

Usability analysis of Wikimed Android app



WIKIMEDIA
FOUNDATION

Abbey Ripstra, Lead Design Researcher, Wikimedia Foundation, April, 2017



**High level findings
and
recommendations**

Interaction not designed for mobile

Some **interaction is not designed for mobile, causing potential usability issues** for users..

- **Scrolling used for navigation** puts more time between a user and their content, and makes features hard to discover. For example, to find related content or the last time the article was updated, users have to scroll all the way to the bottom of the article.
- Users need to scroll to get to the main content they came to the app for because of the introduction letter. Though it is a welcoming letter, it is in the way of the content people come to the app for.

Interaction not designed for mobile

Some **interaction is not designed for mobile, causing potential usability issues** for users...(continued)

- The **related content table, is not designed for use on mobile devices**. As a result, users need to do extra navigation (up and down and side to side scrolling) to find and access the content they are looking for.
- Once users get to the table of contents on the main page after scrolling down, there are usability challenges. The links' **targets are too small and too close together for mobile**, and users might have to zoom in to accurately tap on a link, depending on their finger sizes.

Why are there two searches?

Split search:

- It is not clear in the user interface, that “global search” will not search inside articles, but just for article titles.
- “Find in page” is difficult to discover, and takes a few taps access, as it is behind a menu. As one of the primary functions (searching for specific content), it should be more discoverable and accessible without additional taps.
- If possible, combining the two types of search into the main people always think to search (behind a magnifying glass) could reduce confusion and aid discovery of “find in page”.

Other confusion

Miscellaneous findings:

- It is unclear what the feature in the three line (“hamburger”) menu on the left side is for. Users might need more clarity on how and why they might use this functionality, or perhaps the feature is not necessary.
- Bookmarks feature works well, but once a bunch of articles are bookmarked, finding a specific article in a lot of bookmarks might get difficult. Adding a more clear organizational structure to bookmarks could help.
- Read aloud user interface is broken. The controls disappear after a few minutes in use, and I could not find a way to turn it off once it started reading aloud. Perhaps there are bugs here.

Overall recommendation

Collaborate with a designer, and a design researcher as you move forward, or a designer who also does design research. A designer can help to re-architect navigation flows and basic organization for mobile, as well as iterate the product toward better usability.

Do generative research to understand the most important tasks to focus on first, for your primary users.

Do evaluative research like rapid iterative testing to bring users into your workflow, so they can provide feedback toward making the app usable and useful for their needs.

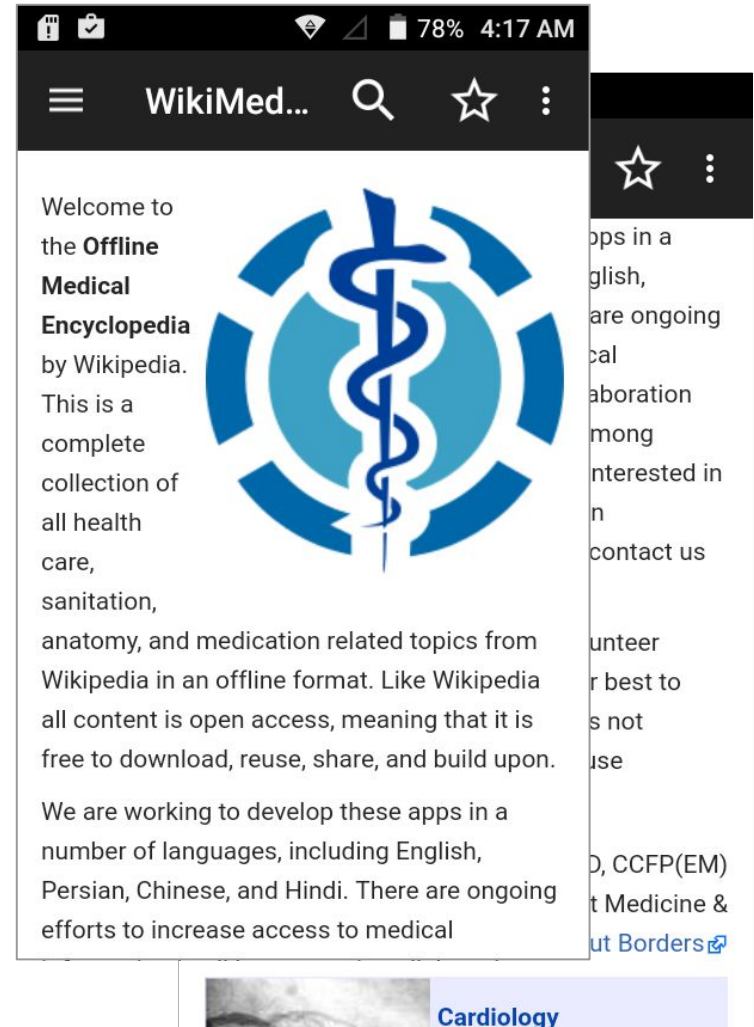


Detailed findings and recommendations

First time opening

The first thing one sees upon opening the app, is a welcoming and informative letter that pushes the primary content below the fold.

If the primary reason people use the app is to get medical information, delivering that before anything else is important.



First time opening

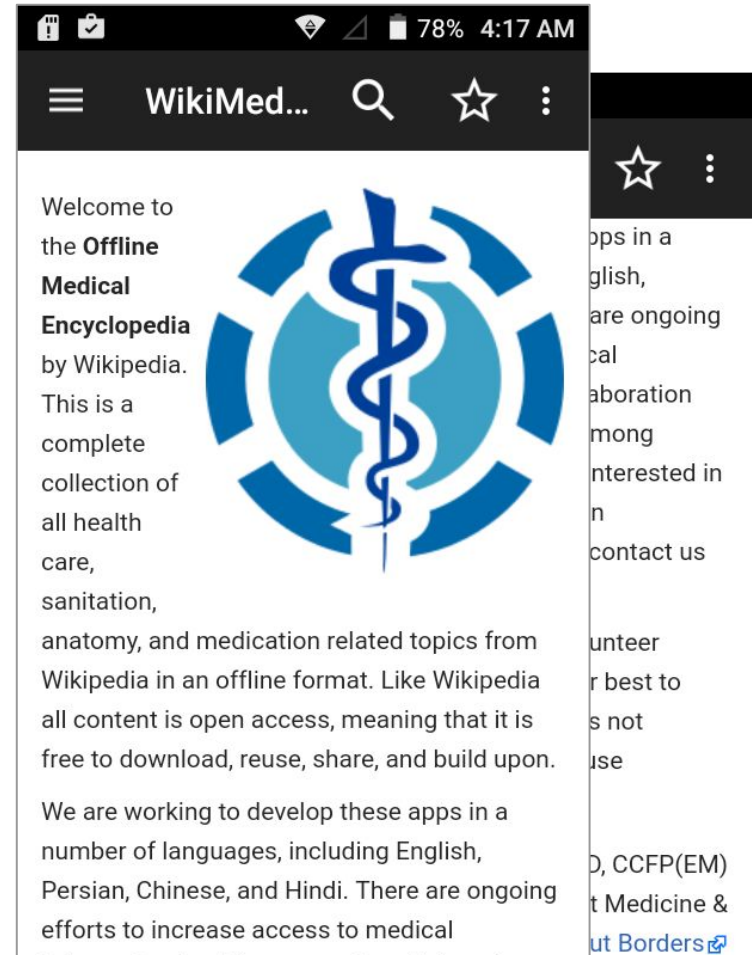
Heuristics violated:

Aesthetic and minimalist design

Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Little human/device interaction

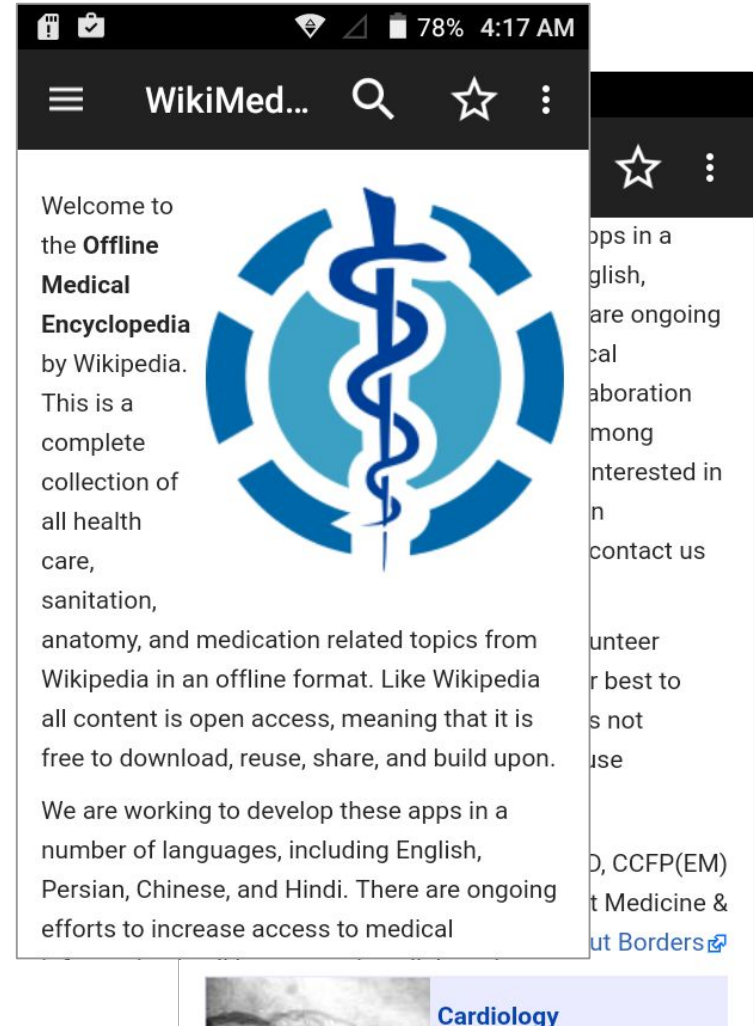
Due to small size of mobile devices and the context of use (in motion, sometimes with one hand), it is important that the interaction effort is reduced.....Scrolling should be avoided especially for viewing links, and when the device is used in a horizontal position. Scrolling can be hidden and become visible only when there is interaction between the user and the device.... (see more detail on page 8)



First time opening

Recommendations:

1. Move the welcome letter to make room for a table of contents above the fold. The letter could be below the table of contents, linked, or in a “see more” section, or a dismissible splash screen.
2. Reorganize the information architecture of this page so users can get directly to the content they came for, and learn about details as needed.



