

NNELS



Accessibility Report for LinkedIn Learning

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About NNELS

The National Network for Equitable Library Service (NNELS) is a digital public library of eBooks for Canadians with print disabilities¹ and advocates for an accessible and equitable reading ecosystem for Canadians with print disabilities. NNELS supports principles of openness, inclusion, and choice. NNELS is hosted by the BC Libraries Cooperative, a community service not-for-profit cooperative and a national leader in information and technology services.

Our team of Accessibility Testers has expert knowledge in the areas of accessibility testing, analysis, software development, and leadership. The team works to educate and advise publishers, technology vendors, and public libraries on best practices for accessibility. Our testers have lived experience with a range of print disabilities, including blindness, low vision, and learning disabilities.

¹ Print disabilities are defined by Canada's Copyright Act and include visual, mobility, or comprehension impairments such as dyslexia

Accessibility Summary

LinkedIn Learning's app and web-based platform both have strengths and areas noted for improvement. While the app offers quick navigation around screens using VoiceOver, TalkBack, and magnification software, testers found that the web-based version provides a more consistent and accessible experience. Indeed, the overall ratings for the two interfaces found at the end of this report favour the web-based version.

Readers of this report may also notice varying degrees of accessibility depending on what suite of adaptive technology is used. Those who used magnification software independently or with screen readers had a more positive accessibility experience than users who relied on screen-reading technology. While it appears LinkedIn has gone to great lengths to build an accessible app, navigation in the app is not entirely consistent with the navigation provided on the website.

Introduction

The LinkedIn Learning platform offers users hundreds of learning opportunities, using both the app and the web-based platform. It provides different courses divided into the three areas of Business, Technology, and Creative. The platform regularly provides learners with options and recommendations for other classes they may be interested in, based on what they identify in terms of their learning skills and what they browse for and access. The platform's content is driven primarily through video streaming. For this reason, access to its videos and video controls is critical if users are to get the most out of the platform.

Introduction to Assistive Technology

All mainstream operating systems include built-in screen-readers (Narrator on Windows, VoiceOver on Apple devices, and TalkBack on Android) that read the screen's content aloud. They allow users with visual disabilities to browse apps and websites, send and receive texts and emails, and accomplish many other tasks with ease. Keyboard commands and custom touch gestures provide a flexible way for a user to find and interact with the controls on-screen. Windows also has alternative screen-reading software available, most notably a commercial option called Job Access with Speech (JAWS) and a free and open-source option called Non-Visual Desktop Access (NVDA). The text spoken by a screen-reader can be sent to a refreshable braille device. Mainstream operating systems are also equipped with user interface magnification, large text options, and high contrast viewing mode to assist people with low vision.

To ensure usability and accessibility of an application by people with print disabilities, all functions and controls must be accessible using assistive technologies. The DAISY Consortium explains that the basic assumption of accessibility evaluations is that reading systems "should support reading with eyes, ears, and fingers." (DAISY Consortium, 2017). It should be possible for users to read the content of the document by:

- Reading the text with screen-readers or self-voicing text to speech (TTS) applications.

- Adjusting the display, including font size, alignment, and colour contrast, or a combination of some or all these options.
- Reading the text with a refreshable braille display.
- Reading with assistive technologies designed for persons with dyslexia or other disabilities.
- Reading with the app's built-in read-aloud functions.

Accessibility Performance and Recommendations

This section will dive deeper into specific accessibility issues encountered while testing the LinkedIn Learning apps and website. Below you will find the testing results and their related recommendations as they pertain to:

- Access
 - Signing In
 - Searching and Navigating
 - Content
- Layout

Finally, the *developer recommendations* sections contain suggestions for improving the interface on each platform. These suggestions will be relevant to any issues or observations noted above. The complete list of technology used can be found in the *system and assistive technology* section near the end of this report.

iOS

- Tested iOS version: 14.4+
- Tested app version: 2021.0625.1353+

Signing In

While all testers could sign in to the LinkedIn Learning app, there were some difficulties. One tester who used iOS with VoiceOver was confused by a logon instruction, which simply directed them to a URL. Not knowing where this URL led, they instead logged into a public library site where they accessed the platform. This meant a two-step process as opposed to a single step.

General

An iOS tester, who used magnification software and reverse video during the evaluation, noted areas where the app could improve its general layout. Reverse video is a computer display technique whereby the background and text colour values are inverted. Some icons and controls, like "My Learning" and "Topics," were small and hard to recognize, as were the icons at the top of the screen. This user observed that there was enough space to make them larger and easier to see.

Testers suggested that greater accessibility could be brought to the app if Dark Mode could be implemented as an option. Dark Mode transforms every element on the screen with a dark colour scheme to make reading easier. Under Dark Mode, toolbars and menus recede

into the background as the content takes the center screen, and light text against darker backdrops makes text easier to read.

This tester found that to remove a course, add it to a collection, or move it to "History," they had to activate the "Show All" button at the top right of the "In Progress" list of icons, and this button was hard to find. They also found that the "Logout" button was hidden under "Settings," the three horizontal bar menu icon on the top right of the screen. A better design would be to have a help button icon visible on its own at the same level as the menu icon.

Layout iPhone User Experience

While several features of the home page work well on an iOS iPhone with VoiceOver, testers did experience some difficulties both with the reliability of headings as a navigation tool and VoiceOver's focus when using the swipe gesture to move up from the bottom of the screen. VoiceOver heavily relies on its ability to find headings on the screen for quicker, more effective navigation. VoiceOver gestures such as swiping up and down the screen from top to bottom, bottom to top, left to right, and right to left provide much of the navigation for users. The fact that the app jumps from place to place when using these gestures is a significant limitation.

When navigating up from the bottom of the screen using a single swipe gesture, the focus bounces around and often takes the user right back up to the top again without reviewing the contents in between. In addition, gestures to move to the next or previous heading did not work reliably on several app pages. As a result, one VoiceOver user found it easiest to move around the screen using the "explore by touch" gesture. This involves using one finger to touch various parts of the screen to review what is there. The "explore by touch" gesture is generally slower and not as effective as navigating by headings.

