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**Research Article** 

# E-Learning – An Elegant Source of Education During the Period of Lockdown

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#### Abstract

In India, conventional teaching techniques are still used in classrooms, universities, and colleges, which replaced the standard context of face-to-face communication in a classroom. Although most of the education industry has begun to implement integrated education, the majority of them are still using outdated procedures. The sudden outbreak of COVID-19 shook the globe, a fatal illness produced by SARS-Cov-2. It was declared a disease epidemic by the World Health Organization. This situation posed a challenge to the entire educational institutions globally, forcing instructors to switch to an online method as soon as possible. Several educational institutions that had previously refused to alter their conventional didactic practises now have no option but to switch entirely to online teaching-learning. This essay goes into great detail on the effect of the education system in India during a disease outbreak. It goes into great depth on how India is implementing an e-learning strategy in this crucial circumstance. It also explains how to deal with the difficulties that come with elearning.

Keywords: COVID-19, Online Teaching, E-Learning, Lockdown, Interactive learning, Online learning Platform.

#### **1. Introduction**

The Covid-19 virus, known as the Corona Virus, has had a huge effect on the global economy. This cataclysm has negatively impacted the education sector as well, and this apprehension will quickly proliferate across the globe. As a result of the Covid-19 epidemic, almost a dozen organisations and institutions had to temporarily shut. This semester, and perhaps future semesters, may be lost due to many areas affected worldwide. At-person teaching has fallen out of favour in many institutions, including colleges and universities. Experts say it is doubtful that school will be open in the near future. Consequently, learning opportunities will be hindered as a consequence<sup>[1]</sup>. The whole educational system is working to find a solution to this tricky situation. These real-life examples demonstrate the need for prior knowledge for academic institutions. In this situation, the individual's best interests are best served by exercising compassion and collaboration. As a result, everyone, especially our students, our professors, our teaching assistants, our neighbourhoods, our communities, and the nation, must be safeguarded and preserved.

E-learning is linked to many concerns. Several reasons for digital teaching include access, cost, mobility, instructional methodology, life-long education, including policymaking. It is claimed that online education is simple to use, and it can also touch rural and distant places. In terms of mobility, lodging, and the total expense of organisation education, it is a comparatively less expensive form of learning. A further appealing feature of online study is organising or controlling one's time for completing classes accessible online. Integrated education and swapped classes are created by mixing face-to-face lessons with technological advances; this educational setting may help students learn better<sup>[2]</sup>. Students may study at any time and from any location, gain new abilities, and prepare for a lifetime of learning. In this fast-paced world, the administration also acknowledges the growing significance of online learning. The catastrophic outbreak of Corona Virus illness provides another justification for online education: it may be used as a cure in times of distress.

The All-India Council of Technical Education (AICTE) has published a list of 41 e-learning portals for learners to use throughout the coronavirus closure to guarantee that they may continue to get knowledge in safe and healthy educational surroundings. The list covers the finest in Indian and international information and communication technology and their accessible links. "National Digital Library, SWAYAM Online Courses, National Knowledge Network, National Programme on Technology Enhanced Learning (NPTEL), InfoPort, Talks to Teacher, A-VIEW, Virtual Labs, FOSSEE, Spoken Tutorial, e-Kalpa, NCERT Text Books, Directory of Open Access Books, Directory of Open Access Journals, e-ShodhSindhu, and SWAYAMPRABHA" are some of the e-resources available.

By an administrative statement from the AICTE, as an element of community distance and remaining in the constraints of the residences, we may use time effectively by interacting with Freely Accessible Materials for expanding the scope of education<sup>[3]</sup>. Owing to the government's national closure to prevent the transmission of COVID-19, schools and institutions throughout the country are shuttered. The lockdown was continued till May 3 by PM Narendra Modi on Tuesday.

The AICTE has developed a site called "Enhancement in Studying with Improvement in Skills" (ELIS), which allows pupils to continue education even if they are under lockdown because of Covid-19. During the current lockdown time, the e-learning materials offer 26 distinct education courses at no cost until May 15, 2020.

