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Institution

InvestIN. 85 Great Portland
Street, First Floor, London,
W1W 7LT

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Abstract

Medical career experience programmes enable students to gain a realistic insight into life as a doctor and learn about the application process in order to make an informed decision regarding their future career. Challenges presented by the COVID-19 pandemic prompted the innovative digital transformation of a medical career experience programme by InvestIN Education. This demonstrated that it is possible to still provide immersive, interactive and informative programmes in an online format. Suspended in-person programmes were rapidly re-designed, with integration of digital learning platforms including virtual reality software and live-streamed simulated hospital ward rounds. Whilst logistically challenging, combining educational technologies can enable the creation of high-validity, accessible learning experiences, which can maximise student motivation, engagement and knowledge. Similar online transformations continue to take place within medical school education as a result of ongoing uncertainty related to the pandemic, where the focus is to provide an effective and safe learning environment for students, teachers and patients from communicable disease such as COVID-19. It is important that educators feel empowered to trial and test these innovative digital learning methods and that they are captured and shared to maximise student learning both during these rapidly changing times and beyond.

Key Words

Selection; Online Learning; Educational Technologies; Simulation; Curriculum Design

Corresponding Author:

Dr Julian Pearce; E-mail: julian.pearce@doctors.org.uk

Introduction

InvestIN Education provides immersive career experience programmes to school students aged 12-18 years old, committed to giving students an authentic insight into possible future careers. 'The Young Doctor's Programme' has run since 2014 and delivers courses ranging between one to ten days. Content is designed by medical trainees in a variety of specialities with experience in the application and interview process. Course aims include giving students a realistic insight into a career in medicine, the opportunity to interact with doctors and patients, be fully informed about the application process and learn relevant practical skills such as suturing and basic life support. Prior to the COVID-19 pandemic programmes were in-person, however due to restrictions such as social distancing, in April 2020 a rapid redesign of the programme was undertaken to transform content to be delivered online.

Discussion

'The Young Doctor's Programme' has had to rapidly adapt to continue to deliver a high quality, immersive and interactive program without students being physically present. This process demonstrated that by combining educational technologies, it is possible to provide simulation, communication skills training and interaction with patient volunteers in a virtual format, alongside more traditional approaches such as interactive lectures and small group discussions. Beyond the pandemic, there will be scope to apply this learning to improve the accessibility and flexibility of medical training.

Challenges included being able to continue to deliver a high-validity, immersive and interactive programme, whilst avoiding 'online fatigue' and a didactic delivery. The online video conferencing and webinar software Zoom™ is our platform of choice and has gained popularity amongst educators due to

functionalities such as the ability to create 'breakout rooms', facilitating smaller tutorial and discussion groups to maximise student interaction and participation.¹ Combining educational technologies, whilst logistically challenging, has remained a cornerstone of delivery to maximize student participation and enjoyment. The online polling platform Sli.do™ is regularly utilised in the majority of sessions and has enabled varied and creative interactive techniques which are interspersed within presentations, including word-clouds, polls, quizzes, question and answer boards and post-programme feedback capabilities.

Simulation-based learning (SBL) is an established, evidence based educational resource in medical training, as well as in other industries such as aviation and the military. Through mirroring and supplementing real practise, students can be immersed in a safe and educational environment.² In person programmes had allowed doctors to facilitate student use of virtual reality (V.R.) headgear and software to simulate cases within an emergency department. Delivery was adapted using an online platform with the doctor facilitator utilising the hardware and projecting an immersive scenario through Zoom™. Students were able to provide direction and lead the simulation through volunteering suggestions using the 'hands up' feature, and a facilitator selecting and unmuting participants. SBL has enabled students to gain an insight into the doctor's role in the recognition and management of emergency medical scenarios as well as providing an introduction to key simulation-based skills such as briefing, encounter, debriefing, reflection and evaluation,² utilising the experiential learning model.³ With increasing use of digital platforms, SBL is likely to be adapted in similar ways within medical education to continue to provide a safe, controlled learning environment to protect patients, but also to protect students and facilitators from communicable disease such as COVID-19.

The pandemic has undoubtedly restricted students' ability to obtain vital work experience in healthcare settings, required to ensure candidates have a realistic insight into the career and provide an opportunity for self-reflection into the skills and qualities required as a physician. Whilst virtual programmes cannot replicate in-person experiences with the same authenticity, the opportunity to interact with doctors and patients has remained a key focus for the programme. This is delivered utilising a simulation department in a London

teaching hospital to live-stream a doctor and medical student led ward round with simulated patients as well as a general practitioner clinic and specialist clinic with selected real patient volunteers. This has been a highlight for students who have the opportunity to observe the doctor-patient relationship, as well as communicate with patients directly in the context of history taking and participating in discussions surrounding investigations and management plans.

Student feedback has been overwhelmingly positive, with the majority feeling the online format was immersive, varied and educational, providing a realistic insight into the career. Students were able to reflect on key skills and attributes needed in medicine and appeared to particularly value their interactions with doctors, medical students and patient volunteers. We believe the collaboration of varied, interactive online learning platforms helps avoid declining engagement, motivation and deficient learning which can be unfortunate by-products of home-based learning.⁴ Over successive programmes, we acted on feedback from students to improve their experience; for example, increasing the number of screen breaks, incorporating online Sli.do polls with other SBL activities such as V.R. and livestreaming clinic-based consultations, and using smaller breakout rooms more frequently.

Conclusion

Medical schools worldwide have faced similar challenges in delivering essential theory and practical teaching to students in virtual and innovative ways, with COVID-19 acting as a catalyst for change. The restrictions faced by medical schools have forced educators to clarify their priorities and pilot new ways of teaching, delivery and assessment. With continued uncertainty relating to the pandemic, educators are required to be increasingly flexible in their response.⁶ Through digital transformation of 'The Young Doctor's Programme' by combining virtual educational platforms, it has been possible to continue to deliver high quality, interactive and engaging teaching. Through reflecting upon and evaluating teaching practises during these fast changing times, teachers should feel empowered to trial and test multimodal methods to maximise student learning. It is important that innovative activity is captured and communicated, so that educators can learn from one another and utilise shared experiences to improve the quality and accessibility of learning experiences beyond the pandemic.

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