To demonstrate this, the user used VoiceOver's menu system to tell them which headings were on the page. VoiceOver indicated two headings, "Top Picks" and "This Week's Top Courses." Using these headings as navigation, the user swiped down the screen with one finger to hear the contents. They then swiped back up the screen to return to the heading. But for some reason, VoiceOver could not locate it. There appears to be a design issue that when the user swipes back up to find the heading, it is not announced. As a result, in this test, users found themselves listening to new content without having any context about what that content was.

In addition, when using the "explore by touch" gesture, a new heading like "New Releases" was announced. This heading was not in the headings list told to the VoiceOver user. Users are brought to the tabs at the end of the screen, even when scrolling down the content, without finding any content. Swiping back up, the user is presented with content, but, again, without any context of what that content is. This behaviour is highly inconsistent and takes away from the effective use of the app by VoiceOver users.

Accessing Courses and Video Controls

While the low vision user using an iPad with built-in magnification software had no difficulty with the video player, they observed that the instructor's screens were fuzzy, did

not allow for a sharp contrast, and any print the instructor placed on the screen was difficult or impossible to read. They also noted that the down arrow displayed at the top left of the screen is hard to see when a video is playing.

Both testers using iOS/VoiceOver as their means of access found it confusing that the video stream starts immediately upon starting a course. This feature does not provide a user with an opportunity to explore the screen, find the video controls, and determine what else is on the screen before they hear competing audio (from the video stream and from VoiceOver itself). This report will go into much more detail later about this issue, as all screen reader users using Windows 10 experienced it. All testers indicated that the app and the website should have an option for whether or not to "autoplay" videos when opening a course.

The iPhone gesture called "Magic Tap" worked well for stopping and starting the videos. Magic Tap is where the VoiceOver user double-taps twice on the screen to pause and resume the media playback. For the iPhone VoiceOver testers, the playback controls at the top of the screen were accessible once they were found. While the first item does not have a role, it does say, "Double tap to hide player controls, and can be toggled on and off correctly" but, when hidden, this control cannot be accessed using the "explore by touch" gesture. The user must find it again by using two fingers to swipe up to the top of the screen.

The "Minimize button" closes the course page and places a mini-player near the bottom of the window above the row of tabs, which is a helpful feature. The video player controls ("Airplay," "Chromecast," "Options," "Skip to previous," "Skip back," "Play," "Skip forward," "Skip to next," etc.) are all accessible.

While users can turn on captions, VoiceOver does not read them. One way to have them read would be to have them integrated with the VoiceOver system settings. (Similarly, captions were not read when users were navigating within the platform's web version, so that this report will recommend a different solution to captions later in the report.)

While the "seek" or "scrub" options work well in moving the location of the video, the number that shows up just below, which tells users about the location, does not change in tandem. As a result, there is a discrepancy between what the scrub button says is the location and the number recorded by the app. The new position is not announced when using the double-tap and hold pass-through gesture as the user slides back and forth. In addition, if the media controls are hidden while a video is streaming in fullscreen mode, the only content that will appear on the screen is the status bar of the iPhone itself. To reach the content in the app again, the user needs to either switch out of the app and come back in or double tap on the screen.

It is not possible to find the "Exit fullscreen" button with explore by touch. The user must access it via the swipe order, such as locating the play button with the "explore by touch" gesture and then swiping right several times. Sometimes when focused on other screen areas, the VoiceOver focus seems to get stuck when swiping. Having the "Exit fullscreen" button in a convenient location such as the play controls or at a corner of the screen would make it easier to find. There are also buttons to expand the "Overview" and "Contents"

sections, which are visible on full screen. These buttons should not be visible as they risk taking away from the content being presented.

Collections and Downloads

Several options appear when activating the "Save" button, including "adding to a collection." However, if this button is not used, it disappears and is very difficult to find again.

Reviewing the Overview and Contents Section

Once a course video starts to play, the app provides a list of 3 tabs that appear below the video player: "Overview," "Contents," and a button for a tab that is not labelled but pertains to users' questions about the course. (Note when we first tested the app in August, this button had a label, but upon returning to the app in November, the label was missing.) Both the "Overview" and "Contents" tabs expand to provide additional content, but once in those tabs, VoiceOver does not behave as it should. Normally a user could swipe up the screen with one finger to return to the top of the screen, but the way the app is designed, this gesture cannot take the user past the tabs. The only way of returning to the top of the screen is to perform a two-finger swipe. This design should be changed.

Near the bottom of this section, course instructors are listed. It would be helpful to have a heading here to distinguish the "Instructor's" content from the rest of the page. One tester reported that their VoiceOver focus got stuck on the first instructor, and they needed to "explore by touch" to continue moving through the page. Once in the "Overview" section, it is impossible to find the video controls by swiping up the page again with the one-finger swipe gesture. Users must either "explore by touch" or perform a two-finger swipe to navigate to the top of the screen and then swipe down to review them. This is a significant flaw. A better design would ensure that users have full access to these controls by using the one-finger swipe gesture. This issue reoccurs when the "Contents" and "Q&A" tabs are similarly expanded.

Using VoiceOver in the Contents Screen

VoiceOver does not behave as it should in the "Contents" tab. Normally a user would tap on the "Contents" tab to expand it and then begin swiping down the screen contents. Taking the course "Communicating with Emotional Intelligence" as an example, "introduction" is supposed to appear first. Instead, the VoiceOver user will hear the third section of the course, "Empathizing and Building Relationships," and it will not be possible to swipe back up to hear the first two sections. In addition, when swiping up and down to hear the contents, users will hear the contents out of sequence. Like the "Overview" section, users cannot reach the top of the screen by activating the gesture to swipe up the screen with one finger. Users must use the "explore by touch" gesture or use a two-finger swipe to get to the top of the screen.

Quizzes

The only accessibility issue flagged by testers in the quiz section was that the "magic tap" gesture does not work to pause or play the short video associated with the quiz question. This would be a useful feature to add.

