

Usability Test for Fedora Magazine

Usability Test Results

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Executive Summary

To: Fedora Magazine
From: Group 1
Subject: Executive Summary of Usability Test
Date: April 27, 2022

This executive summary shares an overview of the purpose and research question, methodology, results, and recommendations from our team's usability test on the Fedora Magazine's website.

Purpose and Research Question

Our usability test focused specifically on the website's structure, navigation, and functionality. Our research questions for usability testing included:

- Can users learn about Fedora Magazine's purpose and history?
- Can users successfully subscribe to the newsletter?
- Can users effectively search for articles?
- Can users find the comment section of articles and leave comments?
- Can users easily create accounts?
- Can authors/editors easily log in?
- Can writers/editors easily find topics to write about?
- Can writers/editors easily submit topics to write about?

Our specific research question was as follows: Can users navigate and use Fedora Magazine's website productively by completing the tasks listed above?

Critical and noncritical errors were counted, as well as the participants' satisfaction based on their comments and ratings, which they recorded after each scenario and after they completed the entire test.

Methods

There were four methods of information gathering used during the test. The background questionnaires gathered some basic demographics. Participants supplied information such as gender, age, education level, occupation, and experience with technology based websites (Questions: Appendix A; Responses: Appendix B).

During the test, participants were given nine scenarios to complete. These were ordinary tasks relevant to what Fedora Magazine's audience may search for on the website. After participants completed the scenarios, they were given post-task

questions. All of the questions asked them to rate the ease or difficulty of the task. When the test was over, the participants were given a debriefing interview. The debriefing questions asked participants about their impressions of the site. These questions were more in depth than the post-task questions.

Results

Five participants completed nine scenario-tasks. Of the nine tasks, participants were able to complete three tasks with no difficulty and four tasks with moderate difficulty. Two tasks could not be completed completed by participants.

Participants encountered the following issues, which are fully explained in the report:

- Fedora Magazine's 'About page' was discovered by none of the participants
- Subscribing to the newsletter was intuitive but had the following issues
 - Participants wanted to choose when they were updated
 - Participants wanted to choose what topics they would be updated on
 - Participants wanted a confirmation action, such as click OK, after they clicked subscribe
- Participants wanted to filter and sort articles by date, relevance, and topic
 - One scenario asked participants to find the most recent topic on Inkscape. Participants could only assume the most recent article was the top result on the list.
- Participants had difficulty creating an account and logging in
- Participants got lost looking for writing guidelines
- Participants often got stuck on the Documents site, unclear if this was a subsite, new site, or a variation of Fedora Magazine. Most participants gave up at this point.

Discussion

Jakob Nielsen, author of *Usability Engineering*, defines usability as having multiple attributes that contribute to a user's experience with a product. These attributes include - learnability, efficiency, memorability, errors, and satisfaction (pg.26). These attributes were utilized to evaluate the usability of Fedora Magazine's website. Participants' debriefing answers highlight that learnability and memorability with using Fedora Magazine was low.

Participants were able to easily complete the tasks that involved making comments on posts, subscribing, and searching for specific articles because the format of those tasks are similar to many other blogging/discussion websites. They applied previous knowledge from using other websites to Fedora's website.

The tasks that involved finding the "about page", submitting or proposing a new article, creating an account, and navigating between pages appeared most difficult for participants. The level of difficulty for most tasks posits the errors to be high and the satisfaction to be low. This report provides details on each participant's experience as

they complete each task and recommendations based on the data provided by participants.

Recommendations

Based on the test results, we recommend the following updates:

- Add an About Fedora Button
- Create Functional Navigation
- Highlight Discussions with Visual Hierarchy
- Identify Site Issues
- Enhance Search Filters
- Implement Visual and Written Cues
- Offer Familiar Preferences

Recommendations are discussed in detail near the end of our report.

Introduction

This report describes the results for conducting a usability test during the development of Fedora Magazine website (<https://fedoramagazine.org/>).

Fedora Magazine is a blog site that provides up to date information on Linux and Gnome. The site provides in-depth articles written by both Fedora Magazine and its community. The site allows members to comment on articles, suggest topics for new articles, peer review articles, edit, and write articles.

This report addresses the usability test's purpose, methodology, results and provides recommendations for Fedora Magazine.

This usability test focused specifically on the website's structure, navigation, and functionality. The research questions for usability testing included determining:

- Can users learn about Fedora Magazine's purpose and history?
- Can users successfully subscribe to the newsletter?
- Can users effectively search for articles?
- Can users find the comment section of articles and leave comments?
- Can users easily create accounts?
- Can authors/editors easily log in?
- Can writers/editors easily find topics to write about?
- Can writers/editors easily submit topics to write about?

In terms of efficiency, we addressed whether or not participants were able to complete tasks.

Participants

Please refer to Appendix B for a complete table of participant demographics.

Targeted Participants

According to the client information provided to us from Fedora Magazine website users include people with computer skills; interest in software, such as Open Source programs like Linux; and people of all ages, including children and seniors. However, many of Fedora Magazine's users have high levels of computer experience and skills. Many of these users are regular users who use our website frequently and extensively and are very familiar with their website.

Actual Participants

We recruited five participants for this usability evaluation. For easier reference, we will refer to all of our participants as P1, P2, P3, P4, and P5. The participants were all

recruited through text message and email. All the participants were between the ages of 25-60. None of the five participants have had previous experience and were familiar with Fedora Magazine's website.

Due to time constraints, we were unable to recruit participants that were familiar with the Fedora Magazine's website. Although the participants did not fit within the user demographics, testing participants with no previous experience of the website would also effectively provide valuable information and input about the multiple functions of the website's structure, navigation, and functionality.

Methods

There are multiple approaches to testing a website for usability concerns. Commonly, when resources are tight, usability testing can be conducted by a panel of experts who use heuristics to gauge how well a website meets usability standards (usability.gov). However, these standards often miss critical usability concerns and only uncover about 70% of usability issues (Davids, Chikte, Halprin). To uncover all of the usability concerns on Fedora Magazine, we opted to have real end users test the site.

