Human Computer Interaction

Michał Suliborski  
a2019156841@isec.pt

# Practical Assignment 2: Study of the HHS Guidelines in a Website

|  |
| --- |
| **Product Name:** Accessibility |
| **Date of Study:**  26.03.2020 |
| **Experimenters’ Names:**  Michał Suliborski |

## 1.1 Forms for Users Using Assistive Technologies

|  |  |
| --- | --- |
| **No.** 3-HE-1.1 | **Good Aspect** |
| **Name:** Forms for Users Using Assistive Technologies | |
| **Evidence:**  *Heuristic:* Simplicity, intuitiveness, compatibility with assistive devices  *Interface aspect:* A webpage allows user to complete forms with different input methods. On-screen keyboard, full keyboard control, voice input/output, 3rd party controllers support | |
| **Explanation:**  Forms are major way of providing information, that’s why they should be designed having accessibility in mind. Heuristic in met when webpage allows to fill existed form to users using any kind of assistive technology. The whole process can be longer and harder but it must be possible to accomplish.  Not disabled user should not notice any difference filling the form, as it should be intuitive and user-friendly anyway, though users with motor disfunctions and deaf or blind people should be guided through the process in possibly easiest way. | |
| **Benefit:**  *Rating:* 3 = Major usability problem: important to fix, so should be given high priority  *Justification (Frequency, Impact, Persistence, Weights):*   * *Frequency:* Its very rare that we encounter user with disabilities making him unable to fill typical internet form. Problem occurs only with people having serious disabilities and are left without help of others. * *Impact:* It depends of the severity of the problem with form itself and behaviour of the user. If form is not accessible in easy way unexperienced user without help of someone else is completely unable to fill the form, therefore making the feature of the website completely unusable for him. * *Persistence:* Experienced user may figure out how to overcome the problem, but he will not change the website itself and the problem will occur for every other user as well as for him, many time in the future. Since filling form is one of the most popular way of gathering information from users, making it a struggle will be very frustrating. * *Weights:* Even though frequency of the problem is very low and experienced users may figure out how to overcome it, for some per cent of the user it will be impossible to fill the form. Dependently of the importance of the particular form in may even make the whole website unusable which is unacceptable for professional or government websites. | |
| **Possible solution and Trade-offs:**  Using on-screen keyboard and introducing ability to navigate through website and fill the form with keyboard only should be enough for huge majority of people, since if they accessed our website, they should be familiar with at least one of this pieces of equipment. Implementing such features in not hard and expensive so it’s hard to come up with reason not to. Introducing voice control system may be very hard to implement and expensive so unless our website is targeted for disabled people we don’t need to introduce it. | |
| **Relationships:**  3-HE-1.3 – Provide Text Equivalents for Non-Text Elements – both makes site more adjusted for disabled people | |

## 1.2 Designing websites not requiring stylesheet

|  |  |
| --- | --- |
| **No.** 3-HE-1.2 | **Problem** |
| **Name:** Designing websites not requiring stylesheet | |
| **Evidence:**  *Heuristic:* Compatibility, simplicity, ease of use, lightness  *Interface aspect:* A webpage designed in such a manner that it is readable and usable even without loading stylesheet. | |
| **Explanation:**  Even though nowadays people mostly using new smartphones and good computers with newest browsers it is still good practise to design website so that it is readable without stylesheet. It’s also pretty important when our internet connection is slow or just random error occurs that prevents stylesheet from loading. If such inconvenience happen to novice user he will still be able to benefit form our website. | |
| **Severity:**  *Rating:* 1 = Cosmetic problem only: need not be fixed unless extra time is available on project  *Justification (Frequency, Impact, Persistence, Weights):*   * *Frequency:* Its very unlikely to ever need non-stylesheet version of our website, we design stylesheet so that our website will be more user-friendly and attractive. Nonetheless there is still little chance that some user might benefit from using bare website. * *Impact:* It is also relatively easy to overcome. If the stylesheet is not loaded due to some error it is usually enough to just reload a website or simply use different device. According to Statista Research Department in 2015 on average one person had 3.47 connected devices and it was predicted so that this number will grow to over 6 in the next few years, so accessing different one should not be a problem. * *Persistence:* Usually errors like not loaded stylesheet are very rare and occur only once. * *Weights:* All three aspects (frequency, impact and persistence) say that this particular aspect is not that much relevant. It occurs rarely and mostly due to one time error, that can be fixed with reloading a website or changing the accessing device. | |
| **Trade-offs:**  Designing website nowadays is very different than it was just few years ago. We use huge frameworks, we work on large databases and often use advanced scripts and animations. Designing website that offers the same functions while working without all those goods would be very expensive and time-consuming, if possible at all. It would probably require to maintain separate module of the website that is written in bare HTML and has minimal functionality. | |
| **Relationships:**  3-HE-1.3 – Provide Text Equivalents for Non-Text Elements – both makes site more reliable in difficult environments | |