Exploring the Topics Tab

The landing page of the “Topics” tab is awkward to use with VoiceOver. While the user can scroll down through the three topics okay, swiping up the screen again using the one-finger swipe gesture jumps the user past the topics to the browse heading. Similarly, there is a search function at the top of the screen that the user cannot get to by the one-finger gesture. The user must either use "Explore by touch" or a two-finger swipe up the page to find it. Conversely, if the user is on the search field and swipes down, VoiceOver will not locate the browse heading.

Notifications

There is a design flaw in the app so that some notifications are missed as VoiceOver reads down the page, forcing users to swipe back through the list of notifications to catch them all. Users can also configure their notification settings using an on/off switch. While this is accessible, the label is read twice. Once for the label and again on the button itself. The label and button should be combined as one item. In addition, the control button labelled "sync my learning activity, on switch button" is too verbose. The text “sync my learning activity” should be a separate text-only element, and the switch button should contain just the label "Sync."

Using the Search Feature

The iOS testers reported that the search and browse features worked well. One iOS VoiceOver tester observed that once the text is added to the edit box of the search field, the "back" button appears after the search field in the swipe order when visually it is in the top left-hand corner of the screen. For consistency's sake, the back button should be the first control that VoiceOver accesses. In addition, if a video is clicked on from the search menu, it will start to run. The only way of getting back to the search results is to click on a "minimize" button instead of a "back" button. This is not a consistent design. There should be a clearly labelled "back" button here.

Development Recommendations

- Make buttons and icons larger for low vision users.
- Ensure consistent and appropriate headings that a variety of access technologies can identify.
- Ensure the use of a dedicated help button as well as a logout button.
- Make sure "autoplay" is set to "off" as the default setting for video streaming. Alternatively, provide a separate button outside the settings menu to turn auto-play on or off when users first arrive in the app.
- Ensure that VoiceOver users can find the video controls, when hidden, by using the "explore by touch" gesture."
- Ensure all VoiceOver gestures, including one finger swipe up, explore by touch, two-finger swipe to the top of the screen, can be used to access the video controls, including both the full controls and the mini player.
- Integrate the video captions with VoiceOver in smartphone platforms.
- Correct the glitch with the video controls by ensuring that the text displayed regarding the video's location is the same as the location appearing in the scrubber.

- Fix the problem for VoiceOver users that, if the video controls are hidden, and a video is streaming in full-screen mode, the only content on the screen is the information from the iPhone status bar
- Incorporate a dedicated “Exit Full Screen” button at a prominent place on the screen
- Remove buttons such as “Overview” and “Contents” from the swipe order when in fullscreen mode.
- Fix the problem that the “Collections” button disappears if not used
- Fix the VoiceOver navigation problems in the "Overview," "Contents," and "Topics" tabs.
- Add a label to the tab that is related to questions.
- Put in a heading for “Instructors” in the “Overview” section.
- Ensure that the “magic tap” gesture works in videos operating in quizzes
- Review the design of the Notifications section to ensure all notifications will be read when VoiceOver users use the one-finger gesture to swipe down from the top of the screen with
- Combine the button and label as one in notification settings
- Modify the text “sync my learning activity” so that it is a separate text-only element, and the switch button contains the label "Sync."
- Move the back button inside the search feature, so it is the first button appearing on the screen above the search section.
- Change the "minimize" button to be a "back" button when a video is playing in the search feature.

Android

- Tested Android version: 10
- Tested app version: 0.190.1+

Signing In

The tester using Android (with TalkBack, magnification software, and additional visual adjustments) had difficulties signing in. For this user, the sign-up fields had low contrast, came out tiny, and they could not see a box around the edit fields as they navigated to them. If they took too long to enter their email and password or left the page, the app would delete their email address from the edit box, and they would have to start over again.

The app also required an audio CAPTCHA, which was a challenge. The requirement to remember and key in seven numbers presented a real accessibility difficulty, especially when coupled with background noises, low contrast, and tiny print in the app itself.

General

The Android tester found the general layout of the app a more straightforward interface than the web version but could not find any help or tutorial sections. Neither could they find a way of logging out. Two of the app’s primary tabs, "Topics" and "My Learning," disappeared when they landed on the course pages. Several graphics were skipped entirely

by the TalkBack screen reader. Finally, there were some elements just too small to identify by this tester.

My Learning: Adding Skills

This user did not encounter any difficulties in the “My Learning” section until they attempted to add new skills. Then they discovered that they could not add any new skills to the existing ones they had already chosen. There was no option to delete skills, even though they could undertake these actions in the web interface.

Accessing Courses and Video Controls

The user who used TalkBack and magnification software on their tablet could access the courses and their video player controls; however, they found that the buttons on the system tray at the bottom of the screen were too small to read.

The LinkedIn Learning app did not provide the Android/TalkBack user with captions at all in the videos.

Using the Search Feature

The Android tester reported that the search and browse features worked well in the LinkedIn Learning app.

Development Recommendations

- Make buttons and icons larger for low vision users.
- Ensure consistent and appropriate headings that a variety of access technologies can identify.
- Fix the disappearing tabs (“Topics” and “My Learning”) when users are on the course pages.
- Ensure the use of a dedicated help button as well as a logout button.
- Make sure that there are video captions, and that TalkBack is able to access and read them.

Web

The LinkedIn Learning website was evaluated using three different devices – macOS, Android tablet, and Windows.

Web Browsing using macOS

Good app and web design consider the needs of as many different types of users as possible. As a result, a dedicated tester with a learning disability used the Firefox browser and macOS Catalina to evaluate the LinkedIn Learning platform.

Layout for the Mac User

For this user, there were no issues with accessing the site, logging out, or choosing courses to fit their profile, but they indicated that the search function has a low tolerance for error. When they purposely mistyped the word “marketing” in the search box, and nothing came up, it highlighted that this could be an issue for individuals with dyslexia where typing error rates may be high. Conversely, the browse feature was more tolerant. When testers entered the same typo, lists of courses were returned.

