# Webinar: Exploring Reading App Accessibility

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<https://daisy.org/news-events/articles/reading-app-accessibility-w/>

- [Richard] Hello, everyone. And a very warm welcome to you. My name is Richard Orme, I'm from the DAISY Consortium and I'm your host for today's webinar, Exploring Reading App Accessibility. There are many different apps for reading digital publications, but how do you know which offer the accessibility features you need and which to avoid. This session will explain the basics of reading apps and describe the most important features, different users with varying print disabilities will be interested in. And we'll then hear about testing reading apps for accessibility. There's a lot there for our speakers to get their teeth into so let's turn it over to the panel and I'll ask them to introduce themselves.

- [Daniella] Hi everyone, my name is Daniella Levy-Pinto, I am located in Toronto, Canada. I work for NNELS, National Network for Equitable Library Service and I am totally blind.

- [Robin] Hi folks, it's Robin Spinks here. I work as innovation lead at Royal National Institute of Blind People in the UK and I'm speaking to you today from Edinburgh in Scotland.

- [Melissa] Hello everyone. My name is Melissa Castilloux, I'm an accessibility tester with NNELS and the knowledge I will be sharing with you today stands from my standpoint, as an academic with dyslexia and dysorthographia.

- [George] And my name is George Kerscher, chief innovations officer with the Daisy Consortium and senior officer of global accessibility with Benetech and I am blind as well. So I'm going to start on the overview where we're looking at a great reading experience with eyes, ears and or fingers. We need to have all of those areas covered to serve people with perceptual disabilities. And we'll be looking at three groups with perceptual disabilities, blind, low vision and learning, people with learning differences which is a term that's hard to understand and is different terms throughout the world. But dyslexia and learning disabilities are some terms many times associated with that. And many people in these groups do not gravitate to the word disabled and so many times avoid that. We also know that people with orthopaedic disabilities, mobility issues need to be able to access information because they can't turn pages but it's not a perceptual problem it's an issue with their way of interacting with the keyboard. And as long as they're AT is effectively moving screens and clicking in the right spot, there's not a problem with the perception of the information. So the leisure reading has some requirements and the academic material study materials have other types of requirements, but they're all absolutely needed to provide a great reading experience. So the apps interact with the content and sometimes it's hard to understand what affordances the content, the accessible content is providing and what affordances is in the readings. We'll try to break that out and talk about what the reading system needs to do. And we're going to highlight all the good things and talk about specific reading apps that we know are good but we're not going to mention the ones that are bad by name, but we will talk about the problems that they pose. So next slide. So one of the things that is common with all user groups is you want to be able to open your book back to where you left off reading. That's pretty fundamental. The table of contents is very important to navigate through through the title, especially for study materials. Access to the full text, not an image of the text. Some reading systems will put up pictures of texts and that defeats the access technology that's trying to get at the information. So you need that access to the text for text to speech and for font enlargement. We love to see go to page in the titles so that people who are working with the digital book can easily sync up with people that are reading the print book. So the teacher says, go to page 55 you can get there very easily and everybody's on the same page. And this is a function that's very popular in the EPUB three standard. And finally, you want to make sure that you can get to the next chapter very easily without having to go back to the table of contents, just a quick move and you're in the next space. Ann take it away.

- [Daniella] Thank you. So there are many apps that people who are blind can use for reading and partly the selection of which app to use will depend, of course on the purpose of reading. So for leisure reading, we want something, an app that will read an ebook from cover to cover or play an audiobook without interruption, without the user having to do something else. And that provides an enjoyable experience for university students requirements are different. They need applications that provide flexible ways to move through the content, including of course table of contents, print page numbers, bookmarks. Also they need capability to search, to review the text and including of course, references and footnotes. Where books come from is also important and it made the term in the selection of the application and where books come from I mean, for example online bookstores or public library applications. For these to be accessible all the features need to work with assistive technology. So searching, browsing the catalogue, creating an account and filling out a credit card form. If one of these is not accessible then the experience is not accessible. So regarding the features that blind people look for in reading apps for eBooks, the first one would be a read aloud function. So a play button that reads the ebook and a pause button that keeps the position where the reader leaves if they interrupt reading for a reason. Review text, so the app should work with a screen reader which is able to voice the different elements of an ebook when interrupted by keyboard or gestures. Heading navigation, the app should show the headings and should provide the ability to move to any heading as desired. It also should read image description. So this is very important. So the out text that accompanies images should be read when encountered so that blind readers know what that image is, the content of that image is. Navigate tables. So it should be possible for users to read the content of each individual cell in a table. Activate links. When selecting them via the keyboard or gestures and also activating them internal links to other sections in the book or also external ones. And very important page numbers. If the content is marked up moving to the desired page number is fundamental. Now moving on to features for audiobook apps and I would argue these would be useful for all readers. It's the ability to listen to the entire audio book without intervention. Also the ability to book, to move back and forth by chapters and the ability to adjust the speed to suit user needs. So this is adjusting the speed without changing the pitch. Navigate to the desired position in the audio book so not only by chapter, but by time increments. Pause and return to that place. Also the ability to know how much time has, how much reading time has already elapsed and how much time is remaining and the ability to know which chapter the reading, the user is currently reading. So I will pass it on to Robin.

