**Braille Literacy Canada 2023 Virtual Braille Symposium: Boundless Braille (June 2, 2023)**

Unified English Braille Across Borders

Frances Gentle, Josie Howse and Craig Cashmore

**Riane Lapaire** 00:01

Hello, everyone, we will get started with our last session of the day, which is Unified English Braille Across Borders, featuring our presenters, Frances Gentle, who is the president of the International Council for Education of people with visual impairment, and a member of the academic and research staff at NEC Next Sense Institute, as well as a lecturer of in the master of Disability Studies program at Macquarie University in Australia. We also have Josie Howse, who is an adjunct Research Fellow with the Nexus Institute and a former manager of the Braille and large print services. An S W Department of Education. And we also have Craig Cashmore, who's the founder and director of the Peppacode, and a web and app development business focused on out of the ordinary strategic web and software development for small businesses. We are looking forward to your presentation today. And thank you for joining us, I'm going to let you take it away.

**Frances Gentle** 01:08

Thanks, Riane. And it's a great pleasure for us to be here. I've just returned from the World Blind Union executive committee meeting, and many Canadians were present. So, it's nice to tune into Canada. What we thought we would do is I would give a basic introduction, Josie will talk about the contents of the training programs. And then we will give Craig the lion's share of the time to deep dive into the training programs.

So, I'll just begin by saying that NextSense, which was formerly the Royal Institute for Deaf and Blind Children, is the oldest charity in Australia, we've been operating for 160 plus years, looking after children and adults with blindness, low vision, deaf blindness, and also those with deafness and who are hard of hearing. And our master's degree has been operating for many years. And for 20 of those years, Josie Howse, with us, delivered a hardcopy Braille training program. It was a requirement for our students during the master's degree to have a Braille requirement, absolute requirements. And over the years, we have had different people request online learning particularly with the growth in accessible digital technologies.

So, in 2014, with great help from Craig, who was with us today, and Josie from Next Sense, launched the UEB Unified English Braille training programs in the literary code and also mathematics over progressively over several years. And we're delighted to do this. But initially, we thought we would have a small response because our face-to-face courses attract about 40 students a year. And we've had a wonderful response from over 154 countries in the world. What we have found is the training programs are being picked up by education systems, universities, teachers of Braille, both sighted and blind, because we have an accessible version that Craig will talk about, and parents and also classroom teachers who are have a child who has a Braille user enrolling in the class, and you because they're free, you can just get on board, register and introduce Braille, even if you do the first few lessons to the children in the class.

It's a wonderful opportunity. And the world Braille Council, we're proud of our addressing two of the big priorities in the Braille area. And the first one is a chronic shortage of teachers worldwide, who teach Braille who are qualified to teach braille and the other is that Braille is not included in teacher training programs offered by education systems in many countries. And the fact that we have universities now, taking it up as their required qualification in Braille is really pleasing for us. It's free and we've using the massive open line technique or the MOOC, I don't know if any of you know about massive open online courses offered by universities where you offer a course for free, but if someone wants a certificate, and it's usually the professionals, we charge $50 Australian and that covers the administration and also supporting the learners the subscribers who often you know, send through Help, Help messages.

So out and I thought I'd just before I hand over to Josie let you know what we've done asked implemented we're very proud of the fact we've implemented in May this year, we launched a competency exams. And the competency exams are aligned with the training programs, we have the literary competency exam. And at this stage, we have one in mathematics, which is aligned with primary school mathematics, which is the Braille. And we're looking to do two more in advanced and extension mathematics for lower secondary and upper secondary school. So, these have just been launched. So, we're kind of watching how these unfold. And they've been requested, because a lot of people who do the training courses, so they really need to look at what some sort of qualifications for their employment or to show evidence that they are competent in Braille code. So, the competent exams are offered at $70. Eu, Australian and they're again self-marking. So, we'll see how these go. So, I'm going to hand over to Josie to talk about the contents of the training programs. Thank you, Josie.

