Internationalization & Accessibility

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Section: Localization

Localization is one of the first-factor need to be considered when a Website/Software wants to go Internationally. Localization refers to a problem where a country does not speak English, has another official language that is not English or only has a small percentage of the population speak English and it is then, requires the product to be translated into their first language. This would bring the cost of the product to “a whole new level” since a large number of documents will need to be translated in order for the product to be processed. Since English is the most common language in the world and it is the only accepted form of communication in the world, all of the product must have a label and documents ready in English before they can be considered Internationally. However, considered Vietnam, where the majority of people speak Vietnamese and have an average of people who understand English at 30%, every product coming to Vietnam in any form of digital or physical, must have English and Vietnamese text side by side. This is really a problem because translate requires a large amount of work, as well as money and the company, must really see the potential in that country to pursue it. On the other hand, they will gain the market in that country since people there can now read and use the product in the language they can fully understand.

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Section: Writing Text (854)

When internationalizing a GUI, the written text is of vital importance. Bad writing will cause greater difficulty for non-native speakers of the English language. There are various guidelines that will help limit user-interpretation errors and help create a GUI that is simpler to internationalize, such as the use of simple English, adhering to local idioms and cultural contexts and the use of original terms.

When it comes to text, using simple English will be much easier and cheaper to translate. This can be achieved by using a restricted vocabulary and avoiding the use of synonyms for those words. As there are many ways to paraphrase a sentence in the English language that will retain the same meaning, many languages have specific language structures where changing word order will either alter the meaning of a sentence or not be grammatically possible. As using multiple sentence structures can cause translation problems, it is best to apply a *noun-verb-object* structure. This will

help with translation or help users who are non-native speakers have a higher change of understanding. (Galitz, 2007)

In keeping with text simplicity, there are many things that should be avoided when creating a GUI. The use of acronyms or abbreviations should be avoided, as they are difficult to translate and may not be concise when translated. Using three nouns in a row should also be avoided. As the relationships between nouns becomes more explicit in other languages, the use of three or more nouns in a row can blur the lines of which nouns are modifying each other. It is possible to use prepositions, such as ‘as’, ‘in’, ‘for’ and ‘on’ to clarify the relationships of nouns, such as “security protection software” becoming “software for security protection”. Avoiding the use of an overly friendly style is important as writing in a such a way, like in first person, may come off as condescending to non-English readers. Avoiding the use of racial, religious, national and sexist stereotypes and culture specific references. These would need to be changed to be culturally appropriate. Finally, local jargon or computer jargon should also be avoided as it is not universal and may not be understood (Galitz, 2007). Although Jargon terms should be avoided, there are times where it is best to use the original word. For words that can’t be translated, it should be avoided to create a new term for them. In cases of words like “download” or “disk drive”, users will have a better chance of understanding.

When creating a GUI, it is best to be aware of a culture’s local idioms and cultural contexts. As some words have different meanings in different languages, this can cause problems, especially for brand names. For example, in English the word ‘Gift’ is an object that is given to someone, a present, whereas in German, the word ‘Gift’ means poison. Another issue that may arise is that some languages may not read from left to right as English does, such as Chinese reading from top to bottom, right to left. Paying adequate attention to localization can help prevent these problems. (Galitz, 2007)

Since translation can vary from language to language, and the English language is fairly concise with its words, it may require additional space to properly fit translated words. One example is the German “arbeitswissenschaft” vs the English “ergonomics”. Typically, the shorter your text, the more space will be required for the translation. The National Language Technical Center sets out a table which (figure 3.1) which shows the horizontal space guidelines for translations. As many other languages use accents above and/or below characters, extra vertical space may also be required. (Galitz, 2007)

When it comes to translation, the world is divided into three parts: Europe, Middle East, and Far East. In Europe, where changes are caused by gender, accents and expansion, translation is started with German because German solves all of these issues. In the Middle East, difficulties arise from bidirectional and cursive letters, so Arabic is the first to be done. For the Far East, as one of the

most difficult languages with four character sets, Japanese is the first to be translated. (Galitz, 2007)
When it comes to the use of icon captions, they should be placed outside the graphic itself. If an icon has text within the image itself it may have to be redrawn when a translation is done. For example, if an icon has the text “Bf”, short for the German “Bahnhof”, someone in Japan most likely wouldn’t understand, as if the icon contained the Japanese “駅”, someone in England most likely wouldn’t understand even though both of these stand for the same English term “train station”.

Lastly, the use of local formats such as date, time, money, measurements, etc. should all be followed. There are various formats and they may vary for each region, and some regions may have multiple formats, like Quebec being different than Ontario in Canada. This can be done by either a specified set or on a user specific basis, such as mobile phones shipping with only necessary formats for regions where they are sold. (Galitz, 2007)

FIG 3.1 – Translation Expansion Requirements (Galitz, 2007)

NUMBER OF CHARACTERS IN TEXT	ADDITIONAL SPACE
Field labels and menu options	
Up to 10	100–200%
11–20	80–100%
Messages and on-screen instructions	
21–30	60–80%
31–50	40–60%
Online help and documentation	
51–70	31–40%
Over 70	30%

Author: Bowei Yao (259)

Section: Using images and symbols

When developing applications targeting cross-cultural audiences, try to use as many universally accepted symbols as possible.

For example:

 : a cross means first aid,

 : a fork and a knife means a restaurant,

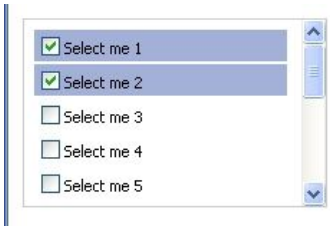
 : and a person running through a door means exit.