Navigating content

When navigating the medical content, it is difficult to hit the correct target. My fingers are not very big, yet I still had difficulty tapping on the link I intended to tap on. It took a few tries open to the content I intended to.

James Heilman, MD, CCFP (EIM)
The Teams at WikiProject Medicine &
Translators Without Borders

Cardiology
Abdominal aortic aneurysm • Aortic stenosis • Atrial fibrillation • Cardiac arrhythmia • Cardiovascular disease • Coronary artery disease • Heart failure • Myocardial infarction • Peripheral artery disease • Pulmonary embolism • Rheumatic fever • Syncope

Children's health
Circumcision • Cleft lip and palate • Congenital heart defect • Down syndrome • Epilepsy • Female genital mutilation • Fetal alcohol spectrum disorder • Klinefelter

Navigating content

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Consistency and standards

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Little human/device interaction (mobile)

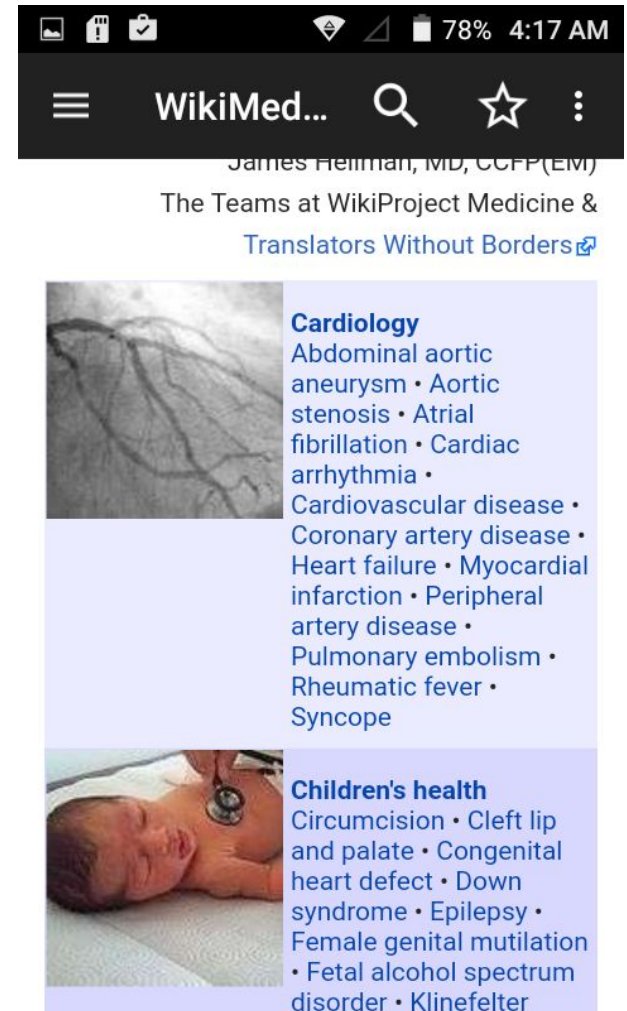
Due to small size of mobile devices and the context of use (in motion, sometimes with one hand), it is important that the interaction effort is reduced. (see more detail on page 8)

Physical interaction and ergonomics (mobile)

The most common navigation controls must be within reach of the user and to be easily pressed with his/her thumb. see more detail on page 8)

Error prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

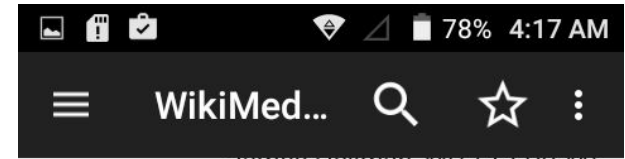


Navigating content

Recommendations:

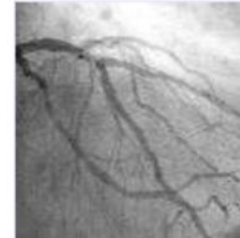
Re-architect the information structure of this page.

1. Perhaps, move the sub topics from each section, and show only the highest level categories here, in a table of contents.
2. Once category is tapped, take people to sub topics to navigate to the article they are looking for.



James Heilman, MD, CCFP (EIM)

The Teams at WikiProject Medicine &
Translators Without Borders



Cardiology

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Children's health

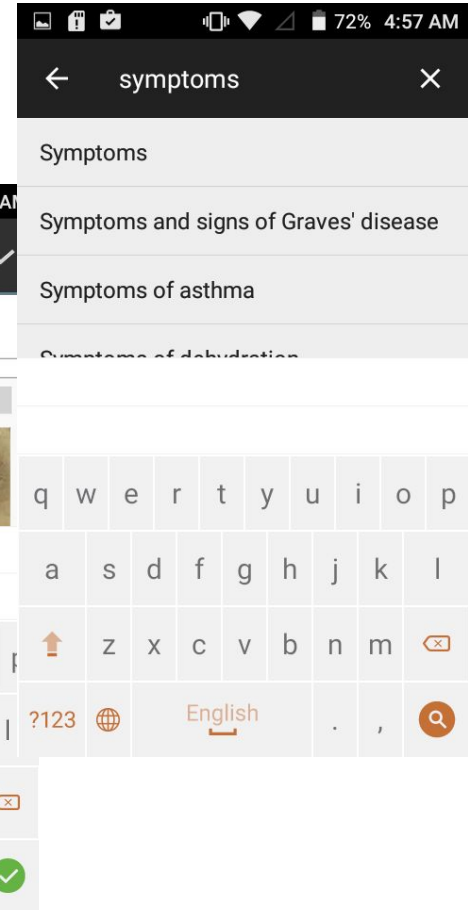
Circumcision • Cleft lip and palate • Congenital heart defect • Down syndrome • Epilepsy • Female genital mutilation • Fetal alcohol spectrum disorder • Klinefelter

Searching for specific info

When in an article (Glaucoma), I wanted to know the specific symptoms of the disease. I went directly to the magnifying glass to search. The magnifying glass is the universal icon for searching.

Because this is really a “global search” and not a search of the contents of the article, my search did not turn up what I was looking for. Instead, I saw a list of other articles.

The “find in page” feature is important for people looking to find specific content quickly. Since it is behind the 3 dot menu, it was difficult to discover. Though I found it eventually, at first I thought the search didn’t work, and I would have to scan through the Glaucoma article to find the symptoms.



Searching for specific info

Heuristics violated:

Recognition rather than recall

Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Error prevention

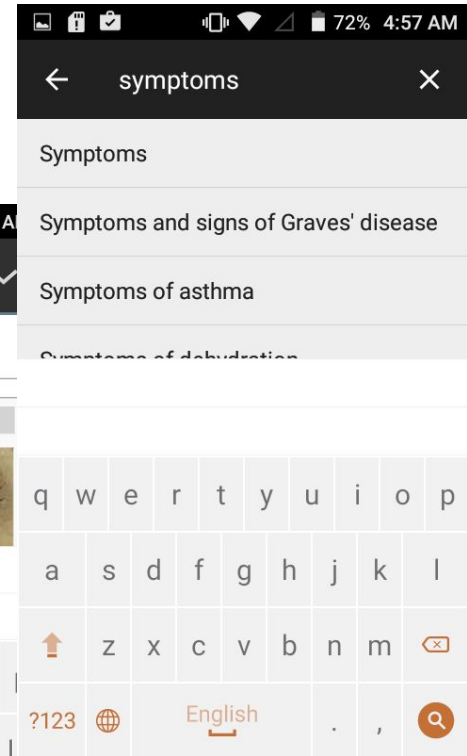
Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

Compatibility between different platforms (mobile)

Due to fragmentation and constant change in mobile device market, apps must be flexible to adapt to different platforms and devices. The site or platform should automatically detect the kind of device and direct the user to the mobile version.