**Josie Howse** 06:13

Thank you very much, Frances. I'll just touch on very briefly, because I'm conscious that we really want Craig to do his presentation, it's much more interesting than what I've got to say. But the full suite of the UEB online training modules is comprised of two modules for the literary content, and that is the learning the Unified English Braille code in a literary context, and the additional Unified English Braille online mathematics courses. It comprises three modules: the primary level, about year kindergarten to year six, the senior second sorry, senior, secondary, and then the senior secondary, which covers a full range of the school at school levels. These levels of curriculum topics are only approximate, so, as to try and accommodate the global curriculum variations. So firstly, I'd like to touch on the structure of the UEBonline literary modules. This full UEBonline literary training course comprises two modules, as I've said, module one, which covers lessons 1 to 14, and module two, which covers lessons 15 to 30. Each lesson has one or more rules explained, followed by an exercise to produce from print to braille, and then an extra exercise to produce from braille to print. There isn't the time to go deeply into the context specifically, but everything that is required in a literary context is covered in these two modules of the UEBonline training course.

Now for the UEB online mathematics training modules, once again, there isn't the time to go deeply into the context specifically, but everything that is covered is generally what is required for a student from starting school. We call it kindergarten in in Australia to year 12, which is their final year at school. What our team decided when it came to the exercises was a gradual increment, incrementation of difficulty. Not all items in the exercises have got an exact replica in the lesson. But I felt it was important to ensure that users of the course try and reflect on what has been explained in the rule, and then apply it to the item in the exercise. This was a deliberate plan so that users of the course didn't just copy what has been given in the example as such, but apply what has been previously explained to the item that they're now working on. Otherwise, there's been no gain in the learning. Nothing is presented in the exercises that had not already been explained somewhere in any of the previous lessons.

So, it is important to read and absorb to memory what has been delivered up to that point. I encourage users to progress slowly and methodically so that what is being stated is truly understood. Avoid trying to finish in the middle and lowest amount of time, as everything has been given and stated for a purpose. And it is critical that everything is put to memory as much as possible. This can only happen if a meticulous approach is given to the learning, so that every rule is fully understood, so that it can be applied at any time and in any different contexts later. Everything stated in the lessons is important, but on occasions while it may seem repetitive hints, and remember, headings have been summarized and provided immediately before undertaking the exercise as a reminder of an important point.

Finally, don't be anxious when needing to transcribe what appears to be a complex mathematical expression. in Braille, there are actually very few major rules to remember. But what is important is remembering when and how to apply these rules and being very clear in one's head, the critical elements of each rule. So, I'll hand over now to Craig for him to explain the operation of these courses. Thank you.

**Craig Cashmore** 10:21

Thank you, Josie. Thank you for inviting me to talk about UEBonline. Today, I'm going to run through the UEBonline website and show you how to get started. So where to find information, and then explain some of the important concepts within UEBonline. There is a lot of information in UEBonline and too much to cover comprehensively in a short session like today. So, it will focus on showing you where you can get more information to get started in your own time. UEBonline is a website, so you can access it like you would any other website. You can enter the website address directly into your browser, which is UEBonline.org, and UEBonline is all one word. Or you can find the website in Google by searching for UEB online. I'm now going to share my screen and show the home page view UEBonline.

