

Examining how art influences plastic surgery – and vice versa

By Jim Leonardo

Editor's note: The following is part of an ongoing series highlighting The PSF Research Grant Award winners, and research they're conducting to improve patient safety and develop new technologies for plastic surgeons. These features examine research funding awarded prior to the current year, as projects to which grants were awarded this year may not yet have results ready to discuss.

THE RESEARCHER

Audrey Nguyen, MD

Title: Plastic Surgery Resident (PGY-6), University of California-San Francisco Division of Plastic and Reconstructive Surgery

Award: ASE/PSF Combined Research Grant

Project: Overlapping Worlds of Art and Plastic Surgery: Implications for Surgical Training

PSN: *What are you studying with this project?*

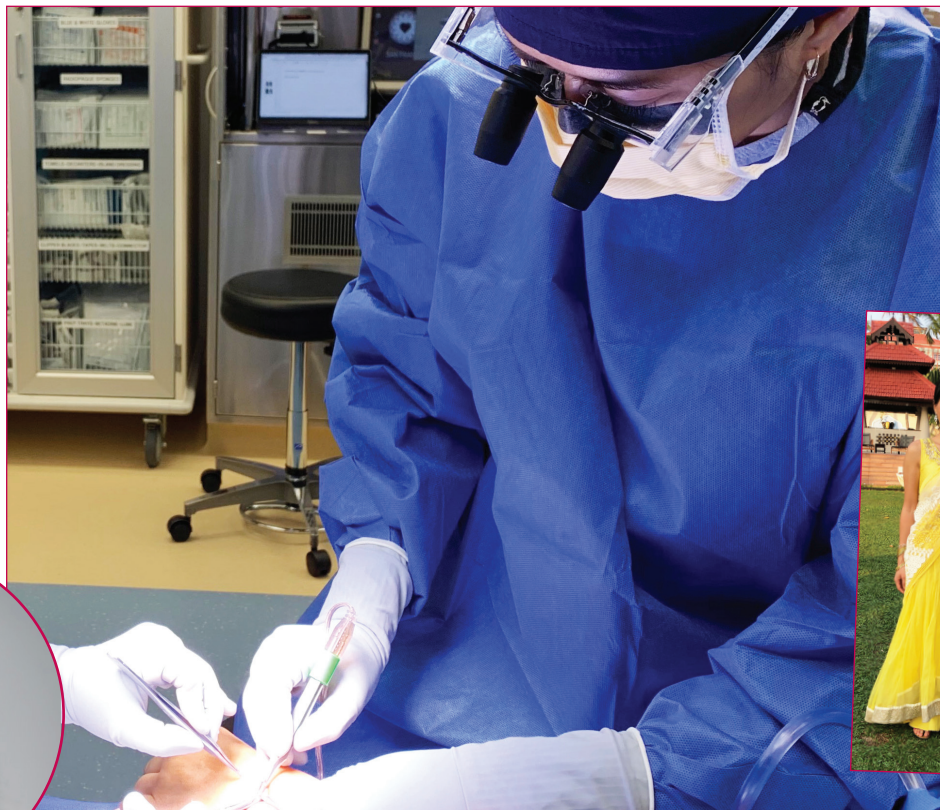
Dr. Nguyen: The purpose of this study is to identify the shared concepts and skills within the fields of art and plastic surgery through a qualitative analysis of interviews of 15 plastic surgeons and residents, along with 15 artists and art students. As is standard for rigorous qualitative research, we don't propose specific hypotheses, but rather, research questions which will generate our theory. The novelty of this proposal starts with a needs assessment involving two important sources of information: the artistic and the surgical communities. These overlapping concepts and skills could be leveraged to increase artistic, and thus surgical, skills among plastic surgery trainees via a novel art-based curriculum. Our aims are designed to establish the central, aligning concepts and skills within art and plastic surgery. Using this study, we can enhance the educational experience of plastic surgery trainees by designing a curriculum featuring these concepts and utilizing artistic skills.

PSN: *What have you learned thus far?*

Dr. Nguyen: We've conducted 18 successful interviews with plastic surgeons and artists, and all participants have been open and willing to answer our questions and provide opinions about the learning process and achievement of mastery within their fields. We have found some common concepts already, even though we've not yet completed nor coded all of the interviews. One interesting point both groups address is the idea of "technical vs. creative" – that there are the technical skills that one needs to learn in either field (i.e., how to draw a line or contour, or how to suture) and how to go beyond the technical skills, to use them in creative and innovative ways. Both groups also discuss "critical thinking" as a necessity to improve and evaluate one's abilities and skills.

Finally, the plastic surgeons use several terms within "elements of art" and "principles of design" that are in the core principles of learning for artists. These terms include "line, proportion, color, light, balance." Based on the preliminary data analysis of this study that uses qualitative research methods, we're finding aligning and overlapping concepts and themes between the two groups. We're excited to complete our interviews and data analysis to discuss how these themes and concepts can be used to enhance plastic surgery education.

PSN: *What do you see as a practical applicability of this intersection?*



(Top) Dr. Nguyen at work in the O.R.; and (right) with her husband, Scott Bauer, MD, at a wedding in Kochi, India.

Dr. Nguyen: Judging by our interviews, plastic surgery can draw on artistic principles and education. As I learn more about art education and the way foundational knowledge and skills are built, I believe these skills and strategies can be applied to the budding plastic surgeon: the ability to understand, describe and assess the elements of art and the principles of design – color, balance, proportion, texture, line and composition. Though these general concepts are understood as a trainee, they aren't formally taught – and if they are, not by an artist. Once trainees are educated about these basic concepts, they can apply them to surgical planning, design and patient assessment.

