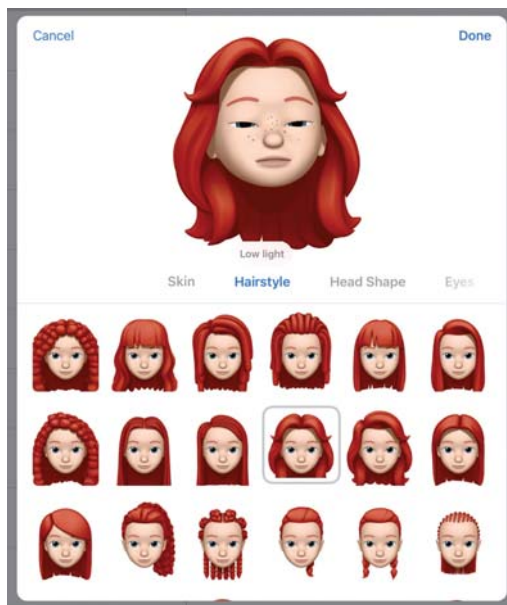


Using animojis to support story telling

Suzanne Williams provides an overview of the Leeds Service animojis project which she also presented as a poster at the University of Manchester – 100 years of deaf education conference

Facial recognition software now allows for more realistic animations that imitate real human facial expression, historically this was only available at huge expense and used in films and other media. However, Apple's animojis allow facial expressions to be replicated on to animated faces easily on your own hand-held device (the iPad Pro and newer iPhone X). This makes it possible to easily create video animations in the classroom and at home. The technology tracks a person's eyes and mouth and maps this on to a character on the screen. So, you are able to control a character and record this as a video.



"Nowadays, deaf children are also considered 'digital natives' and this could make interactive storytelling an even more effective strategy for them, but unfortunately, we noticed that there is not an established methodology to make use of interactive storytelling through the use of ICT."¹

Technology is adapting faster than we would probably like to admit, and we have an opportunity to harness its potential within deaf education. The combination of this new technology and the internet could open up a whole new world of shared resources in deaf education. As QToDs, we continue to have limited access to BSL video resources to support teaching and learning, and in some areas of the country limited access to BSL. Facial recognition technology could be harnessed and embedded into the curriculum in a way that makes learning more accessible for Deaf students using BSL or Sign Supported English.

So how did we use animojis?

Our animoji project began with a small group of deaf year 7 and year 8 students attending our HI secondary resourced provision setting. We explored the book 'Ranvir Cannot Hear' by Genevieve Yusuf, a story that follows a deaf elephant, who sets out to find his hearing. Although this book is aimed at primary aged children, the 'song-like' structure and vocabulary provided a rich text that would challenge all students in different ways. The range of characters also allowed us to focus on drama and movement and build confidence in performance techniques. Over a half term



period, we examined the story page by page, predicting what might happen next; investigating some of the language and cultural references (including the highland fling).

Alongside this, we started to retell the story, through sequencing activities, drama and oral/BSL retelling. We encouraged our young people to recall key information and to develop confidence to speak/sign in front of peers. At this point students then worked one-to-one with a level 6 BSL qualified Communication Support Worker to retell sections of the book in BSL. For some students this provided an opportunity to teach specific BSL skills. While for those that use primarily BSL it was an opportunity

to introduce topic specific BSL signs and think about the way meaning is conveyed from English.

Next, we supported students to design their own animoji face on an iPad Pro. When creating your own character, you are taken step by step through the process choosing each feature from a wide range of options, from face shape to eye colour and more. Being able to immediately see your selections on the screen led to much amusement with moustaches and elaborate beards being tested.

With the animojis saved and ready to use, we then videoed their re-telling of the story. This consisted of one adult holding the iPad at head height approximately 1m from the young person to record a video. Students later had the opportunity to watch and review their own video before performing a final version that was later edited using the iMovie. Videos were used to self-assess the students' use of BSL and Non Manual Features and to determine their ability to remember and re-tell a simple story.

We sent the final video to the author, Genevieve Yusuf, who was thrilled to hear about our use of her book and enjoyed watching the students' video version.

Using the iPad Pro in class was a novelty, it engaged and motivated students; less confident students were happier to video themselves with an animoji face than





without. Though there were a few challenges, the first was creating the optimum angle for the iPad Pro camera. It was difficult to get this right, as you need to use the front facing camera, the student can see themselves on the screen but the person holding the iPad cannot. When the camera distance was too great, the animation disappeared. When the angle or distance wasn't right the hands moved out of shot easily. So, it was important to play around with the angle and distance before recording anything. The overall look of the final videos was really effective, though some signs were concealed by larger hair or faces, a consideration that would need to be made when choosing future character features. Furthermore, using BSL fluently but not too close to the face was challenging for those students with more delayed language skills. They quickly forgot that signs that cover the face made their animated face disappear and when this happened it was a distraction to the flow of storytelling. The best way to combat this was to produce signs that start at the face a little to the side, and to turn the face slightly towards the hand, this created the illusion of signs in front of the face without blocking the face recognition software and losing the animation completely. This was a skill that most students could develop in order to make videos more effective. However, it was more time consuming and frustrating on our first attempts.

Overall though, the project was enjoyable and the benefits far outweighed the logistical difficulties. The videos were more effective at recording evidence and tracking progress in BSL skills than using photographs as they could be watched later, by a range of professionals and by the students. They recorded how a child signed, including their movements, position and the accuracy of handshapes, whereas stills only provide a quick snapshot and rely heavily on notes taken to accompany them. Students that would usually be self-conscious to speak in front of others enjoyed the novelty of creating and watching the animojis. The animojis were really engaging to watch. Our deaf students can be reluctant to watch BSL videos with adult interpreters, preferring live BSL to on-screen. With this in mind, animojis could potentially be used to create more

exciting BSL stories for social media and online. The videos are anonymised, students are unrecognisable as their animations, and so this would also allow for the sharing of students' work with less concern for the safeguarding issues around videos. Though we did take steps to ensure that school badges and uniforms were not identifiable in the final videos, as clothes are not masked in any way, they will be clear to see. Imagine a bank of videos on YouTube created by deaf children that could be used in settings across the country.

Animojis are already available to use on the iPhone X and newest iPad pro devices and can be used to create videos in the messages app. Though some other phone developers are also beginning to develop their own face-recognition technology. Researchers at Brigham Young University, Utah have taken this a step further and have developed the concept of what they call 'handimojis' which would use current facial recognition technology and map it to animate hands. If Apple and other technology providers were to take this idea on board, this would allow for both animated hands, faces & bodies in the future. cfac.byu.edu/school-of-communications/byu-students-touch-hearts-with-handimojis-creation-for-deaf-community



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Reference

- 1 Flórez Aristizábal L, Cano S, Collazos C (2017). *Using Storytelling to Support the Education of Deaf Children: A Systematic Literature Review*. Marcus A, Wang W (eds) Design, User Experience, and Usability: Understanding Users and Contexts. DUXU 2017. Lecture Notes in Computer Science, vol 10290. Springer, Cham

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