The evaluation used a usability test that involved representative users and asked them to complete realistic web tasks. The usability test involved participants who were likely users of Fedora Magazine's websites. Procedures included a background questionnaire, tasks based on scenarios and post-task questions, and a debriefing interview. A "think-aloud" protocol was used throughout the test. These procedures are described more fully below.

Background Questionnaire

Participants completed a demographic and background information questionnaire. The questionnaire asked about demographic information, experience, and familiarity with the Fedora Magazine's website (Appendix A).

Tasks and Scenarios with Post-Task Questions

The participants were provided a task description, asked to read it out loud, and start the task (Appendix C). The moderator instructed the participant to 'think aloud' so that a verbal record existed of their interaction with the web site. The logger observed and entered user behavior, user comments, and system actions in the data worksheet (*Tables 1-9*).

Once the participant completed all of the tasks, they completed the post-task questionnaire and elaborated on the task session with the moderator. The moderator asked participants about their impressions of the site and testing experience (*Table 10*).

Results

Please refer to Appendix C for the scenarios and tasks.

Scenario 1

Table 1. Logger results from scenario 1, including general notes, task completion status, and quotes for participants 1 - 5.

Participant	Task Completion	Notes	Quotes
P1	Incomplete	P1 was instructed to find the “About Page” on Fedora Magazine’s website. At the very beginning of this task they mentioned right away that it doesn’t seem to be where “something like that usually is.” They scanned the top of the page and then scrolled to the bottom looking for where the page could be located. They looked at each social media icon, looked over the options on the right side of the page, and tried to find it using the search box. They expressed their frustration both verbally and nonverbally. They decided to give up on the task after scanning through the landing page one more time.	
P2	Incomplete	In P2’s search of Fedora Magazine’s “About Page”, the user experienced frustration. They spent time on the landing page scrolling up and down the page, checking each menu panel, the social media icons, using the search box, and began exploring through Fedora Magazine’s website.	<p><i>A lot going on on this page – a bit overwhelming</i></p> <p><i>None of these look like what I want.</i></p> <p><i>How do I get out of this? I clicked without paying attention. Now I’m lost.</i></p> <p><i>Now I am in a completely different place.</i></p>
P3	Incomplete	P3 spent a lot of time on the homepage scanning the side menu, top social media bar. They triple checked everything thinking that they missed it and made a mistake. We ended this task when the user asked, “What if I never find it?”	

P4	Incomplete	P4 scrolled the main page up and down a few times looking for the "About Page". They referenced looking for "the hamburger" which didn't stand out for him. The hamburger is slang for the three line collapsible menu button that allows users to find pages they are looking for. You can think of it almost like a tape of contents for topics on a page or site. P4 also made a comment that the articles on the main page looked like advertisement banners. This task featured a lot of scrolling and pausing. P4 tried to use the search function to find the page but was unsuccessful.	<i>This isn't obvious to me.</i> <i>At this point I would become frustrated and navigate away.</i> <i>Am I missing something obvious?</i>
P5	Incomplete	P5 began by scrolling down to the bottom of the Fedora Magazine page. Upon not finding the page, they scanned the icons at the top of the page and found they were social media icons. They typed "about Fedora Magazine" into the search bar to look for it and gave up after not finding the page.	<i>At this point I have to stop, the most common answer is going to be on the first page.</i>

Scenario 2

Table 2. Logger results from scenario 2, including general notes, task completion status, and quotes for participants 1 - 5.

Participant	Task Completion	Notes	Quotes
P1	Complete	P1 completed this task after scanning over the top of the page. They found the subscription box on the right side of the screen and knew to enter their email right away. They noted that it would be nice to see a pop-up of the subscription confirmation right when you click submit. They didn't notice that it said "success" at the top because the page jumped down a little bit.	

P2	Complete	After completing this task, the participant declared some discomfort with the task. They weren't sure if they were successful in subscribing to the Fedora Magazine and weren't sure if they could unsubscribe. They mentioned wanting to see subscription options such as frequency, topic, and unsubscribe.	<p><i>I want to subscribe here.</i></p> <p><i>Uh what just happened?</i></p> <p><i>Did I subscribe or not subscribe?</i></p> <p><i>Or?Oh....</i></p> <p><i>I want stuff on Linux or Gnome? How do I select what I want?</i></p> <p><i>How do I unsubscribe? What if I didn't want to subscribe?</i></p> <p><i>I guess there are no take backs?</i></p>
P3	Complete	Remembered seeing the subscribe button during her search in Scenario 1. She was able to quickly find the subscribe button.	<p><i>I remember this from the home page – I know if you click the logo it'll take you to the home page – I think it was down here.</i></p>
P4	Complete	P4 was able to quickly locate the subscribe field on the right on the page and enter their email address and click subscribe without difficulty. They did have to scroll up a small amount to reveal the confirmation message that an email was sent for him to confirm their subscription to the magazine. While P4 did enter their personal email we made him aware that they would not be subscribed to emails unless they completed the authentication in their email. This was not apparent to P4 until after we made him aware. They made a joke that they received enough email but I think that does raise a good point about choosing your level of subscription. Some visitors might prefer weekly vs daily emails or emails about new articles vs emails about site meetings.	

P5	Complete	P5 scrolled down to find the “Subscribe to Fedora Magazine” section on the sidebar. They typed their email address in and pressed “Subscribe”. They confirmed they received the confirmation email.	
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Scenario 3

Table 3. Logger results from scenario 3, including general notes, task completion status, and quotes for participants 1 - 5.

