

Resource Title: Drawing for Informed Consent

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Resource Components:

PowerPoint Lecture: 961 words, 28 Figures

Small Group Exercise/RISE (Online Assignment): 1021 words

Individual Assignment: Sketching Aid (Handout): 546 words, 6 Figures

Section I: Summary

Drawing is a form of communication. Physicians use it to understand medical concepts themselves and to explain treatments and conditions to patients. Yet it is not a skill commonly taught in academic medicine. To address this need, we created the Drawing for Informed Consent module to help medical students develop visual communication skills. The intervention focused on the role of drawing as a communication tool during the informed consent process. The interprofessional teaching team included professionals from the disciplines of design, the arts and medical ethics.

This was a required class for first year medical students in the course, Ethical Foundations of Medicine. The length of the module was designed to fill the two hour class period. Students were given a general lecture on the purpose of the intervention and a description and explanation of a novel lexicon and rubric that they would use to create and assess drawing in a clinical scenario. Following the lecture, there was a small group activity. In their groups, students followed a www-based step-by-step informed consent scenario. Utilizing the lexicon and rubric the students created and evaluated their own informed consent drawings as well as drawings found in published medical decision aids that communicate informed consent in clinical care.

This module is applicable for undergraduate, graduate, or continuing education in any discipline that requires health communication.

Section II: Rationale

Informed consent is the cornerstone of shared decision making in medicine. In the informed consent process, information needs to be understood by the patient. From the 1960's when respecting patient autonomy in healthcare and research became a priority, addressing the issues of the readability and complexity in consent forms has been documented in the literature.¹ With nearly half of the United States adult population having marginal (i.e., below basic or basic) health literacy^{2,3} medical information in the informed consent discussion should be offered in "plain language."⁴ There is disagreement as to whether rendering information into an eighth grade literacy level is plain enough and teaching clinicians how to manage these translations reliably is challenging.⁵ Subsequently, we decided to look to communication practices in other fields, such as art and design, for methods to disseminate information. This broadened perspective allowed us to develop a novel solution, a general visual literacy curriculum, that could be used to meet teaching and learning goals in the informed consent process and to develop other skills in medical education.

Visual literacy touches on a number of skills: observation, communication, information design, and methods of representations such as sketching & drawing, in both figurative and abstract forms. Our visual literacy curriculum begins with Drawing for Informed Consent, focusing on the ways drawings and images communicate.

Building upon existing educational interventions that bring visual art and medicine together through gallery tours which develop skills in observation and the communication of visual information,^{6,7,8} the module focuses on the role of drawing as a communication tool during informed consent conversations and the development of critical assessment skills for existing visual aids used during clinical communications.

It may not be such a stretch to see such an application as physicians already use drawing to understand medical concepts themselves and to explain treatments and conditions to patients.⁹ Drawings function as on-demand visual representations and are often able to communicate complex ideas efficiently and often more quickly than verbal or written language. Additionally, drawings communicate effectively across languages and literacy levels making them especially effective tools for linguistically diverse communities. The near-universal fluency of drawings to communicate ideas across language barriers and literacy levels makes them especially effective tools for our students and anytime communication and understanding are the goals. As a community-based medical school in Miami, Florida whose mission is to serve all citizens in South Florida, we are uniquely situated to launch this program as we have a culturally and linguistically diverse population.

Section III: Learning Objectives

- Engage in a drawing activity in a clinical scenario that reviews the elements of informed consent
- Experience and analyze how drawing can be a tool for the translation and communication of ideas.
- Analyze the role of selecting and editing visual content for effective communication.
- Engage in peer critique, self-reflection, and consensus building when confronted with ambiguity.

Section IV: Accreditation Standards

EPA 11: Obtain informed consent for tests and/or procedures (EPA Standards)

- PC 7: Counsel and educate patients and their families to empower them to participate in their care and enable shared decision making (EPA 11, EPA Standards)
- ICS 1: Communicate effectively with patients, families, and the public, as appropriate, across a broad range of socioeconomic and cultural backgrounds (EPA 11, EPA Standards)

LCME 7.4: Critical Judgment/ Problem-Solving Skills

LCME 7.8: Communication Skills (LCME Accreditation Standards)

Section V: Description of Resource

This resource is a module consisting of three parts that takes students through the basic applications of using drawings for informed consent: (1) a 45-minute didactic lecture, (2) a 60-minute small group activity, and (3) an individual assignment.

1. The 45-minute didactic lecture is conducted through a PowerPoint Presentation.
2. The 60-minute small group activity goes through a simple case.
3. The individual assignment is a 1-2 sentence submission to a discussion board where students can openly discuss their analyses.

