

Sketchnoting

An Analog Skill in the Digital Age

By Robert Dimeo

In the last decade, a method of notetaking incorporating hand-drawn visual elements has become an increasingly popular technique for recording information from meetings and presentations at conferences. Why has it become so popular? Proponents and practitioners describe benefits including enhanced information retention and recall as compared with conventional, text-only notes. In a time when laptops appear to be the preferred method of notetaking from the classroom to the boardroom, it is curious that an analog skill like handwritten notetaking incorporating typography and sketches of simple figures would gain such popularity. Moreover, while simple notebooks and pens are all that is needed to create visual notes, tablets with drawing apps are becoming an increasingly popular mode for making visual notes. In this article, I will discuss the elements of sketchnotes, the benefits of sketchnoting as described by its proponents, and how sketchnotes are being used. In addition, I will describe my own personal 30-day experiment begun two years ago in which I made one sketchnote daily - and why I have not stopped this practice.

Keywords: visual notes; education; tablet; mobile technology; science; computer

Categories: *Human-centered computing* – *Visualization*

Corresponding Author: *Robert Dimeo*

Email: *robert.dimeo@nist.gov*

What are sketchnotes?

Sketchnotes are “rich visual notes created from a mix of handwriting, drawings, hand-drawn typography, shapes, and visual elements like arrows, boxes and lines,” according to Mike Rohde, author of *The Sketchnote Handbook*.¹ A sketchnote is a physical artifact and sketchnoting is the skill that generates it. A sketchnote can be created to summarize any source of information including, but certainly not limited to, presentations and meeting content. It can be used for anything that you might want to summarize in a one-page, memorable document. A sketchnote contains highlights but typically does not contain detailed information. It is not meant to be a verbatim representation of a talk, for example, but rather it captures the main ideas through words and drawings. Effective sketchnoting requires you to listen, analyze content, write, and doodle. Like any other skill, it takes time to learn how to sketchnote and improvement requires practice. So why bother if it requires you to develop the ability to apply these skills simultaneously? This is not necessarily a skill for those who already benefit from their current notetaking method. However there are some people who report that they never read their notes after taking them, thus finding

¹ *The Sketchnote Handbook: the illustrated guide to visual notetaking*, Mike Rohde. Peachpit Press, 224 pages, 2012.

their notes of little use.² According to Sunni Brown, author of *The Doodle Revolution*, incorporating doodles with notetaking has a number of cognitive and performance benefits.³ It can provide you with a high level of comprehension, increase your retention and recall, increase your creativity, and can lead to enhanced listening skills. According to Brown and Rohde, the verbal-visual connection is powerful and lies at the heart of these benefits. Consider the case of handwritten notes versus typed notes. Research suggests that there are advantages taking notes longhand versus taking notes on a laptop.⁴ According to a recent study, there is a fundamental distinction between the longhand note taker and the laptop note taker: The former performs mental processing and synthesis of ideas while the laptop note taker tends to make as close to a verbatim record as he/she can. The mental processing and synthesis is the key that underlies the performance advantage of long-hand note-taking. Rhode and Brown take the argument a step further by suggesting that incorporating hand-drawn elements into notes has cognitive advantages. Again, research supports the claim that drawing can be an effective learning strategy⁵ and has benefits for recall.⁶ Interested readers can consult the books by Brown and Rohde and references therein for more information on the research behind this strong verbal-visual connection that serves as the basis for the power and benefits of sketchnoting.

A sketchnote is a personal, hand-drawn document whose content reflects the ideas that resonate most with the sketchnoter. It is not meant to be an infographic for a broad audience. Although a sketchnote might be made more accessible to a broad audience, that is not its purpose. For many individuals, sketchnotes are made *by* the sketchnoter and only *for* the sketchnoter. As a result, a sketchnote that you make from a talk that you attended may not make sense to anyone but you and perhaps some others who saw the same talk. And yet the advantage of that hand-drawn visual is that it might provide you with a much more vivid memory of the talk than a set of conventional notes. Many individuals share their sketchnotes with others. Mauro Toselli, the Chief Operating Sketchnoter at Sketchnote Army⁷, defines sketchnotes as “notes enriched with meaningful visual elements, open to sharing and to create opportunities for human connections.”⁸ He views sharing sketchnotes as an important element in breaking down barriers of communication. Regardless of the sketchnote’s individual purpose, each one is unique and personal because it is hand-drawn by an individual and the choice of structure, type, and drawings is left to the individual.