Need for Pre-Defined Themes

In general, while this tester found that the site was relatively easy to navigate, they believed that it could benefit from selecting pre-defined styles and adding visual style flexibility. In other words, users should be able to change the font type and style to those, which will better suit individuals with learning disabilities.

Keyboard Navigation

While the website provides keyboard shortcuts for navigation, some shortcuts are missing. When streaming videos, the user found that they could jump forward or backward for 10 seconds with the left and right arrows, but they were looking for a shortcut to jump to the next video in the course. They reported, "Top and bottom arrows should be used for these commands."

Transcript and Notes

These users reacted positively to the fact that when they moved down the screen reviewing the transcript, the page layout changed, allowing them to still see the video in a smaller version. They also liked the feature where a user can move to a spot in the video using the "pop up bubble with the time stamp." This prevents the user from accidentally clicking on a sentence and being redirected. They found that the search feature located in the transcript section was an asset.

They added that the "Notes" feature is excellent. Note-taking is important for learners who have learning disabilities. Adding the ability to change the font should be an additional enhancement. Some readers with dyslexia would find it hard to read the current accentuation, which is done by underlining the text. Having the option to have the text highlighted instead (like karaoke) would be good.

Development Recommendations

- Allow for greater tolerance of misspelled search terms in the search function to accommodate learners with learning disabilities.
- Allow customization throughout the platform, including transcript generation, fonts, and styles.
- Ensure keyboard shortcuts for all video player controls.
- Allow for the possibility of users to jump to the next video with a keyboard shortcut.

Web Browsing using a Samsung Galaxy Tablet

A different test was preformed using an Android Samsung Galaxy tablet with Chrome and TalkBack.

Signing In

Tapping on the edit field to enter a library card number was difficult. If the text was made larger with magnification, the page slowed down, and the application struggled to take the user's entries. On the second login attempt, the user was successful by minimizing magnification in combination with memorizing their library bar code. This difficulty in logging on should be looked into further.

Need for Better Contrast

Testers found that some of the pages have poor contrast for users using magnification software. For example, the "Goal Setting" section has thin blue and white rectangles with text in between, which is difficult to read. The "Me" button on the home page was tiny. The tabs for "My Learning," "Collections," "Saved," "My Learning History," "Skills," and "Language" are a light blue making them difficult to tell from the black background of the user's inverted settings (white text on a black background).

Like the login sequence, the larger the magnification on the icons, the slower the app's performance. When trying to back out of the "Me" menu, there was poor contrast around the "In Progress" and "Tabs" menu. The icons for "Language" and "Save" within the course overview section were also very small, requiring the user to use TalkBack to access them. A tester replicated this experience within the browse section, where both the light and dark blue text was difficult to read with inverted screen colours.

The Video Player

Enlarged magnification prevented the tablet/TalkBack user from using the video controls. As a result, they had to reload, leave, or minimize the screen and then return with a minimized magnification setting. It was then difficult to pause the video and use the swiping gesture resulting in a "hit or miss" result, especially if the video lagged. Finally, they could not activate the button to increase or decrease the speed of the video.

Development Recommendations

- Review the login procedure for Android users (using TalkBack with magnification).
- Consider issues such as expanding the magnification slows down the page, and minimizing the magnification makes it challenging to review the screen.
- Review the size and colour contrast of buttons. Some buttons are too small, while others have poor contrast.
- Resolve issues around the use of magnification to review video player controls for Android users.
- Fix the button to speed up or slow down the video.

Web Browsing in Windows

In this section, users tested the web-based platform with Windows 10 with the NVDA screen reader coupled with the built-in Windows Magnifier software, Windows 10 with Chrome and Zoom Text magnification software, and two separate evaluations, each with the NVDA and JAWS screen readers without any magnification.

Signing In

For all testers, there were no sign-in issues. It is important to note that the NVDA with Windows Magnifier tester found that they frequently had to resort to mouse navigation to navigate the site, as there were parts of it they could not reach when only using the keyboard.

Home Page

Users identified that the links on the login page are overly verbose. They say text such as: "By clicking "Continue," you agree to the Click here to view LinkedIn's User Agreement, Click here to view LinkedIn's Privacy Policy, and Click here to view LinkedIn's Cookie Policy." The linked text here is adequate. NVDA also picked up an image with a description of "false," which is not meaningful.

When choosing links or searching, users often found that the entire page did not reload, so they needed to make a point of looking for new content, even if they received spoken update messages that there was new content. Also, the screen reader's focus was sometimes placed near the bottom of the page when its content loaded, requiring the user to navigate back to the top to recommence browsing.

Other users remarked that they experienced some confusing design issues in some of the navigation menus. For example, when one user clicked on the "Notifications" button to expand it, the course title and associated info "LinkedIn recommends" was read as all one button. When the user is navigating by button, or simply arrowing down through the page, what they hear from the screen reader becomes incredibly verbose. The button should only be on the title and nothing else. The same issue happens in the "Me" menu, where the NVDA screen reader reads the navigation buttons as one long string of text.

The headings on the main page skip from 1 to 3 to 4 when they should be in order. In addition, links on this page are split into multiple lines. For example, the following is all one link:

"Email Received via your primary email Open email settings."

Email should just be a heading, and below that, there should be a link with a concise label. The "Notifications," "On LinkedIn Learning," and "Email" pages also have poor heading hierarchy and poorly labelled checkboxes; for example, when in "Notification Settings," the user can select whether to turn on or off a variety of settings from jumping from checkbox to checkbox. In doing so, they encounter a label that reads "clickable is on check box checked.". This means that the setting is turned on and that "clicking" on it or pressing enter on it will turn it off. Testers, however, were unclear about what the instruction meant, so most screen reader users will likely have the same difficulty.

A third issue is that when the NVDA user expands the "Account" button, they will be told about "Collections from Your Organization Learning History Skills Language Settings Go to LinkedIn Profile" as non-clickable text. However, below this is text with labels that are links. The design does not need both.