- [Robin] Thank you very much. We're now going to talk about low vision user reading requirements. So some of the common challenges that exist include focusing on text so visual acuity. So someone like myself who has low vision, low visual acuity, focusing on the text is a constant challenge. Reduced contrast sensitivity. So thinking about the ability to deal with colour contrast and to access information where there's a difference. We also need to be mindful of glare and photo sensitivity which is often referred to as photophobia. So for someone like me, who has a light sensitive condition actually trying to read, for example in an outdoor environment like a garden could be really challenging because of the ambient light and the discomfort that would create without some kind of shade. So that can apply externally but also internally we need to be thinking about lighting and positioning. Reduced field of vision is another aspect we need to think about. So if someone's visual field is reduced, quite simply they will see less of the content that they're looking at whether that be a combination of text and images. Sensitivity to movement as well. So thinking about the need to be considerate of that when we're thinking about the reading experience from a low vision perspective. We also need to be mindful of perceptual differences as well in terms of individuals on different site conditions. Visual fatigue and changing vision. So for some low vision conditions that is absolutely the case that hours of looking at a screen, for example will create visual fatigue, which will then mean that the individual needs to take a break or indeed change their consumption method for the information, hence the importance of thinking about using a low vision solution but then also potentially being able to switch easily to a speech based solution to get that continuum. And we also need to think about contextual factors that might be relevant in relation to where the reading is happening, how the reading experience is progressing, what other factors might impact on a person's ability to be able to use a particular solution in a certain context. Next slide, please. So popular low vision adjustments. For readers with low vision may want very often to adjust the font size and font weight. That's a massively important consideration for someone like myself who needs to create a font size that is readable in all conditions, but also the choice of fonts. So you'll be aware that some fonts are simply easier to see for many people with low vision individuals will often have favourites but if we think about fonts like our Verdana or Universe or San Francisco, there's actually a large consideration in the design of those fonts has been about readability by people with various low vision and condition so very important. Colour contrast and brightness modifications. Again, very important in terms of the brightness of the screen. This will vary from device to device but it's also important to be mindful of those kinds of ambient factors, the context in which the reading is taking place, people may be moving especially during a pandemic between being outdoors and indoors, or perhaps learning in different parts of the house that they're not accustomed to learning in. So we need to think about colour contrast and brightness as something that is variable and may need to be adjusted. We also need to be mindful of line spacing adjustments as well that can make a big impact on the reading experience and some thoughtful considerations there will help to make the reading experience more pleasurable and more inclusive for all. And then also read aloud. So including alt texts sometimes, utilising that feature to be able to have text spoken out load. I mentioned previously that we need to think purely about a low vision solution and a speech based solution is very helpful for many people to think about a continuum, when a person moves from one to the other as the conditions around them change and potentially as their energy levels and visual fatigue levels change also. And I will pass you over to Melissa.