There is a large on-line group of sketchnote practitioners who engage daily via social media. In fact, it is becoming more common to see sketchnotes of presentations at meetings

² Sketchnotes – Making Notes Fun Again, Marc Gutman, Wildstory – <http://wildstory.com/2015/01/sketchnotes-making-notes-fun/> - Accessed 04/03/2016.

³ *The Doodle Revolution: Unlock the power to think differently*, Sunni Brown. Portfolio, pp. 17-20, 2014.

⁴ The Pen is mightier than the keyboard: Advantages of longhand over laptop note taking, Pam A. Mueller and Daniel M. Oppenheimer, *Psychological Science*, pp. 1-10, April 23, 2014.

⁵ Drawing to learn in science, *Science* vol. 133, 1096, 2011.

⁶ The drawing effect: Evidence for reliable and robust memory benefits in free recall, Jeffrey D. Wammes, Melissa E. Meade, and Myra A. Fernandes, *The Quarterly Journal of Experimental Psychology*, 69:9, pp. 1752-1776, February 16, 2016.

⁷ Sketchnote Army - <http://www.sketchnotearmy.com> – Accessed 05/10/2016.

⁸ Mauro Toselli, personal communication.

posted on social media not long after the talk is over. This has become a popular way to generate more interest in meetings and conferences.

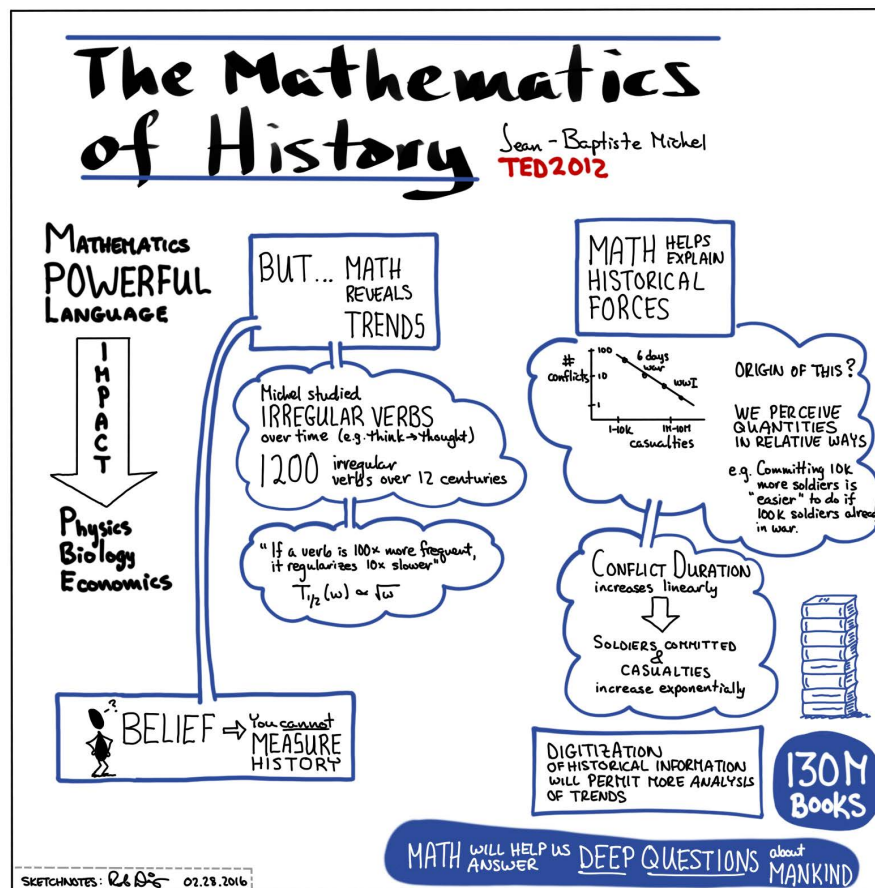


Figure 1 Sketchnote summary of a short (4 ½ minutes) TED talk by Jean-Baptiste Michel on The Mathematics of History. This sketchnote was made using an iPad Pro and the Procreate drawing application.⁹

Elements of Sketchnotes and an Example

A sketchnote captures the main points of a body of information and it emphasizes those main points using simple drawings, words, and type. It is not meant to be a verbatim transcript. An example sketchnote that summarizes a short presentation is shown in Figure 1. This sketchnote demonstrates a number of common sketchnote components including structure, type, title, drawings, arrows, separators, containers, and simple drawings. This sketchnote is also limited to a single page which is an often-used self-imposed constraint.