Perhaps we start with using materials from art as simulations for plastic surgery trainees. Nothing can replace the hours dedicated to doing something, but to elevate one's understanding, especially in such a creative and innovate field, we should offer an art-based curriculum throughout training such as basic figure and portrait drawing classes. Eventually, I want to study and give tangible evidence that artistic training positively affects resident training and development.

PSN: *Has anything unexpected surfaced thus far?*

Dr. Nguyen: Our field notes have been telling of the experiences with each participant and what we're finding at an individual level. Here are some examples:

"I really enjoyed the interview with this participant. She has a strong background in portrait drawing and figure drawing, however, she identifies more as a filmmaker now because she's interested in time. Regardless of her medium, I think that she thinks about art in the same way. She believes that an artist is imagination and creativity mixed in with critical thinking. However, art is also about the experience, rather than just the product – a common theme that I'm finding with these interviews. She also brought up emotion a lot, including something that I hadn't thought before: that plastic surgery also evokes emotion and that a patient's transformation emotional process for them. I thought it was interesting that she's fascinated by noses, observes them and thinks about ways to draw them both realistically and abstractly. Light is also an important concept to this artist – how it falls on subjects or landscapes, brings out the contrasts. Color, form, movement,

structure, framing, composition, surface, line and color. Composition is an important concept – about how to compose it onto the medium."

"This participant focused on the 'beautiful' and the feelings that beauty give her and her patients and that it's fun." She measures good outcomes by whether her patient is happy. She does have an interesting background and recalls 'tinkering' a lot when she was younger, taking things apart and putting them back together. Her mother was an artist, and she watched her mother make art growing up. She has a very personal relationship with art and beauty, and believes creativity is the freedom to express oneself, which she says can be accomplished as a plastic surgeon. I liked her concrete descriptions of her assessment of her work and how she described a breast – the roundness, texture, symmetry, proportion, size, color. She also talked a lot about the feel of tissue, malleable, 'how it hangs' – a very tactile description. She thinks a lot about how the tissue and end-product will change over time or look in the future, which is hard to predict and teach. Similar to other plastic surgeons whom I have interviewed, it was difficult for her to describe how one acquires and teaches art and artistry. She made an important distinction between a master/skilled surgeon and an artistic surgeon – the two might not be the same. An artistic surgeon is one who uses the human body as an art form and whose goal it is to make it beautiful. One can be a skilled surgeon, however, and not be artistic. A master knows how to predict the outcome. Overall, she was passionate when talking about her work and how it brings fun, beauty and connection with her patients.

PSN: *What might be behind these perspectives?*

Dr. Nguyen: The beauty of qualitative research and interviews is that the questions are open-ended and that each individual has certain ideas and opinions. Unexpected themes may surface, and the overall goal of the research is to find whether exist in both groups.

PSN: *Who are your mentors and key collaborators on this project?*

Dr. Nguyen: I would like to thank Patricia O'Sullivan, MD, for her help and mentorship. Dr. O'Sullivan is a professor of Medicine and Surgery and director of Research and Development in Medical Education at the University of California-San Francisco School of Medicine.

She is my Co-PI for this grant and a member of the Association for Surgical Education. I approached her almost two years ago about my interest in medical education, and from the beginning, she has supported my endeavors with weekly meetings, honest advice and expert knowledge of the field. She has given freely of her time to critically assess my research and is constantly teaching me and offering advice about my future and my work. I personally understand why she was awarded the UCSF Lifetime Achievement in Mentoring Award.

I also want to thank my research assistant and colleague, Dawn Duong. I've been very impressed with her diligence, her interviewing and qualitative research skills, and her enthusiasm with this project. I could not complete this without her hard work.

PSN: *What did you want to be when you were growing up?*

Dr. Nguyen: I wanted to be an artist when I was a youngster. I was attracted to the creativity, beauty, dexterity and balance of art. I was always sketching and drawing, and I excelled in my high school art class. However, I ended up majoring in biomedical engineering as an undergraduate and going to medical school. All of those years were dedicated to science, numbers and equations. I found my art again in plastic surgery – it's a field where creativity and innovation abound and where anatomy and design are extremely important to successful outcomes, which are all themes that are arising in our interviews. I feel like plastic surgeons are creating art in the O.R. each day in all subspecialties within the field.

PSN: *What's been your favorite research project to date?*

Dr. Nguyen: During my research year, I looked at the risk factors for facial fractures in patients who experience homelessness in San Francisco. Using the San Francisco General Hospital Trauma Registry, I was able to categorize 2,221 patients according to demographic, fracture type, treatment and disposition. I published this worked titled, "A Cross-sectional Study of the Association between Homelessness and Facial Fractures," in *PRS Global Open* in June 2019. We showed that homeless patients are at much higher risk than the general population for being assaulted, suffering mandible fractures and requiring surgery for their fractures.

PSN: *How do you spend your time away from UCSF?*

Dr. Nguyen: I'm married to my college sweetheart, who's now an internal medicine physician and researcher. We have a dog named Bear who loves running on the beach and hiking with us. I taught her the command, "Cuddle me," which is just as cute as it sounds. My family (immediate and in-laws) and I are close, and we love to adventure, travel and eat. Our most recent escapades included trips to Costa Rica and Sweden.

PSN: *What kind of sounds can most often be heard in your O.R.?*

Dr. Nguyen: In the O.R., I listen to Nina Simone.

For more information about the many research studies funded by The PSF or to support our current and future research initiatives, please go to ThePSF.org. PSN