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Optometric education in the post-COVID-19 era: A time of forced change!

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There is a massive disruption of the global economy and education due to the coronavirus disease-2019 (COVID-19) pandemic. This has posed significant challenges and threats to the academic community, especially in health care where the learning and assessment are patient centered. Though blended learning had its emphasis in the pre-COVID-19 era, innovations are required to meet up to the increased demands on learning and assessment. This article uses an inductive approach and outlines the existing challenges, impact of COVID-19 era, the need for a mindset reframe, and the potential opportunities for innovations that underlie during these challenging times.

Key words: Blended learning, COVID-19, optometric education, optometry

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According to the United Nations Educational, Scientific and Cultural Organization (UNESCO), Coronavirus disease 2019 (COVID-19) has affected nearly 1.3 billion (68%) of total world's student population, including 320 million students in India.[1,2] According to the All India Survey on Higher Education (AISHE) report released by the Ministry of Human Resource Development (MHRD), Government of India, there are 993 universities, 39931 Colleges and 10725 standalone institutions that offer higher education.[3] With increasing demand for online education at all levels beginning from early school education, the online education market in India is expected to reach INR 360.3 billion by 2024 compared to its value of INR 39 billion in 2018.[4] It is believed that the urban educational system has got disrupted due to the changing times with online teaching and learning. This disruption is also expected to affect the current admission cycle beginning from enrolments to meeting the academic demands of the new students. This has led to emerging and innovative trends in education which in turn has imposed its own challenges. There is a strong held belief and recommendation to relook at "traditional pedagogy approaches as they will not well serve the emerging knowledge based economy wherein creativity is at a premium".[5] Though over 500 million people in India have access to internet,[6] and therefore e-learning facilities, rural India does suffer from poor network connectivity.[7] According to a recent report by the Quacquarelli Symonds (QS) that evaluated the efficacy of the infrastructure of the internet facilities to India to support the massive shift to online education, over 80-90% of the respondents had reported issues with network connectivity, signal, and power supply.[8] Despite these uncertainties, it is time to restore and recuperate the optometry academic system as any other medical and health care academic community would demand.[9]

During the lockdown, everyone observed the surge in online webinars and optometry as part of the health care community was no exception. As part of one of the panel discussion that was conducted regarding the challenges faced by the optometric educators due to the current disruption, there were requests for a guideline document addressing the challenges and solutions from a broader perspective specific to optometric education. Some of these challenges could appear no different from the global scenario. Nonetheless, the article adopts a focused approach towards understanding the challenges and solutions pertinent to the optometric community that is very much in the primitive stages of evolution in India seeking support and guidance.

In this context, this article outlines the challenges and solutions to the conventional education system and also proposes possible strategies for Optometry institutions in India for the changing times based on an inductive approach. Though this is an inductive approach, it is justified through the supporting evidence and the three decades of experiential observation of the optometric education in the country.

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The steps in establishing an Optometry school begins from understanding the demand or need for the institution to making sure that the infrastructure and faculty requirements to provide quality education is met, processing the university affiliation and approval, handling the selection process through a transparent selection process, to providing appropriate training, evaluation, and assessment of competency of the student before they graduate out of the school. Out of the 14.3 million students who appeared for the school-leaving exams, almost 50 lakh students are expected to enroll in higher education in India this year.[10,11]

Concerning Optometry, based on the All India survey on higher education (AISHE)[12] during 2015–2016, about 4434 students including undergraduate and postgraduate optometry students have been enrolled in various institutions across India. It is also important to keep in mind that many colleges were closed in the three years, while few new colleges also initiated optometry programs.

The challenges in the context of Optometry include,

1. Overall delay in the undergraduate and postgraduate admission process.
2. Fees structure: Despite these challenging times, university management needs to rethink about restructuring fee structure, as there could be difficulty in availing study loans.
3. Parental fear and perceptions to let their wards explore admissions into Optometry schools outside the state. This can affect the usual diversity that colleges offer in the educational system. The options for the students will be restricted.
4. Some institutions require the National eligibility cum entrance test (NEET) scores and most institutions conduct entrance examinations apart from the higher secondary marks. Removing these components from the selection process is expected to result in a quality compromise.
   a. Solution: To wait till the competition examination is conducted and results are declared which might be costly in the competitive world.
   b. Proctored online examinations can be announced that few universities are already venturing into, but this can come with its own challenges, especially in accessing prospectus in Tier 2 and Tier 3 places during this period.
   c. Selection based on the higher secondary marks only which could also result in a quality compromise