### **2. Popular E-learning Tools**

Innovation is performing a bigger part than ever in the modern world of education. Learning and teaching are gradually shifting towards the more virtual territory, eclipsing the conventional classroom method. Furthermore, the Covid circumstances need a strong focus on online education, so e-learning technologies are increasing in popularity. When the world moves toward online learning, a robust network that links instructors and pupils is required. Furthermore, whenever compelled to provide instruction online, instructors search for innovative solutions to implement solutions in classroom education<sup>[4]</sup>. Specialists usually advise teachers not to rely on a particular instrument but to explore a variety of platforms and get the advantages of all of them for exceptional outcomes.

Let's look at a few of the best e-learning technologies that may help you improve your learning outcomes via online learning.

# 1. Google Classroom

It is a complete community-based e-learning system that has the potential to elevate online learning to new heights. It's a fantastic feature in G Suite for Learning that allows pupils and instructors to communicate seamlessly while studying online.

- Educators may simply establish an online class and ask pupils to join
- Teachers and students can easily engage by submitting queries and receiving answers from their peers and teachers.
- Educators may exchange lessons and thought-provoking questions with students to study at home.
- Students usually unable to attend the online learning sessions may still get catch-up materials or extra directions to help them continue along with the course.

The ability to connect with Google products such as Google Forms may help start the participatory learning process and get comments or recommendations from both sides.

# 2. Storybird

Through this easy yet remarkable e-learning web tool, educators may quickly build creative and digitally communicative lesson plans and textbooks to enhance the knowledge of online schools.

- It includes exercises and extensive resource lists, allowing educators to assign tasks to pupils quickly.
- Continuous reporting on learning results is possible.
- It allows you to quickly establish pupil profiles and integrate them with current classroom features using Google Classroom imports.
- Easy how-to instructions are intended to assist instructors in developing unique curricula.

Furthermore, the tool may aid in the development of kids' creative abilities by requiring them to write their tales and extend their reading and writing abilities.

# 3. WizIQ

The remarkable customisation capabilities of WizIQ may help teachers who want to educate a larger group. By taking into account the students' preferences, interactive courses may be developed and offered as resources or online lectures.

- You may keep the recordings of your live sessions in the WizIQ Library Of content.
- According to the situation, the customer may choose a pricing plan.
- The basic package enables up to 300 people to participate in each session.
- Educators may distribute the material as a PowerPoint presentation, a video, a Word document, or a PDF document.

• Screen sharing and surveys may be used to make classes more participatory.

Furthermore, the WizIQ app for Android and iOS systems allows students to take courses on the move.

#### 4. GrammarFlip

This is among the finest e-learning platforms for making language learning and teaching easier than before. This thorough grammatical curriculum is appropriate for high school, elementary school, and primary learners and performs well in conventional and online classroom settings.

- Pupils may learn writing and grammatical topics at their speed, thanks to educational videos.
- There seem to be a variety of question forms to accommodate different learning styles, and self-assessment practise activities provide instant feedback.
- Educators can quickly identify kids who need support using status reports that can be downloaded.

Furthermore, writing platforms provide instant access to writing critique, and interesting writing challenges promote student participation.

#### 5. Kahoot

This fantastic game-based education software can take pupils' participation in a virtual world to another dimension. Teachers can simply organise live games, design questions, and a variety of other processes to improve teaching more effective and enjoyable.

- Teachers can easily design a trivia quiz or an educational activity on any subject for any language.
- Using engaging activities and games, students may learn a variety of instructional topics.
- Students Today will become more engaged, and lessons will become more engaging as a result.

It's no surprise that 50percent of instructors in the United States are reportedly utilising this e teaching opportunity for internet learning to improve the learning process in online schools.

#### 6. Elucidat

This web-based platform is a fantastic option for quickly and simply creating e-learning options. It has a built-in website layout editor and a variety of theme choices to help you build the perfect solution for your target audience.

- To develop learning material, users may simply drag & drop images, text, and media.
- You may pick from a variety of themes that will fit on a variety of screen sizes.
- It is possible to produce high-quality online teaching material at a low cost.

The greatest aspect is that hundreds of classes may be effectively handled at once and in different languages.

#### 7. Knoword

This is among the most effective e-learning platforms for self-paced education. It's really a fast-paced word game intended to give your mind a good exercise.

- It playtests your writing abilities and puts your knowledge to the test.
- It's a hybrid of a teaching website and a vocabulary-building device, complete with simple, moderate, and difficult activities.
- Educators may create their subject-related word packs and assess pupils' progress.
- If performed in a positive manner, it may excite your thoughts.