- [Melissa] Hi, thank you Robin. So today I'm gonna be covering the need of people with learning disability regarding reading application. I will be covering many needs for people with dyslexia since I'm talking from my own perspective and you need to know that this presentation is not representative of all learning disability or difference neither of all dyslexia people. So what is a learning disability? I wanted to clarify first what do I mean by the term disable? So it is important to remember that disability exists in relation to the environment in the case here, all we need to think about this in relation to the current learning environment. So from the critical disability perspective, institution, city, organisation and inaccessible digital design, disabled people. So with this in mind, learning disability is a number let turn that into the wide range of disabilities situation and it refer to a number of difficulties that may affect acquisition organisation, retention, understanding or use of verbal or non verbal information. This disorder affect learning in individual who otherwise demonstrate at least average ability for thinking and reasoning. Because the terminology can be confusing, it's important to stress that it is not the actual ability to learn that is affected by itself for instance, as a dyslexic if I'm being given a lesson verbally and I'm being evaluated on verbal presentation, I will not learn... I will learn without any obstacles. So I won't be in a disable position. If I am given an invitation based on reading and writing then I will be in a disabled position and in that sense, disability exists in relation to the current context of learning. So now let's talk about dyslexia and how does it affect specifically reading? There is no consensus in the scientific literature about what cause dyslexia, however the way dyslexia unfold is pretty clear. It is the difficulty to automate the task of reading. So here, the keyword is decoding and it's difficult to decoding later syllable and word. And it has been shown that visual adjustment feds syntate this decoding. Learning to read can be understood as learning to automate this skill of recognising and identifying word. So in a very similar way that we learn to walk when you've learned it, then you don't need to think about it for the past to happen it becomes automatic. I reckon a reader would read their book and get transported in their story and they will be forgetting that they are doing the action. Analogically for dyslexic reading means to having to think at every step we take in order to keep walking and this is my case, it concretely means that the tasks get mentally exhausted, exhausting and it makes it harder to focus on the content. Because so much of the attention is going towards the decoding part of the reading, the learning of the content is being thrown a bit by the window. So however reading application can help mainly reading application have the potential to alleviate the demanding task of decoding. So I will show you the feature enabled in the immersive reader in word. Word is not a platform to get to read a publish book with digital luck however, the purpose here is to show you the possibility that already exists that could be implemented into reading application. So an immersive reader, mainly just to explain fast it's a set of readability features that are organised in one platform. And it's really important to have them in one platform and at the moment, often each platform have some feature and don't have other, and personally, I end up jumping from one to another, according to my need and this is definitely the opposite of proficiency. So in word, as you probably know you can change font, size and type. So that's like really important for dyslexic to be able to choose their font. After if you open the immersive reader, the first feature that you will find is change column width. So by changing the column width, we avoid being in front of a wall of text and this really help to improve focus and comprehension and it's really good to have two words by line. After you can change spacing between words, character, and line. I don't have time to talk about it but that really helps local graphic readings on which many dyslexic reader rely on. After it is also possible to change the page colour so it is shown that having a background colour for a dyslexic really help in, personally I often use very pastoral yellow colour. Another feature is this facial display with break between syllable that improve word recognition and pronunciation and is very good for a younger learner. The last feature, which for me is extremely important to have in the reading app is the read aloud feature. It allows you to hear the document as each word is highlighted. And this really means that I can be free from like the demanding task of like decoding and I can darkly access to the content. So let's hear the small video demonstration.

- [Narrator] Dyslexia a language-based disability in which a person has trouble understanding written words. It may also be referred to as reading disability or reading disorder.

- [Melissa] Mainly the video was showing the text being read aloud while each word are being highlighted. So, and as well you can change the language, the accent, the gender of the sentences voice and you can change the speed to fit the kind of reading you're doing. So to conclude, Microsoft immersive reader is not perfect but it can serve as a model of flexibility and adaptability that comes very close to allow full access to text for people with dyslexia. So an immersive reader like word in reading application, yes, please. So I'll hand over to George.

- [George] Well, thank you. So we've learned about the various user requirements from three different perspectives, and there are many, many apps out there for reading materials and people want to know what's going to work with... What's going to work for them. It's unreasonable to think of people going out and testing everything themselves. It's just a Herculean task. So we need to be able to report on the testing that we do with the various assistive technologies out there. So when you get into the different apps on different platforms with different assistive technologies and with different formats, be it HTML, EPUB, PDF and even word documents it's just a huge number of areas to test. But the most important thing is what the readers really want. So let's take a look at what some of these are, starting with Daniella.