Little human/device interaction (mobile)

Due to small size of mobile devices and the context of use (in motion, sometimes with one hand), it is important that the interaction effort is reduced. (see more detail on page 8)

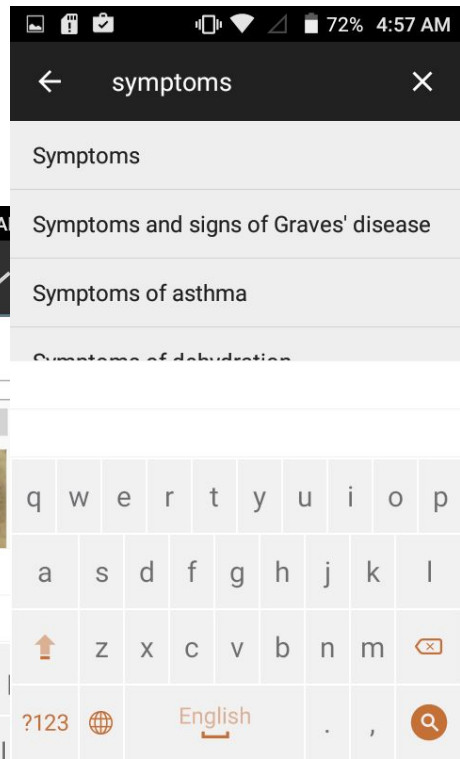


Searching for specific info

Recommendation:

If possible, make the magnifying glass both universal and local search. Or properly label the search as “search for articles”. Direct users to in article search from there. If this is not possible, find a way to make the local search more immediately discoverable.

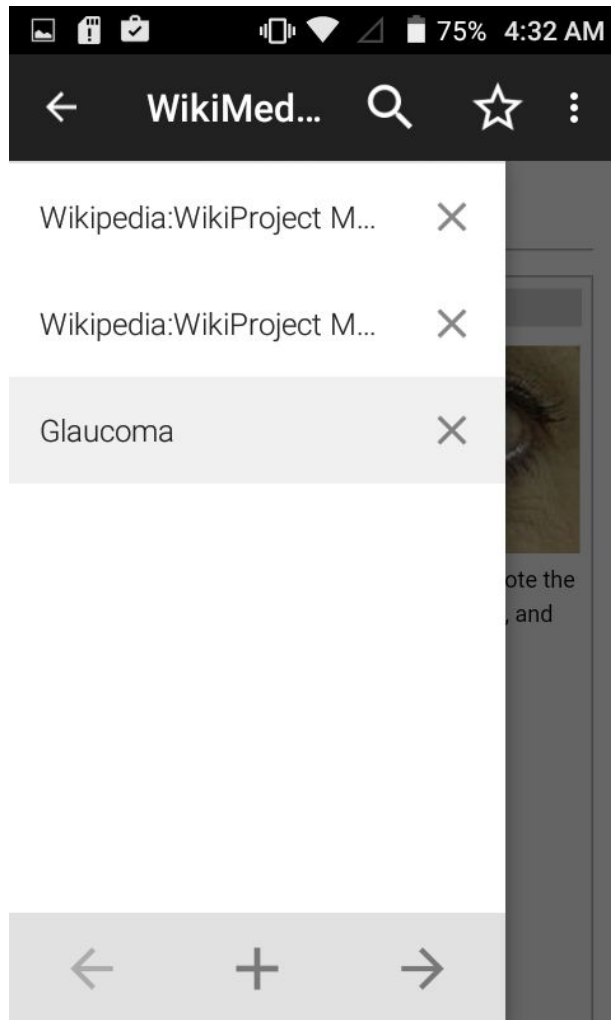
Look into native Android in-article search. People might expect it. It might be buried in OS menus, but perhaps it could be surfaced?



Recent pages?

I look into the three lines menu on the left top of the app. It took me a while to understand the function of this page.

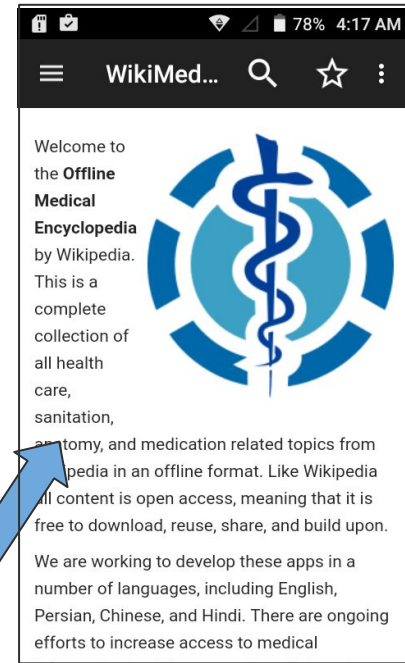
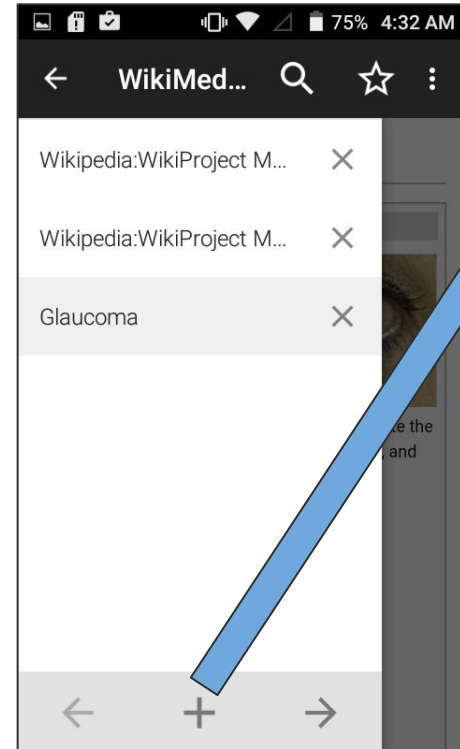
Since not every page I visited was listed here, I didn't think it was a history, but was not sure what it was. I tried the arrows, but they didn't work, and wondered what the function of the "+" is.



Recent pages?

When operating the arrow, something moves behind the fly out window. It is unclear what is happening, but I can see that something is happening.

Also, I tried to add a new page to the list here, and it takes me to the first page I saw upon opening the app. I am provided no feedback, and taken to a place I did not want to go after pressing the “+” button.



Recent pages?

Heuristics violated:

Visibility of system status

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

User control and freedom

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

Match between system and the real world

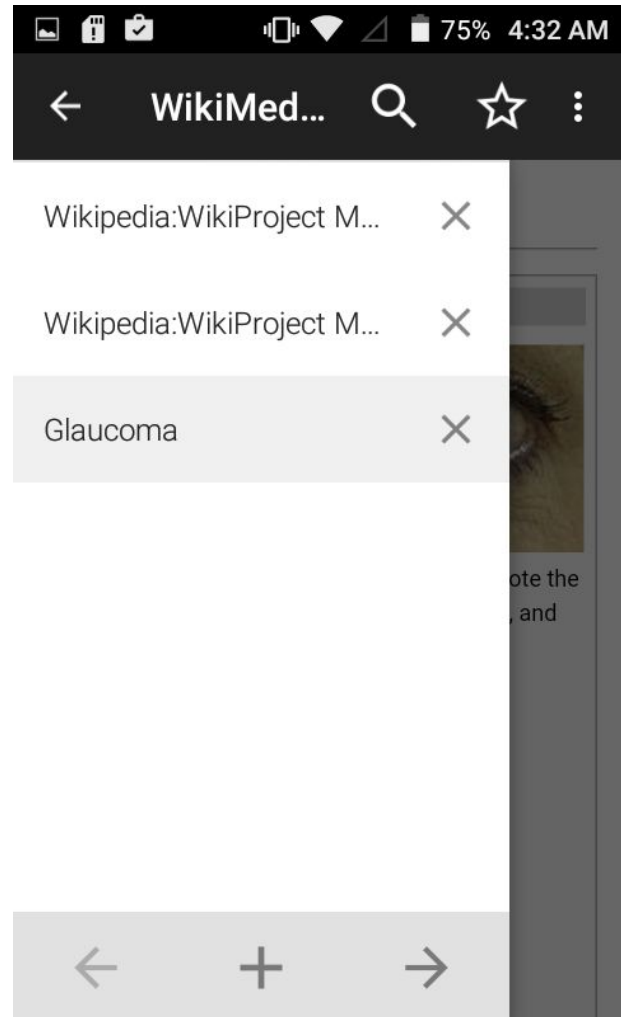
The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

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Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

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Recent pages?