Another instance of how gamification may improve the online educational experience is this app.

### 8. Zoom Education

This is a cloud-based video streaming system that may be used to perform online live classes. It's a lot easier to share schedules, communicate with many students, and teach classes now than it was previously.

- Features such as virtual whiteboarding and one-click material exchange encourage student engagement in online education.
- Reliable video conferencing options for hybrid classes are available.
- "Desire2Learn, Sakai, Moodle, Canvas", and Blackboard are all supported by the software.
- Pupils will be able to study at their speed thanks to the ability to record courses.

To provide access for all students, computer shortcuts and closed captions are offered. Furthermore, the video conferences' outstanding clarity and quality will enhance the entire engagement.

### 9. YouTube

This is yet another fantastic tool that has the potential to revolutionise the e-learning paradigm. Teachers can produce mobile-friendly video lessons with ease and connect learners remotely.

- You may make playlists to learn more about a particular topic or subject.
- Webinars may be produced that students can utilise as reference resources.
- Why By graphically presenting a difficult topic, understanding levels may be improved.
- Using security options, you may share files with certain groups exclusively.

Links and comments may be placed to those to provide further information. You may also encourage cooperation by creating team Video clips or projects.

### **10. Blackboard Learn**

This cloud-based learning management system is excellent for studying and instruction in higher education<sup>[5]</sup>. It also performs very well third-party training material and is utilised by many institutions to encourage remote education.

- It has a completely dynamic and simple UI that provides a simple yet powerful teaching and learning approach.
- By interacting with the material and audience, instructors can quickly take action and remain organised.

• Grading and cooperation are a lot easier, and they provide useful information.

Blackboard has a system for all types of learning and teaching. Learning platforms will make the whole process more enjoyable and effective.

### 11. Seesaw

This is among the most popular apps among instructors who want to enhance their online teaching abilities. Not just between instructors and pupils, but also between parents, is a learning cycle formed.

- Learners may utilise the constructed commenting capabilities to understand what they comprehend in the online portfolio of the program.
- Educators are expected to understand their pupils' thought processes, allowing them to educate more effectively.
- Parents can keep records of the pupil's progress and get a sense of what's going on in the neighbourhood.

Most significantly, instructors can instantly see students' strengths and any regions that require additional focus, allowing them to customize teaching and get the greatest outcomes.

#### 12. Schoology

This is a sophisticated learning platform that is extensively utilised in K–12 and higher education courses. The e-learning tool is intended to aid in the creation of lessons<sup>[6]</sup>, the creation of material, and the assessment of learner comprehension.

- It's simple to combine with other applications and apps.
- School evaluation management may be very simple.
- Individuals and their accounts can be simply managed.
- It has several basic but useful features, such as alerts whenever a rewrite is published.

Like comparable alternatives, our collaboration and communication system provides united instructors, families, pupils, trainees, and executives in one location to help kids get the most out of their education.

#### 13. Edmodo

This is an excellent option for both hybrid and distant education<sup>[7]</sup>. Students can effectively manage educational technology since all classroom resources may be consolidated into a unified platform.

- The classrooms may be customised to meet the requirements of the students.
- Educators may construct polls for their pupils to gather responses and ensure that they comprehend the material.
- Material can be readily shared, and projects or questions may be sent to promote teaching and learning more participatory.

Educators may use the system to handle contact with parents coworkers, and pupils all in one location.

### 14. Educreations

This is an online interactive whiteboard that instructors may use to generate collaborative education material for pupils as they study remotely. Because attractive video material can be produced and disseminated very quickly, it can readily captivate pupils.

- All videos may be saved in the cloud and viewed whenever they are required.
- The client has influence over the information's accessibility.
- Educreations videos may be posted on social media sites or stored in Dropbox or Google Drive.
- Educators may quickly evaluate pupil work to identify where they require to develop.

The e-learning framework is intended to provide students with choice over what they study and when they study it, allowing them to grasp various topics quickly.

### **15. Google Docs**

Since we all realise, Google Docs is intended to help you produce files in the most efficient manner possible, which is why it is one of the finest e-learning applications for distance education<sup>[8]</sup>. Educators may use the programme to design the course project to ensure that the result is delivered to the end-users precisely as intended.

- It's simple for educators to exchange and gather students' progress.
- It makes it simple to create lists of topics to create and define every class.
- Classes may be exchanged with other instructors to improve coordination.