On all pages clicking the "LinkedIn Logo" activates the link to the home page. This is not an accessible design because nowhere is the information presented to a screen reader that the logo is the home button.

The title bar says "Settings" on the accounts page, but the main heading is "Manage Your Account," so changing the name on the title bar to something like "Manage Your Account Settings" would be clearer. One user flagged that there are so many headings with the title

"Notifications" confusing; for example, there is a standard tab across all pages that can be expanded called "Notifications." In this tab, users receive any messages sent to them by the platform. In addition, within the account settings, there is a link to change "notification settings." As settings are changed, "messages appear at the bottom of the screen under a heading "Notifications" which describe these changes. It is recommended that the platform change the kinds of messages that users receive from the platform from "notifications" to "messages" to make this all less confusing.

In this section, the sets of popular courses do not have headings for each item.

After the "Set a weekly goal" area, there are two tabs for "In Progress" and "Saved." The content changes depending on which tab is selected. While a screen reader indicates this, it would be helpful to define a region for this area to separate it from the other content.

My Learning

Within the "My Learning" section, the list of courses and videos occurs before the heading containing the course title; for example, one tester added "Crafting Dynamic Characters" to their "My Learning" section. When going there, the user will first hear a link to the "Crafting Dynamic Characters" course, followed by a timestamp from where they last left off, the word "course," and then a heading with the course title again. In this example, a heading for the course "Crafting Dynamic Characters" should appear first, followed by the link to the course and time stamp afterwards. Many screen reader users will search for headings first. In addition, when courses are listed, information is provided about the time remaining in the course and the percentage remaining. The percentage, however, is not portrayed as a percentage, simply a numeric value Like "7" or "42".

There is also an inconsistency under the "More Options" tab. In the "save," "add," and "move" tabs, the name of the course is mentioned. However, it is not mentioned in association with the "remove" button, and it should be.

Browsing and Searching for Content

One NVDA tester noted that the "Browse" section has a discrepancy with the number of returned results. When they searched for "Microsoft Excel," the message they received was "188 course results," when 200 results were returned (factoring in choices for learning paths). A better design would have the actual number reflected in the number of results returned.

The "Filtering" option works quite well, although using headings for each filter (e.g. "Language," "Type," etc.) would improve navigation. Currently, the buttons separate the different filters; using headers would be more accessible overall. If the user chooses "show all filters," the only information the JAWS screen reader will display is "all filters dialogue" and "group start content" or "group end." There is no other text, which appears to the screen reader. The options for sorting are accessible but could be improved. When the user chooses the sort option to expand it, the available choices are listed but not indicated as form controls, as the filter choices are. It would help to have them indicated as radio buttons. Another problem is that the show all links are overly verbose. For example, the

show-all link for business topics is "Show All Show all Business Topics," which could be labelled as "Show all Business Topics."

One helpful feature of the "Browse" section is the fact that when the checkboxes in "Advanced Browsing" are selected, the JAWS screen reader denotes: "updating the results below." This is important because, first, the JAWS user knows that the operation was successful, and second, they know to look below the current set of information for the results. Finally, when accessing the "Browse" section, there are secondary headings for Business, Creative, and Technology. One NVDA user had some difficulty tabbing into these menus; NVDA would just not get to those tabs when navigating by tab and headings.

Course Content

For the most part, NVDA users found that they could easily navigate the course content. One user determined that the command "o" or "shift o" would quickly get them into the video player; however, they did have a problem with the transcript tab. When they selected a timestamp associated with a video, the app brought up a black dialogue box with the timing of the video, as if it were a flashcard. They found this visually distracting when trying to navigate to other parts of the site, and they were unable to find a close button. This box remained on the screen even if they entered into a new section of the video stream.

The user who tested the site using Windows 10 with the Zoom Text magnification software found that the instructor's video screenshots are very fuzzy, making it "almost impossible" to read their print. They also found that the "Contents" menu has the opposite video contrast than the rest. It would be better if the background/foreground were consistent. They add, "Otherwise, it is a great website. It is generally easy to use, and there are not too many major barriers to a low vision user."

Video Player

Testers reported that the video player playing as soon as they selected a course was "annoying" for VoiceOver, NVDA, and JAWS users. At least three users described their frustration at navigating the page to find the video controls with their screen readers while listening to the audio coming from the video stream. These users suggested that the "autoplay" default for the video player should be set to "off" to eliminate this distraction. Part of the problem is where the video controls themselves are found on the page. If the course's "contents window" is expanded, the video controls appear quite far down on the page. One test took 46 tab key presses to get to the video controls from the main page landmark. However, if the contents window is closed, the user can arrive at the video controls with as little as four tabs. Nowhere in the help screens or any LinkedIn documentation is this level of information available to adaptive technology users. Because of the emphasis on video and audio content as the primary mechanism to serve up courses, perhaps a "jump to video controls" button could be incorporated.

Some users found that while the video controls work well, the player's keyboard shortcuts are not shown on some of the controls. Instead, a user must search for them either in the help center or using Google. NVDA users also must bypass the browse mode to use

keyboard shortcuts. This, too, is not noted in any help screens. Finally, there is an issue that the shortcuts are turned off by default, and the user must go to settings to turn them on.

If an NVDA user used "browse mode" to find the video player area and pressed enter on it, the playback usually stopped, and the controls were available. However, if they tabbed to the video area while it was playing, the focus of NVDA would move past it the first time and the user needed to then shift-tab back to it to access the controls. This is bound to be confusing for new users. While there is an option to turn auto-play off in settings, users will have difficulty tabbing and finding this while managing the distraction of the video player.

Another area for examination is the NVDA user experience that, as the screen reader moves to the next button, it announces the label from the previous button; for example, when tabbing from "play" to "skip back 10 seconds," NVDA announces "play skip back 10 seconds". This requires further development to determine if this is an app design or screen reader issue.