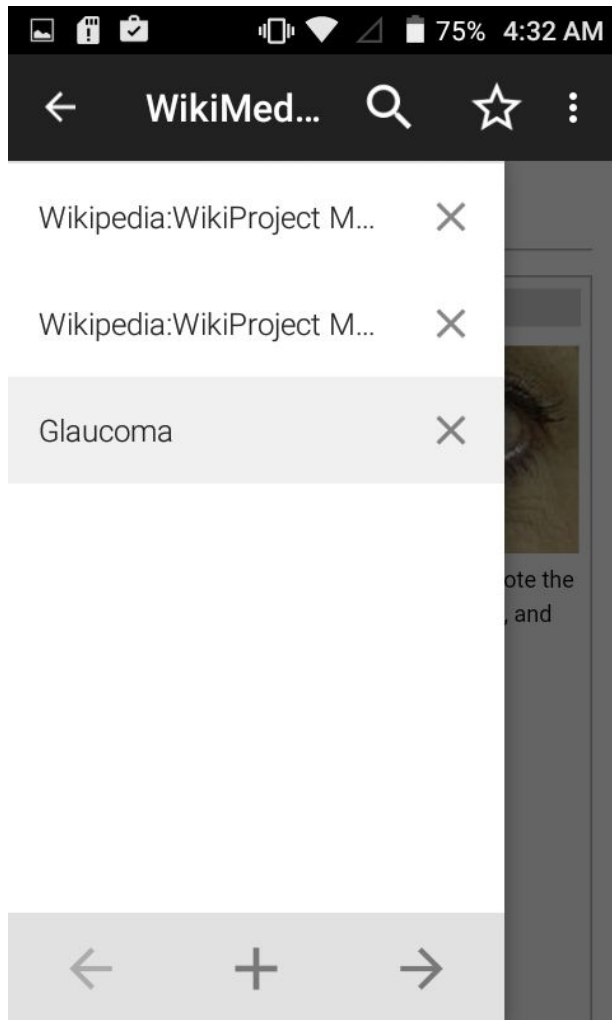
Recommendation:

Remove the “+” and arrows, unless they have a necessary function.

If the function of this place is history, make sure that each page visited is registered, and provide clarity on what the “+” sign does. Don’t take users to the home page after they press the “=”. It is a surprise, and takes the control of context away from users.

Also, provide a clearly understandable organizational structure for the content in this place. Currently it is difficult to decide why it is in the order it is in.

Don’t make something happen in the background that can’t be clearly understood.

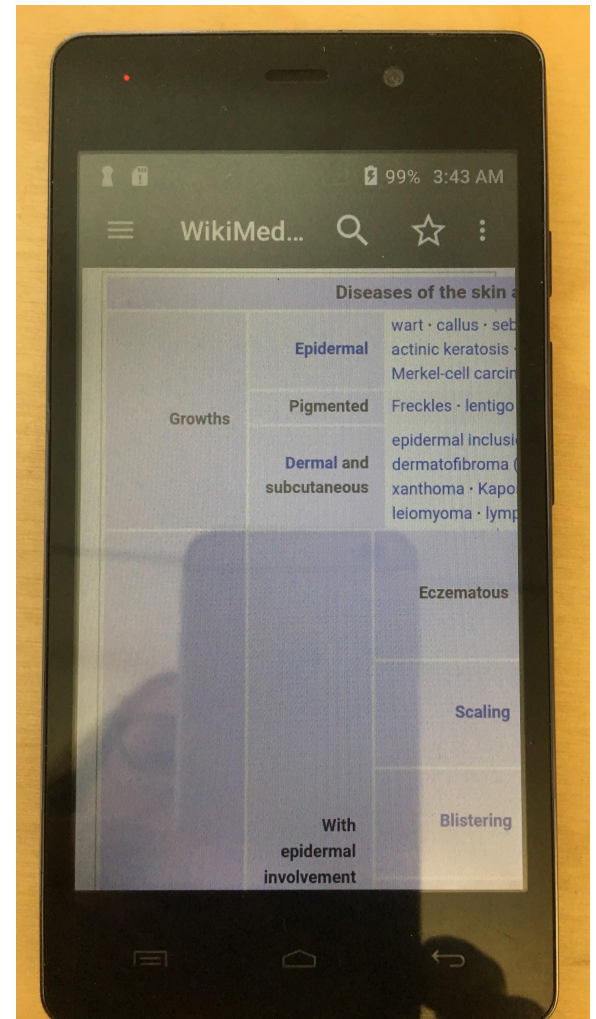


Find something related

Thought I looked in both the dots and lines (hamburger) menus, and scrolled all the way down to the bottom of the article I was on, I was not able to find a way to find a related article at first.

Then I decided to look at the bottom of the article, and scrolled and scrolled all the way down, to find some useful related content.

The template used to house the related content is a lot of work to navigate, but all the content is there.



Find something related

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Recognition rather than recall

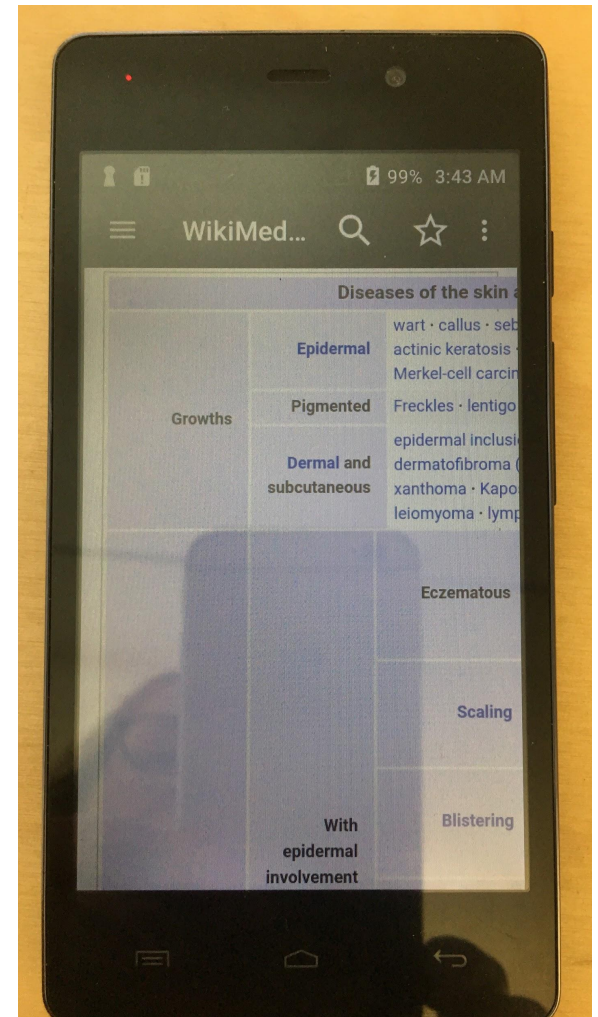
Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Little human/device interaction

Due to small size of mobile devices and the context of use (in motion, sometimes with one hand), it is important that the interaction effort is reduced..... Scrolling should be avoided especially for viewing links, and when the device is used in a horizontal position. Scrolling can be hidden and become visible only when there is interaction between the user and the device..... (see more detail on page 8)

Readability and layout (about navigating the template)

The interface design for mobile device should ensure that text boxes fit on the screen and that the layout will fit multiple devices. The content of the screen should be easy to read in different lighting conditions. Thus it is essential that there is sufficient contrast between text and background, icons and background, especially in the cause of backgrounds with images. It is also important to limit the number of colours used and provide textual description as an alternative to information conveyed with graphics.



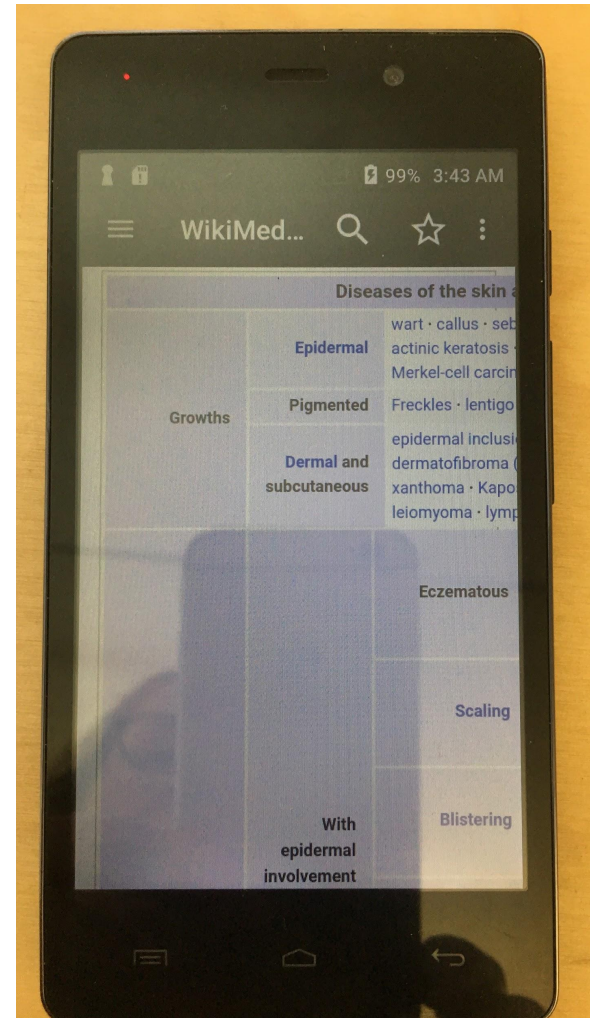
Find something related

Recommendations :

Let users know that there is related content, so they will know right away, instead of making them to discover it on their own.