   Based on interaction with 10 institutions across all the regions in India (as on October 14, 2020), it was understood that proctored online examinations were part of the selection process in 7 out of the 10 institutions, and virtual interview being a part of selection in 5 of the 10 institutions. All institutions considered higher secondary marks for admission. Only 4 out of 10 institutions have been able to fill in the allocated seats, and the rest of the institutions are waiting for the NEET results to be declared, so that candidates get to decide their options. Fee hike and delay in NEET results were proposed as other factors influencing the admission process in addition to the disruption caused by the pandemic.
5. Delay in the research activities of the graduate research students who are currently enrolled in the system
6. Issues with clinical training and challenges associated with the same for the final year undergraduate students.

Challenges and Strategies for the Students Who are Currently Enrolled in the System

Most of the educational institutes have covered majority of the portions through conventional methods just before the lockdown. During the lockdown, almost everyone explored online teaching modes to complete the remaining portions. In some places, internal assessments have been conducted through virtual platforms including Zoom, Google meet, Cisco WebEx, and similar platforms. The University grants commission (UGC) released an order to the universities to use the internal marks for all the years except for the final year outgoing students. Challenges continue to exist regarding practical and clinical training and examination especially for the final year optometry students.

Internship Challenges and Solutions

For the final year students in their internship, 75% of the internship program had got completed. In many colleges, it is assumed that the students would have got at least some amount of hands-on training in different specialities as they were in their second round of internship rotations. The goal for all the internship should be meeting the competency requirements set by the Indian Entry Level Optometry Competency Standard (IELOCS) available as an open-source developed by ASCO, India.[13] Assuming that the knowledge and skill components in all the clinics were incorporated to a certain extent, the analytical component can be given as fast forward online sessions through case-based discussions, especially of the commonly seen eye conditions and speciality cases. This indeed will be an ideal approach before planning for the final clinical examination for which the student has to appear anytime. Alternatively, the clinical evaluation process can also include the number of cases seen by the intern until the last date of the clinical posting before lockdown and this would require evaluating the clinical logbook. If an intern student has seen reasonable percentage of the given internship target, recommendation regarding fulfilling the internship posting in addition to a virtual evaluation process can be considered. This evaluation can be based on the inputs from the mentors and clinical supervisors on students' clinical performance, viva voce, and written online examination. As internship is the core aspect of the Optometry training with 100% emphasis on clinical acumen, case reports submission can be considered as a part of the evaluation process. A sample evaluation schedule along with weightage could be Clinical supervisor's inputs regarding skill: 20%, Viva Voce (analytical ability): 40% and online exams (Knowledge): 40%. All the students can be given the option for improvement examination after the lockdown within a 3 months' time frame.

When it comes to research projects for the undergraduate and final year graduate optometry students, it is assumed that the students would have finished at least 60–70% of the data collection process. The students can be advised to write this up as their pilot project for the thesis or dissertation. The soft copy of the same can be considered and evaluation can be based on the written thesis and the online presentation. It is also important to ensure that the code of conduct and research integrity is maintained as part of the evaluation process.

Regarding community activities that the students are expected to contribute to, it is not possible until government's

further order. However, vision centers have started functioning in many institutions and probably students and fellows can utilize the opportunity to man these centers now or make it a mandate of getting postings in the future with the consent of parents or guardians.

Students enrolled in advanced training programs such as specialty fellowship programs are at risk of reduced clinical exposure. Fellowship postings that were disrupted have already been restored in most places. The fellows nonetheless can be encouraged to engage in case-based learning through online classes. The beginners can be encouraged to join back for the next session.

Proposed Strategies for Institutions to Cope Up with the Current Uncertainty

1. Digitalization options
2. Targeted campaigns to ensure admission of high-quality candidates, especially in areas where the brand is well established. Students reconsidering the international lookout can be targeted.
3. Students and parents should be provided with the experience of the place and facilities. Alumni/and senior students can be involved in answering the queries about the program and the college. Personalized counseling through chat apps can be thought of. A virtual campus tour can be uploaded to the institution's website.
4. Instead of depending only on newspaper advertisement, high-quality communication materials can be spread through innovative alternatives such as Gaming apps, News apps, and over the top (OTT) platforms that have seen a 60% viewership growth.[11,14]
5. Sharing about the COVID 19 community activities of the institution such that parents and students can get inspired with the social accountability of the institutions.
6. Switching to online video conferencing platforms for personal interviews.
7. Consider exploring the aptitude of the students through evaluating an extra-curricular portfolio, and group discussions as an alternate evaluation process
8. Engaging students after the enrolment through online as the start of the classes is still uncertain.