Participant	Task Completion	Notes	Quotes
P1	Complete	P1 was able to complete this task fairly quickly as well. They used “Ctrl + F” to find the specific topic and copied and pasted that into the search box. They were able to find the specific article right away.	
P2	Complete	This was one of the easier tasks P2 was able to complete. They did have some questions though about how the search results were sorted and displayed.	<p><i>I’m really curious about the algorithm for the search.</i></p> <p><i>Is it returning this because of the name or does it use keywords?</i></p> <p><i>I don’t really understand what is driving me to find what I want to find.</i></p> <p><i>How many articles are there? How many of how many? Are they sorted alphabetically? Are they sorted by date?</i></p> <p><i>How do I sort through this massive pile of information?</i></p>

P3	Complete	P3 was able to search for the article with relative ease.	<i>I'd like to know more about wireguard – I saw a search box – let me search wire guard.</i>
P4	Complete	P4 was able to locate the specific article using a detailed search of the topic. They used the search feature using the phrase “use of wireguard on fedora linux”. This populated three articles and P4 selected the first article in the search results.	<i>The search works <u>pretty</u> well.</i>
P5	Complete	P5 first searched for “wireguard” and found three relevant articles. To narrow down the results, they searched for “wireguard VPN” and found one article. Once they confirmed there was an article about the use of WireGuard to implement VPNs, they completed the task.	

Scenario 4

Table 4. Logger results from scenario 4, including general notes, task completion status, and quotes for participants 1 - 5.

Participant	Task Completion	Notes	Quotes
P1		No data recorded due to a mix-up on the moderator briefing page. One of the tasks was recorded twice.	
P2	Complete	During this task, the participant was unclear if they found the most recent article. They searched through the results and looked at the dates of each article in the list to confirm that the top result was most recent. But because they couldn't sort by date, name, relevance, author, or topic, they weren't sure if the top article was indeed the most recent article.	<i>I'm going to guess that this is the most recent article based on this article having today's date. But I don't know that for sure since there are no filter options.</i>

P3	Complete	P3 was able to find articles on Inkscape fairly easily.	<i>Ok, I'm going to go back to search and then type inkscape – I know hitting enter means go.</i>
P4	Complete	P4 used the search function to search the topic. Then they scrolled up and down the page expressing interest in a sort function to narrow down the search to the most recent results. P4 made the determination that the search was ordered chronologically but based on how closely the search result keywords matched their search.	<i>It looks like they're pretty much chronol...well they're actually not chronologically ordered</i>
P5	Complete	P5 searched "inkscape" on the search bar. Then they scanned through the articles left to right, then down and looked at the dates to make sure the first three articles were ordered by newest to oldest.	<i>They seem visible and in order.</i>

Scenario 5

Table 5. Logger results from scenario 5, including general notes, task completion status, and quotes for participants 1 - 5.

Participant	Task Completion	Notes	Quotes
P1	Complete	While still on a different page after completing task 4, P1 says, "It would be nice to have a home button." so that they can navigate back to start task 5. They clicked the Fedora banner to bring him back to the main page (something they found they could do while trying to find the "about page" during task 1) and this brought him to a long list of articles. They clicked on the first article, saw the comments link below and clicked on that - completing task 5.	
P2	Complete	This task did not prove difficult for P2. They only requested	

		the ability to jump back up to the top of the article after reviewing and submitting comments.	
P3	Complete	This task was not difficult for P3. However, the first article they came to had closed comments.	<i>Oh comments are closed – I cannot make comments on this article.</i>
P4	Complete	P4 clicked the first article on the home page under the assumption that the first article listed would be the most recent article published. After scrolling down to the bottom of the article they were able to find the “add a comment” button in the bottom right corner of the page.	
P5	Complete	P5 navigated back to the home page by clicking the Fedora Magazine button at the top because they remembered that the most recent articles were there. They confirmed the most recent article was the first by scrolling down. They clicked the first article, then scrolled down to the bottom and found the “add comment” button.	

Scenario 6

Table 8. Logger results from scenario 1, including general notes, task completion status, and quotes for participants 1 - 5.

Participant	Task Completion	Notes	Quotes
P1	Complete	P1 remembered where this was located from previous tasks and went straight to it. This task took him a little bit longer than the other tasks and proved to be more difficult. They were confused about the “one-time password” and were confused about why they were taken to a log-in page when they were trying to register for the first time. They needed to use the back button in order to get back to the main page.	

P2	Partial completion	By this point, P2 was becoming familiar with the layout of Fedora Magazine's main page. They remembered seeing "Become a Writer" before and was able to navigate to that link. However, they became confused on the register page. When selecting the link to "Sign Up", they were brought to the "Log in" page. They didn't realize and began filling in the fields. Got very confused. It took them a few moments to realize there was a "Register" tab at the top right. This frustrated them quite a bit.	<i>I've elected to sign up – it should take me to the register page.</i> <i>If it said login, I'd expect login.</i> <i>If it said to login or sign up, that'd make more sense.</i>
P3	Partial Completion	P3 was initially confused by the difference between "propose a new article" and "become a writer". They were not able to successfully go through the login process. We gave them time to attempt but P3 was becoming agitated during the email confirmation process.	
P4	Complete	P4 scanned through the homepage to look for where to create an account. During their search they also accidentally found the Fedora Magazine 'about page'	<i>Oh look - there's 'About Fedora Magazine'</i>
P5	Complete	P5 clicked the back button from the most recent article to navigate back to the home page. through the homepage to look for where to create an account. Not seeing a button or page for "Account information" or "Create an account", they tried "Become a writer". On that page, they clicked on "propose an article" and found they would get access through a Fedora account. They proceeded to create their account.	<i>I'm seeing the articles, I would like to see an account Icon or a way to make an account on the homepage to make it more streamlined</i>

Scenario 7

Table 7. Logger results from scenario 1, including general notes, task completion status, and quotes for participants 1 - 5.

