and usability.

THE WEBSITE

The website we will be looking at is the hugely successful e-commerce site '<https://www.bergfreunde.eu/>'. Bergfreunde, meaning Mountain Friends, is a German based company that operates an online marketplace intended to sell mountain sports equipment. The company's marketplace sells climbing and trekking equipment and accessories, enabling sports enthusiasts from all over the world to get all the gear from one single website. This is quite special as in the sport climbing industry, gear and equipment can be quite hard to come by, especially in countries where these niche activities aren't commonly taken up. Thus, bergfreunde has customers from all over the globe. As the great outdoors is enjoyed by people of all kinds, bergfreunde has one of the widest ranges of customers, i.e its target audience. From highly advanced outdoor adventurers, to people getting in to the mountains for the first time, outdoor gear is constantly on the rise in the global market. At first glance of the website, you may think it is very easy to use with its simplistic design and easy filtering and searching. However there is some room for improvement.

INTERACTION STYLES AND LEARNABILITY/NAVIGATION

MENU SELECTION

Menu selection is a popular interaction style used on many webpages, especially e-commerce sites, it offers an ease of navigation, efficient look up times and product/page scalability. It also gives a good mobile response allowing users on mobile devices to easily use the page. Additionally some other benefits include clear organisation and when used frequently, great learnability for a page with regular visitors.

- Ease of navigation: Menu selection interaction style can simplify the navigation process for users, as they can easily locate the categories and subcategories of products they are interested in without having to search or type in keywords.
- Efficiency: Menu selection interaction style can save users time and effort by allowing them to quickly jump to the sections of the e-commerce site that interest them.
- Scalability: Menu selection interaction style can accommodate a large number of products or services without overwhelming users with too much information, as the categories and subcategories can be expanded or collapsed as needed.
- Mobile responsiveness: Menu selection interaction style can be optimized for mobile devices, allowing users to access the menu items easily and efficiently on smaller screens.

- **Clear organization:** The use of menus to group products or services into categories and subcategories can help users understand the organization and structure of the e-commerce site, which can enhance their browsing experience.
- **Consistency:** By using consistent and familiar menu design patterns, users can easily recognize and navigate the menu structure across different pages of the e-commerce site.
- **Overall,** the menu selection interaction style can provide a clear, efficient, and scalable way for users to navigate an e-commerce site, which can enhance their user experience and increase the likelihood of completing a purchase.

FORM FILL IN

Form Fill-in interfaces present the user with a series of fields into which data can be entered. The fields are labelled, so interaction relies on recognition, not recall. The advantages are that it is easy to use, interactivity is limited, generally suited and quite efficient in most cases on e-commerce sites when taking in large amounts of data, usually for making an account or shipping and billing addresses.

1. **Data collection:** The form fill interaction style can collect valuable user data, such as user preferences or demographic information, that can be used to improve the e-commerce site's personalization and targeting efforts.
2. **Improved user experience:** The form fill interaction style provides a streamlined and organized way for users to enter their information, making the checkout process faster and more convenient. This can improve the user experience and increase the likelihood of completing a purchase.
3. **Account management:** Users can create an account, save their preferences, view order history, and manage their personal information.

Overall the prominent interaction styles used on the bergfreunde website are common in practice, but very well implemented. With great ease of navigation, clear organisation and good consistency, it is quite satisfying to browse the page. This can be expected from such a giant company in the outdoor world. However, upon further analysis later in the report, we will find faults and issues that arise upon a closer look.

LEARNABILITY

The learnability of an e-commerce site refers to the ease with which users can learn how to navigate and use the site to achieve their goals. It is essential for an e-commerce site to be learnable because it directly impacts user experience and ultimately affects the site's success in achieving its business goals.

