

UKAAF webinar, 4 January 2024

World Braille Day: Towards Two Centuries of Braille

Presentations from Helen Wilson, Ed Rogers, and Stuart Lawler

Hello, and a very warm welcome to this UKAAF webinar on World Braille Day, when we remember and celebrate the life and work of Louis Braille, whose name is synonymous with the reading and writing system used by many people throughout the world. This event is called Towards Two Centuries of Braille.

My name is Roger Firman from the UK Association for Accessible Formats. I am delighted you have joined us.

It is a great pleasure to welcome our presenters, Helen Wilson, a UKAAF Board colleague, who wholeheartedly believes that everyone should have access to information. This she has been pursuing both professionally, and personally. Helen is studying for a PHD focusing on accessibility awareness education, in schools. Ed Rogers who leads the work of Bristol Braille Technology, and it seems hardly possible that Ed has been on this journey since 2008 with all that has so far been achieved.

May I now invite Helen to present.

Helen

Thank you. To start this webinar off, I was lucky enough to speak with Sean Randall at New College Worcester. He helped me to put together a ten minute video about braille, and some of his personal experiences, and the benefits of braille in a digital age. He shared some very useful facts that I'm really keen to share more widely to educate people, but he's also added some very powerful personal facts on how technology has enabled braille for him in our digital society. so I shall now share my screen for you to watch and listen to the video.

UKAAF Video Transcript

My name is Sean Randall. I am a totally blind teacher of IT and access technology here at New College. My role is to work one-on-one with our students and the access equipment, software and hardware they need to make sure they can use technology both for their studies and when they go out into the wider world to be successful visually impaired adults.

Braille, in a nutshell is a code. A tactile code, which means you touch it used to represent language, so it can be any language. It hasn't got to be English. There are braille codes for languages all over the world. It's a way by which, running your fingers over a line of these dots that you can read letters, numbers, and anything else you care to produce.

Braille's not a language of its own. It's a code representing an existing language like English, and each braille dot is formed of six pins or cells and by putting dots in different positions in the cell you represent different letters, numbers or symbols.

So, this is a volume of bound, comb-bound paper braille. This is actually a play that a student would learn their lines from before being a school performer. It's single sided braille. Most of the time you would have braille on both sides of the paper, not just one, but they do them single sided for people who are just learning.

The interesting fact though here is that this volume in its entirety is probably between 20 or 25% of an average fiction novel as a whole. So, one print story for a teenager would be maybe three, four, five, six or even more of these. These represent a very small fraction of the book as a whole.

Historically, braille was just marks on paper, but in the digital age, in the modern age, braille has come with us and it's usable for everything, all sorts of things. You can read and write, emails, text messages, be on your WhatsApp groups, and in your Teams chats. You can play games; you can use braille for making sure you're taking the right medication and generally anywhere in your life, in my life certainly where print could be read, braille is there as an alternate source of media to make sure that I can access the same material that everybody else can access.

One of the really cool things about braille is that the numbers are the same as the first ten letters of the alphabet. So, the same symbol representing the letter A also represents the number 1 right up to J for zero. So, when you've learned half the alphabet, you can also do all the numbers, which is pretty cool.

You can also read braille through other things. It's a party trick to hand out medication from boxes and bags that you can't see through, but you can feel through. And braille is a tool, that even if you are not fully blind, the sooner you start learning it, the quicker you tend to find you become later on.

I've been very privileged to work with so many students who are losing their eyesight more gradually by bringing braille in at the right time for them. It really makes the transition to more total or permanent blindness that much easier. It's literacy, it's independence and it's access and it's absolutely amazing.

One of the other benefits to mainstream technology merging well with braille is something like a calendar. So, we've got a family calendar to which the whole family adds things and checks things. I regularly add things to the calendar using my braille display connected to my phone. For example, my wife will add things from her laptop, my daughter will add things verbally from her smart speaker. My mother-in-law will add things on her phone as a sighted person would, and we've got all these different levels of access all going into the same place. The whole family can see the calendar, can change things around, can check dates and times, and regardless of the input method, or the output method, we all see the same material.