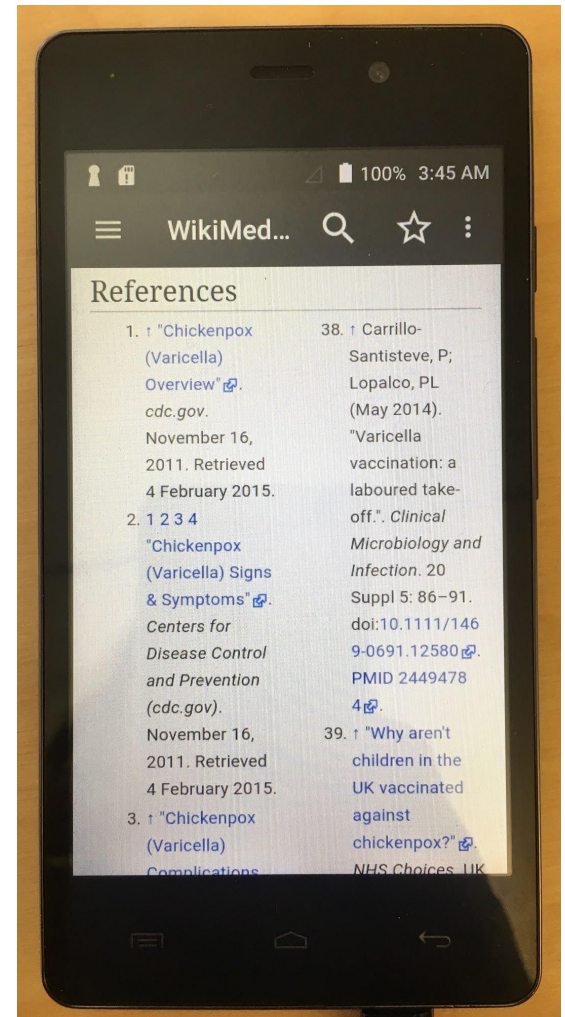
Don't make people scroll all the way to the bottom of the article to find related content. If the content needs to be housed at the bottom of the article, provide a jump link or some other way to quickly navigate to related content rather than scrolling and scrolling to the bottom.

Re-architect the reading experience of tables on mobile. (There is some work upcoming on this within the Product teams at Wikimedia Foundation, that will be available sometime in the future.)



Checking references

There was no problem checking references. It worked very well when I pressed the [4] reference number, and was taken swiftly to the reference. Once I pressed the back button on the Android phone, and it took me back to the article I was reading.

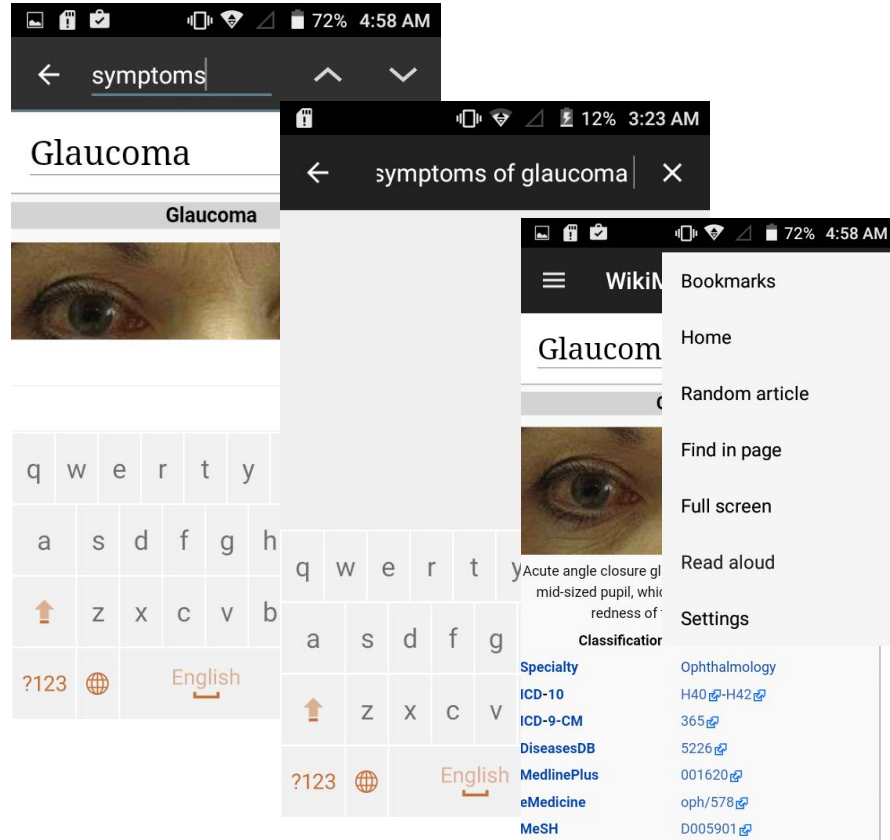


Find a specific fact

In looking for symptoms of Glaucoma (the specific fact). I went to the Glaucoma article, and searched (with the magnifying glass) “symptoms of Glaucoma”.

Failing, I thought I would have to scan the article to find the fact I was looking for. I scrolled down to find the section called “signs and symptoms”. This was relatively easy for this fact, in this article, but depending on the fact and the article, it could be quite challenging to find a fact without being able to search within the content (especially because there is no table of contents).

Later when doing something else, I found the “find in article” function in the dot menu. Then I was able to search for and find the symptoms of Glaucoma in the article.



Find a specific fact

Heuristics violated:

Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Recognition rather than recall

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The screenshot shows a mobile application interface. At the top, there is a status bar with icons for signal, Wi-Fi, and battery (72%), and the time 4:58 AM. Below the status bar is a dark header with a hamburger menu icon and the text "WikiM". The main content area displays the title "Glaucoma" and a close-up image of a human eye. Below the image, there is a snippet of text: "Acute angle closure gl... mid-sized pupil, whic... redness of...". A menu is overlaid on the right side of the screen, listing options: "Bookmarks", "Home", "Random article", "Find in page", "Full screen", "Read aloud", and "Settings". Below the menu, there is a table of links for classification and specialty information.

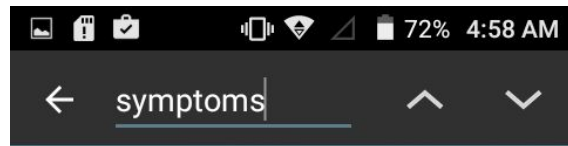
Specialty	Ophthalmology
ICD-10	H40 ↗ -H42 ↗
ICD-9-CM	365 ↗
DiseasesDB	5226 ↗
MedlinePlus	001620 ↗
eMedicine	oph/578 ↗
MeSH	D005901 ↗

Find a specific fact

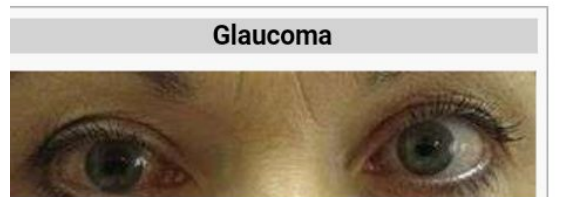
Recommendations:

Ultimately, if possible, make the search function underneath the magnifying glass (international symbol for search) the place to search within the article, and globally for articles.

- Currently, it is hard to discover the “find in page” function for new users, though it is learnable.
- Moving “find in page” to a place it is accessible by only one tap (as opposed to two) will speed up searching in articles for people, since it will reduce the number of taps to get to the function they need.
- It will resolve confusion users may have between global and “local” (find in page) search.



Glaucoma



Find a specific fact

Recommendations:

- If the first recommendation (combining global and local search) is impossible, communicate to users that the magnifying glass is for searching for articles only. Otherwise, people may just think search doesn't work very well if they are searching for "symptoms of flu" within the global search.
- Make the "find in article" function less taps away, to save people who do a lot of in article searching many taps, and to make this function more easily discoverable.



Go back to main menu

In trying to get back to the main menu from an article, I pressed “wikimedia...”, but it took me to the search interface.

Next, I pressed the hamburger menu - but that spun the hamburger. It didn’t take me to the main menu.

Then I went into the three dot menu on the right, and I found the “home” link. It took me to the main menu right away.

Another time, I tried the back button on the hardware, but it didn’t take me home.



Go back to main menu

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Recognition rather than recall

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Little human/device interaction

Due to small size of mobile devices and the context of use (in motion, sometimes with one hand), it is important that the interaction effort is reduced. For example, the system should provide a search box and navigation controls on the homepage. Scrolling should be avoided especially for viewing links, and when the device is used in a horizontal position. Scrolling can be hidden and become visible only when there is interaction between the user and the device. To reduce data entry, several features should be provided, such as, auto-complete, text boxes with suggestions, buttons, menus lists of predefined values. Furthermore, historical and personalization data can be used to establish default values, such as the cache of frequent responses. Typos and abbreviations should be tolerated. The use of registration and login should be avoided.

Go back to main menu

Recommendations:

Make it so there is only one tap to get back to the main menu. If users are looking for several different items in a row, they will most likely want to go back to the main menu frequently to begin their navigation for the next item starting with the table of contents.

Perhaps if what is behind the hamburger menu currently is not needed, a wikimed, or other logo could be used as a button to tap to get to the home page.

Pressing the logo of the website is a well worn mental model for going to a home page.

Read aloud

I was able to find the “read aloud” function in the three dot menu pretty easily. It made sense that it would be in there.

The first time I used the function, it read the article aloud well, except that it read all the tags, and a lot of other content that was not the content for the article.

The problem I encountered, was that I could not get the app to stop reading the article aloud. I tried several times, but was only able to turn it off was by turning down the volume. I was never able to stop the read aloud function.

