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E-Learning in Health Sciences: Opportunities, Challenges and Future Directions from a Yogic Perspective

Kumar, Avinash[1] and Ritika[2]

[1]Department of Physical Education and Sports, DAV University, Jalandhar

[2]Department of Psychology, DAV University, Jalandhar

Abstract

In the recent years of pandemic, global shift towards the e-learning created a lot of opportunity to develop the methods, techniques, and online platforms to facilitate the teaching and learning process. It created an opportunity to use of digital infrastructure to facilitate learning procedure. Numerous studies have proven the effectiveness of virtual learning across various disciplines, highlighting its beneficial effects on the teaching and learning of yoga, whether conducted in-person or online. Yoga, an ancient practice aimed at promoting health, encompasses not only physical exercise but also spiritual well-being. The COVID-19 pandemic has further propelled the global interest in yoga. In today's fast-paced world, many people struggle to find time for physical activities that support both their physical and mental health, which are essential for achieving daily goals, such as mental tranquility and alleviating psychological stress. These developments offer valuable insights into the challenges and opportunities presented by E-learning in the realms of health sciences and yoga. This review study aims to understand the opportunities, challenges, and future perspectives of eLearning. To collect data, we reviewed the multiple related research paper of this area of concept. To obtain the data, we visited the resource website like Google Scholar and ResearchGate etc. In this review study, it has been concluded that there are a lot of opportunity for the E-learning in the field of health science and yoga for the future perspective, however, there is some threat, and guidelines that should be kept in the mind. This study helps an individual to understand the various concept of online teaching and learning of yoga and health science.

Keywords: E-learning, Yoga, Health Sciences, Modern Era, Technology

Introduction:

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As the world gradually move towards the digitalization of all sectors related to health science and fitness which leads to introduction of e-learning in that field or sector. It is necessary to explore the scope of the numerous opportunities, challenges, and future perspective of the yogic practice. It is widely recognized that India is the birthplace of yoga, having made considerable contributions to this discipline through extensive research and experimentation.

In terms of historical configuration, *Basavaraddi, Ishwar V.* in "Yoga: Its origin, history and development" (Public Diplomacy 1, 2015: 1-5) elaborates on the historical roots of yoga in ancient India. Even though the world is shifting towards e-learning, the traditional approach still holds significant value when it comes to practical experience. However, the traditional concept of yoga practice still holds significant place in terms of practical experience, but with the requirement of changing modern world, it is necessary to shift the learning procedure from traditional to online facilitation concepts of digital era. As the world increasingly embraces digital infrastructure, the processes of learning and teaching have become more straightforward and accessible through recorded videos and live streaming. It is essential to use tools and technology to enhance the teaching and learning of yoga effectively via digital platforms. This paper includes the systematic review of literature on internet websites like google scholar, research-gate etc. The various platforms of internet lead us towards the efficient learning teaching process between the learner and the teacher. The use of digital communication for knowledge transfer has enabled both educators and students to progress and reach important milestones.

This review will help the future practitioner and teaching facilitator of yoga to adopt modern technology and methods to help better teacher learning process and effective teaching of yoga and it's aligned subjects. In health science and yoga, effectively showing skills and postures to practitioners need clear instructions and visual demonstrations. The availability of texts, videos, and other resources helps easier comprehension of concepts and discoveries. While there are numerous challenges associated with this approach, the advantages are large. This paper includes the systematic review of various paper on online teaching of yoga, to manually understand the concept of application of e-learning in health science and yoga and will

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help the future researcher and experts to find the solution of various associated problems and develop the methods to resolve that problem.

Opportunities of E-Learning in Health Science and Yoga:

1. Accessibility and Flexibility:

The rise of digital media and the internet has transformed education by providing greater accessibility and flexibility in terms of timing and support. Individuals can easily discover content that resonates with their interests and academic pursuits. Online platforms allow learners to access educational materials anytime and anywhere, thereby encouraging the practice of swadhyaya (self-study) through digital means. And it is easy to adopt in daily lifestyle due to its flexible nature of learning and relaxation from time bound. However, many of the digital form of books, study material and video are available for it is necessary to verify the sources and the quality of the content to avoid the error and misinformation.