The same thing applies with books. So, if I want to read a book, I'll buy it on Amazon, on the Kindle, and I can choose to read that using the Text to Speech voice on my phone/laptop. I can choose to read that using my braille display connected to the phone, laptop, or the Kindle. My daughter can look at the Kindle physically and see the pictures. And it's again, the important thing here is it's the same content.

So, when I was a child, braille books had to be made especially. They were produced and bound by experts who knew braille, and that was very helpful. But it meant that the copy of the book I was reading was a different copy to the book you would read. Whereas now we can all access the same source text and read it using a different type of device. So, picture the braille display as a different type of screen or a pair of glasses. I'm using it to access the content underneath, the same content that you'd access with your eyes. And that's where the merging of mainstream technology and braille really comes into its own.

So, I was lucky enough to have access to a braille display and a tablet when my daughter was young, and the bedtime stories were huge for me. I wasn't read to as a child, and so I spent a lot of my childhood in my own head. As a father, sitting on the bottom of that bed, having the hot chocolate and the bedtime stories reading together, having access to the text together, paper braille to me as a child was quite isolating anyway because I went to a mainstream school. Nobody could understand braille. It was my own special thing, and if I'd only had paper braille to read to my daughter, it would have been an isolating thing. She wouldn't have had access to the pictures. We wouldn't have been on the same page, which is what the technology has let us do. It's let us look at the same book, yes, in different ways. She uses her eyes, I use my fingers, but we are exploring the same content, and that was really magical. And that's without the Harry Potter, which was also quite magical as well.

There has been a decline, I'm sorry to say, in the number of children learning braille, and that has correlated unfortunately with the increase in how much technology can talk to you. Almost every device on the market you could buy nowadays has the ability to speak. And I think part of the concern for me as a blind adult, and as a teacher, is that it's easier for sighted people to comprehend how a device can talk to you than it is to how you can turn text into braille.

That said, all the devices now also let you braille in as well. Braille hardware is coming down in price all the time, and braille is by no means dead and gone. It's a part of my life every day. It's a part of the lives that the students I teach more often than it's not at the moment. And that's only going to grow because as we get technology to give us more

access to text and wider access to other information, braille is going to be one of the ways we can absorb that information and work with it. To many of us, it's a natural medium, and I'm very glad that despite the cost and despite the complexities, it's stuck around. It's part of who we are, and it's embedded in almost every facet of what we do every day.

Over the last sort of decade or two, I've seen braille become more and more accessible. Not necessarily more prevalent, but more accessible when you've got access to equipment already. My two wishes for braille are that firstly, the technology becomes more widespread, cheaper and more widely available, more reliable, so you can buy it without having to remortgage or get a job where the government pay for it for you. But also, that people, that content producers, the creators, the authors, the publishers respect the barriers that they are putting in place, perhaps unintentionally, that stop us reading braille.

So, for a long time, apps like Kindle weren't accessible. Publishers who locked down eBooks so you have to read them on one screen meant that the braille displays couldn't read them either. The awareness that if you're putting text out there in a document on the Internet in an e-mail, however, it may be that it might not be read with someone's eyes. It might be read using an alternative source. It might be read using a braille device. And just that people know what they're doing in terms of accessibility when they block other options from accessing their text and the damage that can do. Those are my two real wishes in terms of technology.

I hope that we get braille displays that can show more braille than one line at a time. You've seen with the Orbit and the other equipment that these days are quite small at the moment. It would be nice to have access to more than one line at a time, because I've already told you that one volume of braille is only a small amount of a print book. So, one line of braille on the braille device is only maybe three, four, five, maybe if you've got a bigger row, display eight or nine words. So that's quite a short line to read aloud fluently. To be comfortable projecting braille as a user, I need a bit more than that. So, I'd hope that braille gets bigger, becomes more widespread, engages in the public consciousness so that people will work on producing cheaper, more flexible, more powerful devices.

