

## Interactive Technology for Skin (iTS-CORE) - Enhancing skin health through innovations in technology

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### ABSTRACT

**Background:** Teenagers who incur five or more sunburns between the age of 15 and 20 years have an 80% increased lifetime risk of melanoma. Health disparities exist for outcomes in individuals with darker skin tones, with poorer five-year survival rates for Asian, Hispanic, and Black populations. To reduce this disparity, there is great need for wide reaching, inclusive and powerful educational platforms to engage children in sun protective measures and in cancer prevention. With technology driven initiatives playing a large and successful part in contemporary school education models, there is an addressable gap in the deployment of such campaigns in melanoma prevention. Virtual reality (VR) in particular, has shown to encourage motivation and autonomous learning in education, particularly when given the focus of foreshadowing the current image of a user to predict future changes.

**Methods:** Our initial effort included the piloting of a skin health curriculum in a low technology hands-on workshop (SCORE). Within this workshop, students aged 14-20 years used a dermatoscope to visualize their skin, constructed 3D foam models of skin layers, had a Q&A session with an individual with a skin condition, and learned about “A Day in the Life” of scientists and clinical providers. Building on the success of these pilot sessions, we are now developing and exploring the potential of an immersive, multisensory AR/VR educational prototype which aims to simulate a variety of scenarios to teach students on safe sun protection practices

**Results:** Pre- and post-surveys were used to assess effectiveness of SCORE, and demonstrated increased knowledge of health careers ( $p=0.006$ ), medical technology ( $p<0.0001$ ), and skin cancer recognition ( $p<0.0001$ ).

**Conclusions:** Results from low-tech SCORE have shown demonstrable impact in the increased knowledge in melanoma prevention at an early educational stage and is now primed for effective deployment of a technology driven campaign through iTS-CORE. The storyboard for the AR/VR module is being developed using Community-based participatory research principles to incorporate the knowledge and expertise of students and educators. We believe that the natural next step to this project is to explore the novelty and impact of our working AR/VR model in amplifying these messages, through enabling students to have an immersive personalized and futuristic approach to augment their learning.

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