- [Daniella] Thank you. So for blind users to have a good experience with any reading app, we essentially need that all buttons are correctly labelled with text otherwise it is a guessing game. So I would like to talk a little bit about one of my favourite reading applications, Voice Dream Reader for iOS. I love it because it supports many different formats including Daisy audio, Daisy text, DRM free EPUB, PDF documents, Microsoft word, PowerPoint and HTML documents, and also zipped MP3 audio. It's really like the Swiss army of reading applications in terms of format support. Some of the features I love it has a read aloud function and it also works well with voiceovers so it is possible to review the content in the screen to check spelling and so on, and also to review tables. It also reads image descriptions in rich text mode and importantly, all the bottles are labelled. And so I would like to show a very short video here to highlight the app.

- [Recorded Voice] The headings, bookmarks and highlights button previous item, button, select text, starting with time. Select double down to move a selection by word, or slide with three fingers to move by sentence, double tap to proceed. Button, play, button, navigation unit, paragraph, adjustable, next item, button, search, button.

- [Daniella] So the reading pane in the app provides many options, you can see even how much reading time has already elapsed and how much time is remaining. Move tools, percentage. If the document has page numbers coded the app also allows you to move to specific pages. It is also possible to set different speeds, change the speed and the setting states and is applicable to each individual file that's another great feature. It also supports bookmarks and has searching capability. It has integrated the app. Voice Dream Reader is integrated with Bookshare and Gutenberg, and it is also possible to load the books into Voice Dream Reader, through Dropbox or Google drive. There are many voices for purchase in many different languages, and it provides importantly different levels of navigation as in the reading pane including sentence, paragraph, page heading and so on. So just to highlight some of the barriers for blind readers. So when buttons are not labelled it is really a guessing game. We don't know what a button does until you press it, that's not a good experience. Also when there are controls including buttons that are not clickable or it's not possible to find or activate via the keyboard or gestures. That's an issue because at the end, it means that these controls are not accessible. And also when reading obligations are very cluttered, when there's a lot of content on the screen and there are no clear sections it is really difficult for blind people to orient ourselves within the app and use it effectively. So now, I will pass it on to Robin.

- [Robin] Thank you. So thinking about the low-vision user experience, it's really important that we think about it in relation to how a book or how some text might appear. So here we have Mary Berry's "Winter Vegetable Soup" and what we're able to do is make significant adjustments to the way that the text appears and create something which actually will be much easier for a person with low vision to read. So we've got the opportunity to customise various elements to work well for the individual reader. Next slide, thank you. So bigger text with reflow. Now this is something that is very helpful. We can see on the right hand side of the page there is an image of the text, reflow they're made bigger. So we have an image which is on the page and that will show a reflow text and the difference that that would create for a reader versus a standard format. So a really important adjustment and something that many readers will look for when they're seeking a good low vision user experience. And also switching colour theme is incredibly important. So particularly for people who are photophobic or light sensitive I'm one such person, it's really important to think, not only about the environment that you're in for your reading but also your fatigue levels and also your preference for a colour theme. So shown in the image is an example of black text on a white background, and then the inverse which is white text on black, and for someone with glare sensitivity, very often, people will tell us that's a preferable solution. That also happens if you're using a mobile device to be a solution that actually uses less power which is interesting. Increasing line spacing. So having the opportunity to change the line spacing. I will often, for example, choose a 1.5 line spacing simply because the reading experience allows a low-vision user to follow more clearly the flow of text and also to use word identification and letter identification to assist in their reading. So a very important element. Changing font size and changing font, both very important. So I mentioned earlier on in this webinar that certain phones will have a particular focus on being very accessible and being inclusive. I mentioned examples of Universe, Verdana and San Francisco, just three examples but we can see the change in the font actually makes quite a significant difference to the user experience. And for many people that will make the difference between being able to read something and enjoy it and really struggling through the text. So let's think about the quality of experience when we're thinking about the opportunity to change font. And finally read aloud. So a wonderful feature that allows you to have that text read aloud, and that might be particularly helpful if for example, you're following a recipe to make in this case, vegetable soup. Having the information read aloud actually will allow you to be doing several things at once as you might be doing for example, if you're cooking in a kitchen you might be accessing content, then moving back across to your chopping board or your cooker top and you want to have maximum access to that enforce to read aloud as a particularly helpful feature and a very nice bridge between a phone-based or a vision-based experience and one the speech. So all the ingredients for the successful low-vision cooking and we're thinking about pooling all of those things together, and really presenting a menu of options for the user so that they can customise that to work in a way which is most beneficial for them and bare in mind of course that that may change as fatigue levels change, as the environment changes, or maybe even if you happen to be outdoors as the weather changes, you want to think about how the experienced is customizable and how we can maximise the visibility and the enjoyment of that reading experience. Thank you.

