Testing for accessibility of streaming media on apps and devices

Plain Language Summary

Authors

Harry Lew, Max Chung, and Lucia Belakova

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Introduction

Streaming media means watching TV shows and movies online without downloading them first. It is now one of the main ways people get their entertainment. But we still do not know enough about how accessible these services are.

The goal of this paper is to identify the barriers in streaming media. We want to find out what works and what does not work for people with disabilities. We want to provide ways to fix some of these problems.

We looked at 5 major apps on 4 different devices.

What we expected to find

We expect to find barriers and issues. We think that streaming apps and devices will be hard for people with disabilities to use. We expect this to be true even for simple things. This includes basic actions like signing in, finding a show or playing a video.

We expect this because of the many negative reviews we found. These reviews are in the Apple and Google app stores. These negative reviews often come from people without disabilities. It shows they are struggling to use the apps. This usually means the experience is even worse for people who use assistive technology.

How the testing was done

These are the 5 streaming apps we tested.

5 streaming apps

- Netflix
- Prime Video
- Disney+
- Crave
- ICI TOU.TV

These are the 4 devices we tested.

4 popular devices

- Google TV
- Apple TV
- Roku Ultra
- Amazon Fire TV Stick

This is what we did to test the apps and devices.

1. Technical review

A technical review is about following rules. We checked the apps and devices to see if they followed accessibility rules. These rules cover different actions. They include things like labeling buttons properly, reading out text and supporting captions.

2. Real-world testing

We also tested different assistive tools. We tested to see what happens when they are used with the apps and devices. These are the tools we tested.

- remote controls
- screen readers
- switch controls
- keyboards
- mice
- trackpads
- screen magnifiers
- voice input

We focused on what a new user would face. We tested to see if they could complete important steps. These included actions like setup, signing in, searching and playing content.

We also checked to see if apps followed the settings on the user's device. For example, did the app follow the caption preferences or reduced motion settings.

Results

Overall accessibility scores

We looked at 32 assistive features on devices. We checked to see which devices had the most features. Here are the results.

Best devices

1. Apple TV – 27 out of 32 features
2. Google TV – 18 out of 32 features
3. Amazon Fire TV Stick – 17out of 32 features
4. Roku Ultra – 9 out of 32 features

We looked at 26 assistive features on apps. We checked which apps had the most features. Here are the results.

Best apps

- Netflix and Disney+ – 26 out of 26 features
- Prime Video and Crave – 25 out of 26 features each
- ICI TOU.TV – 21 out of 26 features (This app scores the lowest because it only supports French and has limited caption options.)

Major accessibility problems were found

We found major problems with accessibility. These were in both the streaming devices and apps. Here are the 6 main types of issues we found.

1. Important actions could not be completed

People with vision loss or limited mobility faced issues. They often could not do the following actions.

- finish setup
- enter their PINs
- browse, search or play content

There were also other problems. Sometimes screen readers did not read out instructions. Some buttons could not be selected. Some error messages were not given. Voice options were not available. Sometimes advertisements would come on the screen readers in the middle of other actions.

2. Very little support for assistive technology

There is not much support or help for people who use assistive technology. For example, external switches only had support on 2 of the 4 devices. Mouse users also had issues. They often could not click, scroll or even see the pointer. Voice options were not always available.

3. Accessibility settings were not followed

Some apps did not follow the users' settings. Some only applied part of the settings. These are the settings we checked.

- captions
- reduced motion
- autoplay

- preferred language
- navigation sounds
- screen reader details

This is frustrating for people with disabilities. They can't count on the same accessibility when using different apps.

4. Apps are not designed well for accessibility

Many apps do not follow the technical rules. Here are some of the common problems in the apps.

- buttons without labels or good descriptions
- incorrect labels
- checkboxes announced incorrectly
- images without good descriptions
- screen readers reading very little, or none, of the text on the screen

This made navigation very difficult for blind and low-vision users.

5. Navigation is confusing

Streaming devices often use grid navigation. This means the user must move around inside the squares or rectangles of the grid. This works best for people who can see the screen. It is harder to use for people who cannot see the screen. It may cause them to get lost on the screen. Or they may miss things that come up on the screen.

The grid is also different from the layout used by desktop computers and mobile devices. Those use more direct navigation through lists. It is much easier to follow. This means users could not easily switch between devices.

Some devices also lacked sound cues for clicking, scrolling or typing. This left users unsure whether anything was happening.

6. No good way to recover from errors

Many users had no accessible way to fix problems or errors. If the app froze, crashed or got stuck, many users could not fix it on their own.

Here are some of the problems they faced.

- Reopening a stuck app didn't help.
- Screen readers stopped working after sleep mode.
- Switch access could freeze when selecting items.

- Switch access could not be turned back on with a switch.

There were other accessibility issues. People with severe vision or mobility disabilities could not setup the devices on their own. Many accessible features could not be used until the setup was finished. The setup process is usually only needed when the device is first used. But it is may also be needed if a reset is required.

Positive findings

There were also some good results. Here are some examples.

- Apple TV, Google TV, and Fire TV worked well with keyboards.
- All 4 devices had built-in screen readers.
- Netflix, Disney+, and Prime Video have captions and audio description support. This was offered in multiple languages. This can help people with hearing, vision and cognitive disabilities.
- Some apps have the same layout across TV, web and mobile devices. This makes switching between devices easier.
- Apps like Crave and Prime Video let people check for accessibility features before paying.

What this all means

The paper reveals many issues. It shows that many accessibility problems are not due to technology limits. Instead, they happen when apps and devices are being designed and developed. The people who make them may not have experience with accessibility. They may not test the products properly with real users. Many also treat accessibility like a checklist. The items checked off may not actually work in real life.

Standards and rules are also important. But they only set the minimum requirement. A product may be able to “pass” these rules but still not be usable in real life.

To fix this, companies need to do the following.

1. Follow best practices. These explain how people with disabilities actually use devices
2. Use Performance and task-based testing. Focus on whether users can finish real tasks.
3. Use tools that help understand the user’s experience. This will help designers understand who their users. It will help them see how they interact with the system.

Without these tools, developers will keep repeating the same mistakes. With these tools, developers can go beyond basic accessibility.

Conclusions

Our research found many barriers in streaming apps and devices. These barriers stop people with disabilities from being able to use streaming apps and devices on their own. Real-world accessibility fails even when standards, or rules, are followed. This is because of the following issues.

- The assistive technology isn't supported.
- The apps don't work the way users expect them to.
- The assistive technology does not work well with the app.
- The tasks require too many steps to complete.
- The required actions are impossible for some users to do.

These issues need to be addressed. The people who design, develop and make rules around accessibility need to do more. They must go beyond basic standards. They need to use best practices. They need to do user testing. Until this happens, people with disabilities will continue to face major barriers in the streaming world.

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