The structure of a sketchnote is important because it is the basis for content organization and flow. Structure takes different forms ranging from a well-defined geometrical layout to random configurations. The former includes layouts that are columnar, vertical, path, or

⁹ Product names are stated in order to identify the complete conditions and such identification is not intended as a recommendation or endorsement by NIST.

radial and the viewer proceeds in a logical way through the content with little additional visual cues. The latter includes a “popcorn” layout in which the drawings and type are arranged in a free form around the page (i.e. like popcorn scattered about). Figure 2 shows a few of these possible layouts. In a random configuration, it is important to guide the viewer through the content. This can be done using a number of visual cues such as a faint background path (see figure 3), numbering the items, drawing connected containers around the main points, or a combination of these. In the example in figure 1, the content is arranged in columns with a logical flow as you might read in a newspaper. This was done purposefully because it is a natural way for some people to take notes and read the information later. The boxes, clouds, and elements connecting them are added to help guide one through the content. The title is drawn large in bold, black font to make it stand out. Color is used as a differentiator, too. The containers (boxes and clouds) are drawn in blue, distinguishing them from the text which is primarily an aesthetic addition. Solid background colors can also be used for grouping ideas (e.g. words and drawings). Though the text is largely black, the concluding statement is drawn in white on a dark blue to set it apart. Since the sketchnote is a summary, one should be able to process it quickly. Looking at the sketchnote in figure 1, one can determine quickly how to follow the information.

The final point to make about the sketchnote in fig. 1 is that the drawings are very simple. The only elements used are a stick figure and a simply-drawn stack of books. For sketchnotes, artistic skills are not required. Drawings of people as stick figures and objects in blocky representation are common. It is noteworthy that some of the most effective and sophisticated sketchnotes contain the simplest of drawings but presented in a clear manner.

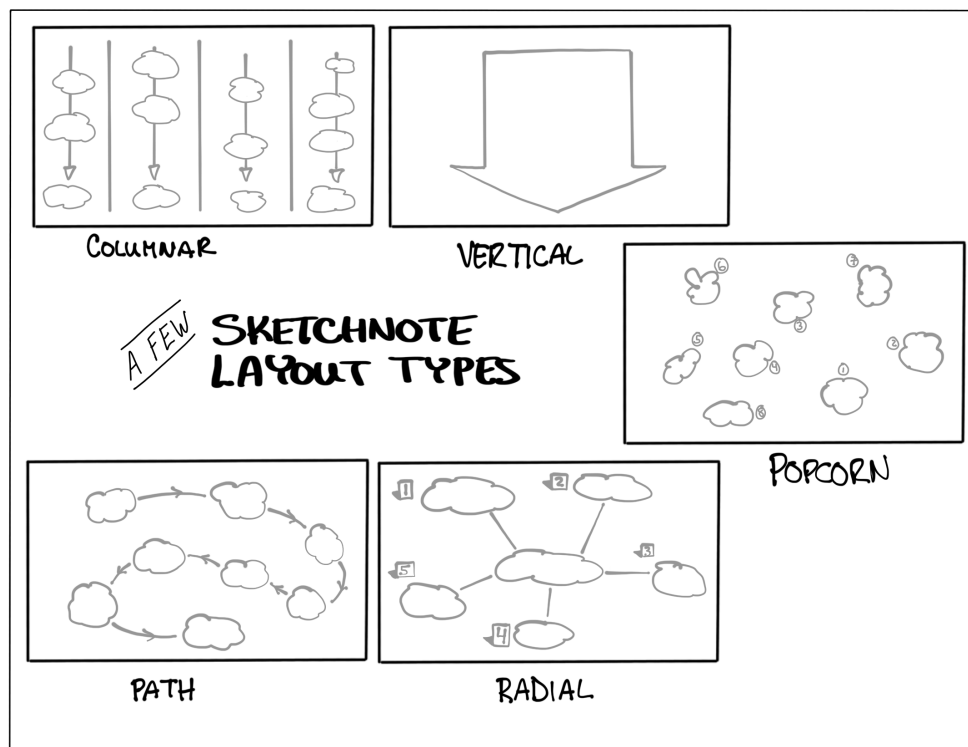


Figure 2 A few sketchnote layout types.

