Educator's Podium

The SUNY Hackathon Series:
Redesigning 21st Century Eye Care</br>

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In May and November 2016 and June 2017, approximately 50 people met to participate in three hackathons hosted by the New Technologies unit of the State University of New York College of Optometry (SUNY). The participants included SUNY Optometry faculty, other optometrists, residents, students, alumni, researchers, industry experts and other professionals.

The goal of Hackathon I was to design “The Future Eye Exam.” Participant groups were given the task of creating a six-minute presentation to the National Eye Institute on how eye examinations should be conducted. Hackathon II centered on “The Future of Optometric Education.” Participant groups were asked to design a mobile app to be used for optometric student/intern/resident education, optometric continuing education and optometric board certification review. Zoom video conferencing technology was utilized, which allowed Munish Sharma, MD, OD, FAAO, from Western University of Health Sciences and Andre Stanberry, OD, from the University of Waterloo to participate. Their universities are intellectual partners with SUNY in designing and implementing a mobile app for optometric education. The focus of Hackathon III was Interprofessional and it was a collaboration with the nursing profession. It tasked participants with creating new models of communicating with patients, parents and families to convey the importance of vision in the learning process. Participants and speakers included Beth Mattey, President of the National Association of School Nurses, and Ashley Darcy Mahoney, PhD, RN, NNP-BC, who spoke about “Talk With Me Baby,” a program that President Obama had discussed at the Early Education Summit.

Why a Hackathon Series?

The SUNY Optometry New Technologies unit created its signature Hackathon Series to develop new models of patient care, education and communication with the goal of improving patient outcomes. Hackathons are digital-era tools designed to connect participants for the purpose of breaking down existing processes into discrete and new units, and rebuilding them from the ground up. The word “hack,” when used as a noun, means a change, tweak or solution to a problem. When used as a verb, hack means to redesign or remix a product or solution to make it better. Thus, the term hacking refers to taking something apart and rebuilding it to make it better, give it a new function, or just do something surprising and disruptive. A hackathon is an event where participants “hack” on a problem or focus area for an allotted period of time, with the goal of building or creating a solution (via a product, service, tool, etc.) Hackathons seek to identify opportunities by understanding the user’s experience. Ideas + Action = Hackathon. Hackathons generally start with an overview presentation and end with a series of short presentations that are judged on several categories, e.g., innovation, ability to be implemented and quality of presentation. Prizes, which include sunglasses, T-shirts, notebooks, backpacks and smartphone chargers, have been awarded to all participants. The winning teams’ proposals serve as the initial template to be incubated within the SUNY Optometry New Technologies unit.

The SUNY Optometry New Technologies Hackathon Series is modeled after Georgetown University’s “Hackathon: Designing the Future University from the Inside.” Also, organizational concepts were derived from Stanford University’s “Collaborative Stanford-Centered Hackathon Experience,” and MIT’s “Hacking Medicine Series.” Prior to each SUNY hackathon, participants were sent TEDx videos on innovation, creativity and new concepts in education. Participants were encouraged to move away from the linear, analog thinking that has been the basis of education since the Industrial Revolution, and toward digital learning processes that are important for success in the new millennium. Digital learning processes are important for utilization of new technologies in medicine and eye care. It’s important to note that the SUNY New Technologies unit is not promoting digital, online exams. Quite the contrary, we maintain that digital learning processes are integral to improved time efficiency and quality improvement in professional optometric care.

Information from Hackathons II and III is still being studied and reviewed. These themes emerged from Hackathon I: The Future Eye Exam:

1. an integrated patient portal for online case histories, clinic hours and information, patient education, insurance verification, answers to patient questions, referrals, etc.
2. use of wavefront aberrometry for refraction and diagnosis
3. use of wide-angle fundus photography and similar technology as a screening procedure
4. use of automated visual acuity technology allowing for contrast sensitivity evaluation and real-world simulation
5. use of virtual and augmented reality simulations
6. delegation of data collection to technicians, with optometrists performing data interpretation
7. use of cloud-based services for biomedical informatics

Hackathons Aren’t Just for “Techies”

Hackathons are no longer just for computer programmers and engineers at internet companies — not just for techies! They are events increasingly used by major universities, state and federal governments, non-profit organizations, hospitals, architectural and engineering companies, and so on. We live in a connected world with no boundaries. Mobile health applications have been at the core of medical education for well over a decade. For our optometric profession to advance and fulfill its critical role in the delivery of health care, we need to utilize innovative technologies to improve patient outcomes and educate optometrists, optometric faculty, residents and students. Moreover, the ability to utilize innovative technology to enhance interprofessional relationships and integrate culturally competent care is essential to achieving the best possible results for our patients.

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