The Future of Optometric Education Post COVID-19

Virtual mode of education has occupied a significant place in the Optometry world post COVID-19.[15] The following section highlights the need for the educators to prepare themselves and the institutions to equip themselves with the necessary infrastructure to provide the learner with an enriched experience through virtual modes. Adapting to these challenges and coming out with innovations is the need of the hour especially in health care where hands-on training is a must for the optometry student to become competent enough when they graduate out of the program.

Classroom lectures will depend on both technologies driven classroom for online classes, and conventional classes with social distancing thus emphasizing the need to adapt to blended learning. In this context, we refer to the standard definition for blended learning that refers to a mixture of different pedagogical approaches such as online learning combined with face-to-face engagement in the form of lectures and small group tutorials.[16] Blended learning approaches in optometric education has shown to increase student engagement and provides them with the flexibility to use technology for distance education, combined with conventional classroom-based didactics and face to face interaction.[17] Also blended learning in health care has shown to improve clinical competency.[18]

Though the blended mode of learning will become the commonest approach, it is important to ensure a learner-centric approach. Module-based personalized learning approaches are to be explored. Conceptualization of the learning environment and the framework to learning is so imminent in this process,[19,20] and educators need to equip themselves with the necessary skillset.

An added challenge is the increased expectation and demand by parents and students for online classes increasing the pressure and workload of the educator. Centralized education repositories in this context can be thought of to let the educators contribute to these repositories that will reduce the workload over a period of time making blended learning a very sustainable model for institutions across.

Modes of assessments

Encourage more of online evaluation, and practical and clinical evaluation can be video recorded and then the same can be used for evaluation and viva- voce. The same can be virtual or face to face with adequate social distancing. Student self-assessment techniques inculcating responsibility on to the students' side also can be explored.

Practical training

Simulation training needs to be ventured. Factors identified in medical education that led to the rise of simulations include the lacunae and variability in clinical teaching, careful controlling of the learning environment ensuring real patient safety, standardization of assessing professional competence, and role of deliberate practice.[21,22] Pertinent to optometric education, simulations such as the Retinoscopy Simulator,[23] the Eyesi® diagnostic simulators – Biomicroscope and Indirect Ophthalmoscope[22] should be explored. These simulators can be put to use in the current context. Video recorded procedures can be shared to the students for practice. The supervisor can do a live observation and then provide feedback to the student. Alternatively, conventional assessment can be done with social distancing and other norms being followed.

Optometry online educational sites,[23-28] blogs, and virtual teachers also provide exceptional opportunities for the students to learn through the huge repository of images and videos.

Clinical training

This needs a lot of discussion to identify methods to achieve training and to meet the competency proposed by the ASCO-India IELOCS document.[13] The IELOCS document needs to be reviewed regarding resetting the number of cases seen during the internship, to increase virtual learning and training for report readings, and case discussions. It is important to encourage more of interactive learning small groups through case-based learning and team-based learning using online tools. Students can also be exposed to the virtual consultation done by ophthalmologists and senior clinicians to get themselves equipped with this skill set.

In person education

This will be a challenge especially considering the parents fear of sending the children back to college. The impact of this on clinical training need is yet to be understood. The educational institution will now be a place of social distancing with no handshakes, hugs, and spread out seating arrangements. All the social, recreations or sports activity may not be happening at least for another year or at least for few months after the lockdown. Small space and less lecture rooms, may have to move to two shifts in a day. This would increase the workload on the faculty which will once again increase the demand for virtual learning resources.

Mental health concerns

With increasing concerns related to mental health especially among students due to the current pandemic, the curriculum should also incorporate psychosocial skills that are necessary to cope up with changes during tough times.[29] The existing differences in access to online education due to the socioeconomic constraints, and lost opportunities impacting career trajectory,[30] may also aggravate this issue that needs to be taken into consideration.