- [Melissa] Okay. Hi, again, I wanted to show you an example of the possibility that, or in the application BookReader. BookReader really allow almost the same possibility that I've been showing you in the immersive reader. Yeah, I need to say that there's limitations to BookReader, the read aloud feature doesn't work really well, each time you pause and you restart it start from the beginning so that makes it really hard to use the reading aloud feature. However, it is a really good example of flexibility and adaptivity in terms of visual content. So I'll start the video now. Okay, now I'm gonna show you the features that are available in the application BookReader. You will see it's very close from what I've been showing you in the immersive reader of word. So here we go, we can open a window and then first we can change the text alignments. So this is really good because as a dyslexic reader person I need the text to be justified on the left. After you can choose amongst a really wide variety of font type so for instance, you can choose Verdana. It is possible to change the font size, and there's a lot of possibility. Some application would propose only five font size, this one you can choose amongst like so many. After you can adjust the text margin, which means you can have very few words in one line, which is very useful. You can also change interior spacing. So there's more space between the line it's easier to read and you can choose column gap. It is possible as well to change the text colour. So you can choose almost, between like infinite possible of colours so this is a great example of flexibility. Okay now, we can pass to the small demonstration that talk about workability. So there is many use that you can do with a text and for instance, if you do it for academic reason, one criteria for a reading application would be its workability which means can you work with the content? And for this, a BookReader is a good example because you can highlight the text so you can find again, quotation that you found interesting and also there's many different colours you can use. That means you can organise the kind of quotation you're (indistinct). So this is a feature that I'm using a lot. One other feature which I think is really amazing is actually being able to export all the quotations that you have been taking. So you can click on an icon, open all your quotation in the window, and then you click on the one you would like, and then you can export it. You will export it and have it in HTML or even text formats or all your notes with the reference, the page reference number. So this is amazing for people to do research or homework. Yeah. So this is a good example of feature that helps the reader to work and interact with the content. Okay, so now we'll hand over to George again.

- [George] So want to talk about the formalised testing of reading app. And the benefits of this goes, is very comprehensive. First of all, anybody who loves to read needs to know about what are the apps that are going to work for them and that's what testing reveals. Developers of reading systems have been eager to get feedback from the formalised testing on their applications. Well, I should say that many developers not all are eager to get that feedback and they update their applications and we end up retesting it. This is great information for schools that are going to pick reading systems and apps for students. Libraries of course, are using digital books and with the past year of COVID more and more libraries are turning to digital books to serve their patrons. So who's doing this work. One group that I'm involved in is @epubtest.org where we have a rigorous method that we've developed to do the testing. And we also find NNELS, that does testing a lot at libraries. Over to you Daniella.

- [Daniella] Thank you. So indeed NNELS conduct systematic assessments of the accessibility of reading applications used to access different types of content through public libraries. And we have a team of users with print disabilities, the testing is based on the experience and we test all the features, all the experience everything from signing in to determine the barriers as part of the process of testing, we contact the developers and let them know that we're doing the testing, we share the results with them, with mixed results. I mean, the reports we share with them and sometimes they actually change some of the features. In terms of the information we make it publicly available and the link will be in or is in the deck that you will all get access to. And very important the information about these library, public library reading applications is very relevant for librarians so that they can advise their patrons on which products are more suitable for them. Back to you, George.

- [George] Okay. So looking at the testing of reading apps and the formalised method of doing that, how exactly is that done? Boy, that's a great, great question. And I think we need to address that in a future webinar when we can take the time to show you exactly how we do it. So to conclude, the testing and reporting improves the entire reading ecosystem. We're going to have the resources available to you with links and at NNELS website, the EPUB website, @inclusivepublishing.org which is one place to bookmark for... Which is really, if you're going to bookmark one place inclusivepublishing.org is a resource that will be very, very helpful to you. And maybe we've had some questions come in during this session. So Richard, over to you

- [Richard] We have indeed George. So thank you Daniella, Robin, Melissa and George. We have some questions lined up and the first one is coming your way Daniella. You talked about one of the essential features for a blind person being read aloud and the question from Cerisha is, but on iOS you have this thing called VoiceOver. So how is VoiceOver different to the reading feature that you've got in Voice Dream Reader? Could you help us with that please?