Participant	Task Completion	Notes	Quotes
P1	Incomplete	Participant 1 was not sure if they should click on “propose new article” or “become a writer”. They took some time to read about what each one meant. When they tried to use the pop-up login, it didn’t work. They pressed “cancel” and that seemed to have made the next login page glitch. The pop-up login kept coming up after they hit cancel or tried to login that way. They weren’t able to log in and therefore could not complete the task.	<i>“I’m very confused and frustrated. Because of this I can’t complete the task and would leave the site”</i>
P2	Complete	The participant was becoming very frustrated by this point in the test. They navigated incorrectly from the become a writer page and got lost on the document page. At one point, they became very frustrated and was about to give up on the test. Finally, they found the link to submit a new article. They were exasperated by this point.	<p><i>NO! I got stuck on this page. I just want to get back to the main page and start over.</i></p> <p><i>Ok this is not at all what I thought I was going to get.</i></p> <p><i>I’m on Fedora Pagure....This is some webpage or something.</i></p> <p><i>I don’t even know how I got here.</i></p>
P3	Incomplete	P3 is immediately lost. They are on the “create account” page and cannot navigate back to the home page. They need to use the browser back button. They find the create new account page and struggles. They are unable to create a new account.	<i>Now that I’m here I don’t know how to get back to where I was</i>
P4	Incomplete	This participant was unable to complete this task. They explored the “become a writer” section for some time skimming through the content. They did not find where	<p><i>Propose a new article....hmmm. Doesn’t seem to be liking that.</i></p> <p><i>That doesn’t seem to work.</i></p>

		this was located.	
P5	Incomplete	P5 wanted to go back to the home page because they remembered a place to “Propose a new article”. They read through the list of options on the left sidebar on the “Fedora Docs” page and clicked “More information”. They went to the discourse form and tried to put their name in the chat. They tried to sign in three times, but their sign in didn’t work any of the times. They gave up after the third time.	<p><i>One thing there is not that I’d like to see is the little icon to see what the password is because I often type things wrong.</i></p> <p><i>At this point, I would leave the page</i></p>

Scenario 8

Table 8. Logger results from scenario 1, including general notes, task completion status, and quotes for participants 1 - 5.

Participant	Task Completion	Notes	Quotes
P1	Complete	The participant had some difficulty completing this task. They knew to go to “propose a new article” and then carefully read through the options on the “docs” page when they were brought to it. They scanned the options on the left side of the page, noticed that the “about page” from task 1 was listed and made reference to that. They wasn’t sure which option to choose and deliberated between clicking on “contributing as a writer” or “editorial workflow”. They clicks on “editorial workflow” and then navigates to “writing”. They forgot what the task at hand was and had to reread it. At the end of this task, they weren’t confident if they completed it or not.	

P2	Complete	The participant took some time to find the guidelines. They initially found the guidelines but didn't realize that they actually found the guidelines. They were looking for more information and eventually got lost again. It took him some time to get their way back.	
P3	Complete	P3 Struggled with this task. They did not know if this was an article on the site or somewhere else. They spent a lot of time searching for this guide in the article list. (Not a bad assumption). Eventually finds the "become a writer" link and explores this section. They still require a decent amount of searching to find this feature.	
P4	Complete	P4 did not have much time finding the writing guidelines. By this point, they were more familiar with the site and had already found this page in their exploration.	<i>Writing guidelines... This looks like the right spot. Style? Format? Content? I'm not sure if there's another spot for it but I'm assuming it's in the writing guidelines for a potential writer.</i> <i>This is as close as I could find.</i>
P5	Complete	As the participant was on the account log-in page from the previous task, they had to use their browser's back button to navigate to the Docs section. They then clicked on the "Contributing as a writer" link on the sidebar, and then the Editorial Workflow – Writing link. In this section, the participant took some time to glance through the text and considered clicking on Writing Guidelines and Template before finding the Style, grammar, and content guide at the bottom of the section.	

Scenario 9*Table 9. Logger results from scenario 1, including general notes, task completion status, and quotes for participants 1 - 5.*

Participant	Task Completion	Notes	Quotes
P1	Complete	The participant found during this task that they could not easily navigate to the home landing page from the docs page where they were during task 8. They described their reaction to this as “very confused” and “surprised”. They expressed some nonverbal frustration as well by sighing and displaying that they may be overwhelmed. They was initially confused with the labels on the Kanban board, but realized that they had completed the task.	<i>“It’s tricky to get back home”</i>
P2	Complete	The participant found this section without too much difficulty. They had spent enough time on the site to navigate to the ideas board. They did have a lot of concerns about the navigation of the site and provided a lot of feedback on how navigation should work. They also found the idea board very busy and hard to intuit.	
P3	Complete	P3 was able to navigate to this. They’d already seen a link to this section in the previous Scenarios.	<i>Oh this is kind of cool.</i>
P4	Complete	P4 found the idea board rather quickly as. They’d already seen the text linking to it. The main difficulty they had was getting out of the docs page from task 8. They had to use Google search to re-find the Fedora Magazine webpage. From there, they were able to navigate to the idea board.	

P5	Complete	<p>P5 said they remembered previously seeing this section, but again had to use the back arrow of their browser to navigate to where the link was located. The participant glanced through the text of Writing an article and did not see the direct link to the Kanban board. They instead clicked on Article proposal (subsection of Editorial Workflow) in the sidebar. Not finding what they were looking for in this section, they navigated to Proposing an article in the sidebar. The user was not able to find the target link and navigated to Contributing as a writer in the sidebar. Scanning through the text in this section, they was able to find the link to the Kanban board.</p>	
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Debriefing Interview

When all tasks scenarios were completed, our facilitator asked a series of questions to assess the overall reaction from the participants' perspective. The primary goal of the debriefing interview was to gather any additional feedback from participants that may not have been conveyed during the task scenarios. Another goal was to gather feedback from participants around Fedora's goal to increase readership and to create a sense of community.