## 1.3 Provide Text Equivalents for Non-Text Elements

|  |  |
| --- | --- |
| **No.** 3-HE-1.3 | **Good aspect** |
| **Name:** Provide Text Equivalents for Non-Text Elements | |
| **Evidence:**  *Heuristic:* Compatibility, simplicity, reliability, clarity  *Interface aspect:* A webpage designed in such a manner that every non-text object, such as image, GIF, video etc. has a text representation. | |
| **Explanation:**  This aspect is very similar to previous one - designing websites not requiring stylesheet. It all comes down to reliability of the website in critical conditions and adjusting it to difficult user’s environment (slow connection or old, incompatible devices). It may also help people with certain disabilities, such as deafness. Experienced user may never use this convenience, because they will find a way to access information differently, but for certain people it may be very crucial in order to benefit form our website. | |
| **Benefit:**  *Rating:* 2 = Minor usability problem: fixing this should be given low priority  *Justification (Frequency, Impact, Persistence, Weights):*   * *Frequency:* It may happen quite often that text alternative to all the media content may not only be a substitute, but also an addition. They may explain the picture/video better than it does itself, often containing information not obvious for everyone. * *Impact:* In case of using old device without possibility to open media content it is crucial for the webpage to include text alternative as it make user understand the content of the website much better. It is also good as and addition to the content making in more clear for everyone. * *Persistence:* If there is need for text information of non-text content it will remain until we provide one. * *Weights:* Even though persistence is rated highly, frequency of occurrence and impact it has in not that severe. It’s good to take this aspect into consideration but it is not the most important thing to do and depend highly on the content of the website. | |
| **Possible solution:**  The simplest solution is to use ‘alt’ attribute to all the media content and using descriptions below or above them. This way we are making sure that even if the content is not loaded, user more less knows what he could expect form it.  It is hard to come up with downsides of such a solution as it does no require a lot of work and benefits are quite clear. | |
| **Relationships:**  3-HE-1.1 – Forms for Users Using Assistive Technologies – both makes site more adjusted for disabled people  3-HE-1.2 – Designing websites not requiring stylesheet – both makes site more reliable in difficult environments | |

## 1.4 Synchronize Multimedia Elements

|  |  |
| --- | --- |
| **No.** 3-HE-1.4 | **Good aspect** |
| **Name:** Synchronize Multimedia Elements | |
| **Evidence:**  *Heuristic:* Reliability, clarity, accessibility  *Interface aspect:* All the media content of the website such as videos and GIFs should be provided with subtitles and auditory description. | |
| **Explanation:**  As in previous aspects, this is mainly focused on people with disabilities such as deafness or blindness. In order to make our website accessible for those people all our media content should have alternative ways of delivering information which drastically improve associability for disabled people. Even experienced user may have troubles to overcome this inconvenience, not even speaking about less advanced one, therefore it is very important to provide synchronise elements to our websites. | |
| **Benefit:**  *Rating:* 2 = Minor usability problem: fixing this should be given low priority  *Justification (Frequency, Impact, Persistence, Weights):*   * *Frequency:* Since need of such feature is limited to only people with disabilities and it has no usage for healthy people, if our site is not targeted for them, frequency of the need will be very low. * *Impact:* If such problem occur for disabled person is will completely unable him to access the media content (sometimes also text content) making website unusable. * *Persistence:* If there is need for other version of media content such as captions or auditory descriptions the problem remain until we fix it, so provide synchronized multimedia elements. * *Weights:* Even though persistence and impact are rated highly, frequency of occurrence is very rare and only limited to narrow group of people. It’s good to take this aspect into consideration, but it is not the most important aspect, unless of course our website is targeted mostly to this particular narrow group of people. | |
| **Possible solution:**  Providing synchronized subtitles as well as auditory description can be expensive, but it’s relatively easy to implement and not that time-consuming thanks to huge amount of already developed libraries. It’s definitely good idea to implement it, especially if our target group might need it. | |
| **Relationships:**  3-HE-1.1 – Forms for Users Using Assistive Technologies – both makes site more adjusted for disabled people  3-HE-1.3 – Provide Text Equivalents for Non-Text Elements – both makes site more adjusted for disabled people | |