Content and approach

Sources for sketchnote content are diverse. Live presentations and meetings are common sources but sketchnotes have been used to summarize books, technical publications, movies, TV shows, brainstorming sessions, recipes, travel plans, and much more. Sketchnoting a live presentation or meeting at a conference is different from making a sketchnote from a static document like an article, technical publication, or book. Live sketchnoting requires well-developed active listening skills and the ability to listen, watch, process and synthesize information while writing and drawing. Sketchnoting from static content like a web article, book, or other publication can be done at a self-directed pace. A common way to practice live sketchnoting is to do so while watching a pre-recorded short presentation such as one found on the TED website.¹⁰

Sketchnote tools

The tools required for sketchnoting are neither expensive nor sophisticated. A sheet of notebook paper and a ball-point pen or pencil are all that is needed to make a basic sketchnote. However there are varying degrees of sophistication of tools. A gel pen and Moleskin pocket notebook is a favorite toolset of Mike Rohde. The advantage of using analog tools such as pens and notebooks is that they are readily available and portable. Digital tools have recently become quite popular among sketchnote practitioners. Tablet computing devices such as the Samsung Galaxy Pro Note, the iPad, and Microsoft Surface are all popular platforms for taking digital notes. The advantages of these digital options include the ability to easily edit sketchnotes. If access to the World Wide Web is available, then it is possible to export and share sketchnotes via social media. The apps for sketchnoting are perhaps as important as the device itself. There are many such apps but a few such apps include Sketchbook Pro by Autodesk¹¹, Paper by Fifty-Three¹², Procreate by Savage Interactive¹³, and Adobe Draw¹⁴.

A 30-day experiment

In early 2014 I was seeking a way to improve my understanding of information presented at certain highly technical seminars (mainly physics) that were far from my own particular research background. I had taken notes by hand at research seminars for many years but I rarely looked at them afterwards. It begged the question “why am I taking these notes at all?” My answer was *habit* – but it was a habit with no benefit. I wanted to change that. A web search that started with “taking notes” eventually led me to visual notes and *sketchnotes*.

I was immediately drawn to the many sketchnotes that I found posted on the web. These one-page visual documents were marvelous summaries of often complex information. I found the combination of hand-drawn images, typography, and text to be an engaging

¹⁰ <http://www.ted.com/>

¹¹ <https://www.sketchbook.com/mobile>

¹² <https://www.fiftythree.com/>

¹³ <http://procreate.si/>

¹⁴ <http://www.adobe.com/products/draw.html>

means to present the big ideas of many different topics from a variety of venues. I was reminded of a design principle for presentation slides advocated by Nancy Duarte: good slides are similar to a billboard.¹⁵ The information on a billboard contains one point which can be understood with a single glance. In contrast a sketchnote contains more than one point – the main points of the information source – but a good sketchnote allows the viewer to process the information relatively quickly like a billboard.

When I decided to try sketchnoting, in order for the attempt to be fair, I committed to sketchnoting exclusively for 30 days. For those 30 days, I abandoned conventional notetaking and made only sketchnotes. Since I wasn't used to drawing objects, making boxes, lines, or containers in my notes, it was very difficult at first. The main difficulty for me was that I was not used to listening, synthesizing, watching, and drawing simultaneously. Nevertheless I struggled through the discomfort and sketched every day. I made sketchnotes at management meetings as well as technical seminars. In addition, I sketched brainstorming sessions and even summaries of policies that are an important part of my job. Making sketchnotes at technical seminars proved to be the most difficult part of the challenge. I eventually developed a workflow for it that differed from my workflow for making sketchnotes at meetings. The primary difference is that I learned to do more preparation in advance of the technical seminar in order to gain a basic understanding of the concepts prior to the delivery of the presentation. More details about my workflow can be found in a post at the Sketchnote Army community website.¹⁶ The results of this self-imposed challenge were encouraging. At the end of the 30 days, sketchnoting was much less awkward for me, I saw genuine improvement in the quality of my sketchnotes, the meetings and talks were more memorable for me, and I decided to continue.