Post-test questions:

1. What was your overall impression of the Fedora Magazine site?
2. What uses do you think the website performs best?
3. What uses do you think the website could be more clear on?
4. Would you return to the Fedora Magazine website in the future?
5. Did you get a sense of engagement or community from the website?

Table 10. Participant responses to the post-test questions (Q1 - Q5).

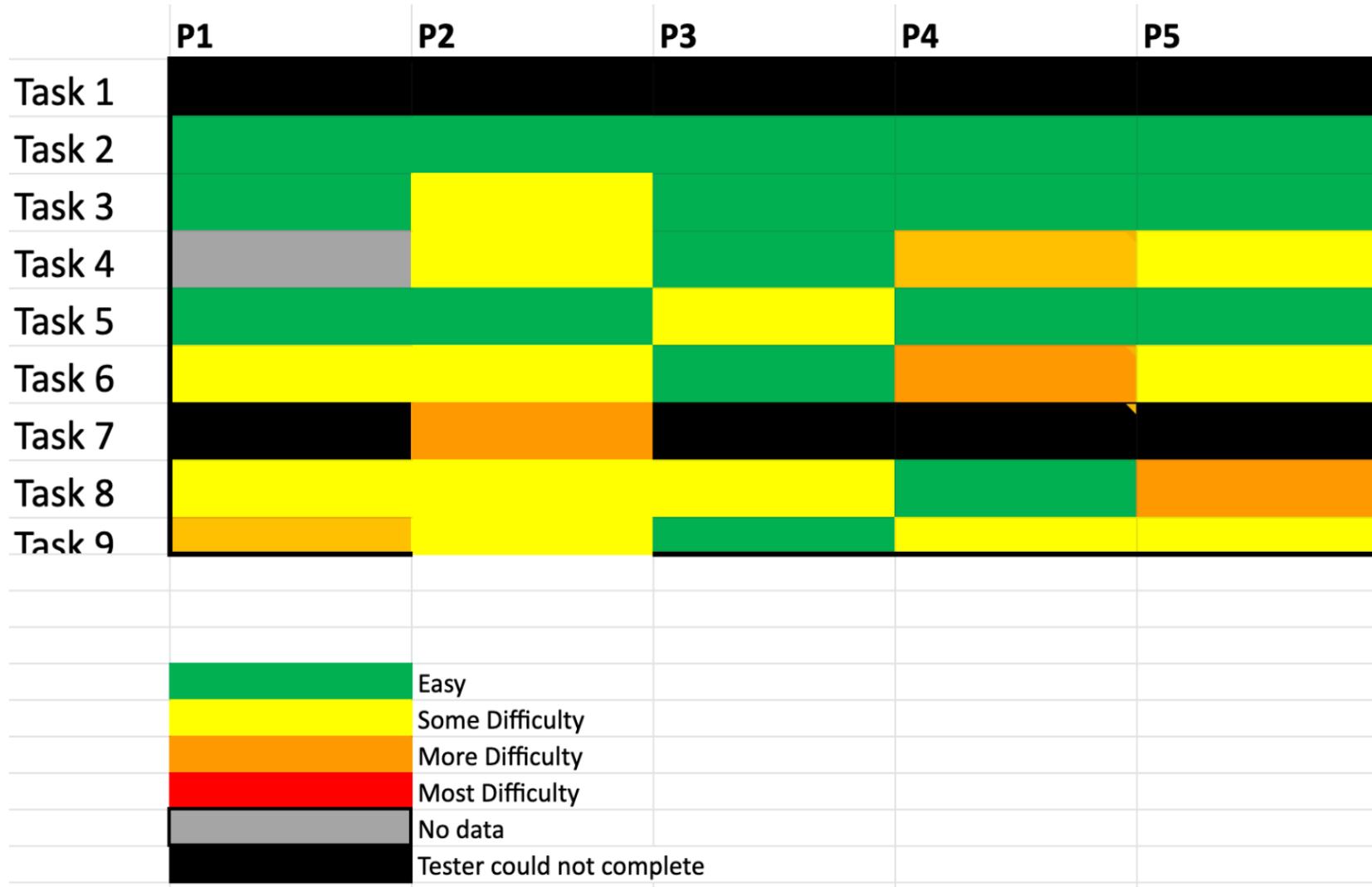
	Q1	Q2	Q3	Q4	Q5
P1	<p>The homepage did not feel like a homepage and it was busy. It felt like there was a lot of content on there and I didn't know which content was important. It's difficult to know how I got to places or what the structure of the site was. Some of the stuff was very easy to get to like subscribing. The stuff on the right like writing new articles or becoming a writer popped out, although once I was there, it felt like I had moved to a different site entirely. It was confusing to get back to the homepage.</p>	<p>The search performed pretty well, it was fast. The subscribe button pulled me into the site and it was simple. So I didn't have to go a long way to get to the things that I needed.</p>	<p>When I was actually trying to contribute or become a writer, I think that that's where the site started to break down a little bit for me and started to get a bit more complicated. Maybe you could have guided me through that a little bit better and not just landed me on some of those pages.</p>	<p>I didn't find anything in there that was relevant to what I'm interested in. Not only that but the experience itself was a little bit glitchy and it feels a little bit like an older site. If I found this website, it would feel a little untrustworthy to me.</p>	<p>when we were looking for comments, it looked like there was some pretty good engagement. I was surprised there were as many comments as there were. I imagine that for those that use the site, that seems to be a relatively active community.</p>
P2	<p>That it's probably made by people are not paid to make websites and that it's cobbled together. There's some interesting information here. I'd probably come back. I don't have a lot of confidence in the search being an exhaustive search since there's no filtering. As I'm going through different parts, it's really easy to get lost</p>	<p>Frustrating me.</p>	<p>A lot of websites like this one would probably have a more clear mission statement – like what is the purpose of the website. “Welcome to Fedora...” Maybe filter options – I don't know why one page has the ability</p>	<p>I might if I remember the name of this. I'm interested in Linux so maybe I'll see what is on here. I don't know – I'd probably use this as a good example of things not to do in design.</p>	<p>There were some people that were commenting on articles. That's promising that someone had enough interest in this to write something and respond to someone else.</p>