I would love to see braille have the understanding that subtitles have on TV. Everyone knows what subtitles are for, they're almost always available, and everyone understands that. If you can't keep up with what you're listening to, or you want to have that reassurance, you turn the subtitles on. If braille had that awareness in the public consciousness, then I think we'd be a lot better off that going forward.

Thank you for watching, Smiley.

Roger

Helen, thank you very much for making the video, and I'm sure we can come back to some things later on in this meeting.

I'd now like to move on to Ed, and I know you have something very interesting for us today, over to you Ed.

Ed

Thank you Roger. Thank you for inviting me on, as you say we are from Bristol Braille Technology and we released the Canute 360. This is a nine-line braille display released in 2019-2020 around Christmas. It is a 360 cell braille display, 40 cells by nine lines. Today it is not that machine I want to talk about, but rather more what we have been doing with it during the last eighteen months.

So what are we doing with nine lines of refreshable braille? It presents us with a great opportunity, and sometimes the different options can be overwhelming, which directions do you go in. I think a big part of the future of braille is how refreshable braille takes us into new areas, including some of the things I am going to go through: Computer science; Data visualisation; Spatial navigation; Sport, representing positions of players etc; Video games; Tabular data, finance, and other uses of numbers in braille.

The first thing I am going to talk about is our new product which was released in 2023, which is the Canute Console. The Console has two parts, the Canute 360 braille display – a Dock into which that sits – that includes a visual high contrast monitor and a pull-out keyboard beneath. The big thing we are doing here is we are concentrating on the command line because we wanted to start with technical subjects to maximise the use of braille very quickly and maximise its usefulness. There is one-to-one parity with data on the visual screen as on the tactile display. The 360 cells are shown on the monitor and similarly on the braille display. Of course if you choose a different braille code then it will not necessarily be one-to-one, however if you are using a one-to-one braille then the user can point to the same position on the visual monitor enabling sighted and blind people to work together.

The other area we are working on is price making sure that while braille remains expensive, that as we advance more into the multi-line area of refreshable braille, which doesn't increase the price of the unit, and that is what we have done with both the Canute 360, and the Console. If the price inflates every time people add more braille on to it, you essentially lock out people who have invested time and energy in learning braille and about the equipment with these new developments.

We are not just building it because it is bigger and better, we are building it because of specific interests we wanted to pursue such as spatial braille. There has been a divide of course between refreshable braille which has been used for any data which can be made linear, and any data which can not be made linear does not work effectively in refreshable braille, so you have to revert to swell paper or other solutions.

I'll start with computer science. Having the representation with indents on both the screen and tactile display helps to open up computer science to new students.

Following on from that, data visualisation. One of the things we have been playing around with is how you represent data in braille. We are using spatial braille because one of the big subjects in the industry is tactile graphics. Our focus is on using braille letters in 2D space. We don't try and draw lines and shapes which look identical to a bar graph, we use braille letters which are spaced the same as a bar graph, the letters might be aaa so you can trace that and refer back to a key as people may not have had experience of tactile graphics. To give an example we are working on, a condensed scatter graph. These can be very difficult to represent in braille even if you have an embosser and the largest sheet of paper in the world because braille is so much larger and has a fixed width, trying to accurately position the different dots is very hard to do, so we have come up with different methods which condenses that down. When you move your cursor over one of the points on the scatter graph, the bottom line tells you precisely what information is represented.

One of the other areas we have been developing most and are most pleased with is spatial navigation, particularly mapping. On the Canute Console we have maps which you navigate using a cursor, which has a top-down view represented as braille letters with different letters representing different building types which is taken from Open Street Maps. You can move around the street and move in and out of buildings and learn the spatial differences between buildings, and of course you can use that for planning trips or just exploring, and we are using it to plug into video games. The simplest one we have done is Snake.