**Craig Cashmore** 11:30

At the top of the page visually and for a screen reader are some important menu items. The first links are the quick entry to either register or login to the site. Next is a drop-down menu, which has a lot of useful information categorized into five main levels, each with a number of menu items within them. The about menu has pages which talk about the background of UEBonline Unified English Braille and Next Sense. The Getting Started menu is the place to start your journey on UEBonline. It has information on registering, the importance of the keyboard and UEBonline, the System Requirements and Information about the training program and exam content within UEBonline. The tutorials menu, to me, is the most important material you can reference. This contains links to written information, which explains information on how to complete a training program and explain some of the concepts. But it also contains a page that has 13 video tutorials, which I strongly recommend you make yourself familiar with before getting started. These videos have the verbose narration in them to make it useful for all UEB users regardless of their vision. There's also an FAQ, which has answers to some of the common support questions we have received. The Resources menu contains links to lots of useful material giving a background on UEB. It contains pages with links to the literary and maths manuals, which the UEBonline training programs are based on. And finally, the Help menu, which has links to the video tutorials and FAQ, but more importantly, the ‘contact us’ page, which explains how to get in touch with a UEBonline support team if you get stuck. Go to this page for our contact details. You need to register on the UEBonline site and create an account to keep track of your progress. All of your training program, exercise answers are saved within our server. This allows you to log into your account from any computer at any time connected to the internet. They continue from where you left off. Registration is free. It's also free to complete all training programs. After completing all lessons in a training program, you will be eligible to purchase a certificate which confirms your successful completion. But the purchase of the certificate is optional. As Francis mentioned, this is a MOOC. I'm now going to press the Register link to go to the register page of the screen.

**Craig Cashmore** 14:45

What's showing now on the screen is the register page. When registering, we ask you for your first name and family name and email address and a password to log into your account. These are all mandatory fields. We also have questions for some additional optional information which allows us to understand our user base a little better, and they are your country and your organization name. Ideally, you'll fill those in, but if you choose not to, then that's okay. The remaining field showing on the screen is called Exercise completion mode with options of visual access or non-visual access. The difference between the two modes is how we display the exercises for the student to complete. In visual access mode, an exercise entry is a large text area in which you type Braille cells. The student will read an English print passage, which is to be brailled. And in the text area, type the Braille answer a student can see what they have previously typed, and what remains to be typed. All data entry is based on visually seeing the print and the Braille passage.

In non-visual mode, we activate special code that integrates closely with a screen reader to make it easier for a visually impaired user to complete the lessons. The print passages to Braille are quite long in the exercises, and it is inconvenient to have to jump between a passage and back into the text area to enter an answer. We have made it so that instead, the screen reader is used to read the word to be typed as the user is entering the answer. Allowing the cursor focus to remain in the textbox in which Braille is entered. There are additional help commands which can be used in this mode to read the word that is being typed, spell the word being typed, and read the sentence or phrase to put the word into context. If you are reliant on a screen reader when using a computer, then you should select non visual mode as the exercise completion mode.

Once you have completed the registration form details, press the Register button to complete your registration. If successful, you will be logged into the site. Before I do that, there are several important things to discuss in terms of your computer setup that you need to complete up online. Firstly, we only support computers like Windows or Mac computers, laptops are the physical keyboard. touch devices like mobile phones, iPads, and tablets, which use a soft keyboard on the screen and not supported for UEBonline. As these keyboards do not support six key entry. Just to elaborate six key entry is one of the key aspects of UEBonline. Your computer system and keyboard must be able to support pressing the six keys used the for Braille entry simultaneously. These keys are the S D f, and J K L keys. Each of the six keys corresponds to one dot in the cell, so to be able to type a full six dot cell, all keys must be able to be pressed together to produce six dots. We have encountered some systems which do not support this. So before you start your first training program, you will be asked to complete a keyboard check. This ensures that your system is capable of producing a six dot cell reliably. Video Tutorial one on the Video Tutorials page covers using the keyboard and elaborates on what I've just mentioned. Watch this video if you're having trouble with your keyboard, as it discusses in more detail what to do if your keyboard does not work in the keyboard check. In visual access mode, all that is required is a browser and a working keyboard as discussed above. In non-visual access mode, you will also require a screen reader, in addition to the browser and the working keyboard. We've used JAWS and NVDA in testing and development of UEBonline. However, other screen readers should work okay. You may optionally choose to use a refreshable Braille display in non-visual mode. If you do use one then you type your answers for an exercise. They will also be output on the refreshable Braille display. This helps you to feel the Braille. But I stress this is optional. It helps you to feel the Braille but it's not a requirement to complete the course.

