# “Accessible Image Sample Book” - A DIAGRAM webinar presented by Elaine Ober, Lucia Hasty, Suzy Haines, and Steve Noble with Geoff Freed, Bryan Gould, and Madeleine Rothberg

[Watch/listen to the closed-caption recording of the webinar](http://youtu.be/6iQy9avVNdU)

[Download the PowerPoint slides](http://diagramcenter.org/wp-admin/post.php?post=1012&action=edit)

[Download the Accessible Image Sample Book](http://diagramcenter.org/standards-and-practices/accessible-image-sample-book.html)

[See other DIAGRAM webinars](http://diagramcenter.org/webinars.html)

## Q & A Summary – February 6, 2014

1. **QUESTION:** **“I'm wondering why the authors that write the books don't include the image descriptions? It seems like they would be in the perfect position to provide the descriptions as they know exactly what the image is trying to express.”**

**ANSWER:** At the moment, creating image descriptions is not a common part of the publishing workflow process. Hopefully as accessible digital books become more common, that task will move further upstream to the authoring stage. For now, making images accessible is still a step that is most often done after the fact. We’d love to see that change!

1. **QUESTION: “Please explain what you mean by a tactile graphic.”**

**ANSWER:** Tactile graphics are images that use raised surfaces to allow the reader to feel non-textual information that may be contained in a drawing such as a map, picture, or graph. There are several examples of tactile images in the Accessible Image Sample Book.

1. **QUESTION: “What does MathML stand for?”**

**ANSWER:** It stands for “Math Markup Language.” It’s like HTML (HyperText Markup Language) except that it is specialized for rendering math on the Web. MathML is required because HTML does not have the right kind of tagging to fully support display of math on the Web. To learn more about MathML, refer to the Q&A, slides, and recording of the DIAGRAM webinar, “[Tools for Creating Accessible Math](http://diagramcenter.org/webinars.html#tools4a11ymath)”

1. **QUESTION:** **“Since Microsoft has announced that IE will no longer support MathML and Google has also announced this, what will we be using to read MathML?”**

**ANSWER:** It is true that IE 11 doesn’t support MathML. They have also eliminated support for plug-ins, such as MathPlayer, unfortunately. But, [MathJax](http://www.mathjax.org/) should work in most any browser, including IE 11. We understand that [Design Science](http://www.dessci.com/en/) is working on new release of [MathPlayer](http://www.dessci.com/en/products/mathplayer/) that will be platform independent. [ChromeVox](http://www.chromevox.com/) (Chrome’s screen reader) does support MathML. With ChromeVox, you can hear the MathML being spoken in your reader, even if it is not visually rendered. Also, Apple has recently added text-to-speech support for MathML in [VoiceOver for iOS 7](http://www.apple.com/accessibility/ios/voiceover/). The gap between what kinds of files publishers can provide and what reading devices can support is still large. Benetech has just been funded for [MathMLCloud](http://blog.diagramcenter.org/?p=1434) which will translate math images into descriptions and MathML and then store the MathML in the Cloud for future use. DIAGRAM should be posting updates about that project in summer 2014.

**FOLLOW-UP QUESTION: Does IE 11 support MathJax?**

**ANSWER:** Yes, MathJax is designed to render math the same way no matter what browser you may be using. You can see demos of how this works in the DIAGRAM webinar, “[Tools for Creating Accessible Math](http://diagramcenter.org/webinars.html#tools4a11ymath)”

1. **QUESTION: “What are your recommendations for retail readers like iBooks and Kindle? They don't support described-by (yet), tactile graphics...”**

**ANSWER:** Some software readers will read descriptions that are delivered using aria-describedby. On the Mac (using VoiceOver) these include iBooks, Book Reader, ePubReader, Murasaki and Scarlett; on Windows (using JAWS or NVDA) these include Dolphin EasyReader and Adobe Digital Editions. DIAGRAM staff is currently in the process of testing new hardware readers, such as the Kindle. Results will be uploaded soon to the [Research](http://diagramcenter.org/research.html) area of the DIAGRAM Web site. There is also some work going on at Stanford on tactile graphics in smart phones. NBP is also working on this.