## 1.5 Do Not Use Colour Alone to Convey Information

|  |  |
| --- | --- |
| **No.** 3-HE-1.5 | **Good aspect** |
| **Name:** Do Not Use Colour Alone to Convey Information | |
| **Evidence:**  *Heuristic:* Reliability, readability, clarity, accessibility  *Interface aspect:* Every activity on the screen should have properly matched colours especially having colour-blind people in mind. | |
| **Explanation:**  Colour-blindness is not considered as serious disabilities, yet it still can make using website a real struggle. According to ‘Research-Based Web Design & Usability Guidelines’ About eight percent of males and about one-half of one percent of females have difficulty discriminating colours. That means that two pieces of information that are perfectly distinguishable for healthy people will appear exactly the same for some people. That is especially important in decision blocks, because then making decision is random and that is not our intension. | |
| **Benefit:**  *Rating:* 4 = Usability catastrophe: imperative to fix this before product can be released  *Justification (Frequency, Impact, Persistence, Weights):*   * *Frequency:* It is not that often, because according to ‘Research-Based Web Design & Usability Guidelines’ About eight percent of males and about one-half of one percent of females have difficulty discriminating colours. * *Impact:* If such problem occur it not only makes content inaccessible, but sometimes even can cause wrong and unintentional decisions from users, that might be a catastrophe. * *Persistence:* The is no possibility to fix such a problem by a user, especially, that sometimes user can not even be conscious that there is any problem. * *Weights:* Even though frequency is not rated highly, persistency is and impact can be a cathastrophy not only causing inaccessibility but also unintenstional input. Such issue should be fixed of occurrence is very rare and only limited to narrow group of people. It’s good to take this aspect into consideration, but it is not the most important aspect, unless of course our website is targeted mostly to this particular narrow group of people. | |
| **Possible solution:**  Providing synchronized subtitles as well as auditory description can be expensive, but it’s relatively easy to implement and not that time-consuming thanks to huge amount of already developed libraries. It’s definitely good idea to implement it, especially if our target group might need it. | |
| **Relationships:**  3-HE-1.1 – Forms for Users Using Assistive Technologies – both makes site more adjusted for disabled people  3-HE-1.3 – Provide Text Equivalents for Non-Text Elements – both makes site more adjusted for disabled people | |

|  |  |
| --- | --- |
| No. 3-HE-1.1 | Problem/Good Aspect |
| Name: | |
| Evidence:  Heuristic: < For Heuristic Evaluations, list the name of the heuristic (e.g., “Consistency”) >  Interface aspect:  <*Where* the problem is. Include relevant facts about the interface. In addition to interface facts, pictures are almost always necessary and usually faster to produce than words alone, unless you are very skilled at providing word pictures> | |
| Explanation:  <Your explanation of what’s bad or good about this interface aspect. For Heuristic Analysis, put your explanation about how the heuristic is met or violated. If applying the heuristic involves making claims about the user (e.g., what the user will or will not be familiar with), include claims and any evidence/reasoning to support those claims. Locutions such as, “The [expert, novice] user will ***probably…because***…” or “Users will be ***unlikely*** to….***because***…” are appropriate here.> | |
| Severity or Benefit:  *Rating:*  Justification (Frequency, Impact, Persistence, Weights):  ***Rating:*** <number + description. Use Nielson's ratings: (see <http://www.useit.com/papers/heuristic/severityrating.html>)  0 = Not a problem: I don't agree that this is a usability problem at all  1 = Cosmetic problem only: need not be fixed unless extra time is available on project  2 = Minor usability problem: fixing this should be given low priority  3 = Major usability problem: important to fix, so should be given high priority  4 = Usability catastrophe: imperative to fix this before product can be released >  **Justification (Frequency, Impact, Persistence, Weights):**  ***Frequency:*** <Common or rare? Why? How many users (of what type—new, causal, experienced are *likely* to experience the problem? Why? Is this something most users, some users, hardly any users will *probably* want to do? Why?>  ***Impact:*** <Easy or difficult for the user to overcome? Why? If is difficult to overcome if the user is unlikely to be able to achieve goals or will probably waste a lot of time.>  ***Persistence:*** <Is it a problem that is one-time (once users know about it and overcome it—no matter how difficult it was to detect and to overcome) or will they be repeatedly bothered by it? Why? (If they can’t detect it and overcome it, then it persists)>  ***How I weighted the factors:***  <Justify your numerical rating by providing your assessment and **reasoning** about all of the following: frequency, impact, and persistence, and how you weighed these factors in your overall severity rating. For example, A relatively rare problem, easy to overcome and low persistence could justify rating as a minor usability problem; a low frequency problem but one that is critical occurs (e.g., Unable to Save) would be grounds for giving it a high severity rating, despite low frequency. If this is a good aspect, then Rating is “NA,” but describe the benefits to the user that you see from this aspect. > | |
| Possible solution and/or Trade-offs:  < If a problem, propose a possible solution.  You MUST include trade-offs to be credible. If you can’t think of some bad trade-off, say so. If a good aspect, then trade-offs also are appropriate > | |
| Relationships:  <Cross reference other UARs this relates to (if any). Include No & name. If the relationship to the other UAR is not obvious, then give reasons why you list it here (because…)> | |