2. Attaining Cost-Effectiveness and Efficiency:

The online environment has made educational content available at little to no cost, greatly improving the affordability of e-learning. And online availability of resources in the form of audio, video and audio-visual content helped a lot to improve the efficiency of both the learner and teaching facilitator. Consequently, disciplines such as yoga and health sciences can reach a global audience and promote overall well-being. This online concept of learning helped a lot of health science and yogic practitioner to learn the things or content either at low cost or at no cost.

3. Integration of Technology and Artificial Intelligence:

Integration of various technology and artificial intelligence helped an individual to gain enough amount of sensory experience of the content that is being taught by the tutor or facilitator. Innovations like Virtual Reality (VR) and Augmented Reality (AR) help bridge the gap between theoretical knowledge of body posture and its practical application. Applications driven by Artificial Intelligence (AI) and online platforms can evaluate various body postures and recommend necessary modifications. Both VR and AR are essential in assessing different postures, allowing individuals to enhance their posture through accurate visualization.

Challenges in e-Learning for Health Sciences:

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1. Lack of Practical Experience:

To gain a true understanding and mastery of both yoga and health science, practical experience is crucial. Engaging directly with the practices allows for a deeper comprehension that cannot be matched by virtual means. Online platforms often fall short in effectively teaching these disciplines. Several factors contribute to the limitations of online learning, making in-person practice more helpful for learners. (Longhurst *et al.,* 2020) mention that while online teaching helped keep education going during the COVID-19 pandemic, it didn't provide students with enough hands-on experience, especially in clinical and lab settings. This lack of real-world practice made students feel less engaged, learn fewer skills, and feel less confident.

2. Low Participant Engagement:

When individuals take part passively, they often experience a sense of being detached. This lack of active involvement can create a barrier between them and the ongoing activities or discussions. The absence of active engagement often results in diminished motivation. Participants may feel less compelled to contribute or strive towards goals, reducing their enthusiasm and interest over time. Individuals who are not actively taking part tend to meet feelings of social isolation. They may feel excluded or on the periphery of social interactions, which can hinder their sense of belonging within a group or community. In (Longhurst *et al.,* 2020), some students showed low engagement-missing deadlines, resisting structured formats, or dropping out due to loss of clinical practice. Mentorships, flexibility, and seeing their work impact health policy gradually improved motivation and participation.

3. Screen Fatigue and Mental Health Issues:

Spending too much time looking at screens can cause significant tiredness that affects both the body and mind. Many hours in front of screens can lead to discomfort and tiredness in the eyes. Consistent screen use may result in mental tiredness, making it hard to concentrate. Overexposure to screens can elevate stress, affecting your overall well-being. These health challenges can harm a person's ability to perform tasks efficiently, whether at work or in educational activities. Diminished performance can lead to further stress and reduced productivity. (Kaur and Singh, 2021) mention that digital fatigue can cause students to feel exhausted when they spend a lot of time staring at screens, which can

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significantly raise their stress levels, burnout, and mental health problems. They emphasize the need for better screen time management and greater emotional support within the educational environment.

Future Perspective: A Yogic Approach to E-Learning in Health Sciences:

1. Mindfulness and Learning Approach:

In e-learning, focus is key for memory and attention. Meditation and concentration are important tools. These can help students learn better online. For example, quiet meditation sharpens the mind. This makes it easier to remember new facts. Concentration exercises reduce distractions. Less distraction improves online learning. Background noise fades away. Students can focus on lectures. These skills boost learning in virtual spaces. (Ma and Hall, 2020) discovered that practicing mindfulness can have a positive effect on academic performance by boosting motivation. Their research shows that mindfulness helps lower stress levels and promotes self-regulation, which then results in improved persistence, concentration, and overall academic success among students.

