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VIRTUAL REALITY APPLICATION TO TEACH DANGEROUS OVER EXPOSURE TO UV RADIATION

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Virtual Reality application to teach dangerous over exposure to UV radiation

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Abstract.

The high levels of ultraviolet (UV) radiation in Peru constitute a risk for the population, that does not give it the importance that it should and does not take adequate measures to protect against it and to prevent skin injuries. This research aims to educate the general population about the high radiation levels registered in our country. To accomplish this objective, a virtual reality application was developed to visualize real time UV index, the maximum exposition time before getting a sunburn according to the user's skin type, the potential skin damage, and, lastly, it provides a Solar Protection Factor (SPF) recommendation. To validate the research, a survey was applied to 63 participants, who were mostly between 18 and 24 years old, in two parts: the first part (knowledge segment) was applied before the simulation took place in order to analyze the user's knowledge level about the subject; and the second part (application segment) measured how valuable the application was in terms of education, usability and appeal. The survey results ($p < 0.001$) indicate that most of the participants do not know or are indifferent to high UV radiation (knowledge segment), and that the virtual reality application educated the participants about the UV radiation problem (application segment, education component). There is evidence that virtual reality can be an effective method to teach people about a problem, being part of it, and observe the consequences.

Keywords: Minimal Erythema Doses, UV Index, Virtual Reality, Fitzpatrick.