			<p>to sort and the articles don't. Navigation totally changes and there's no nav to get back. "Where did the logo go? Maybe that logo should always be a home for me to take me back to wherever the home is." Clicking Docs takes you someplace that is very confusing? There isn't consistent behavior on elements that are in the same place on the screen.</p>		<p>Does Fedora offer a suite of other things? Maybe that's part of the thing that is confusing? Silver Blue? I don't know what that is.</p>
P3	<p>I found looking for articles or buzz words it was pretty good. But I could not find anything about the magazine or know what it was. Still don't know what Fedora Magazine is.</p>	<p>For the people already in the know, it's really great to find articles.</p>	<p>Orienting new people to the site</p>	<p>No, only because I don't have any knowledge about the site or understand anything about the articles!!!!!!!!</p>	<p>Yea, I think so – even with this last tasks, there were a lot of people commenting on different ideas for articles. It felt like a good sense of community.</p>
P4	<p>I found it initially pretty difficult to navigate. It's not organized as many commercial sites would be.</p>	<p>Once, I found Propose a new article or Become a</p>	<p>Probably, some sort of main menu on the side or a</p>	<p>It seems to me like it would be difficult to get to the article.</p>	<p>I am seeing a number of comments. I think</p>

	<p>When I first landed on this, it felt like landing on a series of ads not links to articles. I also didn't see at the very top a menu with about or contact.</p>	<p>writer, it all seemed fairly straight forward.</p> <p>But again, not a good way to navigate back from these sections.</p>	<p>banner menu that would have general information about the website. It seemed unfamiliar to me to not have a straightforward menu. Or even at the bottom to have a site map. The homepage doesn't feel like a landing page to me.</p>	<p>When I search for an item, I'd want to sort them in different ways: chronologically, by name...be able to drill down through menus or categories vs doing a search for articles.</p>	<p>there is a lot of engagement. As I was picking through, I saw a lot of comments. It's good to have people engaged when doing research.</p>
P5	<p>I think that it seems to have been done fairly well for people who know a little bit about the topics, but it might be kind of nice to have an introduction page that stands out more as "this is who we are, this is what we do, this is the platform that we use". The scenarios were possible, except for the task of knowing who they are.</p>	<p>I like the idea that it has a list of articles and I like the idea of having workflow columns so that there aren't overlapping articles.</p>	<p>It would be nice if the flow chart with ideas could be put on the left-hand screen, it would be easier to find so there are less steps to get there.</p>	<p>Yes, I think I would. It seems fairly well thought out, but it could be user friendly for new folks, but is good for people who have been there before.</p>	<p>Yes, there were a lot of areas you could go to look for help if you needed it. The workflow board is nice to see who is doing what.</p>

Heat Map

Figure 1. A “heat map” that visually depicts the scenario task and the level of difficulty each participant experienced while trying to complete each task.



Discussion

Scenarios

Scenario 1: None of our participants were able to complete our first scenario. Every participant scoured the front page, hovering over every link and icon. Eventually, they got desperate in their search and used the search feature to look up “About Fedora.” None of their attempts worked.

Scenario 2: Most participants had an easy time of subscribing to Fedora Magazine. However, they were unsure of whether they were successful or not because there was no notification saying they were subscribed. Some participants wished there were options to select topics and frequency.

Scenario 3: This task was easy for most participants and was intuitive. One power participant wanted additional features such as filtering and sorting.

Scenario 4: This task seemed easy enough for our participants. However, none of them were completely sure if they found the most recent article. There is no feature that allows users to sort by date so participants had to guess what the most recent article was.

Scenario 5: All of our participants were able to complete this task. This task required them to comment on the most recent article published by Fedora. This task proved to be easy for our participants to accomplish. The only difficulty that was encountered by participant 3 was because the most recent article had their comments closed. Otherwise, they knew where to go to comment and still completed the task.

Scenario 6: This task asked participants to create a Fedora Magazine Account. Our participants found this task to be more difficult. There was a lot of confusion on why they were taken to a log-in page as first-time registrants. Participants 1, 4, and 5 completed the task while participants 2 and 3 partially completed it.

Scenario 7: This task required participants to submit a new article idea. Only one participant was able to complete this task, but it was very difficult for them to do so. The other participants were confused as to where to go to submit an article and when they did get to the right spot, the log-in would not work.

Scenario 8: This task asked the participants to find the Fedora Magazine Style Guide. All of our participants were able to complete this task with some difficulty. The difficulty came from being unable to easily navigate between the Fedora landing page and the docs page. They were also unsure of where to find the guide as they did not know if it would be under “propose a new article” or “become a writer”. It took some trial and error.

Scenario 9: This task asked the participants to find topic ideas on the discussion board. All of our participants completed the task with some difficulty. Again, the difficulty was in the navigation between pages.

All of the tasks were designed to help us understand if the user can productively navigate Fedora Magazine's website.

When we look at the level of difficulty associated with the tasks, a lot of the usability issues stem from being unable to navigate between pages or easily search for common information. This data is all depicted on the heat map (*pg.22, Figure 1*) and supported by the information gathered by the logger during the recorded usability test.

While we considered reviewing each participants' time per task, we felt it wouldn't add any new insights to our results. Time on task before failure isn't consequential and most of the completed tasks shown in green on the heat map were done relatively quickly due to the tasks being more intuitive for the user. We feel we have identified and sorted the issues with those tasks in yellow, orange and red. Slight variances in those task times between participants would have little impact on our findings and recommendations.

Conclusion

Our participants provided valuable insights to where Fedora Magazine's main functions such as subscribing to newsletter, basic search, adding comments were easy to find and to use. The site's navigation and features for writers and contributors turned out to be more challenging due to the lack of consistency in site layout and design.