Okay, so now I'm going to log into UEBonline. I'll go to the login link show posting on the screen. I'm going to a ‘demonstration student’ which I've already configured. After logging in, you will be taken to your user dashboard. This is the main navigation point for starting continuing and completing training program and competency exercises. At any point, you can get back to your user dashboard by pressing the Dashboard link, which is the first menu link on the page. On the screen now is a user dashboard for a demo student. There are tiles displayed on the page that show the training programs and competency exams available. Each tile represents one of the available training programs and exams. We currently have the following training programs available UEB literacy, UEB introductory mathematics UEB advanced mathematics, you EB extension mathematics and we have the following competency exams UEB literary, UEB introductory mathematics. These tiles are all displayed on the screen for this student. The first tile is for the UEB literacy program. And within that, is a Begin button. That means we are yet to start that training program. I'm now going to click the Begin button in the UEB literacy program. What is showing on the screen is a course introduction, which contains a description of what the training program is. At the bottom of the page are several checkboxes that we asked you to read and take. This ensures that you are familiar with some of the key points on how to complete the training program. I'm now scrolling the page down to these checkboxes. I'm now going to tick all of these checkboxes. I won't read them all because they're quite verbose. Just click in them and press Continue. But if you when you start your training program, you'll be able to read what they say. What is now shown on screen is Lesson One of the UEB literacy training program for a user in visual mode. A lesson page has information on a topic being taught first. In this case, it is the letters A to J, the numerals, the capital indicator and the full stop. After the first lesson content are two exercises to be completed. To complete a lesson and move on to the next lesson, you must complete both exercises with 100% accuracy. If the next lesson button on the screen is disabled and cannot be pressed, then it means you have errors in your exercises. Correct the errors before continuing. One of the key features in UEBonline is that we give you instant feedback on your errors as you type. In visual mode, when you press space or enter to move to a new word. The word just typed is checked for correctness. If it is incorrect, a visual red error will be showing indicating that the word is incorrect. You must then go back and identify your mistake and correct the word before continuing. While it is possible to type even with an error, if you do not fix it, the error will keep displaying don't ignore it, it won't go away. You need to fix it. In non-visual mode, the error checking happens on a cell by cell basis. As you type a cell it is checked for correctness. If it is incorrect, the screen reader will read out that the cell is incorrect. You must then backspace over that cell and enter the correct cell

**Craig Cashmore** 24:39

With UEBonline, it is to a maximum of 40 cells per line to get you used to typing a passage as you would with a Braille machine. Interface visual mode. There is a vertical blue line 40 cell marker in the textbox. You must not go over this. If you do, it will be printed as an add error indicating unexpected space. To move to a new line, press the enter key instead of the space key. In non-visual mode, the screen reader will read when you hit the 34th cell on a line, as well as adding sound. And at the 40 itself, it will read a message and play a bong sound. If you type a space when an enter is expected, then that will be indicated verbally and instead, you must use an Enter to move to the next word. Once you have entered all words and exercise, of the passage and they are all correct, then a message saying congratulations, congratulations, you transcribe this exercise successfully will be displayed in visual mode and read aloud in non-visual mode.

When both exercises in the lesson have been successfully completed, the next lesson button will be enabled, and you'll be able to move to the next lesson. It may take you some time to complete the exercises in our lesson. There is a save button in both visual and non-visual modes. And in non-visual mode, you can also press the one key to save your work. While the focus is in the textbox where you type cells. It's very important that you regularly save the work you have typed. Once you have saved your work, it will be stored into your account. I can't emphasize enough how important it is to save your workout regularly. If you need to leave a lesson, and close your browser, next time you come back to this lesson, the exercises will contain the information that you last saved. If you use a different computer, you will see your saved content still.

