



Methods

In Fall 2022, first-semester pharmacy students participated in a learning experience that incorporated virtual reality (VR) and stiff gloves to simulate physical limitations associated with color blindness and arthritis, respectively. The goal of the learning activity was to promote empathy for patients living with chronic diseases.

The VR application was built in Unity, and Meta Quest 2 head-mounted displays (HMDs) were used. A Cleanbox was used to disinfect HMDs with UV light between users.

Students completed pre- and post-intervention surveys that included the Kiersma-Chen Empathy Scale* and measures of user enjoyment, perceived usefulness for learning, and adverse effects of VR.

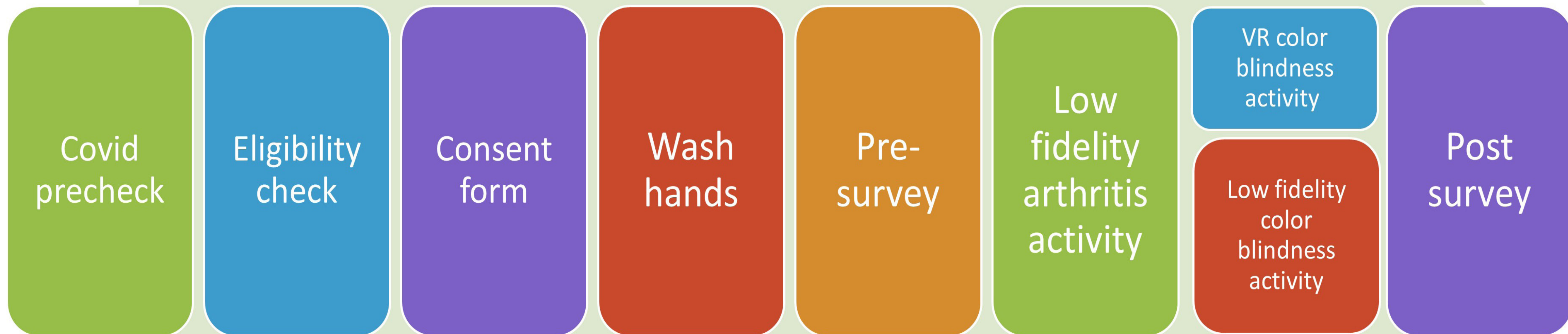
A focus group was also conducted with six students to obtain additional feedback on the learning experience.

*Kiersma, M. E., Chen, A. M., Yehle, K. S., & Plake, K. S. (2013). Validation of an empathy scale in pharmacy and nursing students. Am J Pharm Educ, 77(5), 94. doi: 10.5688/ajpe7759

Walking in Their Shoes:

Using Virtual Reality to Promote Empathy for Patients Among Student Pharmacists

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Results

131 of 132 students who were enrolled in the program completed the learning experience. 117 (89%) agreed to participate in the study.

Empathy: There was a significant improvement in empathy in the cognitive domain (perspective-taking) from pre- to post-intervention ($p < .001$). (Hedges $g = 0.760$ 95% CI [0.554-0.963])

Enjoyment: Post-intervention survey results demonstrated high levels of students' self-reported enjoyment (62% rated the activity as "very enjoyable", 27% said "somewhat enjoyable").

Perceived usefulness: Students thought the activity was useful to support their learning (50% rated it "extremely useful", 34% said "very useful").

Eyestrain (26% slightly, 17% moderately, 9% very) and blurred vision (20% slightly, 9% moderately, 9% very) were the most commonly reported adverse effects of the activity.

"[The activity] really gave insight to things you wouldn't necessarily think about a lot . . . So it really allowed you to think and put yourself in their shoes"

"It was again pretty cool and I would love to do something like that in the future, if you all come up with other ways to incorporate that into our curriculum."