A similar thing we have been playing with for the fun of it, and why not, is sports. We have made an application which shows the top-down view of the football pitch with flags in the corners, the goal and the eighteen-yard box represented by different braille symbols, you can follow the ball around as the game progresses. I didn't have any specific reason for building that, I just thought it was an interesting example demonstrating what you can and can't do with braille. That only took a couple of hours using data on the internet. We did the same for cricket, and I was reminded that it is an Olympics year with also the Paralympics. What could we do with that? How could we represent the progress of different runners around the track?

A really big one at the end here is moving back to something much more sober, if you like, where I think refreshable multi-line braille can make the biggest impact on our industry and on our lives and that is in tabular data, especially for personal finance, and business finance. By tabular data I mean tables, calendars, spreadsheets, not a cell at a time but where it is rendered into columns and rows. Tables at the moment are either interpreted one cell at a time using Text to Speech,

or braille display which is not how tables are expected to be interpreted when they are put together, or they are embossed. Being able to move flexibly around a spreadsheet which is all visible and the same thing is visible to any sighted person with whom you may be working, you can compare notes, so useful for accounts and ledgers.

Finally, we are working on all these things with our customers, people who are just interested, and we are very pleased to announce that we are going to have a braille centre in Bristol opening around March where we will be testing and trialling all these things I've been discussing, and people are very welcome to come in and we'll be arranging transport for people to come in and try all these things specifically because we are a not-for-profit, our purpose is to advance the uses of braille and the amount of braille, that is what we hope the Canute Console will do.

Roger

Ed, thank you so much for that interesting and most enlightening talk. I am sure Louis Braille would be delighted to know that boundaries are still being pushed, and still need to be pushed, thank you.

I would now like to welcome Stuart Lawler from Sight and Sound Technology. Stuart, I think you have a video for us, thank you for putting that together. Over to you Stuart.

Stuart

Thank you very much Roger. We had some Teams issues earlier so thank you very much for the opportunity and good afternoon everybody. It is hard to follow Ed Rogers because Ed is always doing exciting and innovating things. When you come to sessions like this, it is great to be around other people in the industry and hear what's going on.

I'm from Sight and Sound Technology and on a day like World Braille Day we're passionate about braille as well, and we have been providing a range of braille technology and we have seen it change over forty-four years I think it is now since we started. I think one of the things that has remained constant for us is finding the very best braille products in the market that will fulfil the needs of our customer base.

I'm going to talk about two things today that are new, things we've been doing over the last year. The first is Split Braille which has just come in JAWS 2024 which is the latest version of the screen reader from Freedom Scientific which was released in

November. After that I'll talk a little about what we are doing with Notetakers in the classroom because that might be interesting as well.

As Roger said, here's one I prepared earlier as they say, because it is easier to record these demos so I am going to share my screen.

Split Braille is a new feature present in JAWS 2024, which allows you to view more than one type of content at the same time on a single-line Braille Display. Split Braille will work on any length of display, but we suggest that you will have an optimal experience if you use a Braille Display of 40 or more cells. Split Braille is also supported on non-Vispero Braille Displays, and there are some tweaks being made to this at the moment, so if you need to know more, please do get in touch. When you use Split Braille, you can essentially separate the display to show you two separate items or pieces of information. One piece of information could be your live document, e-mail, webpage, or Excel sheet. The other piece of information is something you may need to refer to quickly and want easy access to without needing to open another application or go somewhere else in a document. So, this is how it works:

- When you have your Braille Display connected, open the new Split Braille menu by pressing JAWS key + Alt + V. There are several pre-defined braille views built into JAWS and there are some additional views which are application specific. When the Split Braille menu is open, the first item you hear is No Split. This is the default, and the way JAWS has behaved in the past. In No Split view JAWS acts as it always has done with a single Braille Display, showing you the line currently in focus.
- Press the DOWN arrow once and you come to Buffered Text. This view allows you to select a piece of text to insert into a buffer and hold it there for easy access. For example, you may have an MS Word document containing some figures, and you would like easy access to those figures so that you can refer to them whenever you need. You could have those on the right-hand side of your Braille Display in the split, and have your live Word document on the left-hand side.
- Press the DOWN arrow again and you come to Annotations. This is a useful option when you are collaborating with others on Word documents. We often look at documents where other people have

commented, and would like to be able to read those comments in context. Annotation view allows you to read the document on the left-hand side of your Braille Display and the annotation to which the text refers on the right-hand side of the split.

