



# Can a virtual educational learning cultivate empathy in undergraduate teaching?



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## Aims

The study aims to inform the teaching field by sharing an educational intervention using a virtual learning module. This module was designed for online delivery due to Covid and limitation of clinical placement hours. The module aimed to improve empathy among dental undergraduate students in Trinity College Dublin based in Dublin Dental University Hospital.

## Findings

The module trained 62 students. However, the study only included paired data which contained 37 participants. The evaluation was non-controlled and non-blinded and delivered to dental undergraduates without previous empathy training. The Dental School Research Ethics Committee of Trinity College Dublin granted ethical approval for this study in February 2021.

Most of the 37 participants were female (76%) and represented dental science, dental hygiene and dental nursing. The dental professional students completed the Jefferson Scale of Empathy for Health Professional Students immediately prior to and after a three-week virtual programme designed to increase clinical empathy. Data were analysed using student's t-Test for paired data. Seven-point Likert scales were scored to record student experience of training and technology, which are reported descriptively.

Results revealed a mean JSE-HPS scale score rise from 110.0 (SD=10.4) to 116.4 (SD=11.1), which represented a rise of 5.8% (t(36) = 3.6, p=0.001). The scale demonstrated acceptable internal consistency (alpha > 0.7) (Figure 1).

	Mean	Std dev	Cronbach's alpha
Pre- score	110.0	10.4	0.74
Post- score	116.4	11.1	0.78
Δ post-score – pre-score	6.4	10.8	

Figure 1 JSE-HPS Scores

## References

Hojat, M., Michalec, B., Veloski, J., and Tykocinski, M.L. Can empathy, other personality attributes, and level of positive social influence in medical school identify potential leaders in medicine? *Academic Medicine*. 2015; 90: 505–510.

Yuguero, O., Marsal, J. R., Esquerda, M., Galvan, L., & Soler-González, J. Cross-sectional study of the association between empathy and burnout and drug prescribing quality in primary care. *Primary health care research & development*. 2019; 20, e145. <https://doi.org/10.1017/S1463423619000793>.

Yarascavitch C, Regehr G, Hodges B, Haas DA. Changes in dental student empathy during training. *J Dent Educ*. 2009; 73:4:509-17.

## Impact

Empathy is an essential part of patient-centred healthcare, which positively benefits both patients and clinicians: better treatment adherence, patient satisfaction, clinician self image etc. Despite the advantages of developing empathetic graduates, research suggests that empathy actually declines during undergraduate dental training with the negative correlation between level of empathy and burnout in healthcare professions.

There is a lack of emphasis in undergraduate curricula about empathy and there is little agreement regarding how best to design and deliver training for healthcare trainees to impart skills and behaviours of clinical empathy. Therefore, we developed an intervention and evaluated it so as we can understand if we are effective in addressing this issue and share our learning so as other training centres can apply our evidence in their own programmes.

This virtual learning module was delivered online adopted a blend of learning technologies, including online case-based discussion and role-modelling through videos (medical and dental) specifically scripted to promote perspective-taking.

This educational intervention included two elements: asynchronous (two hours) and synchronous (two hours), which were distributed over three weeks.

**The asynchronous element** was delivered through a Massive Open Online Course (MOOC) entitled “Developing Clinical Empathy: Making a Difference in Patient Care”. Participants were encouraged to reflect, ask questions, and post comments for other learners in the discussion board moderated by healthcare educators.



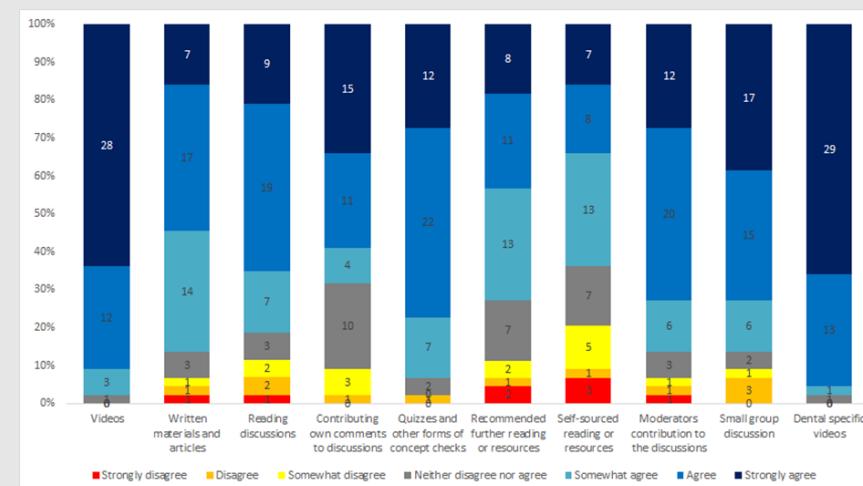
**The synchronous element** was specifically designed for dental professionals to transfer general concepts introduced in the MOOC, to the dental context and their future practice. This element included an introductory session and interactive session which provided a content overview specific dental video scenarios, and discussion groups.



Picture 1. Dental Scenario, 2021, S Anishchuk.

While students rated all aspects and media as valuable to their learning, videos (general medical and dental-specific) were most often considered valuable, followed by discussion groups, whereas the self-sourced reading was least often reported as valuable (Figure 2).

Figure 2. Experience of content delivery and learning activities.



## Conclusions

The study demonstrated that a virtual educational module was associated with a positive increase of empathy among dental undergraduate students. However, there is a need for Randomised Control Trials in educational research field.