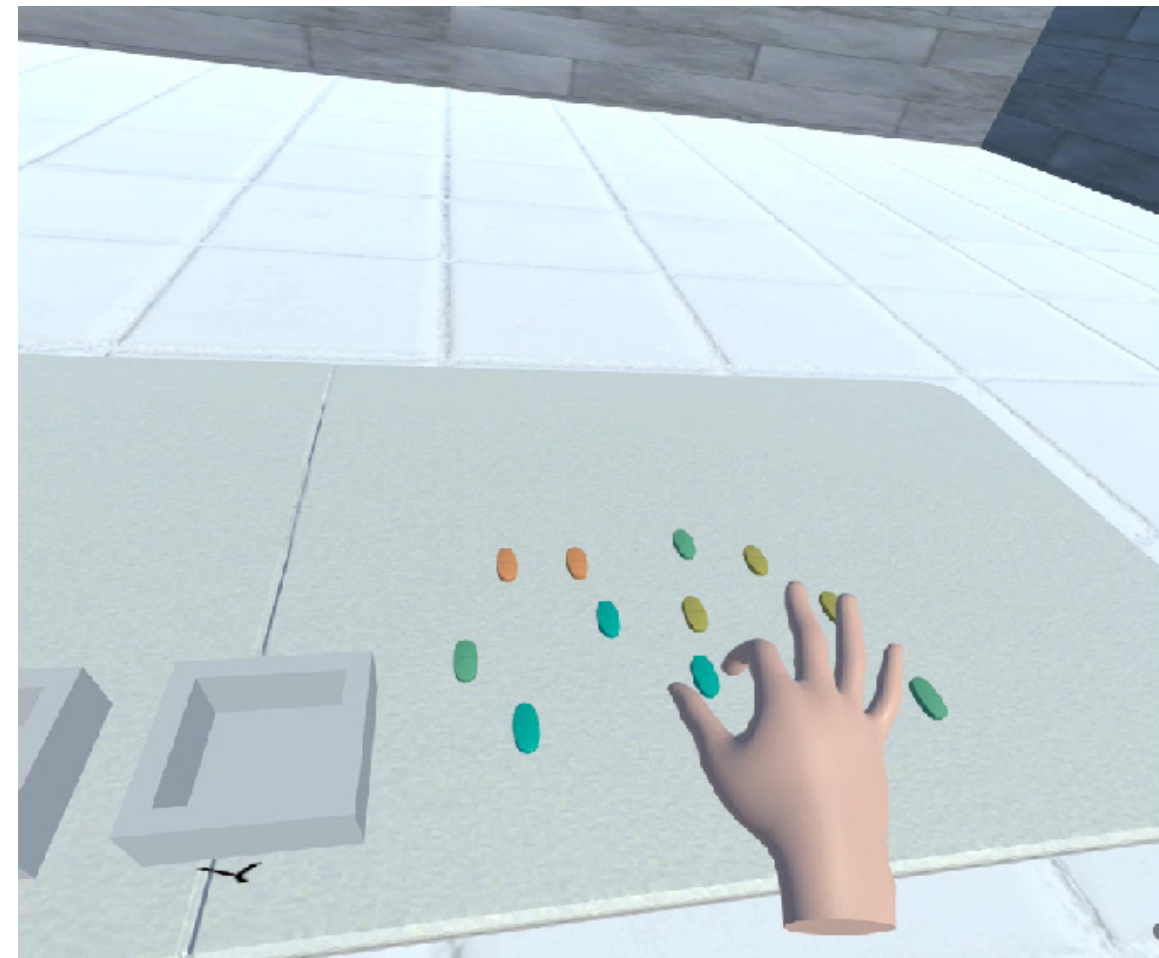
"I think this activity was very helpful and it taught me not to take my ability to do and see things for granted."