- Press the DOWN arrow once again to come to Attribute Indicators. Turning on the Attributes Split is useful if you are doing a lot of proofreading or would like to dive more intensely into text attributes. With attributes we can determine text that is Bold, Italicised, or Underlined. Overtime this may take on a bit more shape in terms of UEB markers but at the moment you have letters like B for Bold, I for Italics and U for Underlining.
- Press the DOWN arrow once again to come to the Speech History braille split. This allows you to view the history of JAWS that is sent to the synthesizer. This might be useful for people who are running JAWS with braille only but want to be able to see what is sent to the speech buffer.
- Press the DOWN arrow once again to come to the Translation Split. This is ideal for people learning braille and it might also be very useful for teachers. You could set up a split that has one side of the braille display in Unified English Braille Grade 2 and the other side in Unified English Braille Grade 1. This would allow students to see a contracted version of a word on one side of the braille display, and the full braille version of that same word on the other side.
- Press the DOWN arrow once more to come to the JAWS Cursor Split. This split allows you to put the JAWS Cursor in a particular area or move it around, and this split will update as you move the JAWS cursor. You could also put the JAWS cursor on a Status line in MS Word, and as you read through or type your document, you could keep an eye on that Status line all the time.
- Press the DOWN Arrow once more to arrive at Window Text. Window Text is not dissimilar to JAWS Cursor split. It allows you to specify a window, for example something that might update occasionally, and you can once again tie the split to that window for easy access.

I mentioned earlier that there are some application-specific splits, and there are a few of these that are worth mentioning:

- One in MS Outlook allows you to view your inbox message list on the left-hand side, and assuming the preview pane is turned on in

Outlook, you can get the preview of the message on the right-hand side. You can scroll up and down through your inbox and the preview pane changes on the right-hand side of your display as you move.

- One in MS Teams allows you to navigate through Chats and view the Chat history on the right-hand side of the split. Two sets of dots break the split in the centre of the braille display so it's easy to know where one split begins and another one ends.

We envisage people using Split Braille in various ways over the next while and experimenting with what works for you, so try out some of the customised setting already available and see how you get on. If you have any questions we provide telephone technical support and training, so please don't hesitate to get in touch!

The other thing I just wanted to briefly touch on was around Notetakers, and how we are supporting schools, particularly situations in mainstream schools where teachers or classroom assistants may not necessarily know braille or maybe learning braille alongside the blind or low vision student. One of the challenges I think has always been to have a system where the teacher or classroom assistant is able to see in real time, in print, what the blind student is using in braille. There are various solutions available including hardwiring monitors to notetakers such as the BrailleSense. But in the last couple of years we have been playing with a couple of off-the-shelf standard packages, and some of these solutions are free.

One example is to set up a Zoom meeting from the Notetaker, share your screen and invite someone to join that meeting on a tablet or mobile phone. That could be someone sitting beside the student joining that meeting and watching the share of their screen in real time. For some time we've been using the Teamviewer application, and the Teamviewer Remote Control. The mobile version is called Teamviewer Quick Assist which allows you again to share your screen. Teamviewer has clamped down a little bit lately on the access to that service so if you don't have a paid Teamviewer account, it is not always easy to get connected so can be sporadic.

The other one we've been looking at is Screen Stream. Screen Stream has two ways of sharing the screen. One via the internet, or you can do a local connection on a local network. This can be useful in a school scenario where maybe the network is tied down as a lot of schools are becoming security conscious so we are looking at a local solution where a screen share can be setup between two different devices using the same network. The Screen Stream application is free from the Google Playstore. I think some of the ways in which we can make sure that visually impaired students have the very best possible opportunity is making sure that sighted people are working and supporting them and have a full understanding of the braille technology being used. These tools we can make available certainly help in that regard.