1. **QUESTION:** **“Is MathML applicable for text to speech programs such as Kurzweil for math-based texts?”**

**ANSWER:** Yes, Kurzweil 3000 has support for MathML. To find out about MathML support in similar text to speech programs, there is a [comparison chart](http://www.dessci.com/en/solutions/access/atsupport.htm) on the Design Science website.

1. **QUESTION:** **“Text certainly provides content but does it also provide pedagogical context? This is critical if the consumer is an educator who is selecting resources to build connected knowledge and not just fragmented learning elements.”**

**ANSWER:** Yes, a description should consider the context of an image - including the text that surrounds and supports the image and the purpose of the image. Simply providing the text found in an image would be insufficient.

**FOLLOW-UP QUESTION: “How is that contextual information separated from the content of the resource and are there any metadata standards recommended to describe that context?**

**ANSWER:** They aren’t separate from each other in terms of making the image accessible – context and description go together. It depends on whether the image is already described in the text. The Accessible Image Sample Book provides many examples of this. Students get access to the information via their screen reader, which reads information contained in ARIA described-by or described-at tags, if those are available.

1. **QUESTION:** **“Using MathML, does the writer actually do the coding? How is this done?”**

**ANSWER:** Yes, MathML is an XML language and can be written using any text editor. Most people use an editing application such as [MathType](http://www.dessci.com/EN/products/mathtype/) from Design Science or [FireMath](http://www.firemath.info/). For more about this, see the recording and the written Q&A from the DIAGRAM webinar, “[Tools for Creating Accessible Math](http://diagramcenter.org/webinars.html#tools4a11ymath)”

1. **QUESTION: “Is MathML available for use in LMSs like Blackboard?”**

**ANSWER:** Yes, at the University of Louisville we use it in Blackboard. You can upload it directly, or use MathJax. There is also a tutorial about using [MathJax in Blackboard](http://www.mathjax.org/community/mathjax-in-use/using-mathjax-in-blackboard/) on the MathJax website.

1. **QUESTION: “What is a "smart image" in the context of this discussion?”**

**ANSWER:** A smart image is a digital image that is not just static – it is interactive in some way – it might have an audio file or SVG file attached for haptic or tactile rendering, for example.

1. **QUESTION:** **“How widely used are 3-D printers in creating tactile graphics/images? Does it seem viable or a good investment for public schools to invest in?”**

**ANSWER:** This is an excellent question, and the DIAGRAM Center is conducting research on this topic right now. 3D printing is not widely used yet, but it is a wonderful tool and great potential exists for it. Yue-Ting Siu will be presenting the results of her research on this during the next DIAGRAM webinar on April 30, 2014 at 11:00 a.m. Pacific time. Register for the free webinar here:<https://cc.readytalk.com/r/mphepsbx86xy&eom>

1. **QUESTION:** **“Have there been any guidelines/standards on making the images themselves more accessible? For example, using textures in a chart vs colors to convey content.”**

**ANSWER:** Please see the many links to guidelines on the [DIAGRAM Center Resources page](http://diagramcenter.org/resources/diagram-related-links.html), including the [NCAM guidelines for describing STEM images for DTBs](http://ncam.wgbh.org/experience_learn/educational_media/stemdx) and the [BANA Guidelines and Standards for Tactile Graphics](http://brailleauthority.org/tg/). There is an official braille code for tactile graphics- Guidelines and Standards for Tactile Graphics 2010, Braille Authority of North America. It is available free at [www.brailleauthority.org/tg](http://www.brailleauthority.org/tg) in a downloadable .pdf, or can be used online. There are links to examples in the online version. The first 3 units in the G&S are about designing a readable graphic. An additional supplement volume including hard copy tactile graphics is available for purchase from American Printing House for the Blind at [www.aph.org](http://www.aph.org).

1. **QUESTION:** **“Which applications do you use for producing tactile images, like the bar graphs or images in standardized tests?”**

**ANSWER:** It depends on what output equipment you have. If you have a high-resolution embosser then you would use proprietary software for that – Phoenix (Enabling Technologies) Tiger Embosser (ViewPlus), Index Embosser (Tactile View, from the Netherlands). If you have a microcapsule paper fuser – PIAF, Tactile Image Enhancer, SwellForm Graphics Machine – then you can use Corel Draw, Adobe Illustrator, or MS Word.

