



Empathy Learned Through an Extended Medical Education Virtual Reality Project

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BACKGROUND

- Studies have suggested that empathy in healthcare professionals tends to erode during medical school and residency training.
- However, a study conducted by Hofat presents outcomes that reveals the opposite effect; instead empathy improves or there is no effect on empathy at all.¹
- Despite the contradictory studies, it is generally agreed that empathy is an important aspect in the patient-physician relationship as it is associated with improved patient satisfaction, increased adherence to treatment, and fewer malpractice complaints.²

PURPOSE AND HYPOTHESIS

To expose first year medical students to virtual reality (VR) technology that is intended to elicit empathy for a 74-year-old African American male, Alfred, whom each student embodied to experience what it is like to have macular degeneration and hearing loss. Specifically, pre/post test responses to embodying Alfred were analyzed to determine empathic changes. The VR software, developed by Embodied Labs, Inc., is specifically designed to affect health professions students and staff empathy responses.



METHODS

- Each UNE COM medical student (N=346) during their first year was required to go to the UNE Jack Ketchum Library in Biddeford to complete the VR Alfred Lab.
- The Library has 4 VR stations. Students chose a station, signed in according to the instructions, and completed the pre test, which required inputting the student's email.
- The student would then experience the Alfred Lab (7 minutes) and then the post test.
- Data came in the form of pre test and post test answers across two cohorts – UNE COM Class of 2021 and 2022. Each test included Likert scale questions and open-ended questions. The data from each student was collected in RedCap with student's pre test and post test matched to ensure accuracy regarding change from pre to post testing.
- Quantitative analysis was conducted using SPSS software for frequency analysis and paired-sample t-tests. Qualitative analysis was based on content thematic coding.

Alfred COM Class of 2021 (N = 172)

Question	Pre - % agree or strongly agree	Post - % agree or strongly agree	Difference
I understand the perspective of an older adult patient.	25.00	66.28	41.28
Experiencing macular degeneration from the patient's perspective (as Alfred) aids my awareness about what this could be like for my future patients.	91.28	96.51	5.23
Experiencing hearing loss from the patient's perspective (as Alfred) aids my awareness about what this could be like for my future patients.	91.28	95.93	4.65
Embodying my future patient in this virtual reality exercise helps me learn about empathy .	93.60	96.51	2.91
Curriculum that includes empathy training is important for my future career.	94.77	97.09	2.33
I am aware of free resources from National Library of Medicine for health care providers and patients, such as PubMed MEDLINE, MedlinePlus, DailyMed etc.	70.93	NA	NA

Question	Pre - % agree or strongly agree	Post - % agree or strongly agree	Difference
Interest in pursuing a geriatric specialty.	36.05	40.70	4.65

Question	Mean – Pre	Mean – Post	Significance (0.05)
Perspective	2.895	3.756	0.000
Macular Degeneration	4.192	4.523	0.000
Hearing Loss	4.203	4.477	0.000
Empathy	4.227	4.535	0.000
Curriculum	4.523	4.640	0.004
Interest	2.326	2.366	0.019

Alfred COM Class of 2022 (N = 174)