1. **User retention:** If users find it challenging to navigate an e-commerce site, they are likely to abandon it and look for alternatives. By making the site learnable, users are more likely to stick around and return to the site.
2. **Increased sales:** When users can easily find what they are looking for and complete their transactions, they are more likely to make a purchase. Learnability improves the chances of users achieving their goals, resulting in increased sales.
3. **Reduced support costs:** If users struggle to use an e-commerce site, they are likely to seek help from customer support. This can increase support costs for the e-commerce site. By making the site learnable, the number of support requests can be reduced.
4. **Improved brand image:** A learnable e-commerce site creates a positive impression on users. They are more likely to view the site as professional and trustworthy, which can improve the brand image of the e-commerce site.

Overall, a learnable e-commerce site can lead to increased user satisfaction, increased sales, and reduced support costs, making it essential for the success of any e-commerce business.

Ultimately Bergfreunde is a great site for learnability, its effective use of menu selection offers regular customers to the site quick and easy access time to the products they would like to browse. Its scalability and efficiency allows for a smooth experience and results in great user retention. This is something I discovered throughout the analysis, that Bergfreunde offers great interaction styles and has noteworthy navigation and learnability.

THE BERGFREUNDE FAULTS

The website was evaluated in terms of its target audience, interaction styles, navigation, ease of use, adherence to Norman's Principles and Shneiderman's Rules, and accessibility. Based on the analysis, several issues were identified, including broken links, redundant links, low contrast errors, empty links, missing form labels, and empty headings. These issues could negatively impact the user experience and prevent some users (especially the visually impaired) from accessing the website's content.

1. **Broken ARIA references:** ARIA (Accessible Rich Internet Applications) is a set of attributes that can be added to HTML to make web content more accessible to people with disabilities. Broken ARIA references can prevent assistive technologies, such as screen readers, from interpreting the website's content properly, which can result in confusing or incomplete information being presented to the user. In total, the bergfreunde website had 36 broken ARIA references. It is important that these are corrected in order for the whole target audience being able to easily access and traverse the website.
2. **Missing image alternative text:** Alternative text (alt text) is a description of an image that is displayed if the image cannot be loaded or if the user is visually impaired and using a screen reader. Missing alt text can make it difficult for visually impaired users to understand the context of an image and may also negatively impact the website's search engine optimization (SEO). This is vital, especially for an e-commerce website which uses thousands of images of its products to display and sell, without alt text, it is virtually impossible for a visually impaired user to understand what the image is exactly representing.
3. **Missing form labels and empty labels:** Form labels are used to describe the purpose of a form element (e.g., a text field or a checkbox) to the user. Missing form labels or empty labels can make it difficult for users to understand what information is required or what action they need to take.
4. **Redundant links:** Redundant links are links that point to the same destination but have different text or formatting. They can confuse users who may not understand which link to click or why there are multiple links. This results in unnecessary confusion especially for those with not much experience using websites, such as the elderly aged people using the website.
5. **Redundant images:** Redundant images are images that are repeated unnecessarily on a page. They can make it difficult for users to focus on the main content of the page and can also increase page load times.
6. **Empty links:** Empty links are links that have no text or description associated with them. They can make it difficult for users to understand where the link will take them or what action it will perform. Again, further unnecessary confusion throughout the website that should be eradicated, the goal is to make the website as easy as possible to use while also being effective and informative.
7. **Contrast errors:** Contrast errors occur when there is insufficient contrast between the foreground (text or images) and background colours of a website. This can make it difficult for users with visual impairments to read or navigate the website. This is a quite straight forward mistake that should not be seen on a website as successful as Bergfreunde.

Overall, these errors can significantly impact the usability and accessibility of the Bergfreunde website for its customers, especially those with disabilities. It's important for website developers to address these issues to ensure that their website is accessible to all users.