|  |  |
| --- | --- |
| No. 3-HE-1.1 | Problem/Good Aspect |
| Name: | |
| Evidence:  Heuristic: < For Heuristic Evaluations, list the name of the heuristic (e.g., “Consistency”) >  Interface aspect:  <*Where* the problem is. Include relevant facts about the interface. In addition to interface facts, pictures are almost always necessary and usually faster to produce than words alone, unless you are very skilled at providing word pictures> | |
| Explanation:  <Your explanation of what’s bad or good about this interface aspect. For Heuristic Analysis, put your explanation about how the heuristic is met or violated. If applying the heuristic involves making claims about the user (e.g., what the user will or will not be familiar with), include claims and any evidence/reasoning to support those claims. Locutions such as, “The [expert, novice] user will ***probably…because***…” or “Users will be ***unlikely*** to….***because***…” are appropriate here.> | |
| Severity or Benefit:  *Rating:*  Justification (Frequency, Impact, Persistence, Weights):  ***Rating:*** <number + description. Use Nielson's ratings: (see <http://www.useit.com/papers/heuristic/severityrating.html>)  0 = Not a problem: I don't agree that this is a usability problem at all  1 = Cosmetic problem only: need not be fixed unless extra time is available on project  2 = Minor usability problem: fixing this should be given low priority  3 = Major usability problem: important to fix, so should be given high priority  4 = Usability catastrophe: imperative to fix this before product can be released >  **Justification (Frequency, Impact, Persistence, Weights):**  ***Frequency:*** <Common or rare? Why? How many users (of what type—new, causal, experienced are *likely* to experience the problem? Why? Is this something most users, some users, hardly any users will *probably* want to do? Why?>  ***Impact:*** <Easy or difficult for the user to overcome? Why? If is difficult to overcome if the user is unlikely to be able to achieve goals or will probably waste a lot of time.>  ***Persistence:*** <Is it a problem that is one-time (once users know about it and overcome it—no matter how difficult it was to detect and to overcome) or will they be repeatedly bothered by it? Why? (If they can’t detect it and overcome it, then it persists)>  ***How I weighted the factors:***  <Justify your numerical rating by providing your assessment and **reasoning** about all of the following: frequency, impact, and persistence, and how you weighed these factors in your overall severity rating. For example, A relatively rare problem, easy to overcome and low persistence could justify rating as a minor usability problem; a low frequency problem but one that is critical occurs (e.g., Unable to Save) would be grounds for giving it a high severity rating, despite low frequency. If this is a good aspect, then Rating is “NA,” but describe the benefits to the user that you see from this aspect. > | |
| Possible solution and/or Trade-offs:  < If a problem, propose a possible solution.  You MUST include trade-offs to be credible. If you can’t think of some bad trade-off, say so. If a good aspect, then trade-offs also are appropriate > | |
| Relationships:  <Cross reference other UARs this relates to (if any). Include No & name. If the relationship to the other UAR is not obvious, then give reasons why you list it here (because…)> | |