When designing the interface, it is important to adhere to these ISO standards whenever possible, as they are widely understood and precise in meaning. This reduces the cost of development, as these signs remain untouched during the process of translation and localization.

However, there are a couple of particular cases to watch out for.

Even though the thumbs-up sign is used as a common element for demonstrating positive approval, it contains an obscene meaning in Australia, basically, it means flipping someone off. Therefore, when designing an app that is meant to be released in Australia, this icon should be considered to be replaced.

Flags should be used with caution when they are meant to indicate the language of choice, as some countries are multicultural and associate with more than one language. These include Canada, South Africa, Switzerland and a few others.



Finally, using X as a means of selection in user interfaces is actually not a universally accepted practice. In the fields of engineering, an X means that something is not applicable or not set,

while a checkmark means it is set or it is applicable. Therefore, the meaning of X is ambiguous and can be disputed. As a result, more modern applications have moved towards the design of selection elements to using the checkmark instead of the X.

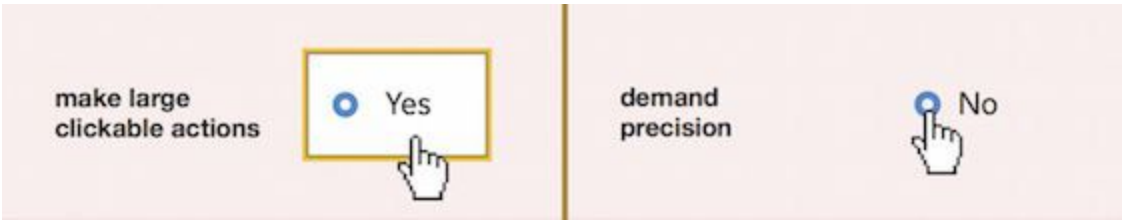
Author: Chenming Xu (312)

Section: Types of disabilities

There are a significant number of people suffering from disabilities of one form or more worldwide. Therefore, disability is a huge factor that needs to be considered while developing a graphic user interface.

The most serious accessibility problems given the current state of the graphic user interface relating to users who are blind or with other visual disabilities. For example, some combinations of background and foreground colours will make pages unreadable for colorblind users. Daltonism, commonly known as red-green colorblindness, affects 1 in 12 men and 1 in 200 women. This will make the patient suffers mix up all colours which have red or green as part of the whole colour. Avoiding using those colours will greatly help users with this kind of disability to understand and navigate through the interface better.

Some users also have motor disabilities, such as mouse movement. A graphic user interface that is accessible to them will not require extremely precise mouse positioning.



In addition, there are many users with hearing difficulties. They may not have a huge problem with using text or image-based user interface, but with the trend toward the multimedia environment, this is not going to remain the same.

People who have cognitive disabilities also need to be considered. For example, people vary in their spatial reasoning skills and their short-term memory capacity. Yonge people have better memories than older people. And therefore they are good at visualizing the structure of the graphic user interface. It is safer to assume that regular users have greater difficulty than its designer have.

Vision (4%, ranged from reducing visibility to blindness), movement(2%, range from difficult to unable to perform a simple task), hearing (1%, range from required noise to deaf) and learning/cognitive problem (1%, memory impairment and perceptual problems), as major forms of disability, is a huge challenge for the designer to look and solve.

Author: Chaoyi Wu (570)

Section: Designing for accessibility

As mentioned in the previous section, there are many people with disabilities; and since technologies such as personal computers and phones are becoming more accessible, excluding them as potential users during the design process of the user interface will limit the use of the end product significantly.

To ensure that the development process goes smoothly with as little retrofitting as possible, accessibility issues must be considered during all stages of development of a system, from planning to testing. To go back to the design stage while the development is in progress or even after a design is completed will result in a lot of wasted effort and resources.

In addition to the design, one also has to consider the compatibility the product has with various accessibility utilities, such as screen readers. Using standard Windows controls and conventions will ensure the product to work best with most screen-review utilities. Having a customizable

user interface will not only give users more freedom while navigating through the product but also more rooms for the creativity of user interface designers, as now they do not have to come up with just one design that fits many different and potentially conflicting requirements.

Some examples of designs with consideration for accessibility issues are listed below:
For visual disabilities, the product must, first and foremost, to be compatible with screen-reader programs and screen-enlargement utilities. Window titles, captions and labels for graphics and controls must be provided and meaningful. For example, when the wrong credentials are entered by a user, only making the border of the textbox red to indicate wrong input is insufficient. There needs to be a line of text around it that says clearly that the input is incorrect. It is important to make sure the elements on the screen can be navigated via keyboard in a logical way e.g. no sudden skipping of components when using tab. Colour combination is also crucial in ensuring the accessibility of the interface to the visually impaired. It is better to select colours based on the system colours, as well as offer a variety of colour schemes.
For hearing disabilities, it is important to provide transcripts for any audio content. If there are any audio alerts, a “visual cue” must be displayed alongside it.
For physical movement disabilities, the product should be able to support voice input. The interface needs to support both keyboard-only or mouse-only control. The controls should be designed in a way in which precise mouse movements aren’t required, such as making the buttons large to click.

For speech or language disabilities, the function of spell-check should be provided. This will also be helpful to users whose first language is not English. The use of time-based interfaces where a message disappears after a short while or the interfaces logs you out should be limited, or an option of extending the time should be displayed alongside it. This kind of interface is also not good for people with cognitive disabilities.

Last but not least, it is important to accommodate people with seizure disorders and refrain from using elements that blink or flicker. Flashing on the interface should either be avoided or an option should be provided to turn it off.

This is by no means an exhaustive list of guidelines, but more of an overview of the different designs there are to make software applications, webpages, etc. more accessible to as many people as possible.

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