- [Daniella] Right. And that's a great question. So the read-aloud feature is separate from the screen reader and it will continuously play chapters. It doesn't matter... Without more user action. Like you can control the speed independently from VoiceOver. VoiceOver provides in the case of voice dream access to reviews specific, elements in the text. It's really the read-aloud function for a better user experience or for a more enjoyable user experience in reading continuously. I would say both are necessary in reading application.

- [George] And I use the read aloud function sometimes and sometimes I'm using the screen reader and it depends on the content. So for like a leisure reading book, a library book, I might use the read-aloud function but if I'm in a textbook, a study book or a user manual, I will most often use the screen reader functionality.

- [Richard] Ann can I ask you, is this the same principles really apply whether you're using a mobile device or a desktop computer equally, you would chop and change between using read aloud and the screen reader?

- [Daniella] Yes.

- [Richard] George, Daniella.

- [George] Yes, I think so. Yeah.

- [Richard] Real difference. And anything from you Robin, you've talked about using read-aloud as a low-vision person would you be using the read-aloud feature of the reading app, or would you use the read-aloud feature of the device or the screen reader? What are your experiences here?

- [Robin] To be honest, a bit of a mixture, Richard. And I think that's probably the nub of it for a lot of people is that it's worth spending time getting to know how to use those features, in a way that works for you. And I would encourage anyone who's supporting learners to actually encourage those learners themselves to experiment. So if you haven't tried something before, give it a go. Try one of those solutions and see what works for you and you might just be surprised and discover that it's actually helpful and helpful in a particular context. So sometimes the operating system saves the day and provides a solution that you need and on other occasions it's actually an in app capability that will make the difference for you. So I guess that the solution is a mix and it's a dynamic one and the best thing that we can all do is do a bit of experimentation. Perhaps people after the webinar can pick the functionality that they've not looked at in a reading app and just explore it and share those findings with people that you're supporting.

- [Richard] Thank you for that. The next question is from Sai and it will come to Melissa and then to you again, Robin. So Sai mentioned that someone talked about adjusting the font size and weight So the questions are what's the minimum font size really that people should be thinking about and what's the advised weight. So Melissa you had a nice little video there showing us lots of visual adjustments in that BookReader app I think. Smallest size is that something you can say? And what are your comments on the weight of the font?

- [Melissa] Okay. So I think... One thing that have to decide is like not one size, not all for all and especially like for dyslexic, it's a lot about having something you're used to and not (indistinct) and like moving out of like the known to be able to recognise yourself. So, but I would say that having smaller font with a lot of spacing between words and like line spacing really help and I'm not really sure what is a font weight. Sorry for my English.

- [Richard] So on the weight, I think we're talking here about whether it's a thinner font or a bold font (indistinct) you've turn it all bold. Is this something that you find useful or important to adjust?

- [Melissa] Yeah, it is definitely important to adjust. Bold font is known to be problematic for people with dyslexia if all the text will be in bold font. However, you can still have a bold title if it's a short title, because it just help to visually distinguish certain parts of the text. So, and yeah, I can also talk if people are interested about the phone type as well.

- [Richard] Well, tell us about that then. So in some reading apps you see a specific dyslexia font, for example is that what someone with dyslexia would always choose or again, is that all about what you're used to?

- [Melissa] Yeah, exactly. That's a super good question. Actually with NNELS we did like some research in the scientific literature and there's nothing that showed that specific dyslexic font are good for dyslexic people actually what helps is to have a font without (indistinct) so this is like shown and to be able to choose for instance like Verdana or Ariel font helps. However, in my case, I use New Times Roman that is known to be not accessible font, but for me it's important to have it because I'm so used to it. And so often dyslexic rely upon a logo graphic reading so that means they recognise the words as images as one object and recognised by the font. So if you change the font, the appearance of the word as I mean, it's change also, and it makes it harder and then in my case, I have to get back to decoding letter by letter instead of being able to organise the words. So that being said, I think it's really important to offer as much predictability for all these exception and yeah, different needs.