One of the activities that I do to improve my sketchnoting for highly technical information is to create sketchnote summaries of research publications, particularly in materials science which is a focus at my workplace - the NIST Center for Neutron Research.¹⁷ The act of summarizing someone else's research results with my own drawings and handwritten elements in a sketchnote helps me to improve my understanding in a way that just reading the publication does not. An example of this is shown in figure 3. Also, I use sketchnotes to plan certain work activities. For example, I often create a sketchnote to plan out a presentation prior to creating any slides. As a final example, figure 4 shows the sketchnote that I made to plan this article. Though there are some differences between the content of the final article, it contains the main points that I wanted to cover.

Another important outcome of this sketchnote experiment is that I found attending events to be fun. Indeed, I look forward to any opportunities to make sketchnotes.

¹⁵ Slide:ology: The Art and Science of Creating Great Presentations, Nancy Duarte. O'Reilly Media, 296 pages, 200.

¹⁶ Sketchnote Army – <http://sketchnotearmy.com/blog/2015/5/12/sketchnoting-and-scientific-talks-an-interesting-article-by.html> – Accessed 03/17/2016.

¹⁷ NIST Center for Neutron Research – <http://www.ncnr.nist.gov> – Accessed 03/03/2016.

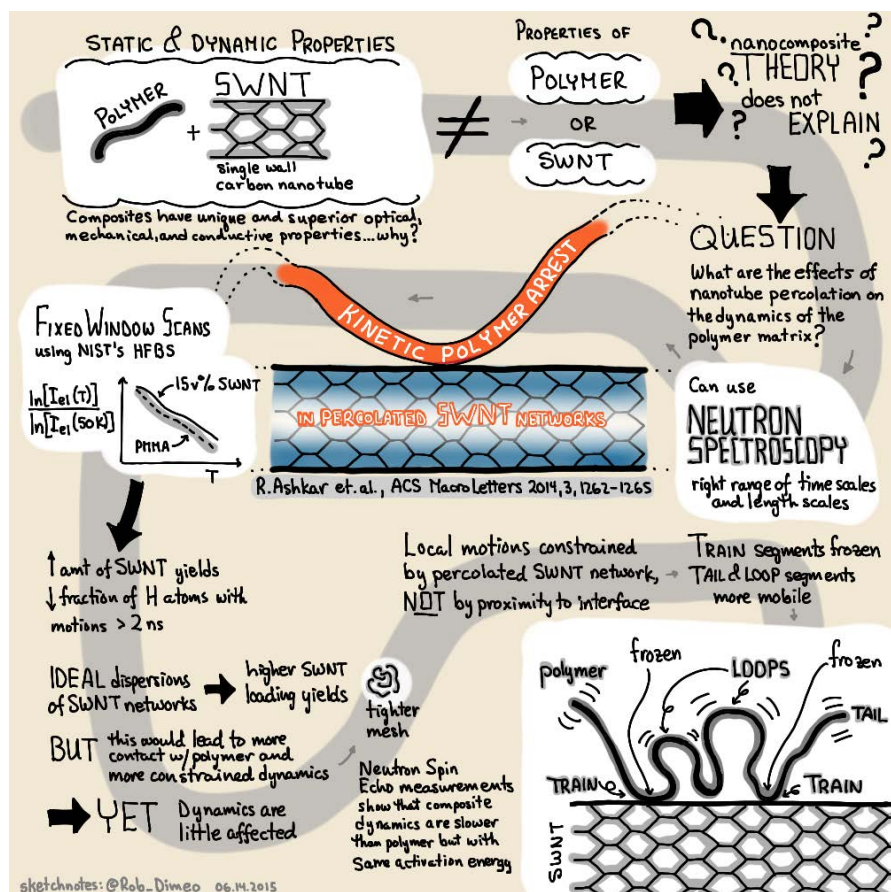


Figure 3 Sketchnote summary of a scientific publication by Rana Ashkar *et. al.* on the dynamics of polymers near single-walled carbon nanotubes.¹⁸

