How to make your apps easy to use: Usability testing the simple way

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About me

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FreeDOS

GNOME

Outreachy

U of M
What is usability?
Real people can do real tasks in a reasonable amount of time.
When to do usability testing?

**Before**

- Paper prototype test
- Mock-up of new interface
- Get an idea how real people will use it

**During**

- Test new design
- Use the actual interface
- Tweak the design to make it better

mock-up $\rightarrow$ **test** $\rightarrow$ tweak $\rightarrow$ **test** $\rightarrow$ tweak

design $\rightarrow$ **test** $\rightarrow$ tweak $\rightarrow$ **test** $\rightarrow$ tweak
Who can do usability testing?

**Not you**

- You know the system too well
- You know the menus
- You know the keyboard shortcuts

**Someone else**

- Representative of your users
- Real people
- Real tasks
How to do usability testing?

1. Personas
   - Watching someone else use the software
     - (what’s easy, what’s hard?)

2. Scenarios
   - You don’t need a fancy lab

3. Scenario tasks
   - You can do it on your own

4. Test

5. Analyze
1. Personas

- Fictional user
- Make it real
- Include a photo
- Represent all users
Todd

Todd (16, he/him) is a high school student who is getting interested in open source software.

At his school’s computer club, a friend shows him Fedora, running GNOME on a lab PC.

Todd is learning about computers and is still getting started with using GNOME and the apps.
Stevie

Stevie (24, they/them) is a marketer for a mid-size company. They used Windows until recently, but would have had to buy a new computer to run Windows 11.

One of the web developers at the company suggested Stevie try Linux and GNOME, and after running the Live image, they made the switch.

Stevie is experienced with computers but new to GNOME.
Maria

Maria (33, she/her) is a web developer for an online retailer.

Maria has run Linux since she was an undergrad CS student. She was a GNOME 2 user but switched to KDE after GNOME 3.

After reading articles about GNOME 40, Maria would like to try GNOME again. She’s very familiar with Linux distros but re-learning GNOME.
Dan

Dan (45, he/him) teaches math and CS at a university.

Dan has been a Linux user since the 1990s and has tried all the Linux desktops: twm, olvwm, WM, fvwm, KDE, and GNOME. His favorite is GNOME, which he’s used solidly since GNOME 2.

Dan uses GNOME for everything, including teaching classes.
Jessica (52, she/her) is a business analyst at a small firm.

Most of her home computing is email and Facebook, on a Mac laptop. When it was time to buy a new Mac, her college-aged child suggested she try Linux instead.

Jessica is an occasional computer user who is completely new to Linux and GNOME.
2. Scenarios

Who/What/Where/When/Why

Brief story about what they’re doing (software)

How they use the software (circumstances)

Why they use the software (goals/objectives)
3. Scenario tasks

Set a **brief context** then ask the tester to **do something specific**

Don’t reuse terms (“Font” etc)

Make it real

Follow a story, but be careful about making tasks too dependent
Actual GNOME scenario tasks

[Gtk] You want to finish writing a draft of a blog post that you are using in a project. You start the Gedit text editor (this has been done for you). Please open the file `blog post draft.txt` from the `Documents` folder.

[Gtk] Some of the names are incorrect in the document. Replace every occurrence of `Applejack` with `Fluttershy`, and all instances of `Rainbow Dash` with `Twilight Sparkle`.

[Calendar] A client has asked to meet with you at their office next week. Add an event called `Meeting with client` to your calendar for next week on Thursday at 10:00.
Actual GNOME scenario tasks

[Calendar] Your boss just reminded you about an important conference you need to attend August 15-18. You already planned a trip for around that time, so you want to check if you are free to attend the conference. Please check your calendar to see when you have your vacation, and if you are able to attend the conference.

[File Manager] Yesterday, you re-organized your files and you don't remember where you saved the copy of the class paper you were working on. Please search for a file named The Hobbit.odt.

[Firefox] You don't have your glasses with you, so it's hard to read the text on the website. Please make the text bigger on the website.
4. Test

Use the scenario tasks

Observe them using the software

Take notes

Ask follow-up questions

\[ 1 - (1 - L)^n \]

\[ L = 31\% \]
Each red square is 31%
4. Test

Welcome
Overview of the test
“Speak aloud” protocol
Get demographics
[Test]
Follow-up questions?
“Thank you”
5. Analyze

How easy to use?

How hard to use?

Find “hot spots”

Make it actionable

Renata Gegaj [2016]
5. Analyze

Look for “hot rows”

Why was this hard? (look at notes)

Gina Dobrescu [2016]
Questions?

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“Thou shalt make thy program’s purpose and structure clear … for thy creativity is better used in solving problems than in creating beautiful new impediments to understanding.”

*The Ten Commandments for C Programmers* (Henry Spencer)