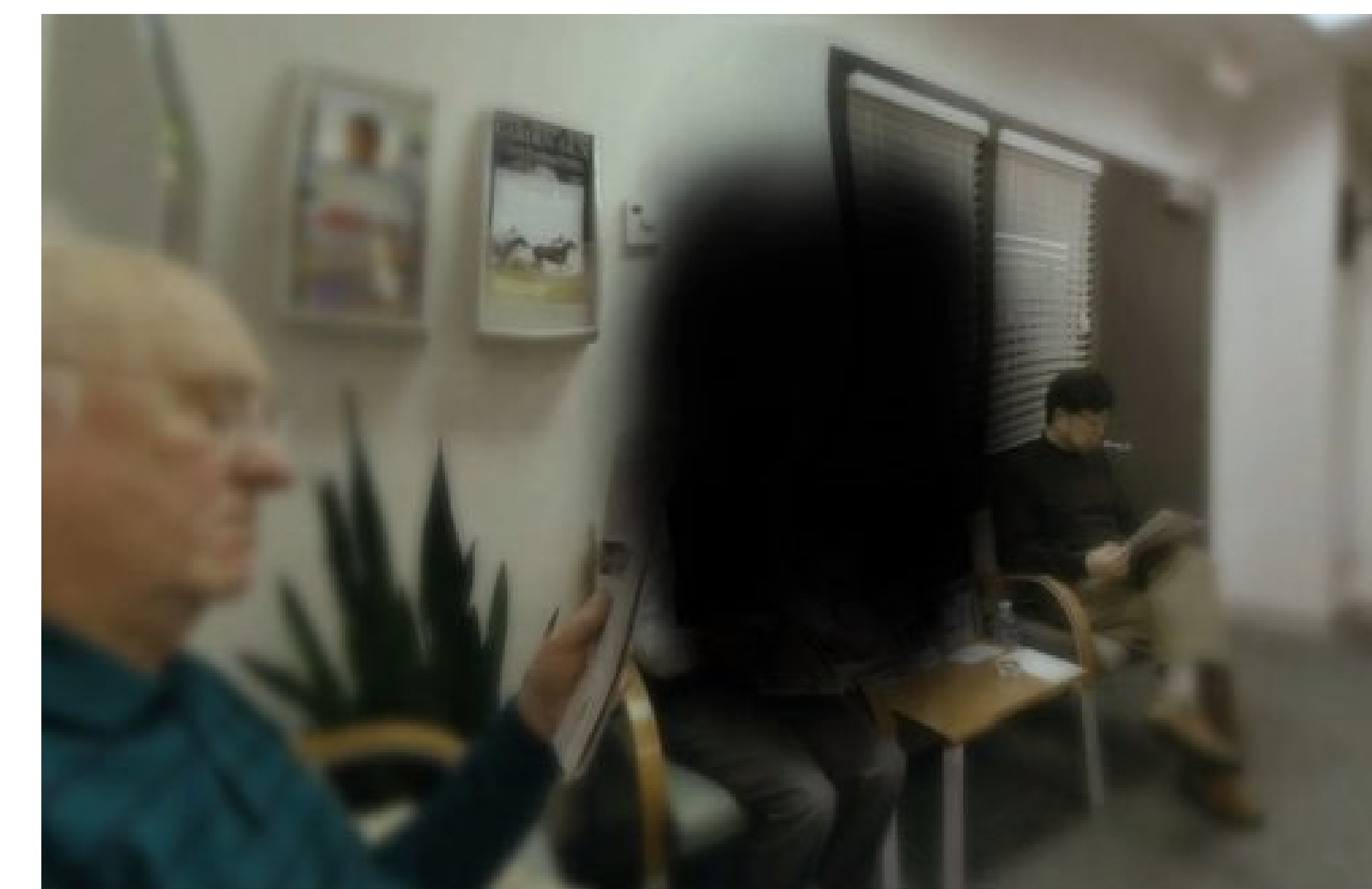
Question	Pre - % agree or strongly agree	Post - % agree or strongly agree	Difference
I understand the perspective of an older adult patient.	32.76	77.01	44.25
Experiencing macular degeneration from the patient's perspective (as Alfred) aids my awareness about what this could be like for my future patients.	86.21	95.98	9.77
Experiencing hearing loss from the patient's perspective (as Alfred) aids my awareness about what this could be like for my future patients.	87.36	94.83	7.47
Embodying my future patient in this virtual reality exercise helps me learn about empathy .	87.36	94.83	7.47
Curriculum that includes empathy training is important for my future career.	93.68	95.98	2.30
I am aware of free resources from National Library of Medicine for health care providers and patients, such as PubMed MEDLINE, MedlinePlus, DailyMed etc.	71.26	NA	NA

Question	Pre - % agree or strongly agree	Post - % agree or strongly agree	Difference
Interest in pursuing a geriatric specialty.	40.23	48.28	8.05

Question	Mean – Pre	Mean – Post	Significance (0.05)
Perspective	3.011	3.925	0.000
Macular Degeneration	4.167	4.557	0.000
Hearing Loss	4.201	4.534	0.000
Empathy	4.213	4.598	0.000
Curriculum	4.517	4.655	0.000
Interest	2.356	2.454	0.000

RESULTS

- Results yielded statically significant changes between pre and post assessment across both cohorts of the Alfred Lab.
- The largest difference in both cohorts was between pre and post testing evaluation relating to the question of “*understanding of the perspective of an older adult patient.*”
- Feedback from participants was mostly positive. Many responses commented on the project as a “*unique*” and “*great experience*” that gives the participant a better understanding of what the person is experiencing.
- Negative comments on the project included being uncomfortable during the experience due to the headset not resting comfortable on the head and usage of medical jargon.



CONCLUSIONS

- Further research can be conducted to support the effect of Virtual Reality training in medical school to provide additional evidence towards integration of virtual reality experiences in the medical school curriculum.
- Research and use of the VR experience can also be expanded to other health profession schools.

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