Ministry of Human Resource Development (MHRD)/University Grants Commission (UGC) Digital Initiatives

The MHRD (currently the ministry of education) and University Grants Commission (UGC) have proposed diverse learning opportunities through virtual platforms. These initiatives do not include core optometry courses, educators can explore the available courses and its applicability to the profession, and also work towards integrating possible curriculum into these initiatives to enhance accessibility of education across the country. The Information and communication technology (ICT) initiative of MHRD is also a unique platform which combines all International Journal of Advanced Education and Research.[31,32] These virtual platforms extend from online repositories to a wide variety of educational channels accessible from home through radio, television and social media platforms.[33,34]

Opportunities Amidst Challenges

Any challenge comes along with it hidden or explicit opportunities that open up based on the attitude and mindset of the perceiver to seize the opportunity.[35] The current pandemic is no exception. This is a time to re-look at the gaps in the current curriculum beginning from selection until graduation. Support groups such as alumni associations of the institutions can be strengthened to build the community of both educators and mentors. As beautifully stated by Zagury-Orly I & Schwartzstein RM,[36] COVID-19 has given us a reminder to reason and strengthen our critical and analytical thinking as people in health care. Students need to be trained on these skillsets such as growth mind set, emotional intelligence, and critical thinking that are essential to survive and thrive. It will also take the training in health care beyond just seeing and interpreting to be able to integrate with day to day experience and arrive at contextual meaning and purpose. Models for artificial intelligence and machine learning need to be taught to both the faculty and students to see the big picture and also to be able to use the knowledge to innovate and improve current health care solutions. This could even be thought of in the context of bringing in innovations to the education system itself. The National Neuroscience Curriculum Initiative on "Quarantine Curriculum" is a brilliant model for the clinician faculty to enrich the students learning experience.[37] Similar proposals have been proposed by the ophthalmology community as well.[38] Experienced faculty members can join hands to put together such a curriculum for the Optometry program related to common eye conditions. As many students have currently lost the opportunity to expand on their professional development and networking opportunities through attending medical conferences,[30] they can be encouraged to make use of the virtual conferences relevant for their field.

Conclusion

Current times are challenging, uncertain, stressful and comes with a package of threats and fears to the global economy, health care and education. Nonetheless, this is also a time to reframe the system and to address the existing gaps and to come out with innovations for the upcoming times. More than the challenges in itself, the mind-set of the perceiver matters the most to be able to cope up and bounce back with utmost resilience. The tools and strategies proposed in this article could support the optometry educators to establish and expand networking to rebuild the mindset and the education system. In addition, educators need to take into account, the new national educational policy while revamping the curriculum, pedagogy, and assessment in the optometric education.[39]

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References

1. Available from: https://en.unesco.org/news/13-billion-learners-are-still-affected-school-university-closures-educational-institutions. [Last accessed on 2020 Aug 29].
2. Available from: https://theprint.in/india/education/in-india-over-32-crore-students-hit-by-covid-19-as-schools-and-colleges-are-shut-unesco/402889/. [Last accessed on 2020 Aug 29].
3. Available from: http://aishe.nic.in/aishe/viewDocument.action?documentId=263. [Last accessed on 2020 Aug 29].
4. Available from: https://www.businesswire.com/news/home/20200417005258/en/. [Last accessed on 2020 Aug 29].
5. Hartley D. New economy, new pedagogy? Oxford Rev Educ 2003;29:81-94.
6. Available from: https://timesofindia.indiatimes.com/india/internet-access-in-india-has-crossed-50-crore-milestone/articleshow/67280341.cms. [Last accessed on 2020 Aug 29].
7. Available from: https://economictimes.indiatimes.com/tech/internet/india-has-second-highest-number-of-internet-users-after-china-report/articleshow/71311705.cms. [Last accessed on 2020 Aug 29].
8. Available from: https://economictimes.indiatimes.com/tech/internet/covid-19-indian-internet-infra-not-prepared-for-shift-to-online-teaching-learning-says-qs-report/articleshow/75269679.cms. [Last accessed on 2020 Aug 29].
9. Samarasekera DD, Goh DLM, Lau TC. Medical school approach to manage the current COVID-19 crisis. Acad Med 2020;95:1126-7.

