ANZAGG 3D Meeting
Minutes Wednesday 21 October 2020

# 1. Roll call

Meeting chaired by Leona Holloway, Monash University

16 members in attendance from Monash University, Queensland Department of Education, TSBVI, ACT Department of Education, ACT Department of Education, RIDBC, Sonokids, NSW Department of Education, SASVI, BLENNZ, RSB

# 2. Icebreaker - What have you been designing/printing in the last month?

**Rulers:**

* One member tried designing a braille ruler but had trouble fitting the braille on and the braille was rough. She will try printing on its side.
* Another member received a request for a 1 metre ruler.
* A third member would use laser cutting for a 1 metre ruler.
* A fourth member reported that they purchased a 1 metre tactile ruler from APH.
* there is a project to create a high quality 3D printed accessible ruler in Europe.
* A fifth member has designed a 40cm tactile ruler. He shared the TinkerCAD design [link no longer valid]
* Other files for accessible rulers available at:
	+ <https://www.nbp.org/ic/nbp/CALIPER.html>
	+ <https://tactilevisiongraphics.com/product/metric-braille-caliper/>
	+ <https://medien.augenbit.de/category/modelle/?lang=en>

**iPad stand**: A member made adjustments to a phone stand so that it can be used as an iPad stand for students in classrooms. It has proved very popular, with around 50 sent out already. The design is now shared on Teams

**Filament saver**: A member is designing a stand that will allow them to join two pieces of 3D printing filament using a tea light to melt then fuse the ends together. They will update us next month on whether it is successful.

**Nets:** SVRC designed two different nets for square-based pyramids. They are hinged and have interlocking edges and each surface is hollow in the middle so fingers can explore inside the shape. See [https://www.thingiverse.com/thing:4420863](https://www.thingiverse.com/thing%3A4420863) for their hinged cube net.

# 3. Draft Guidelines

Link: <http://printdisability.org/about-us/accessible-graphics/3d-printing/> for ANZAGG published guidelines on 3D printing for accessibility

“Understanding 3D printed models through touch” was published this month.

# 4. Previous action items

## 4.1 Labelling

UBIS V symbol – no one has tried this yet.

## 4.2 Sharing designs on Teams

We now have folders on Teams, including a folder for sharing 3D designs. Thanks to RIDBC for setting this up.

# 5. Feature discussion: 3D design software

What software(s) do you use to design or adjust 3D models? For what purposes would you recommend this software?

We discussed the following softwares for designing 3D models:

OpenSCAD – this is good for generating braille labels and it is fully accessible because it uses programming. One member does all of their designing in OpenSCAD because they like the precision it allows.

TinkerCAD – most people use or have tried TinkerCAD. It is very easy to use and is taught to primary school children. It is an excellent starting point for new designers. There are a lot of great tutorials available. It is not good for tracing from a print graphic or for sharing of working files. Because it is online, it is not good if you have an unstable internet connection or if you are working on very complex designs.

SketchUp – One member has used SketchUp. It is good for tracing from print, especially for floormaps. It is easy to use. However it is designed for architecture so it is not great for round or organic shapes.

Fusion360 – Has a steeper learning curve but is taught to lower secondary school students. More powerful than TinkerCAD for designing 3D models from scratch. Can also be used for putting braille on curved surfaces (one dot at a time).

Netfabb – Recommended for editing existing .stl files. You can manipulate every triangle, cut models into pieces, add, text, combine models, and easily section files for dual colour printing.

Blender or Zbrush – recommended for sculpting organic shapes like anatomy models

ACTION: Leona to start work on this section of the guidelines, with help from those who are using the recommended software.

# 6. Other Business

## 6.1 Update from DIAGRAM 3D group

DIAGRAM and APH will liaise to make sure that they are cooperating (rather than competing) with TGIL and ImageShare.

APH have received over 60 responses to their survey. In general, everyone said “yes” to wanting everything.

## 6.2 NSW Department of Education – internal launch for 3D printing service

The NSW Department of Education hosted a small internal launch of their 3D printing service on Monday. They have uploaded recommended models to the library system so that they are available for loan. It is already apparent that the most popular models are those which are interactive, such as tectonic plates that move in relation to one another, or an iceberg that you can pull out.

They also have plans to increase communication between vision specialist teachers and the accessible formats team. And they will have input into an internal guide on 3D printing in the classroom (for all students) to make sure that it is inclusive of students with disabilities.

## 6.3 Ian Matty

Two members met with Ian Matty from Project Makerspace and BuildBetterBook project. See <https://makeymakey.com/blogs/blog/build-a-better-book-webinar-may-14th-at-12-pm-cst>

He is working on education programs for sighted students to learn about 3D printing with meaningful projects designed for touch readers. For example, in one activity students are asked to design a tactile book page from a story they have learned visually (like The Very Hungry Caterpillar) and another from a fable for which there is no visual iconography. This illustrates how difficult it is to recognise an image if you don’t already have a visual/tactile language for it.

In another project, he has designed interactive marble run pieces that can be fitted together and make noise. He will share this design.

# 7. Next Meeting

Wednesday 18 November at 11.30am AEST.

Topic: ARC Linkage project - overview of the project, its goals, partnerships, achievements so far