Captions

While exploring captions, an NVDA user experienced an anomaly that pertains to captions and the video controls in general. After tabbing to the "turn captions on or off button," NVDA announced that there was a "clickable" button. This would usually indicate an action that could be undertaken; however, there was no button to be clicked on. This should be looked into further to determine if this is a design or a screen reader issue. Another NVDA user reported that as the videos streamed from one part of the course to the next, it announced, "turn on captions," even though captions were already turned on. This, too, should be looked into further as this NVDA command is not necessary.

Captions are available after the video controls in NVDA's rendering of the page. They are not read automatically but can be manually read. As this report indicated above, VoiceOver users also preferred captions to be integrated with the VoiceOver system. Using a live region for captions would be a nice touch to allow users to hear when they update if desired, but having the option to control whether this is the case is important. A user may want the captions visually but may not want a screen reader to read them automatically. Not all screen readers can disable the reading of ARIA live regions.

Audio Description

Because course videos do not have audio descriptions, their degree of accessibility varies. Sometimes courses have exercise files that users can download. This content can help a user better understand the material with no audio description; therefore, the platform requires the inclusion of an orientation that course exercises can complement the missing audio description. Better still, LinkedIn Learning should explore working with instructors to provide descriptive audio content. This could happen either by interacting directly with them or providing them with tutorials on the value and use of audio description. Finally, in the spirit of accessible procurement, LinkedIn Learning may want to explore making course audio descriptions mandatory as a prerequisite to courses being uploaded onto the platform.

Looking for Help on the Video Player

Testers employed several strategies to find out more information on operating the video controls with a screen reader. As it turns out, LinkedIn's help pages do not have any information about this. There are two related links: one to a list of keyboard shortcuts and a second to a description of the video controls. There is no explanation of how to use a screen reading device with these controls. From this page, there is a link for more information, but this link is broken.

Neither does a Google search produce any results. There is a video link to "[Keyboard Shortcuts for LinkedIn Learning](#)," but this content brings the user back to LinkedIn.com. It does not give any specific information on key sequences for screen readers and other adaptive technologies.

Disability Answer Desk

On July 19, 2021, a tester sent an enquiry to the Disability Answer Desk asking for help with the controls. This form generated an auto-response that someone from the Support Team would get in touch. In the inquiry, the issue was identified with a description of what assistive technology was being used. Two days later, a response was received that the Answer Desk needed more information about what assistive technology was being used, what platform was being used, where the issue was encountered, and requested more specifics. The tester provided the answers to these questions, but it was not until September 10, 2021, that the user received a response. The response directed the user to the list of keyboard shortcuts for the video player but did not contain any information about the best way of accessing the player to use these shortcuts, nor on the use of screen readers with the video player controls.

Earlier in the project, a different evaluation team member submitted a disability answer desk ticket for a bug they found. While the response they received acknowledged the bug and indicated that the information was sent to the engineering team, they found that the response time was "quite slow." Finally, after a user successfully submits an enquiry to the "Disability Answer Desk," there are no navigation buttons to allow them to get back to the home page of LinkedIn Learning.

Be My Eyes Help

The platform offers specialized help through the "Be My Eyes" app. "Be My Eyes" is a free service provided through a user's smartphone where they can receive real-time assistance via the phone's camera. This service also provides "Quick Support" remote help on a user's PC. There is, however, no information on the LinkedIn learning site about how this service works. The user would have to guess or know that Microsoft owns the LinkedIn Learning platform to go to the Microsoft specialized help tab within the "Be My Eyes" app. It required two calls to the "Be My Eyes" technical help team to clarify that the video player works best when the "Contents" window is closed. There is no information anywhere on the LinkedIn Learning website to guide users towards such an instruction.

Overview and Quizzes

One NVDA user reported that accessibility and usability would be enhanced if a landmark could be placed at the beginning of the updated content within the "Overview" tab. This is

the same for all pages which refresh content dynamically. The "Overview" tab includes sections dealing with course details, a button to get the completion certificate, and related courses. In this section, the related course link, time stamp, and the word "course" all appear before the heading containing the course's name. This same issue cropped up earlier in this report under the section "My Learning." In addition, the titles in the "Related Courses" section should be level 4 headings.

While the course quizzes are accessible, users found that the buttons to select an answer were overly verbose. Each answer choice repeats both the question and the answer choice itself, making going through a quiz laborious. Ideally, each answer choice button should only be labelled with the possible answer without repeating the question. In addition, as a best practice, other organizations have adopted a standard whereby the type of question is indicated in advance, so the screen reader user knows what question format to look for. For example, "this is a true/false question," "multiple choice," etc. Interestingly, this accessibility/usability feature is evident in the LinkedIn Learning app interface, but not the web. For more information about developing accessible quizzes, refer to the "[Creating Accessible Quizzes](#)" site at the University of Colorado n.d.

Exercises

Clicking on the link "Show all Exercises" in the test course "Crafting Dynamic Characters" takes the user to a zip file, which opens a series of PDF files. In this course, users are asked to open a Google Sheet. However, it cannot be opened in Chrome. It must be opened in Acrobat. Once in Google Docs, the user is prompted to save a copy of the sheet, but it is not possible to find out where it is saved.

The "Q&A" tab is quite accessible. There are only a few minor improvements that are needed here. There should be a landmark at the beginning of the new content. There should also be headings on each question for efficient navigation.

Notebook and Transcript

The "Notebook" tab is very accessible, but like the "Q&A" tab, there should be a landmark at the start of this area once the content is updated. While the notes can be exported to a text file, other formats like Word or HTML should be added to give flexibility. In addition, screen reader users are provided with a hint that users can press enter to save the note once they have entered it. While this is helpful, it would make sense to add a separate "Save" button. Thirdly, since the enter key is tied to the save action, there is no way to enter multiple lines of text. The text has to be entered as one long string without a return. This should be changed to allow for longer notes. Finally, there is a button to re-start the video player from where the note is being taken. The button includes the text of the course section and a time stamp. It should be better labelled as "return to the video" or something similar.