Upon starting the function, I saw a [pause] and [stop] button at the bottom of the window. Those buttons disappeared quickly, and I wasn't able to ever find them again.

Read aloud

Heuristics violated:

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User control and freedom

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

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Read aloud

Recommendations:

Make the control buttons for stopping, pausing and starting the read aloud function remain visible for the full time the function is being used.

Make the read aloud function only read the text of the article instead of tags and other UI function.

Make it so visually impaired people can use those controls, since they may be a primary user of this function.

Follow accessibility standards. This is a different function than the basic “read aloud”, since visually impaired people will need to navigate using vocal cues, as well as have content read out loud.

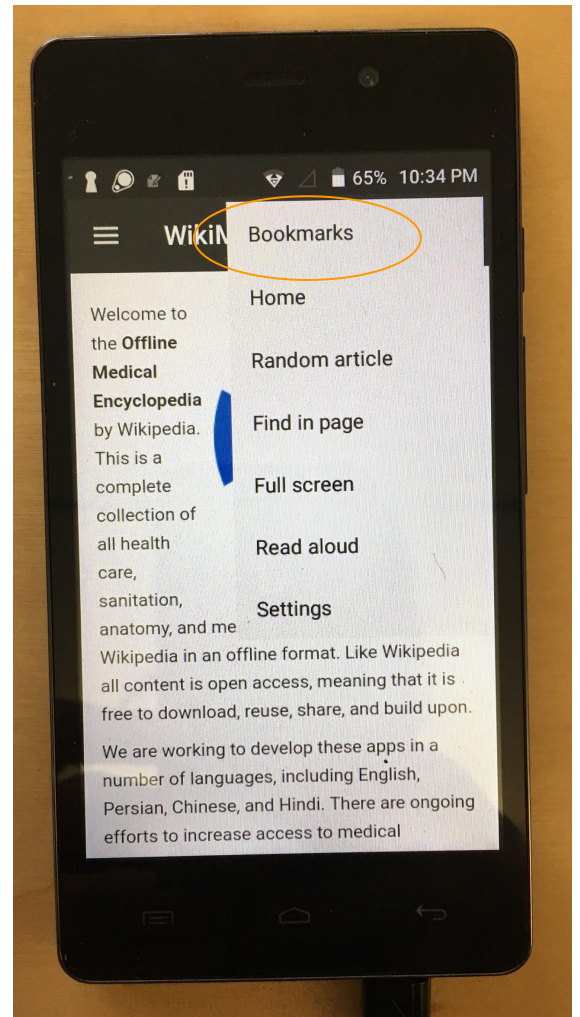
Bookmarking

Bookmarking was easy. I pressed the star button, and I got good feedback that told me the article had been bookmarked.

When I wanted to find the article again, I went to the three dot menu, and found the “bookmarks” option. So, I pressed that and found my article in the list.

After I had bookmarked many articles, I found it hard to find the specific one I was looking for. After some investigation, I discovered that the articles are listed in the order they are bookmarked in time, adding recent additions to the bottom.

This organization is not necessarily intuitive, and gets difficult to find things after many articles have been bookmarked.



Bookmarking

Recommendations:

If possible, re organize the content of “bookmarks” so it is alphabetical, so people can find content more easily when there are many bookmarked articles.

Consider using the bookmark icon instead of a star icon for bookmarking. Sometimes people associate stars with ratings or favoriting something. Also, Wikipedians associate a star with the watchlist which is yet a different place. A bookmark icon might be more directly applicable here.

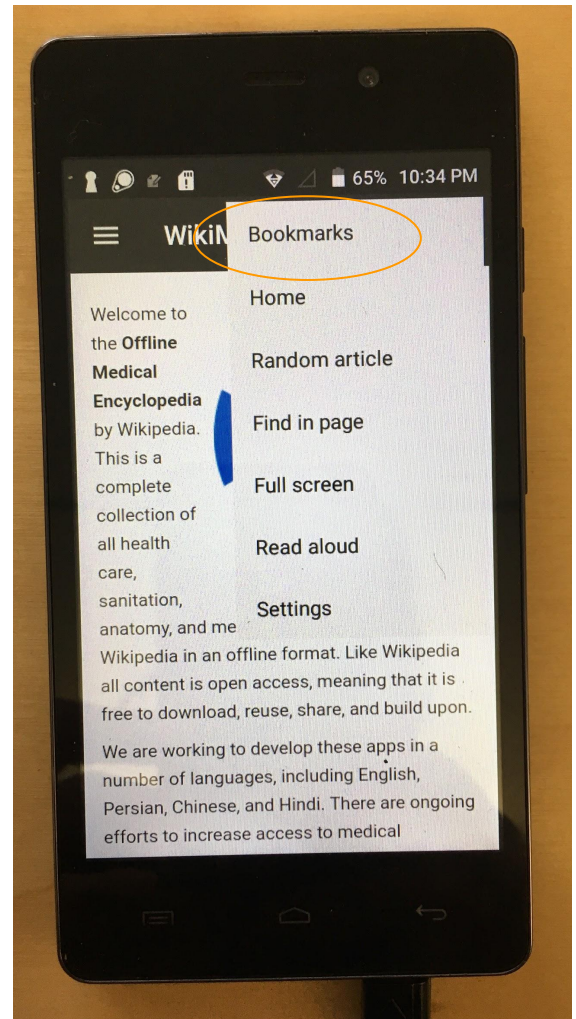


Figure out how to share

I tried, but could not figure out how to share an article, particularly offline. There is no URL to copy paste, since this is offline (which is a pretty standard way to share).

The only thing I came up with was to take screenshots of the content and send those to someone via email or whatsapp or some other mechanism.

Figure out how to share

Recommendation:

Somehow, make it easy to share this important content. I imagine the whole app could be shared, but that may not fit a use case of someone wanting to share content about a specific smaller set of data, say everything about Glaucoma. I do think this is an important use case to support considering people might need to gather the information and share it with other parties.

Find out how current an article is. Has it been updated?

Because I scrolled all the way down to the bottom of an article to see if I could find a way to share, I found the place indicating the last time the article had been updated. “September 30, 2016”

I am assuming that particular article has not been updated since. However, I have no way to tell.

Also, I don't know how I would update the content in my wikimed app.

Find out how current an article is. Has it been updated?

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Find out how current an article is. Has it been updated?

Recommendations:

Make the information about when the article was last updated more discoverable for users. This could be an important piece of information for a doctor in the field to quickly find.

Make it more obvious how to update the content.

Understand how much data it is costing to use the app online

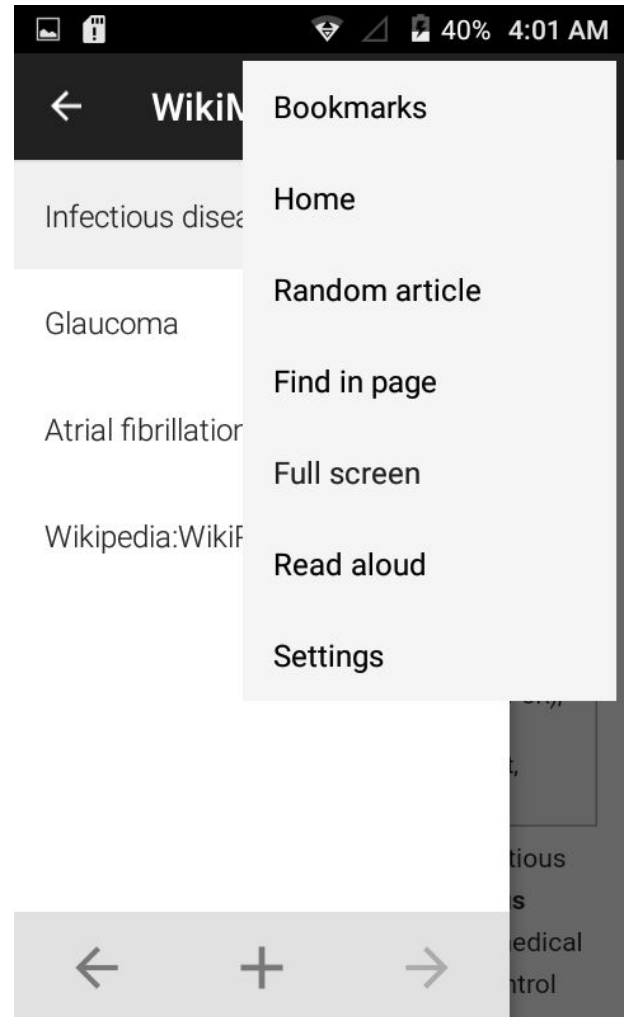
I don't know how to find out if the app is costing me any data. This is perhaps, because I am not a user who focus on my data usage (I am still hanging on to my unlimited data plan). So, this finding may be related to me as a user not worried about data consumption. Best way to test this is with someone who is expert in assessing the data costs of getting online.

That said, I do believe this is a very important function, as many of the users may be very data conscious.

Overlapping menus

As I looked for a way to find something related to the article I was reading, I noticed that I could open both the dot menu (on top right) and the line menu (on top left) at the same time.

Recommendation - Make it impossible to open both menus at the same time. This is confusing and confuses the focus of the person using the app.