The Video Tutorials page has several videos which are relevant to all of this information I've just described. They cover the dashboard, visual and non-visual access mode. high contrast mode, which is a way of looking at the screen with different colors, different font sizes and different color schemes, and most importantly to what I just discussed how to complete an exercise in visual and non-visual mode. If you're planning to complete a UEBonline training program, I recommend that you watch or listen to these videos as they add much more detail. With them. I've been able to mention this in this presentation. They go through examples of entering a lesson with exercise errors, the 40 cell marker and saving. Each time you log in to UEBonline, you'll be taken to your user dashboard, UEBonline keeps track of your lesson progress. When you go to the tile for a training program you have previously started, the lesson button within the tile will take you to the lesson that you're up to. For example, if you've completed Lesson One and Two and I've started lesson Three, and a partway through lesson, exercise 3.1 Then the button in the UEB literacy will say Lesson three and pressing that will to go back to lesson three. And you will be able to resume exercise 3.1 Where you left or last saved. This means you can take a break from your training program. Then log on again and continue from where you left off.

To conclude I will summarize a few key points of what we've covered today. Review the information in getting started and tutorials menu sections before starting, in particular the video tutorials, as they provide a great description of how things work within UEBonline. To use UEBonline you need to register and create an account registration and completion of training program. It's free to complete a lesson and move on to the next one. You must complete both exercises within the lesson with 100% accuracy. UEBonline gives instant feedback on your errors, correct them before moving on. After completing all lessons in either a literacy or mathematics module, you can optionally purchase a certificate. If you're having any difficulties in UEBonline, go to the contact us page for information on how to get in touch with the UEBonline support team. So, thank you for your time today. And all the best getting started with UEBonline. I believe we now have 15 minutes for any questions that you want to send us. Thank you.

**Riane Lapaire** 29:58

Thank you so much. It was a great overview of the of the UEBonline program and the work that has gone into it. And the background. I'll turn it over to Anthony to see if there are any questions.

**Craig Cashmore** 30:10

Sorry, I will just stop sharing my screen there.

**Anthony Tibbs** 30:16

If anybody would like to ask a question, you can raise your hand, alt y, Command Y, Star nine on the phone

30:30

I have a question.

**Riane Lapaire** 30:31

What would you say would be one of the biggest hurdles in getting the program up when you were kind of conceptualizing it? And I'm getting it out there.

**Craig Cashmore** 30:44

Would you like me to answer that one?

**Frances Gentle** 30:46

Craig, I think the coding, so yeah.

**Craig Cashmore** 30:49

Yeah. Yeah. So there was, there was quite a challenge in initially working out how we were going to do the error checking. So, we actually started with the visual mode first. But doing the error checking was sort of one of the most challenging aspects of that. But then we moved on to the non-visual or the accessible mode, and working out how to present that in such a manner, that it would be easier for a student who was blind or visually impaired to complete the lesson with a screen reader. We couldn't use traditional screen reader techniques to do it. So, we had to come up with a fairly unique way of doing it, which as I alluded to, in my speech was based on actually developing code to integrate with the screen reader to try and make it say what we wanted it to say at the right time without ever leaving the textbox. So, that was probably the biggest challenge we faced in the development cycle.

**Frances Gentle** 32:01

And if I may add, the reason why these were challenges is because we, we think this was a well first and there was no other ones to copy. So, we had to actually start from the beginning point and working this out how on earth to teach Braille online. Thank you.

**Anthony Tibbs** 32:18

Next, we have mercy.

32:22

on us, you said that you can use a Braille display to read the output of the course. Can you use the keyboard on the Braille display to do the Braelyn?

**Craig Cashmore** 32:37

No, we haven't integrated the ability to do that yet. Yeah, it's something we have discussed. And suddenly we have thought about, but we haven't quite got there yet to do that.

32:51

Okay, thank you. Is it possible, Craig?

**Craig Cashmore** 32:56

To be honest, I haven't really got access to a Braille display. So, I don't I don't know where we're probably wait. So just to elaborate on that we loaned a Braille display that we use to make sure that we could get the output but we only had it for a very short time, so we didn't get to use it too much in our development cycle. Peg.

33:28

Peg, you're still muted. Hi, there.