2. Pranayama for Psychological Upliftment:

E-learning creates psychological stress as well as physiological stress on the learner which cause physic and psychic tiredness. In such condition brain need extra amount of blood and oxygen supply. Oxygen-rich blood flow to the brain boosts how well it works. Good blood flow helps with memory and focus. It also plays a role in stress and mood control. The brain requires a lot of oxygen to work properly and efficiently. When it gets enough, thinking becomes clearer. People may find it easier to remember things. They can pay attention for longer periods. Stress can upset the balance in the brain. Oxygen helps manage the effects of stress. This leads to better mood and emotional health. Keeping the brain well-supplied with oxygen is key for overall well-being. Saoji, Raghavendra, and Manjunath (2019) looked at research on yogic breathing techniques and discovered that pranayama has a positive effect on the autonomic nervous system, which helps lower stress and improve emotional balance. They say that practicing pranayama regularly can lead to improved mental health, better thinking skills, and greater ability to oversee challenges.

3. Learning Based on Movement:

Starting your e-learning with Surya Namaskar can boost learning. Surya Namaskar involves physical movement. Movement helps your brain work better. This improved brain

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function can help you focus. Physical activity sends more blood to the brain. More blood means more oxygen and nutrients. These support memory and thinking. For instance, doing Surya Namaskar gets your heart pumping. This raises alertness. Increased alertness makes it easier to pay attention during online lessons. Also, moving your body releases chemicals. These chemicals, like endorphins, reduce stress. Less stress allows for better focus and information retention. Surya Namaskar combines poses and breathing. The poses stretch and strengthen your body. Deep breaths calm your mind. This combination prepares you to learn. A calm, alert mind absorbs information better. Therefore, incorporating physical activity before e-learning can improve understanding. (Mandal & Pramanik, 2018) found that both slow and fast Surya Namaskar practices improved cognitive functions such as attention and memory in school children. Slow practice enhanced concentration and accuracy, while fast practice improved processing speed and reaction time, suggesting distinct but complementary benefits for learning.

4. Virtual Learning Models:

Virtual learning allows people to find good learning materials. This helps them learn processes better. It makes learning easier overall. For example, videos can show steps clearly. Students can watch them again if needed. Online tests let students check their knowledge. Instant feedback helps them fix mistakes. They do not need to wait for a teacher. Virtual learning fits different learning styles, too. Some people learn by reading. Others learn by watching or doing. Virtual learning has options for everyone. This approach helps people learn at their own speed. It builds a powerful base for more learning. Clear materials and easy access improve how well people learn. (Mseleku, 2020) reviews existing research on e-learning and e-teaching during the COVID-19 pandemic, focusing on how these methods helped to keep educational activities when in-person learning was not possible. The study outlines several advantages, including flexibility in learning schedules, wider accessibility to educational resources, and opportunities for developing digital skills. However, it also finds significant challenges, such as unequal access to technology, insufficient educational infrastructure, and decreased levels of student-teacher and peer interaction. The paper concludes that although e-learning is vital, combining it with traditional methods and

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providing adequate support is crucial for achieving sustainable and effective educational outcomes.

Discussion

The integration of e-learning with the help of various digital tools and techniques is considered to lead to better facilitation of teaching and learning processes in the field of yoga, health sciences, and allied areas. However, certain threats are associated with the implication of e-learning in health education and yoga, although numerous opportunities are also offered. Opportunities such as accessibility of content, flexibility of learning schedules, affordability, and the use of technologies like virtual reality and artificial intelligence in live demonstrations are regarded as crucial. In some research, such as that of Denholm, Popovski, and Fouladbakhsh (2022), the benefits of practicing yoga online were explained, and appropriate methods for its implementation were considered. It was emphasized that, as health care increasingly shifts online, online yoga can be as effective for physical and mental health as in-person practice. The possibility of reaching individuals unable to attend studios was highlighted. The importance of user-friendly platforms or applications was stressed, along with the need for teachers to provide clear communication and ensure safety. Suggestions were given on making online yoga more inclusive, while further studies were recommended to explore ways of sustaining learner interest and ensuring safety.