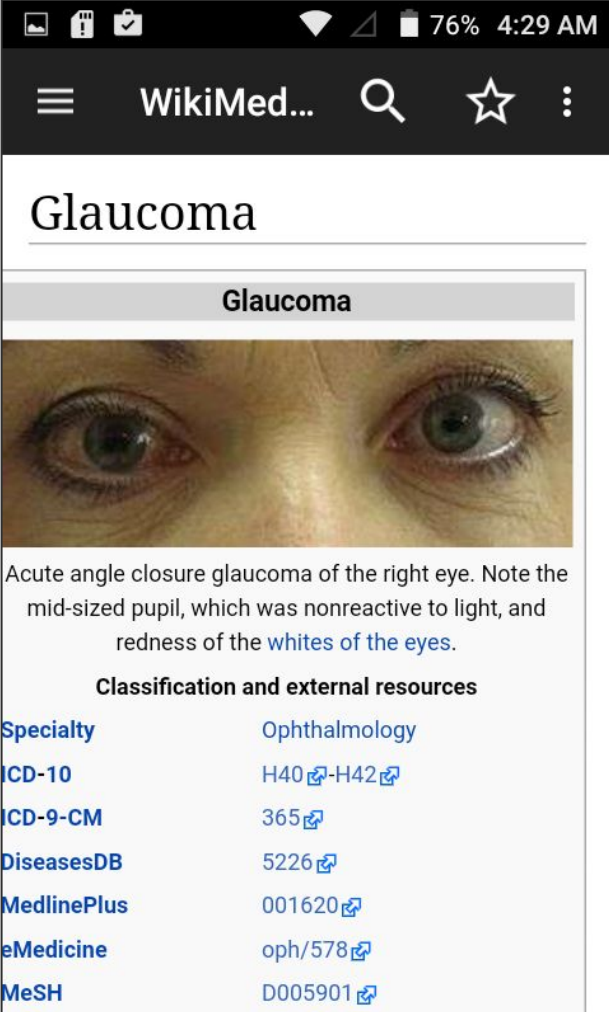


Article spacing

Once in an article, the content is skewed left. There is no visual space between the beginning of the letters and the edge of the visible page. This can cause difficulty in reading.

Recommendation -

Add padding to the left side of articles so there is enough space for easier reading .



76% 4:29 AM

WikiMed... 🔍 ☆ ⋮

Glaucoma

Glaucoma



Acute angle closure glaucoma of the right eye. Note the mid-sized pupil, which was nonreactive to light, and redness of the whites of the eyes.

Classification and external resources

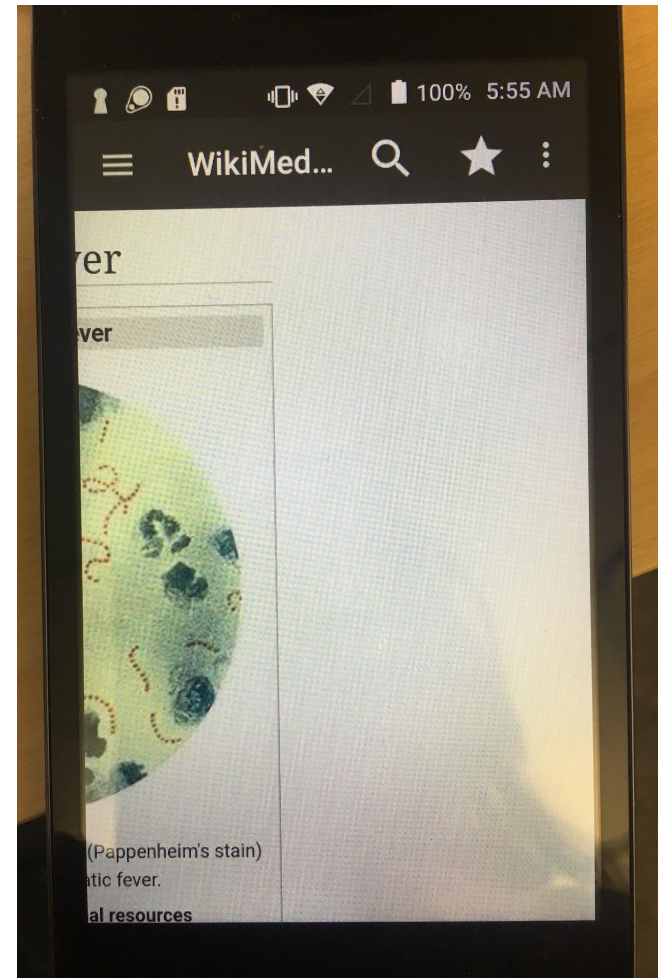
Specialty	Ophthalmology
ICD-10	H40 ↗ -H42 ↗
ICD-9-CM	365 ↗
DiseasesDB	5226 ↗
MedlinePlus	001620 ↗
eMedicine	oph/578 ↗
MeSH	D005901 ↗

Wiggly navigation

Sometimes when scrolling down, the article slips from side to side. The article can be scrolled all the way to the left, exposing a white, blank screen, because all the content is on the left.

Recommendation -

Optimize for mobile reading by blocking side-scrolling when not appropriate.



Android Store



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Paths to download

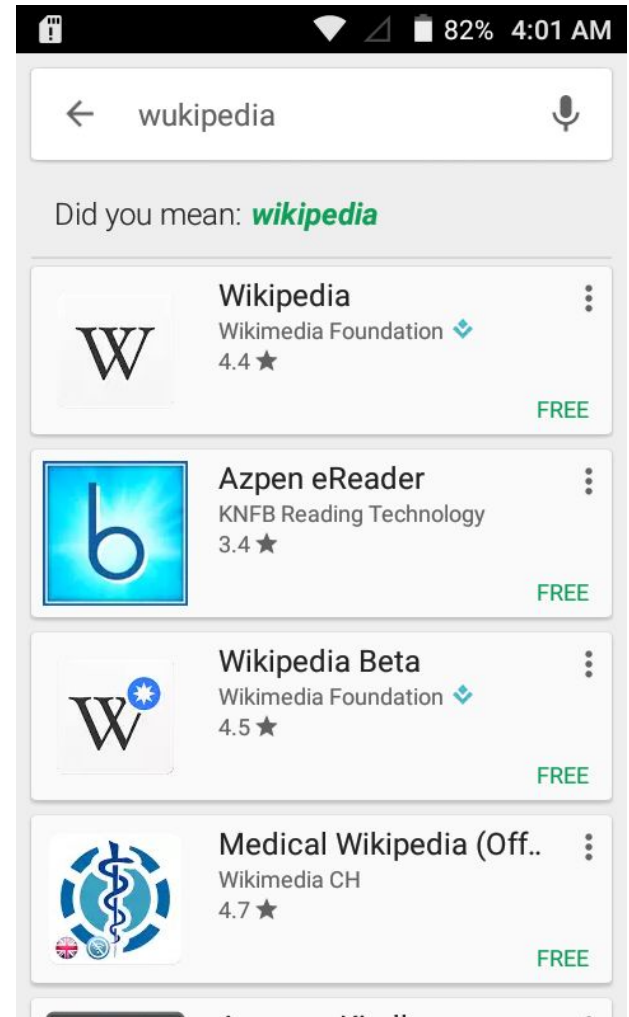
How do people typically become aware of and start using the Wikipedia Med Kiwix app?

How would a person know there is free medical information for them? Do they know to search for Wikimed or Kiwix in the App store?

“Medical Wikipedia (Off...”: The name of the app is cut off. Is there a way to make “offline” show?

Recommendation - Figure out a way to make sure “offline” shows fully in the app title.

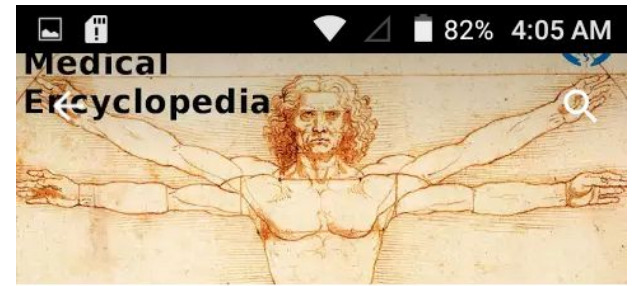
Make sure the right keywords are attached to the app in the store



Play store

Once it is found and tapped on, here is what a person sees. If people are concerned about the storage on their phone, or the cost of downloads, they would want to know how many mbs it will take to download the app.

Recommendation: provide the size of the download before people have to hit the “install” button, so they have the information they need to make the decision to download. Give people a heads up that it can be set to download only on Wifi to save data charges and delays, here.