# **Edsys Introduces Video Conferencing**

Edsys is pleased to announce the launch of our brand-new 'Video Conferencing' service for instructors and students. Its characteristics and the finest customer engagement it provides are what set it apart.

- Courses that are both live and recorded
- Interaction capabilities such as screen sharing, one-on-one chat, and so on
- Works across all devices, including iOS, Android, and the web
- Modifies the video quality based on the internet connection available.
- Provides extra elements to help students study more effectively.
- Learners may use a raise-hand function& many more

Educators worldwide have praised it as an excellent collaboration area for effectively handling papers, with the autosave and feedback features as additional bonuses.

Students and teachers may use these incredible e digital materials to get the most out of online learning<sup>[8]</sup>. There are no longer any time or place boundaries, and instructors, pupils, and families may remain in touch no matter where they are. The education sector recognises the possibilities of e learning and online classroom experiences as more and more engaging e learning alternatives become available.

Enthusiasts are attempting to introduce more fantastic e-education solutions to mimic the benefits of face-to-face learning while also providing unique advantages to create learning

accessible to everyone via digital platforms. Furthermore, utilising the most advanced and cutting-edge technologies will undoubtedly provide pupils with a memorable educational environment.

# 3. Impact of Covid 19 on the Education of India

These are circumstances that no one could have imagined. Outbreak conditions are sweeping the world, sparing no place unaffected. They have made an indelible mark on the area of education. Even by the end of March 2020, the outbreak had spread across India, forcing the closure of most schools, colleges, and institutions.

Although this COVID-19 epidemic had many detrimental effects on learning, it also had a beneficial influence that may push the school system and its techniques forward. The epidemic has paved the way for new ways of spreading information across the world<sup>[9]</sup>. Many individuals in India don't have access to the internet, while others visit government-run institutions that aren't well-equipped. Many attempts were made to use online means to maintain learning at all stages, but it was not possible to make it accessible to everyone.

Focusing on the bright side of the pandemic's effect on education, I believe that the educational cells in our brains got active to consider and evaluate how to proceed to educate young minds. I believe I saw this statement credited to Marvin Minsky on the internet: "You don't comprehend anything unless you study it more than one way<sup>[10]</sup>." During the epidemic, this statement was demonstrated as instructors utilised various learning and teaching techniques.\

COVID-19 has advanced the use of online technology in instruction delivery. Institutions of higher learning have shifted to blended learning and pushed instructors and students to become more tech-savvy. Soft technology, the internet, webinars, virtual lecture rooms, teleconferencing, digital examinations and evaluations become commonplace when we may have only described them a decade or more ago. All stakeholders in the area of education — including administration, instructors, students, parents, and software developers — worked together in unprecedented ways to transmit information in novel methods.

Many people have discovered that individuals who want global education and exposure to ideas may get it. Travel, excursions, and purchasing study materials have all decreased, resulting in cost savings during these difficult times<sup>[11]</sup>. Although there was a lot of progress in the technological side of the school, COVID-19 had some detrimental effects on education.

Educational activities are severely hindered, and we sensed a great deal of uncertainty and the postponement or suspension of examinations, academic sessions, and other activities. The so-called co-curriculum was unable to be implemented due to a lack of room.

Teachers who were specialists in book, talk, chalk, and classroom techniques faced a problem in the digital age. They needed to be prepared to face the difficulties of the current scenario and to continue teaching online. Many pupils also struggled to acquire the necessary technology for online education.

As a result of losing their teaching positions or having their wages withheld, many educators sought other employment to support their families<sup>[12]</sup>. Former educators are now attempting to fit into any available position.

Things improved — although slowly — for informed families as they assisted their kids, it's also important to recognise the powerlessness of families who were unable to assist their kids. Because the availability of a noon meal is a tremendous gift to many Indian kids, the suspension of classrooms during the lockdown resulted in many youngsters being starved and

hungry. The outbreak posed a problem to academic institutions since tuition collection was very low. Many low-income schools were forced to close.

All have concerns and inquiries, such as when life will return to normal. Is the vaccination up to date? But life goes on, and education goes on as well. We can see how the coronavirus has wreaked havoc in the sector of teaching. COVID-19 has also proven to be a gift in disguise for us. The epidemic has created new possibilities, such as more digitization. The issue necessitates network updates and understanding of how to deal with such occurrences in the hereafter.

