



## Research Article

# Classroom Learning versus e-Learning- Cross Sectional Analysis among Physiotherapy Students

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## Abstract

*A shift in pattern of teaching from regular classroom to online education as with present COVID-19 scenario with lesser researches available on this area, this study can strive to analyse merits and demerits of e-learning among physiotherapy students of Tamil Nadu related to e-learning and students perception using a Questionnaire. Various perceptions, from impact of learning, health, along with their ability to understand subjects were analysed during September 2020 to December 2020. Results were analysed and discussed using literature evidence. Findings of the study can be useful for further safety, health precautions related and shortcomings with e-learning.*

## Introduction

e-Learning has a greater role in global education with materials, lifelong learning, flexibility of time, along with their decrease in workload and time saving as boon supported by findings of Saleem et al 2014. Having positive impact with an attitude and greater perception among college teachers and students found e-learning an opportunity for sustaining education (Aithal et al, 2016)

e-Learning was found to be motivating the students as supported by Harandi et al 2015 among 140 UG students in Iran, however (Kim and W. Frick et al 2011) have suggested e-learning can be successful if students are engaged to meet the objectives of e-learning, Further Salamat et al 2018

have found e-learning among 205 Pakistani UG students to enhance quality and independence for learning, which was similar to findings of Alismail et al 2015.

Pandemic situation including COVID 2019, where online teaching and learning were found to be effective in a research conducted in China among teachers and students as recorded by Zhao et al 2020.

As these researches on the effectiveness of e-learning on cost effectiveness, time conserving, easy to monitor as found by Kahigi et al 2008 and Gudep et al 2008. However, e-learning has its negative influence with barriers including unstipulated long working hours, poor technical

skills, inadequate infrastructure, absence of strategies and support from respective institutions. While various factors including learner’s perception, course design, availability of communication network can greatly influence on attaining e-learning objectives.

While student’s flexibility, quality of online studies and their market on e-learning in higher education needs further research, as this was emphasized by Jabli et al 2013. With paucity of research in e-learning among higher education, learner’s perception along with their health impact were evaluated and analyzed using due evidence in this presentation.

Findings of this study can be beneficial for preparation of future pandemic situation on how to handle, plan, execute educational policies, objectives and means to achieve the same.

**Aims and Objectives** of this research were to analyse 1. Merits and Demerits of e-learning 2. To get an insight of students perception on e-learning.

**Materials and Methodology**

This original cross-sectional survey was conducted during the period of from September 2020 to December 2020 among 300 physiotherapy students from South India with 20 open and close ended questions, related to e-learning, to collect the data using social media network during post COVID-19 lockdown. 264 Subjects have responded. Obtained data were recorded, tabulated, analyzed with due statistics and were discussed with adequate evidence.

**Results**

**Table 1:** Results on Gender, Location, Graduate level, Age, Hours and Depth of e-learning

GENDER	MALE		FEMALE		
	n-71 (27%)		n-190 (73%)		
AGE GROUP (in YEARS)	18-21	22-25	>25		
	n-190 (75%)	n-57 (22%)	n-8 (3%)		
GRADUATE LEVEL	AVERAGE	CRT	e-learning		
UG	n-229 (89%)	n-156 (68%)	n-63 (28%)		
PG	n-25 (97%)	n-18 (72%)	n-7 (28%)		
RS	n-4 (2%)	n-3 (75%)	n-1 (25%)		
LOCATION	RURAL	URBAN	SUBURBAN		
	n- 61 (24%)	n-156 (62%)	n-34 (14%)		
e-LEARNING HOURS	3	6	>6		
	n-93 (36%)	n-97 (38%)	n-69 (27%)		
DEPTH OF LEARNING Based on Age and Gender	AGE in years			GENDER	
	18-21	22-25	>25	MALE	FEMALE
	48 (73%)	18 (27%)	0	21 (28%)	53 (72%)

**Table 2:** Results on Eye Ailments, Musculoskeletal Disorders, Health

EYE AILMENT S	AGE in years			GENDER	
	18-21	22-25	>25	MALE	FEMALE
	n-62 (67%)	n-22 (24%)	n-3 (3%)	n-27 (29%)	n-65 (71%)
MUSCULO SKELETAL DISORDERS	18-21	22-25	>25	MALE	FEMALE
	n-136 (73%)	n-51 (27%)	n-6 (3%)	n-49 (27%)	n-133 (73%)
	LOW BACK PAIN		KNEE PAIN	NECK PAIN	
n-93 (45%)		n-7 (3%)	n-165 (79%)		
CONSTITUTION AL SYMPTOMS	LOSS OF APPETITE	OVEREATING	CONSTIPATION	IRREGULAR BOWEL & BLADDER	
	n-89(55%)	n-53 (33%)	n-16 (10%)	n-31 (19%)	

**Table 3:** Results on Perception

PRACTICAL SKILLS	AGREE	NEUTRAL	DISAGREE
	n-30 (12%)	n-76 (30%)	n-146 (58%)
PERCEPTION OF e-LEARNING	e-learning	CLASSROOM TEACHING	
	n-73 (28%)	n-187 (72%)	

This research where advantages of e-learning such as cost effectiveness, travel less, useful for slow learners, anytime to any where learning to lifelong learning with flexibility where the course materials including notes, power point, video provides freedom for learners were highly effective especially in the pandemic situation, we had recently as reflected by findings in the table of results shown above.

In this cross-sectional analytical research where perception of e-learning among, 264 physiotherapy students during COVID-19 period as shown in the table of results were encouraging trend for the amount of motivation of learners, benefits obtained, understanding of subject by participants were displayed.