Components of the resource:

- A PowerPoint presentation used for the lecture.
- An interactive web-based, small group, self-facilitated, team activity.
- A sketching aid handout containing the rubric and graphic lexicon.
- A handout for the individual assignment.

Section VI: Implementation of Resource

The module was part of a required course for 127, first-year medical students. A total ~2hrs was needed to complete the entire session. We began with a short lecture to familiarize students with the notion that drawing is a useful tool for communication that is well-suited to medical practice. The lecture also introduced a set of guiding principles, a graphic lexicon, and a rubric for quickly conveying visual information that was developed from foundational drawing techniques and graphic facilitation methods.^{10, 11}

Students then broke into ten small groups of ~12 students each in small group rooms near the lecture hall. The rooms contained a large meeting table and ample drawing supplies (blank sheets of paper, sharpies, colored pencils, Post-It notes). Students followed step-by-step instructions created in a web-based application called Rise, and were able to self-facilitate in small groups. (Rise is part of the Articulate 360 suite, a responsive e-learning platform.) Following the Rise, students were guided through a fictional informed consent scenario. Utilizing the principles of drawing for informed consent, the lexicon, and the rubric the students created and evaluated their own informed consent drawings as well as illustrations found in published medical decision aids that were designed to facilitate clinical communication.

The set-up and follow-up required to successfully implement this module is as follows. There should be a faculty member or dedicated technology assistant with the necessary skills to assist with connecting and using the laptops and monitors. To use the class time most effectively, the small group rooms should be prepared with the necessary materials (drawing supplies, Post-Its, copies of the handouts, etc.) before the small group session. Faculty or administrative assistants will need to be on hand to collect student work after the activity. The module was pass/ fail and faculty or a team of graders will need to verify completion of the assignments and if the instructions were followed.

Section VII: Evaluation

Evaluation was conducted through two methods, a group assignment to create an informed consent guide and an individual assignment to assess the success of existing visual clinical aids. Both methods use the same rubric to evaluate success. The rubric (see figure 1) created for this module was used for teaching and assessment. It describes successful and unsuccessful (or confusing) applications of each of the three principles of drawing for informed consent and their associated sub categories. This allows the rubric to serve as both an example of how the guiding principles of informed consent could be applied in practice and as a tool to understand success.

The group assignment asked each small group to assemble a collective visual 'guide' that could be used during the informed consent conversation described in the case. To create the guide, the students used the rubric to assess the success of the sketches drawn during the group exercise which asked them each to illustrate: the proposed treatment and two risks of the treatment. Then students selected the most successful images from each category (treatment, two risks) to form the guide. This group activity was followed by an individual assignment that asked the students to assess the success of an existing visual clinical aid, using the same rubric as a guide.

Figure 1: Drawing for Informed Consent Rubric

Drawing for Informed Consent Rubric

Principle	Meaning	Assessment Category	Characteristics of a Successful Drawing	Characteristics of a Confusing Drawing
Keep it Simple	Don't over complicate the drawing. The less visual noise within a drawing or diagram, the more quickly the information can be understood.	Basic shapes	Illustration linework is crisp, shapes are distinct, legible, and void of unnecessary embellishment.	Drawings appear complex and indistinct. Drawings have too much / unnecessary detail, such as shading and many colors.
		Shared iconography	Illustrations use easy to understand icons and graphics.	Icons have unclear meanings, rely heavily on legends and keys to explain their meanings. Icons contain unnecessary details and appear graphically complex.
		Use of color	Color, if employed, is used sparingly & consistently to highlight important information.	Colors are randomly selected or used to represent multiple ideas.
Create & Use Context	The arrangement and juxtaposition of elements creates relationships between them.	Drawing layout: scale, proximity, and juxtaposition	Drawings use contextual elements to reinforce the main idea. Drawings are clustered or spread apart in a logical way. The orientation of drawing elements remains constant.	Images/Icons are randomly grouped and appear to be haphazardly located on the page. The orientation of drawings is inconsistent.
		Symbol usage	Arrows and symbols create a road-map to help navigate the illustration.	The associations between multiple elements within the illustration is unclear.
Be Efficient	Focus on communicating the essential information.	Clarity of concept	The purpose of the illustration is easy to identify. The elements of the drawing all support the main concept.	There are many ideas being communicated within a single illustration, and the focus and purpose of the aid is unclear.

The results of the 2017 pilot session were that all student drawings incorporated some of the guiding principles and lexicon, but students were less successful at being able to assess the 'clarity of concept'. On the other hand, 100% of the students could evaluate all aspects of effective visual communication in published informed decision visual guides that they were assessed on.