In response to our debriefing questions, most participants stated that they felt a strong sense of engagement and community on Fedora Magazine as they navigated through the articles and comment section. However, they felt that the website lacks an introduction for new visitors to orient and familiarize themselves.

Based on the feedback from our test participants we reviewed relevant user design literature to make recommendations for the Fedora Magazine website. In the sections that follow we offer recommendations to improve the usability of the site that we believe will be beneficial to current users and new contributors alike.

Recommendations

Our recommendations are based on the significance of our findings, what they imply, and what users wish had been incorporated to help them navigate Fedora Magazine's website.

Add an About Fedora Magazine Button

None of our participants could find the About Fedora Magazine page. One of our participant's first impressions of the site was that it was full of advertisement banners. If Fedora Magazine hopes to gain new subscribers and contributors, first-time visitors to the site should be introduced to the site's mission right away. We recommend including a button or banner that draws new visitors to the most important aspect of the site. By including a banner or button that stands out, you incorporate a concept called visual hierarchy. Using visual hierarchy to steer your users in a certain direction is a fundamental principle of design (Juviler, J). Make the *About Fedora Magazine* link bold or in larger text to draw attention to this important element of the site.

It's also important to consider the concept of prior knowledge when designing your site. What prior knowledge do visitors bring to the site? And what information is readily available on the site for users to gather context? Because the About Fedora section wasn't readily visible to participants, there was no context or prior knowledge for participants to rely on leading to a feeling of uncertainty on the home page. Literature on prior knowledge suggests using "titles, headings, subheadings, and key concept check lists" (Duin, 98). In addition to adding an About Fedora button, we recommend using visible headings and subheadings on each page to ensure users understand what page they're on and the goals of that page.

Create Functional Navigation

In general most of our participants struggled to navigate through different layers of the site. At times they expressed feelings of being lost while looking for information or jumping between tasks done on different pages. A few users even resorted to opening a new tab to reset at the home page. Fedora Magazine has a lot of information. There are articles, a Kanban board, writing and editing resources, and more. Another fundamental element of design is "new users should be able to seamlessly navigate for information. It shouldn't take multiple site visits to learn how to find things" (Juviler, J).

New and experienced users alike should be able to move through the site. A few core design principles around navigation include making actions reversible and visible and give users stable cues so they have a sense of home on the site (Tognazzini). These navigation elements should be visible and accessible and preferably near the top of the page (Juviler, J). We recommend incorporating functional navigation elements such as a back button and maybe a drop-down menu that let's users choose exactly where they want to go from any page. Incorporating functional navigation is critical to design as "the organization of a text influences the way we acquire, remember, and use information" and "increases the likelihood of transfer of new knowledge of future tasks" (Duin).

Create functional navigation and let visitors of the magazine spend more time engaging and less time navigating.

Highlight Discussions With Visual Hierarchy

Our participants' impressions of the site was that there is an active community engaged in Open Source topics but they felt like outsiders. We recommend making a few changes to make it easier for new visitors to become involved in the discussion and contribution. You may consider creating a feed that shows who's commenting on articles or giving kudos points to people who contribute articles or add comments. Fostering a vibrant community will help encourage users to stay and also show outsiders that there is a community here that is welcoming and accepting of participation and contribution.

Call to Action

In design, it's important to show users what is going on and how to get involved. The main page is mostly articles. Consider highlighting active topics on the discussion board and inviting visitors to join the discussion. Use what's called in the design world as Calls To Action (CTA). These CTAs should stand out. We recommend adding a button that directs users to "Join the Discussion" or a banner that says "Can't find a topic? Propose an article!". Fedora Magazine has an active base. Implementing visual hierarchy and CTAs will invite new visitors to grow the site's contributors.

A CTA is any page element that prompts user action. The action could be adding a product to a card, downloading a content offer, or signing up for an email list. "Make your CTA elements prominent in the visual hierarchy but not intrusive or distracting like many click-through ads tend to be" (Juviler, J.).

Bug Reporting

It's worth noting that a few of our participants ran into some functionality issues on the site. We provided our participants with pre-created Fedora Magazine login credentials and they encountered a few bugs when trying to log in to their profile. It's difficult to pinpoint if this was a software issue, an issue with the browser, or an issue just sharing login information across different devices. While it may seem obvious, it's essential that the site functions how it should and users don't encounter bugs when trying to complete tasks. Designers recommend that you should test functionality across browsers and we think that is an important recommendation here as well (Juviler, J). We also suggest adding some sort of discussion board directly dedicated to bug and issue reporting or somewhere users can report bugs to an administrator to look into closer.

Enhance Search Filters

Although most of our participants were able to find specific articles we tasked them with finding, we think there is some room for improvements to the navigation. Some of our participants mentioned that they wish the search feature had a sort option. While specifically looking for recent articles some users questioned how the articles were organized. Our participants were confused by this as they could not sort by date and had to assume what the most recent article might be.

Were they sorted by match to the search terms? Was there an element of recency in the search matching? Another principle of user design is to “bring to the user all the information and tools needed for each step of the process”. It’s also important that the site should function in a way that matches the users expectations (Tognazzini). To retain current users and keep new users engaged and moving through the site it’s essential to have navigation that fits their wants and expectations. “If users expect it to work a different way, you will be facing an uphill and often unwinnable battle to change those expectations” (Tognazzini).

Implement Visual and Written Cues

The Kanban board was a point of frustration for our participants. They eventually found where to submit an article idea and find topic proposals but the board and the layout of the page were unfamiliar. It is understandable that the site has layers including articles, style and editing notes, and a discussion board. However we believe some of the difficulty navigating across these different functions was due to the lack of visual cues. Another principle of design is that things should be visually inconsistent when they act differently and consistent when they act the same (Tognazzini). While different layouts, there were no cues letting the participants know that they were on the Kanban board or reviewing the Magazine style requirements and tips. Some of our participants felt like they were jumping between sites. We recommend including some visual and written cues to let visitors know where they are on the site. In the absence of these cues users “attempt to use the page exactly as they have always done, and it won’t work” (Tognazzini). The Kanban board, the articles, and the style pages all work a little differently. Identify these pages with cues and make it obvious for the visitor that they are on a different page with different rules (Juviler, J.). This should keep new visitors from being disoriented and focused on whatever they came to the page to find.