# 4. Opportunities and Challenges Related to E-learning

During this time, young students often study for and submit entrance tests, decide which institution to attend in India, or begin arranging further education courses overseas. However, the current situation is everything from average. The COVID-19 illness epidemic has alarmed people all across the globe. Students and academic institutions are under a lot of pressure. Colleges and institutions have been closed, and exams have been postponed. Classrooms are becoming more computerised, and admissions officers are nervous about the next academic years<sup>[13]</sup>. Around 320 million students in Indian classrooms and universities are mainly characterised, according to UNESCO. The epidemic has forced the community to rethink methods to deal with the changing environment substantially. It is essential to examine the immediate and long-term impacts and future actions after the first phase of the full redesign.

### **Online learning**

With the transition to online, it has become a quick and effective reaction to the present circumstances. It's critical to provide stable online settings since it's become a need for providing educational consistency. On the other hand, changes are inconvenient in developing countries like India, where significant disparities exist in students' socioeconomic situations and the quality of educational institutions. As the crisis worsens, the technological gap has widened considerably, necessitating urgent assistance from the public and commercial sectors. A competent teacher will improve the curriculum, and effective tools will ensure that students stay actively engaged in the educational procedure

### A large proportion of Indian students will remain at home.

Thousands of Indian youngsters are opting to pursue higher learning overseas. According to the research, India is the world's second-largest supplier of foreign students. This frequent movement is expected to inflow into Indian institutions, travel restrictions, and health risks, at least for the next several years<sup>[14]</sup>. As most students explore domestic alternatives, it implies that crores of rupees and the amount spent in higher may probably be maintained in the nation. Though international institutions may feel its effect of the change, India's possible goal is to enhance its capacity to provide an excellent education that meets international standards.

### Effects of a contracting world economy

The economy has taken a serious hit, and the education sector is feeling the consequences. Even though many pupils get fresh views as a result of the illness epidemic, others remain concerned. Unemployment is expected to rise, putting Indian households' financial prospects in jeopardy; the nation may witness a drop in enrolment and problems paying tuition costs. Public groups are likewise operating on a shoestring budget. On the other side, the Pandemic may lead to a reorganisation of the price structure and the creation of many more cost-effective solutions.

### Modern teaching patterns will develop.

Beyond the highest echelon of educational achievement, where private institutions provide the latest innovations, Indian academics need improvement well before pandemic epidemics occur. Now is the time to reconsider the conventional educational system. As a core, online education is taking the lead, and many technological advances are gaining traction across the globe. Interdisciplinary and adaptable pedagogy with talent, experience, and customised learning may flourish<sup>[15]</sup>. In the aftermath of a disease outbreak, a mix of e-learning and conventional face-to-face education, with assistance from educational institutions and the ed-tech sector, might be observed.

#### Collaboration between students, business, and academics on a global scale

Exchange programmes, apprenticeships, and conferences as possibilities for student knowledge and teaching experience are probably more likely to get off the table for a while. To enhance education, study, and teaching, innovative, collaborative techniques and new methods of understanding are needed. In these difficult times, exchanging knowledge across academic institutions throughout the globe via joint-teaching and online guest lectures may provide learners with a broader viewpoint.

### 5. Conclusion

The academic system in India has changed dramatically as a result of COVID-19. It has developed, despite the many difficulties and possibilities, it has presented. To deal with the present COVID-19 conditions, the Government of India and other education players have explored the potential of e-learning by using various innovative channels. India is not fully equipped to use online platforms to provide schooling to all parts of the country. Universities and the Indian government are working hard to find a solution for the country's education system<sup>[16]</sup>. The first priority should be to use modern technology to benefit millions of young kids in India. The academic organisation's time is needed to support their understanding and IT network for COVID-19 scenarios. In such a contagious situation, the idea of "work from home" becomes more important in reducing COVID-19 transmission. During the COVID-19 epidemic, India should devise innovative ways to guarantee that all children have sustainable access to education. Students benefit much from e-learning, and it should be maintained after the closure.