Normans Principles and Schneidermans Rules

HOW SIGNIFICANT ARE THESE EFFECTS

Based on the errors we found using the web aim tool, the Bergfreunde website fails to adhere to the following Normans principles and Schneidermans rules:

- **VISIBILITY** - Missing form labels and empty labels: These errors could make it difficult for users to understand the purpose and context of form fields, particularly for users with disabilities who rely on assistive technologies, such as screen readers, to navigate the website. This could lead to frustration, confusion, loss of customers and potentially errors. Broken ARIA references: this set of attributes that can be added to HTML elements to make them more accessible for users with disabilities. Broken ARIA references could cause errors in assistive technologies and make it difficult for users with disabilities to understand the website's features and functions.
- **Feedback** - The missing image alternative text could make it difficult for visually impaired users to understand the feedback provided by images on the website. Without alternative text, visually impaired users may not be able to understand the feedback provided by images.
- **Mapping** - Redundant links and images: Redundant links and images can create confusion for users, as they may not understand which links or images are relevant to their current task or goal. This could reduce the mapping between the website's functions and user expectations, potentially leading to frustration and errors. Empty links: Empty links provide no information or feedback to users, which could reduce the mapping between the website's functions and user expectations, potentially leading to confusion and frustration.
- **Error prevention** - The missing form labels and empty labels, as well as the broken ARIA references, could potentially increase the likelihood of errors, particularly for users with disabilities who may have difficulty understanding what is required of them
- **Aesthetic and minimalist design** - The contrast errors would likely reduce the aesthetic quality of the website and could make it difficult for visually impaired users to read the content. This could impact the aesthetic quality of the website and reduce its appeal to all users.

Overall, these errors could significantly impact the usability and accessibility of the Bergfreunde website, particularly for users with disabilities. It's important for website developers to address these issues to ensure that their website adheres to the principles and rules of good design and provides an optimal user experience for all users.

The prototype

To address these issues, a redesign proposal was developed that aims to improve the website's usability and accessibility while maintaining its functionality. The redesign proposal includes changes to the website's navigation, labeling, contrast, headings, and form elements. A limited functionality prototype was also developed to demonstrate some of the proposed improvements. The prototype was written using HTML and functions correctly on commonly-used browsers. This report aims to provide a comprehensive analysis of the website's usability and accessibility, propose a redesign that addresses the identified issues, and demonstrate a limited functionality prototype that showcases the proposed changes. Please see the code attached in the canvas submission page. I removed any cases of empty headings from the prototype

The prototype includes the following solutions to the issues mentioned above. In our prototype we made a simple e-commerce like website. It has 3 pages, including a hats, socks and t shirt store. We discovered contrast errors, these are a simple fix and requires a distinct change in contrast between text and its background. To eradicate this, our prototype has clear readable black text, upon a white background.

These issues discussed so far are all simple fixes, but can have quite an effect on how easy some people can use the website. It may not mean much to some, but to others ,this is the difference between having a smooth customer experience browsing your site, and having a frustrating time unable to understand what your site is offering and making it ultimately unusable. This is the accessibility and usability aspect in its complete form.

The last, and main problem we focused on in this analysis was that of the broken links. Broken links simply should not exist on a site like bergfreunde. They can be puzzling and incredibly frustrating. As Bergfreunde has such a widespread target audience, including many of the elderly population. Who sometimes may not be as competent with using an e-commerce site, a broken link can stop them right in their tracks. They could be left confused and frustrated presuming the problem is with them, when in this case, it was most likely a lazy, unnoticed mistake. To not only fix the issue, but to provide clarity on the site, in our prototype, when the mouse is hovered over a link, the pathname of where this link will take you appears. In some cases this may be seen as unnecessary, but it will eradicate the problem of broken and especially redundant links. We will see where we are going before we go there, allowing us to save the hassle of visiting a page we've already seen. This works especially well on huge sites like bergfreunde where there are numerous different pages and links to get lost in.

CONCLUSION

In conclusion of this report, we can confidently say, Bergfreunde does some aspects very well, such as navigation and learnability. But it also has a variety of issues with room for improvement. Although it does have its aforementioned issues. Bergfreunde all in all still successfully appeals to its users and meets the needs of the majority of its target audience. With easy navigation and great learnability, in these aspects, we could not find any faults of the Bergfreunde website. However when it comes to adhering to Normans Principles and Schneidermans Rules, here is where we see that overall rating start to dip. The work required to make Bergfreunde a well and truly accessible site to all is not much, but it must be done. With the explanation of my prototype it is clear some of the steps in which Bergfreunde must take in order to reach these new heights and be finally considered a site of good usability and accessibility.