Offer Familiar Preferences

One small observation our participants made was around the subscribing to the magazine task. There was some hesitation after the participant entered their email address and it wasn’t until they scrolled up that the confirmation message appeared. Users should get instant notification they have subscribed or an error message if something went wrong. We recommend making the subscription confirmation instantly viewable and not easy to miss. Moreover, including options for new subscribers to tailor their subscription preferences to match their interest would be a great feature to keep users engaged in the content they’re interested in. Many sites today act in this way and if you want to attract new subscribers you can use some of the features and functionality they are used to seeing on similar sites (Tognazzini).

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Appendices

Appendix A: Participant Demographics and Pre-test Questionnaire

Pre-Test Questionnaire - Fedora Magazine

Thank you for helping us evaluate our client website. Before we begin, please tell us a little about yourself.

Age

- 18–20
- 21–29
- 30–39
- 40–49
- 50–59
- 60+

How do you most often use a computer? (Check all that apply)

- I don't use a computer
- Work
- Word Processing
- Personal Email
- Entertainment and Games
- Music
- Photo/video
- Internet
- Other – Please specify: _____

How often on average do you use a computer? (Check one)

- Once a month
- Several times a month
- Once a week
- Several times a week
- Daily
- Several times a day

How often do you use the internet? (Check one)

- Once a month
- Several times a month
- Once a week
- Several times a week

- Daily
- Several times a day

**Which of the following statements best describes your relationship with technology?
(Check one)**

- I avoid using technology wherever possible, and I rely on other people to help me.
- I use technology, and I am still learning how best to incorporate it into my life.
- I feel comfortable with technology, and I feel I now know the basics.
- I like technology, and I can mostly troubleshoot any problems that occur on my own.
- Technology is a real passion of mine, and people come to me for help with technical issues when they get stuck.

How do you visit Tech Discussion/Blog websites? (Check any that apply)

- I use my phone or mobile device to visit university websites
- I use my desktop or laptop computer to visit university websites

Additional questions

1. What do you know about open source software?
2. Do you have experience with blogging? If yes, what topics do you write about?
3. How often do you research articles about software?
4. What is your most frequented tech blogging site?
5. What attracts you to that site?
6. How likely are you to write or contribute to an article of interest? *Please circle one of the numbers below.*
 - 1 - Very unlikely
 - 2 - Unlikely
 - 3 - Somewhat likely
 - 4 - Likely
 - 5 - Very likely
7. What device do you use to access this website?

Thank you for taking the time to complete this pretest questionnaire. Your answers are very valuable for our research.

Appendix B: Participant Demographics and Pre-Test Questionnaire Responses

	Participant 1	Participant 2	Participant 3	Participant 4	Participant 5
Age	28	30-40	30	50-59	55
Computer use	7 times a day	7 times a day			
Internet Use	Several times a day	Several times a day	Several times a day	7 times a day	7 times a day
Technology	Familiar	Passion	Work	Passion	Familiar
Blog Sites	Not very often	Weekly	Not very often	Not very often	Not often
Open Source	Not familiar	Very much	Very little familiarity	Moderate	Not Familiar
Blogging	Not very often	None	None	None	None
Article Research	Occasional	Weekly	Occasional	Monthly	1-3 times/year
Frequent Blog site	Not very often	Weekly	Not very often	Not often	Not often
How likely are you to contribute	Not very often	Not very likely	Not very often	Not very likely	Unlikely
What device do you use to access websites?	Computer and smart phone	Laptop and smart phone			

Appendix C: Scenario Tasks

Task 1: To answer the first question, we wanted to see if participants could find information about Fedora Magazine. We asked participants to, “Find the about page for Fedora Magazine.”

Task 2: We also wanted participants to engage in the Fedora Magazine community by subscribing to updates issued by Fedora Magazine. We asked participants to “subscribe to Fedora Magazine.”

Task 3: Fedora Magazine is a website all about articles. We wanted to test how easily participants can use the search function. We asked participants to find a specific article on the website.

Task 4: For the fourth scenario-task, we wanted to see how easy it would be for participants to find recent articles on a particular topic. We asked them to find multiple, recent articles.

Task 5: Community engagement is an important part of Fedora Magazine and a function we wanted to test. We asked participants to find the comment section on the most recent article and to leave a comment.

Task 6: To properly engage with Fedora Magazine’s content, site visitors need to register for an account. As this is a key step in a visitors experience, we asked participants to create a Fedora Magazine Account.

Task 7: Fedora Magazine welcomes site visitors to request article topics that interest them. They have created functionality to allow for these types of submissions. We wanted to see how salient and easy this functionality is. We asked users to submit a new article idea.

Task 8: Fedora Magazine offers support to their staff and guest writers. They provide style guides and writing guidelines. As these are useful tools, we want to make sure they are easily accessible. We asked participants to find the Fedora Magazine style guide.

Task 9: Since article contributions are an important part of Fedora Magazine, we asked participants to explore the website’s topic suggestions or topics under consideration for contributors.

Appendix D: Post-Test Questionnaire

Thank you for participating in our study! Your experience will help us refine Fedora Magazine's website – we all appreciate your help very much.

Before we part, we hope to ask just a few more questions.

- 1.) What was your overall impression of the Fedora Magazine site?
- 2.) What uses do you think the website performs best?
- 3.) What uses do you think the website could be more clear on?
- 4.) Would you return to the Fedora Magazine website in the future?
- 5.) Did you get a sense of engagement or community from the website?