- [George] And you would want to have that font available in each new book you start reading so because your brain is switched on to that font.

- [Melissa] Yeah, exactly. So sometimes there's some reading application made especially for dyslexic people that wouldn't include on accessible or so-called an accessible font such as Times New Roman, which for me, it would be harder to use. So having a reading apps, such as BookReader where you can choose amongst pretty much all different existing means that but that will not be an issue.

- [Richard] So interesting to hear your personal perspectives there but also that message that it's about the flexibility for someone to personalise it to their own preferences or needs I think is your kind of take home message. We strayed slightly away, that was my fault from Sai's questions. So over to you, Robin. Sai is asking about the font size. Is there a minimum font size and what about weight? You said it was important for people to be able to adjust that. Could you just expand a bit on that please?

- [Robin] Absolutely. So that's a great question. Thank you Sai. So, I mean, essentially font weight defines the thickness of each font. So usually fonts have got two styles, regular or bold but they can also have additional grades of thickness from super light to super bold. I think, the previous comment really summed up flexibility and personalization, and I would suggest that 14 point is a minimum font size people should be thinking about in terms of legibility for learners with low vision. And certainly there's plenty of evidence that if you take a 12 point font and a 14 point font and give it to a group of people there'll be a significantly larger group of people who are able to read at 14 point than kind of 12. So that's a great starting point. But the key really is to think about the flexibility in how you can personalise that. So storing the information at 14 point, but then also in terms of the font weight, I would recommend that people go with a regular medium font weight and really utilise bold for the purposes that bold is intended for really. So it's not the case that putting everything into a bold font will help people with low-vision that typically doesn't, I think storing it in a regular or medium and allowing people the flexibility and the capability to adjust that. But once again, I think it's about experimenting and I think with individual learners, one of the things that you can do as you build rapport with them is you can get some idea as to the type of font that works for that individual 14 point font in a regular font style would be a great starting point.

- [Richard] So in this webinar, thanks to your great demonstrations and case studies you gave. We talked about apps, both on desktop and on mobile devices like smartphones and tablets. And the question from Ann is, which is better. So I guess we need to come to each of you individually because different people's experiences are different. So maybe Daniella for yourself, if you're reading would you prefer to be reading, using an app that's on a mobile device or on a device with a keyboard, like a laptop computer?

- [Daniella] Depends for what I'm reading. So if I'm reading for pleasure, I generally choose and prefer a mobile device, but if I need to read something in more detail, desktop definitely helps. Yeah, because then I can review in detail.

- [George] I totally agree with that from a blind perspective.

- [Richard] Very good. So come to you now, Robin, so a laptop's going to have sort of a bigger screen, surely that's going to win out.

- [Robin] So it's an interesting question. And I think, it's been alluded to already but I think the key consideration here is what is it that you're doing? So for me, it's mobile all the way. I'm a huge fan of it. However, if I need to read text and then perhaps make my own notes or observations and jot them down into a document, I may do that on an iPad but I may want to have multiple windows open and my big curved monitor, so that I can see everything up, big and close. So I guess the question is, what is it that you're doing, but by and large it's mobile all the way from me.

- [Richard] And Melissa, what about yourself?

- [Melissa] Yeah, I will bounce back from what Robin was saying. I think it really depends from what you are doing. So like, for myself, like mainly I'm reading for a university, so I need to be able to work with sometimes because of the issue that some reading have I just export an audio track and I'm usually like working the paper texts and sometimes listening to it. But when I'm reading for leisure, it's definitely mobile and audio book with like human narration. Wow, so yeah.

- [Richard] Great well, thank you for that. And we've got more questions in the queue, but sadly we're coming to the end of this session. So once again, thank you to Daniella, Robin, Melissa and George for sharing great information, and indeed for your personal stories. We've got really great webinars in development for you in the coming weeks. And indeed, if you've got ideas for webinars or would like to suggest a topic we'd love to hear from you. Please make sure you're registered to our mailing list at daisy.org/webinars where you'll also hear about announcements or future webinars. I hope you'll join us again soon, in the meantime, thank you for your time. Stay safe and well and enjoy the rest of your day. Goodbye.