**Key Findings of This Research**

- 1) With UG, PG students and Research scholars find classroom teaching preferable than e- learning. (Classroom teaching 72% versus e-learning 28%).
- 2) More female respondents(73%) in this research
- 3) 27% of the participants spends more than 6 hours of e-learning per day.
- 4) Between 18-21 years subjects 67% had eye ailments and 71% of female had eye problems.
- 5) 73% of subjects aged between 18 to 21 years had musculoskeletal disorders.
- 6) 73% of female had musculoskeletal disorders.
- 7) Low back ache with 45% and Neck ailments with 79% were common muscular skeletal disorders among the participants.
- 8) 55% of subjects had loss of appetite and 33% had habit of overeating.

- 9) 73% of subjects aged between 18 to 21 years have reported an in-depth e-learning.
- 10) 71% of female respondents have reported an in-depth e-learning.
- 11) 62% of urban subjects and 24% of rural inhabitants prefer e-learning.
- 12) 58% of subjects disagree with e-learning to be effective, while 30% remains undecided, for towards practical skill learning.
- 13) 72% of the subjects in this research prefer classroom teaching, while remaining 28% opting for e-learning.

**Discussion**

These findings were discussed below with the evidences by various researchers as below:

However, taking into account of our social inequality, non-availability and non-access to communication network especially in a developing country like India can provide huge challenges in these lock down situation necessitating e-learning.

**1. Impact of e-Learning on Health**

Findings of this research as shown in the table of results, where ill effects of e learning can be seen as shown in Table 2.

Also, health issues such as eye ailments, increased obesity, subjects developing musculoskeletal disorders during these unforeseen pandemic situation, were yet to get published, to be evaluated for, health hazards arising from these indoor, closed situations with lesser social interaction, where e-learning can be quite harmful as discussed in with the following research evidence

73% of total participants of this research were female and 71% of female and among them 73% of subjects between 18 to 21 years, have reported

an in-depth learning favouring e-learning. But this same age group and female have more eye ailments and musculoskeletal disorders ranging up to 73% female and this age group subjects were found to be more addicted to internet leading to anxiety, depression. (Hwang et al 2014).

Health ailments among school children with usage of more than two hours with electronic gadgets were recorded by Kiatrungrit et al 2014.

Pandemic time was found to be an alarming public health issue with more neck pain with excessive usage of electronic gadgets (Mathew et al, 2020) which was supported by Shaukat et al 2020 with 6-8 hours of electronic gadgets during COVID-19 pandemic period subjects to be limited with neck pain and LBA in a Pakistan based research.

29% of the participants had eye related ailments among nursing teachers and students of Nepal (Subedi et al 2020), whereas 73% of this research subjects were found to have eye related ailments, more than two fold of this study subjects developing eye ailments could be related underlying health including diabetes, glaucoma, level of hydration, environmental causes, but not evaluated in this research.

e-Learning can be harmful to eyesight (Nazalon et al 2013) as supported by Sudip Pandel et al 2018 recorded computer vision syndrome among 80% and eye strain among 15% among UG students of Nepal.

Neck related ailments among 79% of the subjects, followed by LBA with 45%, were recorded.

Prevalence of MSD with non classroom teaching subjects in a Spanish study with neck related ailments at 60% and lumbar region by 51%.

Impact of COVID 2019 among those with higher BMI, lesser physical activities, e-learners with higher stress levels had an impact of low back pain among 44% in a survey conducted in Saudi Arabian population (Sagat et al 2020).

### **1. Perception on Classroom Versus e-Learning**

72% of participants have preferred classroom teaching than e-learning.

Psychology UG students with 60% (Mc Kinney et al, 2009), 80% of technology students supports

deeper understanding of course contents with formal classroom lectures than online access which are similar to findings of this research. Contrast to these were e-learning to have more flexible for developing job specific skills as perceived by students, recorded by Anita and Lata et al 2017.

### **2. Influence of e-Learning Among Urban versus Rural Residents**

Its interesting that 62% of urban subjects and 24% of rural residents prefer e-learning.

53% of participants among school children come up from India preferred e-learning to be very useful at remote areas and in distant places. (Anita and Lata et al 2017)

Agarwal et al 2009, suggested e-learning to be effective for India with majority of population reside in rural areas and further supported by 48% of respondents in the survey conducted in Uttar Pradesh, India, for e-learning to provide job opportunities promotion and knowledge among rural residents.

### **3. Impact of Pandemic on Food Habits**

While pandemic situation could be related to an increased food consumption among 33% subjects with a lowered appetite among 55% of participants could be related to multiple factors including stress, insecurity with job, these findings from this research were supported by a Halupa et al 2016 with unhealthy eating with excessive technology can lead to early onset of heart disease and diabetes further viewed similarly by US Department of Health and Human services report in 2013.

Its noteworthy that an increased online learners from 1% to 5% supporting the suggestions to improved educational programs and effective implementation as recorded by Tudorache et al 2012 demanding futuristic need for e-learning.

### **Conclusion**

Though the perception of e-learners were high along with their motivation, needs to be analyzed with the high impact of learning on the skills to be

obtained, corrections needed and lacks social interaction among learners.

Also, the question of how long to continue, when to use e-learning and which learners can benefit remains to be answered by upcoming researches.

Health hazards such as eye problems, increase in obesity, an increased prevalence of musculoskeletal ailments needs further research.

Proper planning and interaction among educationalist, curriculum designers, parents, psychologist, healthcare experts can provide better solution as it can influence future professionals and health economy of our nation.

**Limitation of this research,** were single onetime analysis were made, with no follow up and solutions for problems identified were not analyzed in depth. Further research can be carried among larger population, including professional students of various fields could further validate findings of this research.

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