To address the learning gap in the 2017 session, we added an additional slide to the lecture in 2018 to better elucidate the goal of these informed consent drawings: to convey complex information efficiently and quickly. The additional slide presented an image from the Rohde book ¹⁰ that compared five ideas though a distinction between "fancy" illustrations and "simple" drawings, demonstrating that each idea is conveyed equally well by both fancy illustrations and simple drawings, but the simple drawings have the additional benefit of being quick and easy to draw.

The 2018 session, the second year we included the module, fell on the last day of class. Due to course scheduling and university policy constraints, we were unable to include the individual assignment as a take-home task (no graded materials can be submitted after the final class session). Instead we added the activity as a tool for students to self-assess their understanding of the rubric's principles. This forced another change. During the pilot session the previous year, students were asked to sketch the benefits as well as the risks of treatment. We removed the benefits section (the prompts and subsequent steps) of the exercise to make time for the self-assessment activity. Drawing the treatment and two risks

provided the students with three opportunities to experience communicating their ideas visual through images. The learning outcomes of the activity were not impacted in any observable way by the omission of the fourth drawing opportunity, the requirement to draw the benefits of the treatment.

At our medical college, students are required to complete course evaluations. While students were not asked specific questions about the Drawing for Informed Consent class, it was mentioned frequently as being enjoyable and applicable to their other medical studies, in particular, to their anatomy classes and genetics. Additionally, at our medical college all required course undergo an annual comprehensive evaluation by the Office of Medical Education that is directly linked to curricular development and modification. This includes a review of the student evaluations and a completed course director reflection and questions related to course goals and objectives, integration, active learning strategies, and assessment. As the Drawing for Informed Consent class was a new intervention, it was specifically discussed. The final determination was that it was a successful class appreciated by the students and structured as to meet course goals and objectives. It was also determined that educational interventions in the visual literacy curriculum should be further developed in different courses, particular to develop observational skills.

Sections VIII: Reflection

A strength of this session is the novelty of its subject: drawing as a form of clinical communication. Drawing is not an expected topic within medical education and as such it is a unique way to approach the challenges of communication and health literacy. While many students will find this alternative approach interesting, this novelty could also be a weakness if the connection back to medical applications is not explicit and therefore the relevance of the activity might be confusing. To address this potential weakness, the lecture focused on the use of drawing as a communication tool while at the same time reinforcing the importance of clinical communication. Additionally, the lecture and activity focused on applying visual communication techniques to informed consent conversations, a topic that had already introduced during the course in which this class is a part, the Ethical Foundations of Medicine. This integration strengthened the relationship between drawing as a means of communicating and its clinical application. We also gave a full class period to the module allowing enough time to get through the material without rushing. Finally, the session was conducted by an experienced, collaborative, transdisciplinary teaching team.

The dual approach of an didactic lecture to introduce the material followed by a self-facilitated small group activity was essential to the module's success. Beginning with a lecture was especially important to introduce some basic concepts and to teach the specific principles of drawing that they would use during the activity as well as help the students recognize the ways that physicians are already using drawing in their practices and get their buy-in. The small group activity gave students first-hand experience with the techniques covered in the lecture. The use of an interactive web-based guide allowed the small student groups to self-facilitate, freeing the time of the content experts able to move from room to room as needed. Web-based small group facilitation is well-suited to the facilities at our institution, however, printed handouts with the instructions for the activity would also work.

Section IX: Suggestions for Expansion:

This module is easily adaptable to any curriculum in the health professions where communication and understanding are learning goals. The application of the drawing techniques created for informed

consent conversations may be shifted to other areas that have a similar need for this type of visual communication, for example, nutrition guides, medication instructions, wound care, and outreach. The module would be suitable for a range of education levels including undergraduate, graduate, and professional continuing education. It could also be a multi/ trans-disciplinary session with art and public health students, for example. The dual format of a lecture and self-facilitated small groups also lends flexibility to the size of the student group. If scaling up or down in size, the small groups should have between 6 and 12 students. In our experience, we found that we could deliver the module with one faculty per 60 students. Additionally, the module could be split into two sessions, the didactic lecture on one day and the group activity on the next.

Lastly, the module serves as an ideal introduction to a more robust visual literacy intervention in a health professions curriculum. The session could be extended into a half-day event by reconvening as a whole class after the small groups to view and discuss the success of group assignments. It could become part of a full-day visual literacy workshop by preceding the didactic with a curator-led tour of a local gallery or a guided walking tour of campus with the aim to develop observational skills. Or the session could complement a series of sessions including additional instruction in drawing techniques, such as figure drawing, and more advanced sessions on information design, such as infographics.

Ethics:

The authors have no conflicts of interest to report.

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