### REFERENCE

- Dhawan S. Online learning: a panacea in the time of COVID-19 crisis. J Edu Technol Syst. 2020;49(1):5–22. doi: 10.1177/0047239520934018.
- Das R, Manaktala N, Bhatia T, Agarwal S, Natarajan S, Lewis AJ, Yellapurkar S. Efficiency of mobile video sharing application (WhatsApp®) in live field image transmission for telepathology. J Med Syst. 2020 doi: 10.1007/s10916-020-01567-w.
- Kumar S, Maheshwari V, Prabhu J, Prasanna M, Jayalakshmi P, Suganya P, Jothikumar R. Social economic impact of COVID-19 Outbreak in India. Int J Pervasive Comput Commun. 2020 doi: 10.1108/IJPCC-08-2020-0107.
- Kumar S, Prabhu J, Rajendran S, Kumar PJ, Jothikumar R. Pediatric and geriatric immunity network mobile computational model for COVID-19. Int J Pervasive Comput Commun. 2020 doi: 10.1108/IJPCC-06-2020-0054.
- Littlefield J (2018) The difference between synchronous and asynchronous distance learning. Retrieved May 4, 2020

- Machado RA, de Souza NL, Oliveira RM, Júnior HM, Bonan PRF. Social media and telemedicine for oral diagnosis and counselling in the COVID-19 era. Oral Oncol. 2020;105:104685. doi: 10.1016/j.oraloncology.2020.104685.
- Manoj, P. K. (2019), "Competitiveness of manufacturing industry in India: Need for flexible manufacturing systems", International Journal of Innovative Technology and Exploring Engineering, 2019, 8 (12), pp. 3041-3047.
- Manoj, P.K. (2011), "Just in time (JIT) inventory management for enhanced operational efficiency: an 'Indianised JIT' strategy for an agro machinery manufacturing unit in Kerala", European Journal of Technology and Advanced Engineering Research, 2011, 2(1), pp. 29-39.
- Martin N, Lazalde OM, Stokes C, Romano D. An evaluation of remote communication versus face-to-face in clinical dental education. Br Dent J. 2012;212(6):277–282. doi: 10.1038/sj.bdj.2012.226.
- McBrien JL, Cheng R, Jones P. Virtual spaces: Employing a synchronous online classroom to facilitate student engagement in online learning. Int Rev Res Open Distrib Learn. 2009 doi: 10.19173/irrodl.v10i3.605.
- Passos KKM, da Silva Leonel ACL, Bonan PRF, de Castro JFL, dos Anjos Pontual ML, de Moraes Ramos-Perez FM, da Cruz Perez DE. Quality of information about oral cancer in Brazilian Portuguese available on Google, Youtube, and Instagram. Medicina Oral Patología Oral y Cirugía Bucal. 2020;25(3):e346. doi: 10.4317/medoral.23374.
- Rajesh, S. & Manoj, P. K. (2014), "Politicization of trade unions and challenges to to industrial relation in India: A study with a focus on northern Kerala", International Journal of Business and Administration Research Review, 2014, 1(2), pp. 78-96.
- Singh V, Thurman A. How many ways can we define online learning? a systematic literature review of definitions of online learning (1988–2018) Am J Distance Edu. 2019;33(4):289–306. doi: 10.1080/08923647.2019.1663082.
- Tadesse S, Muluye W. The impact of COVID-19 pandemic on education system in developing countries: a review. Open J Soc Sci. 2020;8(10):159–170.
- Tripathy S, Devarapalli S. Emerging trend set by a start-ups on Indian online education system: a case of Byju's. J Public Aff. 2020 doi: 10.1002/pa.2128.
- UNESCO (2020) Education: from disruption to recovery. Priya KB, Rajendran P
- Venkatasen M, Mathivanan SK, Jayagopal P, Mani P, Rajendran S, Subramaniam U, Somanathan MS. Forecasting of the SARS-CoV-2 epidemic in India using SIR model, flatten curve and herd immunity. J Ambient Intell Humaniz Comput. 2020 doi: 10.1007/s12652-020-02641-4.
- Watkins R, Leigh D, Triner D. Assessing readiness for e-learning. Perform Improv Q. 2004;17(4):66–79. doi: 10.1111/j.1937-8327.2004.tb00321.x.
- Wootton AR, McCuistian C, Legnitto Packard DA, Gruber VA, Saberi P. Overcoming technological challenges: lessons learned from a telehealth counseling study. Telemed e-Health. 2020;26(10):1278–1283. doi: 10.1089/tmj.2019.0191.