Medical Wikipedia 
(Offline)

Wikimedia CH

 Mature 17+

INSTALL



Downloads



7,458 



Medical



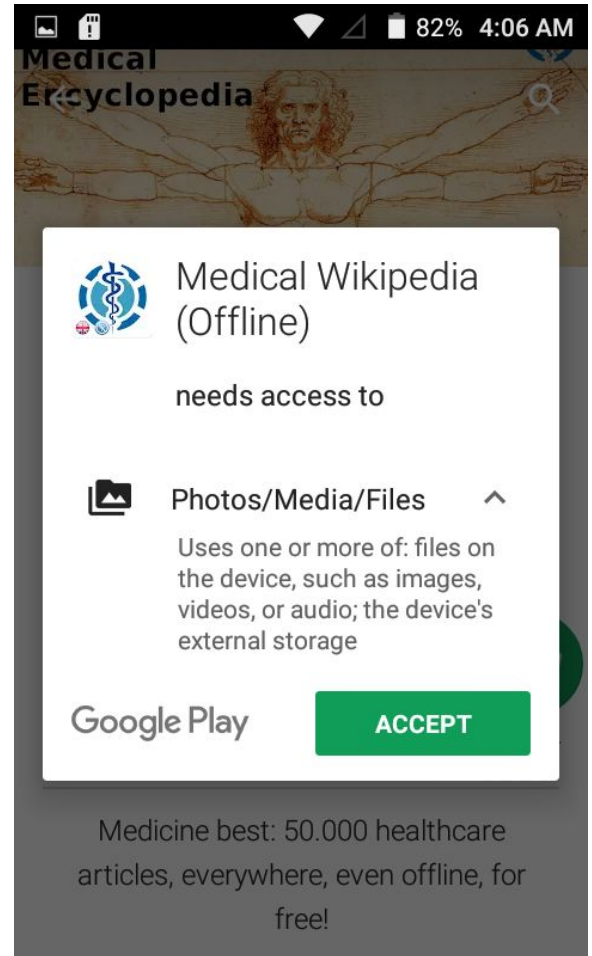
Similar

Medicine best: 50.000 healthcare articles, everywhere, even offline, for free!

Download dialogs

The writing under “photos/ media/ files” is not clear. Knowing how many mbs it will take to download, and that it can be set to download only on wifi, will be important here. Could add it here, as well as on previous page.

Recommendation: Edit text here for clarity. Add the size of file so people know what it will cost, and how much space it will take.



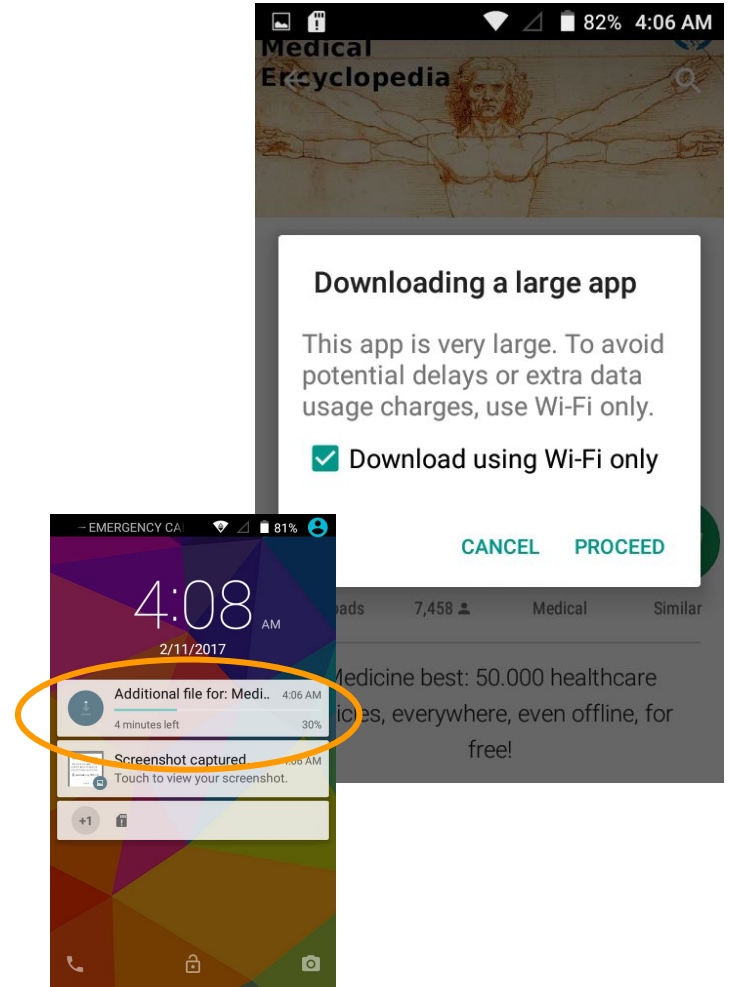
Downloading

That there is a way to tell the app to only download on Wifi, is a very beneficial feature.

Writing is clear here. :)

It downloaded quickly on WMF office wifi. It is nice that there is a progress bar, especially since people were told it is a large file.

Recommendation - Give people the information that it can be set to download only on wifi earlier in the process. This will give them good information to make decisions.



Method



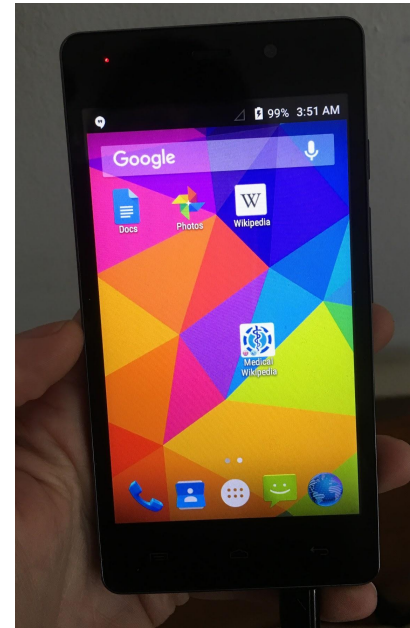
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Method

- Basic [heuristic evaluation](#).
- The app was tested on an android phone, both online and offline.
- The evaluation was done by attempting a list of tasks, and evaluating the user experience against [Nielsen's heuristics](#) [1] and four additional heuristics [2], developed specifically for mobile.
- Note: This is not an exhaustive evaluation, but first pass at attempting a list of basic tasks.

[1] <https://www.nngroup.com/articles/ten-usability-heuristics/>

[2] International Journal of Mobile Human Computer Interaction, Volume 8, Issue 1, January-March 2016



Micromax Q372
Running Android 5.0

Tasks tested

Download wikimed English app

Get to know the app a little

Search for something specific

Look for a medical article you are interested in

Check out the article

Find something related

Check the references

Look for a certain fact

Go back to the main menu

Bookmark an article or group of articles

Find the bookmarked article

Have the app read something aloud

Figure out how to share something

Find out how upto date an article is

How do I know if using this app is costing me data?

Neilsen's heuristics

Visibility of system status

The system should always keep users informed about what is going on, through appropriate feedback within reasonable time.

Match between system and the real world

The system should speak the users' language, with words, phrases and concepts familiar to the user, rather than system-oriented terms. Follow real-world conventions, making information appear in a natural and logical order.

User control and freedom

Users often choose system functions by mistake and will need a clearly marked "emergency exit" to leave the unwanted state without having to go through an extended dialogue. Support undo and redo.

Consistency and standards

Users should not have to wonder whether different words, situations, or actions mean the same thing. Follow platform conventions.

Error prevention

Even better than good error messages is a careful design which prevents a problem from occurring in the first place. Either eliminate error-prone conditions or check for them and present users with a confirmation option before they commit to the action.

Recognition rather than recall

Minimize the user's memory load by making objects, actions, and options visible. The user should not have to remember information from one part of the dialogue to another. Instructions for use of the system should be visible or easily retrievable whenever appropriate.

Flexibility and efficiency of use

Accelerators -- unseen by the novice user -- may often speed up the interaction for the expert user such that the system can cater to both inexperienced and experienced users. Allow users to tailor frequent actions.

Aesthetic and minimalist design

Dialogues should not contain information which is irrelevant or rarely needed. Every extra unit of information in a dialogue competes with the relevant units of information and diminishes their relative visibility.

Help users recognize, diagnose, and recover from errors

Error messages should be expressed in plain language (no codes), precisely indicate the problem, and constructively suggest a solution

Mobile heuristics

Compatibility between different platforms

Due to fragmentation and constant change in mobile device market, apps must be flexible to adapt to different platforms and devices. The site or platform should automatically detect the kind of device and direct the user to the mobile version.

Little human/device interaction

Due to small size of mobile devices and the context of use (in motion, sometimes with one hand), it is important that the interaction effort is reduced. For example, the system should provide a search box and navigation controls on the homepage. Scrolling should be avoided especially for viewing links, and when the device is used in a horizontal position. Scrolling can be hidden and become visible only when there is interaction between the user and the device. To reduce data entry, several features should be provided, such as, auto-complete, text boxes with suggestions, buttons, menus lists of predefined values. Furthermore, historical and personalization data can be used to establish default values, such as the cache of frequent responses. Typos and abbreviations should be tolerated. The use of registration and login should be avoided.

Physical interaction and ergonomics

The most common navigation controls must be within reach of the user and to be easily pressed with his/her thumb. Especially touch-sensitive control elements should have adequate size and spacing so that users can easily touch them with their fingers. Text representing links should use about three words. The contact zone of touch controls should be the size of the icon displayed on the screen. Applications should be designed to be used with the device in any hand or provide an option for right or left handed persons in specific cases, such as, scientific calculators.

Readability and layout

The interface design for mobile device should ensure that text boxes fit on the screen and that the layout will fit multiple devices. The content of the screen should be easy to read in different lighting conditions. Thus it is essential that there is sufficient contrast between text and background, icons and background, especially in the cause of backgrounds with images. It is also important to limit the number of colours used and provide textual description as an alternative to information conveyed with graphics.

End



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