The beginning of the "Transcript" area could benefit from a landmark. Each piece of text in the transcript has a button that takes users to that place in the video; however, the button is broken. This should be a high priority for repair. Users can also search for specific phrases or words in the course or video, but when the results are returned, they appear as text when they should be links. One JAWS user reported that when they activated the video

stream from this point, it was challenging, if not impossible, to find the video controls again.

When reading the transcript, each phrase is read as a collapsed button. This is helpful since it indicates each phrase but is poor for continuous reading of the content. Having a different format of the transcript with just the text would be a nice option. In addition, a full transcript would benefit all users, particularly learners with learning disabilities.

Becoming an Instructor

The "Become an instructor" page is quite accessible. There is an online application form with checkboxes and edit boxes, easy to navigate and complete. An unlabeled button at the top of the page is used to share information with LinkedIn, Facebook, Twitter, etc. It takes the user outside of the LinkedIn Learning site, and it is necessary to log back in again.

Help Pages

Most of the site uses a level 1 heading for the main heading, but on the "Help" pages, a level 3 heading is used for "Was this Helpful," and there are no level 2 headings. In addition, the instruction is spoken as an Aria alert when a help page loads which is distracting. While the help feature has a search function, it is not available in NVDA's browse mode, so the user will have to use the skip to search navigation at the top of the page to get there. It is very easy for screen readers to miss the search function altogether. The page offers some text called "What is Your Question," which should be a heading, but it is not), and it is also the logical place for a permanent search box, but there is no one there. If the user can navigate to the search box and type in a query, the helpful suggestions are not read properly when arrowing up and down. It says "List item 1 of 5" but does not read what the item is. This is another priority area for development.

LinkedIn Learning could improve the heading hierarchy within the "Help" section. When browsing articles, the article titles are a level 3, and the category is a level 4. Using a level 2 for the titles would be a better fit, and then level 3 for the categories. In the article contents, the main heading is a level 1, and the sections within the articles are a level 3 heading. A level 2 heading would make more sense here, given the structure of the page. The buttons that indicate if the article is helpful, located at the end of an article, are overly verbose, as is the button that expands a menu for selecting products to find help. One NVDA user had some trouble with the help section. When tabbing to and pressing on help topics, the content they were expecting did not always come up. This part of the site indicates that there are landmarks, but they are headings, and when the user clicked on "enter" or navigated by those headings, the NVDA reading commands did not work.

Another issue is the inability of users to write in answers to describe an issue that they have encountered. When the page comes up called, "Was this answer helpful" and "no" is selected, a group of checkboxes appears. The user moves through a list of pre-selected answers, including "Other," but there is no way for the user to write in and describe their issue. There is a feedback form that prompts the user to select their degree of satisfaction on a 1-5 scale, but again, there is no opportunity for a user to write why they may have chosen a particular rating.

One helpful accessibility feature of these pages is that NVDA users are provided with details about visual indicators such as an empty circle, a grey circle and a green checkmark. This makes the visual status accessible. JAWS testers could not replicate this. Finally, because the help pages are on the main LinkedIn site, the user is taken out of LinkedIn Learning, which often requires a logon to get back in again. There is one link back to LinkedIn Learning, but it rarely appears and is difficult to find.

Development Recommendations

- Remove the Aria role from the buttons on the page dealing with LinkedIn's "Terms and Conditions," "Privacy Policy," and "Cookies."
- Review the one instance of alt text on the Home page that appears to be "false."
- Ensure buttons carry labels (as opposed to the text being separate from them).
- Separate links that are divided into multiple lines.
- Review the use of headings throughout the site. The site's headings are often confusing and inconsistent.
- Add missing headings in areas like "Recommendations," "Courses and Search," etc.
- Fix the "non-clickable" links present on some pages (such as the "Accounts" page), where the exact text is repeated below as links.
- Identify that the "LinkedIn Logo" is the home page button if it continues to be used for this purpose.
- Modify the title bar for managing user accounts (under "Settings") to read "Manage Account Settings."
- Rename the messages sent to users by the platform to something like "messages" as opposed to their current title of "notifications."
- Review use of landmarks throughout the site especially where content dynamically changes.
- Change the numerical position indicator in the "In Progress" and "Saved" sections to be a percentage.
- Ensure that the name of the course is mentioned in association with the "Remove" button.
- When searching, ensure that the number of returned results (as announced by screen readers) matches the actual number of results returned, including learning paths.
- In the search area, ensure that a heading is included ahead of the filters.
- When the sort is used, make sure the returned options are marked up as radio buttons.
- Ensure better use of headings in the sub-sections of the browse area.
- Correct the verbosity in the "show all" links.
- Change the landmarks in the help section to headings.
- Correct the issue in the transcript feature where entering on a timestamp produces a "black box" without an apparent close button.
- Fix the lack of clarity in instructors' videos.

- Ensure that the contrast is consistent throughout the site. The contrast settings change in the "Contents" section when compared to the rest of the site.
- Design a "Jump to Video Controls" button to facilitate navigation to the video controls.
- Ensure all controls within the video player have a shortcut key and provide an option early in the platform so users can turn video autoplay on and off.
- Look into whether it is an NVDA or design problem that NVDA announces an extra "clickable button" as the user moves through the video player.
- Examine whether it is an NVDA or design issue that as NVDA moves from one video to the next, it asks users to turn captions on when they may already be on.
- Develop a dedicated accessibility section to explain the accessibility features of the site.
- Work with instructors, including developing a LinkedIn course itself, on the importance of audio descriptions and how to include them in LinkedIn Learning courses.
- Implement a policy whereby audio descriptions within videos are a prerequisite for uploading courses onto the platform.
- As part of an accessibility orientation to the site, ensure that users are informed that the information in the exercises can help provide them with additional information when audio descriptions are not provided.
- Ensure that LinkedIn Learning's help pages provide users with information on the best ways to use the video player with adaptive technology.
- Work with the Disability Answer Desk to ensure replies are promptly responded to.
- Develop the partnership with the "Be My Eyes" team to clarify for users where they may receive specialized help for LinkedIn and LinkedIn Learning
- Make use of landmarks in the "Overview," "Q&A," "Notebook," and "Transcripts" sections.
- Ensure that courses are listed in the "Overview" section. Their heading appears before the title and course length.
- Reduce the verbosity for the answer choices in the quiz feature.
- Add an explanation of the question format (true/false, multiple-choice, etc.) ahead of each quiz question,
- Ensure that in the "Exercise" section, the link to the Google sheet is active both in Chrome (or other browsers) as well as Adobe.
- Clarify where work on the Google Sheet is saved.
- Include a landmark at the beginning of the updated content area where the questions start and include headings at the start of each question.
- Consider exporting the notes in other formats than just .txt (such as Word or HTML).
- Consider adding a separate "Save" button for notes.
- Implement a key command (other than the enter key) in the "Notes" feature to keep the enter key available for the typing of longer notes.