1. **QUESTION:** **“You use Math ML for producing statements with mathematical symbols. I use an application called Math Type that works with Microsoft Word and Duxbury 11.1. What can you suggest about these things?”**

**ANSWER:** MathType is a tool that exports MathML for you, so you can continue to use it to create all types of mathematical expressions. Equations created with Word plus MathType can also be imported into braille translations software like [Duxbury Braille Translator](http://www.duxburysystems.com/dbt_math.asp) and the [Tiger Software Suite](http://www.viewplus.com/solutions/math-access/tiger-braille-math/), so the same math source documents can be used in multiple ways for creating alternative format materials.

1. **QUESTION:** **“What is the ebook viewer you used for your slide screenshots of the Accessible Image Sample Book?”**

**ANSWER:** We were using the [Calibre](http://calibre-ebook.com/) ereader when we took the screen shots of the Sample Book for the slides.

1. **QUESTION:** **“Can the rest of these MathML players be listed please?”**

**ANSWER:** For more information about MathML, please see the [Q & A from our “Tools for Creating Accessible Math” webinar](http://diagramcenter.org/standards-and-practices/training/58-2.html).

1. **QUESTION:** **“Are there certain types of Digital Accessible Textbooks that we should be advising our bookstore to use over others (i.e. CafeScribe, etc.).”**

**ANSWER:** Pearson has HTML books that are very accessible – [they use MathML](http://www.instructorexchange.com/individualization-and-accomodations/accessible-math/). Other accessible providers include Café Scribe, CourseSmart, and VitalSource. Please check directly with your vendor – accessible profiles change often – they are getting better and better all the time.

1. **QUESTION:** **“Is it advisable to do multiple descriptions, such as a word description plus a graphic sonification for a single graph?”**

**ANSWER:** That can be effective, depending on the context and the audience you are trying to reach. Please refer to the [NCAM guidelines for describing STEM images for DTBs](http://ncam.wgbh.org/experience_learn/educational_media/stemdx) for more detail.

1. **QUESTION:** **“Where is Pearson in producing textbooks that use 'smart images'?" Is it viable for textbook producers to eventually do this as a standard? ”**

**ANSWER:** Pearson’s Higher Ed group expects to test SVG files for certain image types later in 2014. We’ll start by testing the technology and then move to user testing. Right now we don’t know if this will become standard.

1. **QUESTION:** **“Did you create your sample book in epub format using Calibre?”**

**ANSWER:** No, we created the epub files by hand. Calibre is an epub reader and can be used to convert e-books from one format to another.

1. **QUESTION:** **“How do you convert printed math into MathML?”**

**ANSWER:** To learn more about MathML, refer to the Q&A, slides, and recording of the DIAGRAM webinar, “[Tools for Creating Accessible Math](http://diagramcenter.org/webinars.html#tools4a11ymath)”

1. **QUESTION:** **“Do you have any suggestions for animated images?”**

**ANSWER:** First, how is the image itself animated?  Is it Flash, a video, a GIF or something else?  The format will largely determine how the object can be made accessible.  As with any static image, the content of the description will have to consider the context as well as what is happening in the animation. Also, if there is sound accompanying the animation, then that will have to be factored in as well (e.g., captions may be necessary).  Furthermore, interactive graphics are similar to animation in that the format will determine the method of delivering the accessible content. And, read about the [current research about interactive images going on at DIAGRAM](http://diagramcenter.org/research.html?p=21#researchinprocess) with partners from Wolfram Research.

1. **QUESTION:** **“Has your center done any work to help make tactile graphics accessible or available for state-wide testing, for example Smarter Balanced Assessments?”**

**ANSWER:** DIAGRAM Center is working to support publishers (including those who produce standardized testing) by developing tools, strategies, and techniques for creating accessible images.

1. **QUESTION:** **“Just to clarify, after this year Pearson math textbooks will come in a completely accessible format?”**

**ANSWER:** Yes, [Pearson Higher Education has committed to all 100% accessible HTML books by the end of 2014](http://www.instructorexchange.com/individualization-and-accomodations/accessible-math/) for most of its math textbooks.