¹⁸ Kinetic Polymer Arrest in Percolated SWNT Networks, Rana Ashkar, Mansour Abdul Baki, Madhusudan Tyagi, Antonio Faraone, Paul Butler, and Ramanan Krishnamoorti, ACS Macro Letters, 3 (12), 1262-1265

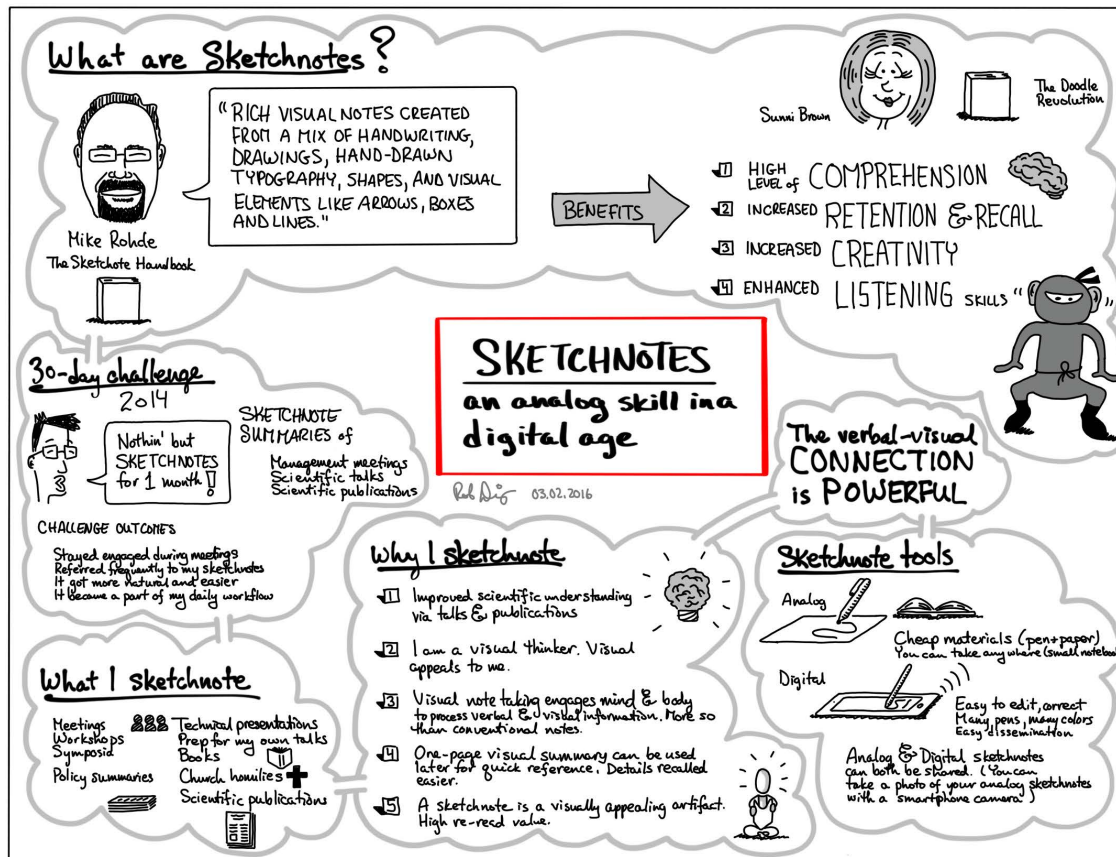


Figure 4 This sketchnote is a visual outline created by the author prior to writing this article. Note that the final article evolved to a slightly different form than proposed in this initial visual outline.

Conclusion

Sketchnotes can be a powerful way to record information for your own benefit and use. Creating your own requires only simple, inexpensive tools to create and the simplest of drawing skills. In future issues of ACM Computers & Society, we will be including sketchnote summaries of technical articles, books, and presentations. If you create a sketchnote on a topic of interest to this readership and wish to share it with the community, I encourage you to please contact me.