- In the Notes section, provide a better label, other than the time stamp, so users can identify how to return to the video player.
- Correct the broken button in the transcript section so screen reader users can return to the video player
- Provide easier navigation back to the LinkedIn Learning site when the platform moves the user out.
- Provide better navigation to the search function in the “Help” pages by developing a dedicated search form field that can be accessed by tabbing or moving the cursor down the page.
- Fix the heading hierarchy in the list of articles on the help pages.
- Correct the problem that when suggestions are returned from the search functions in the “Help” pages, they appear in a list view that a screen reader cannot access.
- Correct the problem that when search results are returned within the transcript feature, they are returned as text when they are links.
- Provide a full-text transcript of the video to complement the current segmented version.
- Fix the verbosity in the buttons “Was this Answer Helpful.”
- Develop a shorter label for the following button “search landmark Dropdown menu that you can use to select other LinkedIn products to search for help within.”

Overall Ratings

To give the platforms an overall rating, the evaluators were asked to provide two satisfaction ratings on a scale of 1 to 5, 5 being the highest rating. The first rating was their overall score of the platform and the second rating was how likely would they be to recommend the platform to another person who uses the same adaptive technology as they did. Out of the 13 total evaluations, LinkedIn Learning received a score of 3.6/5 on both of these ratings. If the scores are broken down between the six evaluations of the app versus the seven reviews of the web-based platform, these ratings change. The overall satisfaction with the app drops to 3.3 out of 5, while the web-based platform is 4 out of 5. Whether they would recommend the different platforms to others who use the same adaptive technology, the app attained the same rating of 3.3 while the web-based platform reached 3.8.

Priority Changes

The evaluators were asked to identify the “top three” changes they believed would make both the app and web-based interface more accessible and usable. While all of these issues have been highlighted in the previous development recommendations, it is helpful to see the priority areas selected by the evaluators themselves.

- Better navigation that allows users to find certain parts of the site, such as “Help,” “Logout,” and the “Remove” button.

- Provide users with a tutorial or orientation to the site, not just about accessibility, but how the LinkedIn Learning site works in general.
- Provide users with the option of having a full transcript of the course in addition to the segmented version currently linked to in the video stream.
- Improve linking between all of the elements of a course (i.e. video, exercises, quizzes).
- Ensure the implementation of better contrast colours and bold fonts that can be resized, or let users make these adjustments in the settings menu.
- Ensure users can add skills to their profile in the app version the way they can in the web version.
- Ensure that users can more easily find and use the search box within the “Help” section.
- To make navigation more consistent, improve the heading and landmarks.
- Allow for quicker and easier navigation to the video controls through headings, landmarks, and buttons. Ensure these have high colour contrast.
- Consider a design where all saved courses, transcripts, notes, etc., are in one place like a “Learner’s Dashboard.”
- Ensure that the screenshots instructors use are sharp and in focus.
- Use the same background and colour contrast on the “Contents” pages as the rest of the site.
- In general, make icons larger and easier to see.
- Improve the effectiveness of the “Seek” and “Full Screen” buttons in the video player.
- In the Settings menu, ensure that buttons and labels are read together and not as separate items.
- Repair the scrubber function in the video player.
- Edit labels that are overly verbose so that they are less verbose.
- Provide more audio descriptions or at least some training for course instructors on incorporating audio descriptions into their courses.
- Improve the controls in the sort and transcript areas.
- Ensure all video controls have keyboard shortcuts.
- Fix the problem in the transcript section that the button to move back into the video stream cannot be activated by a screen reader with the enter key or space bar.
- Add visual adjustment settings such as font style, size, and the ability to highlight text instead of underlining in the transcripts section.

Conclusion

LinkedIn Learning provides users worldwide with access to hundreds of hours of useful learning and training. While it is clear that the LinkedIn Learning team has made significant efforts to ensure the accessibility of both the app and web-based platforms, this report has outlined several areas for development. In addition, it strongly recommends that LinkedIn

Learning consider the development of two tutorial or orientation sections: one specifically focusing on navigation for individuals with all kinds of disabilities and a second tutorial for the site overall that features information on how all of the elements of LinkedIn Learning work together for the best learning experience possible. Such enhancements will significantly improve access to the LinkedIn platform for all users and bring LinkedIn Learning's mandate to take the "guesswork out of learning" to life. Specifically, when on September 22, 2016, LinkedIn's CEO Ryan Roslansky announced the launch of LinkedIn Learning, he stated, "we have a unique view of how jobs, industries, organizations, and skills evolve over time. From this, we can identify the skills you need and deliver expert-led courses to help you obtain those skills. We're taking the guesswork out of learning."

Systems and Assistive Technology

- Operating Systems
 - Windows 10
 - iOS 14.6
 - iOS 14.4.2
 - macOS 10.15.7
 - Android 10
- Mobile Applications
 - LinkedIn Learning 0.190.1+ (Android)
 - LinkedIn Learning 2021.0625.1353+ (iOS)
- Browsers
 - Firefox 89.0.02
 - Chrome 92
 - Chrome 91
 - Chrome 87
- Screen Readers
 - TalkBack
 - VoiceOver
 - JAWS 2021.7
 - JAWS 2020
 - NVDA 2021.1

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