**Peg Mercer** 33:33

That was an absolutely fascinating presentation of UEBonline. And I'm particularly fascinated by the fact that you can change the keyboard, the home keys to six dot Braille input. And is that done within the UEBonline? Or do you have to do something within the keyboard settings on your, you know, within Windows? Because I thought it was only a draft Braille Translator option, but yeah,

**Craig Cashmore** 34:04

No, it's all done within UEBonline, it’s all part of the program. We intercept the keys that are coming in and change the way that they're, they're presented on the screen.

**Peg Mercer** 34:16

Thank you. Wonderful.

**Daphne Hitchcock** 34:21

Thanks. Great presentation. Team UEB. I have done several of your courses. My question is, I often like to redo things and when I've tried to redo a course I've completed I've had to then find a different email address to do it. Can I? Is there a way to trick the system so I can go back as myself and use a different email address? Wouldn't let me redo it using the same email.

**Craig Cashmore** 34:51

Yeah, so you can always go back and redo previous exercises. Okay. Yeah. If you go back to the through the menu system And for example, going back to lesson one, you can erase the content that you have saved. And you can do it that way. Or alternatively, you can contact us and we can reset it. Several people have done that, as well. I guess we haven't put in a reset course option for a user, just so there's no mistakes, just so someone doesn't get through up to lesson 13 and accidentally reset the course and lose their entire progress. So, we really try and create keep your current progress, particularly because we base things like certificate purchases and stuff honored as well. So we don't want someone to lose their status in the course.

**Daphne Hitchcock** 35:41

Right? Well, we don't want to skew your numbers by being myself three different times.

**Craig Cashmore** 35:46

Oh yeah, that's okay. And as I said, if you really want us to reset the course we can, okay, but otherwise, you can go back if you want to do specific exercises, you can go back and find Yeah,

**Daphne Hitchcock** 35:59

I love the content. I love how capsulated everything is, it was for me, it's so easy, manageable to do within, you know, a couple of times sitting at the computer and it's so well laid out. It's a phenomenal program, all the ones that I've taken today. They're great. I love what you guys have done. Amazing. Thank you.

**Frances Gentle** 36:25

And it's nice to put a face to the name. I just wanted to mention that if you have access to a Braille embosser, or printer, you can actually print off the training manuals that are available. As a side by side as you're working through. Some people have sort of complained a bit about the fact that you can't go forward until you fix your errors. But this is because we want rigor. You know, we want this to be people coming out the other end who qualify, you know, got the knowledge deep to teach brown not just as sort of a little toy program.

**Daphne Hitchcock** 37:00

Yeah. Good. I liked that part of it, actually. Because if you can't get it, boy, you going around the house, what am I doing wrong? I'm doing something wrong. Right. So it's, it's really good.

**Anthony Tibbs** 37:19

Do we have any other questions? I don't see any hands right now. But we'll put a last call out there for sure. Any questions?

37:28

Jodi. Oh, hi.

37:31

Yeah, I just wanted to say, You know what the last speaker was saying that she's found it really excellent. And I wouldn't agree with that. I just wanted to point to the mathematical resources. I've actually found the advanced mathematics and extension mathematics training manual resources, very useful, because they include additional examples that aren't found in the guidelines for technical materials. So that can be very useful if you're for our transcriber looking for more examples. Yes. So, I'd recommend downloading those join the meeting.

**Frances Gentle** 38:07

So, can I add that there? We will, we're getting to the competency exams. For those two, it's just been quite, we've had two years of developing these exams. And you can imagine the top the time it took to do the training programs. But Josie it's doing I think it's doing her head in the complexity of the maths and what's needed to prepare the exam part.

38:36

Okay,

**Anthony Tibbs** 38:37

Well, I don't see any other hand. So, thanks very much for joining us today and telling us about the UEBonline project. And it sounds like a lot of people have gone through that, at least for one course, if not more than one and they seem to be really enjoying it. So, thank you very much for sharing all that with us today.

**Frances Gentle** 38:58

You're most welcome. Thank you, everybody.

**Craig Cashmore** 39:01

Thank you, everyone.