10. Available from: https://www.entrancezone.com/admissions/board-examinations-2020/. [Last accessed on 2020 Aug 29].
11. Available from: https://home.kpmg/content/dam/kpmg/in/pdf/2020/04/higher-education-in-india-and-covid-19-impact-on-admissions.pdf. [Last accessed on 2020 Aug 29].
12. Ministry of human resources development (MHRD) 2015-16. All India survey on higher education (AISHE). Available from: https://www.mhrd.gov.in/sites/upload_files/mhrd/files/statistics-new/AISHE2015-16.pdf. [Last accessed on 2020 Oct 13].
13. Indian Entry Level Optometry Competency Skill Standard (IELOCS) as mentioned in https://main.mohfw.gov.in/sites/default/files/4521325636987456_0.pdf. [Last accessed on 2020 Aug 29].
14. Available from: https://thebluecircle.co/2020/05/01/the-rise-of-ott-platforms-during-covid-19/. [Last accessed on 2020 Aug 29].
15. Rajhans V, Memon U, Patil V, Goyal A. Impact of COVID-19 on academic activities and way forward in Indian Optometry. J Optom 2020;13:216-26.
16. Garrison DR, Kanuka H. Blended learning: Uncovering its transformative potential in higher education. Internet High Educ 2004;7:95-105.
17. Lança C, Bjerre A. A retrospective study of orthoptic students' and teaching experience with the introduction of technology promoting a blended learning environment. Br Ir Orthopt J 2018;14:56-63.
18. Rowe M, Frantz J, Bozalek V. The role of blended learning in the clinical education of health care students: A systematic review. Med Teach 2012;34:e216-21.
19. Gruppen LD, Irby DM, Durning SJ, Maggio LA. Conceptualizing learning environments in the health professions. Acad Med 2019;94:969-74.
20. van Schaik SM, Reeves SA, Headrick LA. Exemplary learning environments for the health professions: A vision. Acad Med 2019;94:975-82.
21. Beal MD, Kinnear J, Anderson CR, Martin TD, Wamboldt R, Hooper L. The effectiveness of medical simulation in teaching medical students critical care medicine: A systematic review and meta-analysis. Simul Healthc 2017;12:104-16.
22. Ting DS, Sim SS, Yau CW, Rosman M, Aw AT, Yeo IY. Ophthalmology simulation for undergraduate and postgraduate clinical education. Int J Ophthalmol 2016;9:920-4.
23. Available from: https://aao-resources-enformehosting.s3.amazonaws.com/resources/AAO.LMS/test/retSim/10/ret.html. [Last accessed on 2020 Aug 29].
24. Available from: https://www.cybersight.org/. [Last accessed on 2020 Aug 29].
25. Available from: https://worldcouncilofoptometry.info. [Last accessed on 2020 Aug 29].
26. Available from: https://www.reviewofoptometry.com. [Last accessed on 2020 Aug 29].
27. Available from: https://www.secouniversity.com. [Last accessed on 2020 Aug 29].
28. Kaup S, Jain R, Shivalli S, Pandey S, Kaup S. Sustaining academics during COVID-19 pandemic: The role of online teaching-learning. Indian J Ophthalmol 2020;68:1220-1.
29. Lee J. Mental health effects of school closures during COVID-19. Lancet Child Adolesc Health 2020;4:421.
30. Ferrel MN, Ryan JJ. The impact of COVID-19 on medical education. Cureus 2020;12:e7492.
31. Available from: https://www.mhrd.gov.in/ict-initiatives. [Last accessed on 2020 Aug 29].
32. Jena PK. Challenges and Opportunities created by Covid-19 for ODL: A case study of IGNOU. Int J Innov Res Multidiscip Filed 2020;6:217-22. 7.
33. Jena PK. Impact of pandemic COVID-19 on education in India. Purakala 2020;31:142-9.
34. Jena PK. Online learning during lockdown period for Covid-19 in India. Int J Multidiscip Educ Res 2020;9:82-92.
35. Grover AK. COVID-19 crisis and residency education: A moment to seize the opportunity and create a new road map! Indian J Ophthalmol 2020;68:959-60.
36. Zagury-Orly I, Schwartzstein RM. Covid-19-A reminder to reason. N Engl J Med 2020;383:e12.
37. Ross DA; National Neuroscience Curriculum Initiative "Quarantine Curriculum" Committee. Creating a "Quarantine Curriculum" to enhance teaching and learning during the COVID-19 pandemic. Acad Med 2020;95:1125-6.
38. Mishra K, Boland MV, Woreta FA. Incorporating a virtual curriculum into ophthalmology education in the coronavirus disease-2019 era. Curr Opin Ophthalmol 2020;31:380-5.
39. National Educational Policy 2020. Available from: https://www.mhrd.gov.in/sites/upload_files/mhrd/files/NEP_Final_English_0.pdf. [Last accessed on 2020 Aug 30].