Conclusion

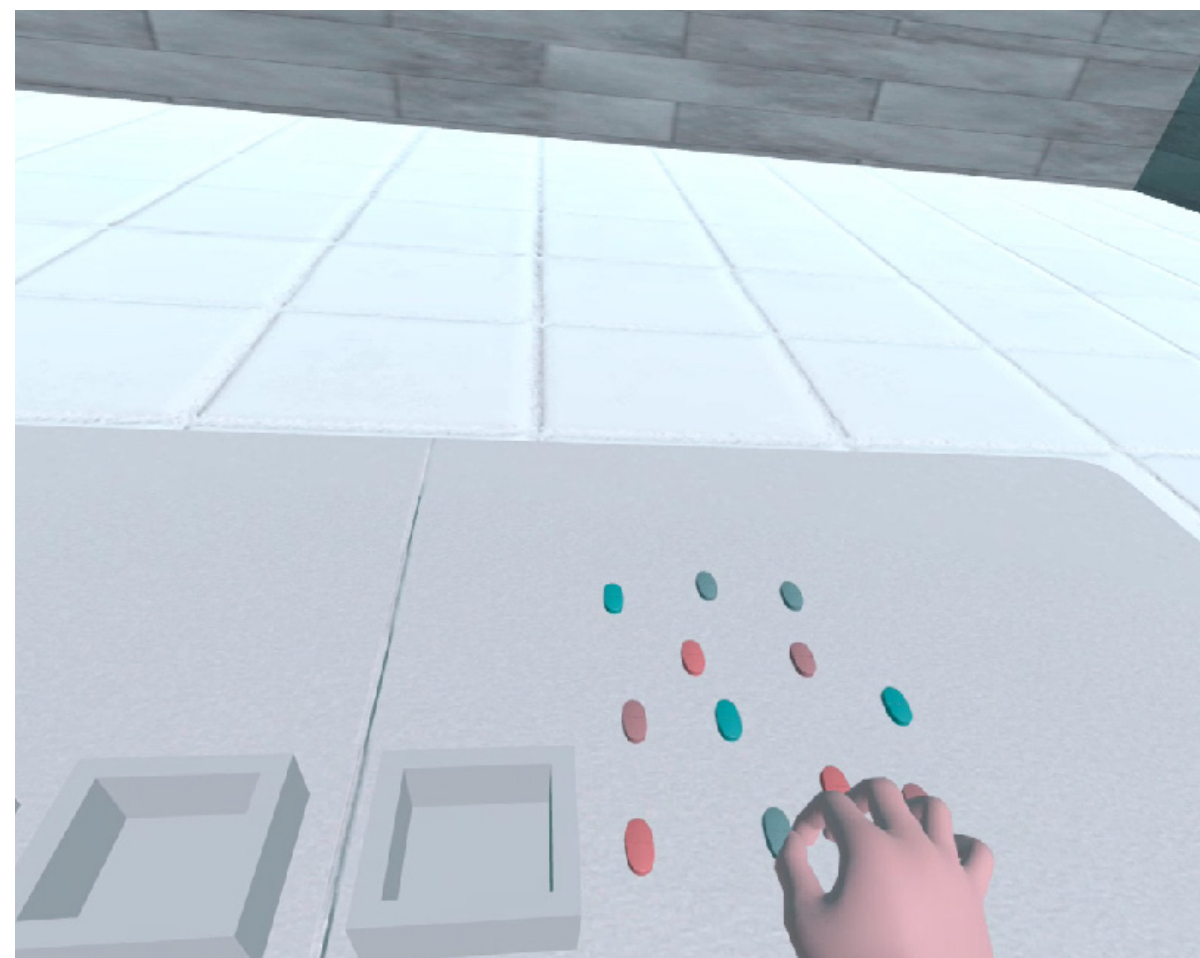
Implementation of a VR-based learning activity into the first semester of the PharmD curriculum was successful and resulted in improved student empathy and a positive learning experience.



Filling a pill box with stiff gloves that simulate arthritis



Pill sorting task with normal vision



Pill sorting task with a color-blindness filter