Very happy to be hear again thanks to Roger and the team and look forward to any future questions.

Roger

Thank you Stuart for enlightening us about new developments in a well-established product, and those other applications you have mentioned.

I would like to ask Helen to share something else with us.

Helen

Yes, absolutely. A few weeks ago for TechShare Pro we did something called What 10 Things, it's on the homepage of the UKAAF website and it is all about the guidance we provide. And obviously we provide a whole host of guidance, quite a lot in depth. However, to get people started and to make accessible content, I've always been a profound believer that it is everybody's responsibility. After some conversations and getting people started is quite a challenge, sometimes because people assume it is complex. Now obviously accessibility is quite a big domain, but some of the really easy things are those quick wins which can make a significant difference for people accessing content.

I'm going to share my screen because this was the last slide we had at TechShare Pro on the video we gave to them, and it is a survey for which we would like input. It is really what type of bite-size guidance we could give. Firstly for the accessibility

community what are the absolute basics of digital accessibility that if adopted could make the biggest impact to address inaccessible everyday content. That can be very simple things like headings which many people still do not know how to use and obviously there are many things people have which are barriers to using technology. But also what basic principles of bite-size guidance would be ideal for beginners at any age to start learning about at schools for instance. On screen is a QR code for you to access the survey, or if you go to the www.ukaaf.org homepage it is about halfway down. Any input on this would be incredibly helpful because it gives us a steer in terms of the bite-size guidance we could develop in UKAAF. Thank you Roger.

Roger

I am just going to ask our three presenters to briefly say, if we come back in a year's time, what would you like, and hope will have happened in 2024 with products and accessibility? Ed would you like to go first?

Ed

Thank you. Running a small manufacturing business, I have all sorts of things which I very much hope have happened in 2024 for my own business, and for my own customers. Speaking more generally, I think it would be really interesting if we had this same conversation in January 2025 and we were talking about a new use of braille in a different field which wasn't a regular use of braille but it turns out that this transformative code can unlock something new which was previously considered not really appropriate for tactile reading, I'm kind of agnostic as to what that is. I told you all the different areas I'm looking into personally, there are so many different places where tactile reading could unlock something which it is currently not used for.

Roger

Thank you Ed. That is a great example of looking forward, wanting to open up new and unexplored areas.

Stuart, what about you?

Stuart

I'm really interested and very excited by all the multi-line braille that we are seeing, and clearly a lot of people are working really hard and doing lots of great things to bring multi-line braille to us as quickly as possible. I'm hoping that the screen reading industry will step up now and work out a way to make that multi-line braille operate in a cohesive way with their software. I think the way in which you use multi-line braille

with a screen reader is going to be very different to how we have traditionally used single-line braille. I suppose if we were here this time next year, I'd really like to think that we have made some strides in that regard, and that we are going to be moving in the right direction.

Roger

Stuart, thank you very much. Helen.

Helen

I think if I was to go twelve months from now, I'd love to see more awareness on the school curriculum, I think BSL is coming in, there are some GCSE's coming I think. Braille and assistive technology, the profile needs to be raised. Young people currently learn about things like data protection and online security, and I'd love to see more of accessibility in terms of content, assistive technologies added to that. As software and hardware progresses, it needs to become as recognised as other mainstream things such as subtitles. There is a lot more that can be said in terms of the vision impaired community, braille, and assistive technology.

Roger

Brilliant. I'm sure that if anyone with us today has any ideas, certainly in terms of Ed's product, I'm sure he wouldn't mind receiving e-mails being sent to Bristol Braille Technology, also Stuart at Sight and Sound Technology. Thank you.

In closing, I should like to thank our presenters: Helen, Stuart, and Ed. Thanks to Helen for behind-the-scenes assistance. Thank you to our guests for attending, and to those who will join this webinar online in the future. From all of us, goodbye until next time.