Challenges were also noted, such as lack of practical experience, low participant engagement, screen fatigue, and related mental health issues. It was further emphasized that more research must be conducted on the application of e-learning in health education and yoga, to develop appropriate methodologies, techniques, and platforms to facilitate teaching and learning effectively. The future perspectives of e-learning in yoga and health education were stated to include mindfulness-based learning, pranayama for psychological upliftment, movement-oriented learning, and virtual learning models. Consideration of these perspectives was suggested to depend upon understanding changing technological trends and staying updated in the field.

Research by (El-Seoud *et al.,* 2014) was found to show that interactive features of e-learning tools, such as quizzes and discussion forums, increased student interest and motivation. Survey data from two institutions

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demonstrated that students with positive perceptions of Moodle exhibited higher academic motivation, highlighting the importance of well-designed online learning spaces. Similarly, (Kappinen, 2005) identified six essential elements of meaningful learning: active involvement, independent idea-building, collaboration, real-life connection, teacher support, and subject connection. It was suggested that videos are most effective when integrated with other tools in a planned structure, ensuring their alignment with meaningful learning principles.

Rodríguez *et al.,* 2025 conducted a comprehensive review of 151 peer-reviewed studies, concluding that the integration of technology into physical education enhanced student motivation, engagement, motor skills, tactical understanding, and cognitive learning outcomes. It was stated that, despite these advantages, successful implementation depends upon overcoming challenges to encourage lifelong physical activity among students. In another review, (Noesgaard and Orngreen, 2015) examined how e-learning success was defined, measured, and influenced. They reported that learning outcomes were most often used as indicators but also emphasized the difficulties of implementation. Resistance to change in teaching methods, limitations of traditional assessments, inadequate infrastructure such as poor internet, and usability challenges of e-learning programs were identified as barriers. A model was proposed that considered the setting, the e-learning tool, and the user, to explain the complexity of evaluating e-learning effectiveness.

Overall, e-learning was described as transformative in yoga and health sciences education, offering accessibility, flexibility, affordability, and innovative tools like AI and VR. When well-designed, online platforms were found to provide outcomes comparable to traditional learning, supported by tools such as quizzes, videos, and discussion forums. Nonetheless, limitations such as reduced hands-on practice, diminished interaction, screen-related strain, and mental health challenges were acknowledged. For e-learning to be successful, teacher preparedness, infrastructure, and pedagogical design were identified as critical. Future directions were suggested to include mindfulness, pranayama, and movement-based digital learning. To maximize impact, continuous research and innovation in methodologies, tools, and pedagogy were recommended, ensuring that

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both opportunities and challenges are balanced for holistic outcomes in yoga and health education.

Conclusion

Based on the discussions mentioned earlier it is clear that there are numerous challenges associated with e-learning that need to be addressed comprehensively. These challenges include a significant lack of hands-on experience which is crucial for fields such as health science and yoga, low engagement levels among participants that can hinder effective learning issues related to screen fatigue that arise from prolonged exposure to digital devices and various mental health concerns that can emerge in an online learning environment. However, it is important to note that there are also several positive aspects of e-learning that cannot be overlooked. For instance, e-learning offers improved accessibility and flexibility allowing learners from diverse backgrounds and locations to take part in educational programs. Additionally, it can lead to achieving cost-effectiveness and efficiency making education more affordable and streamlined. The integration of technology and artificial intelligence also opens new avenues for personalized learning experiences. As we look toward future endeavors in the domains of health science and yoga, while many obstacles must be tackled the potential for overcoming these challenges could ultimately foster a more effective and enriching e-learning environment. This study aims to develop a flexible learning space by thoroughly analyzing the opportunities available and strategically addressing the challenges that lie ahead paving the way for innovative educational approaches.

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