

# Usage of E-learning Sites Among Ophthalmologists - An Opinion Survey

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## Abstract

*E-learning have effectively used the technological developments and bestowed a new learning paradigm to the community. The e-learning sites for professionals enable them to sharpen their knowledge and skills in their geographical region itself. In particular, the professionals in the medical field who is servicing to the community need not to relocate themselves from service for learning or updating their knowledge & skills. Thus, E-learning not only benefits the professional learners to update or upgrade their knowledge & skills and also helps the community in getting a continuing service. This paper aims to study the usage of e-learning sites among Ophthalmologists – Eye Doctors. A survey method is used to obtain the ophthalmologists' usage of the e-learning sites. This particular study is a part of the ongoing study "Information Needs, Sources and Seeking Behaviour of Ophthalmologists in Academic Eye Hospitals in India". A structured questionnaire is randomly distributed among the ophthalmologists in Aravind Eye Hospital, Pondicherry, India and 39 ophthalmologists responded as e-learning users. Among the 39 ophthalmologists, 56.4% are male and 43.6% are female. A t-test is conducted to find out is there any no significant difference between the e-learning sites usage score and gender. The p-value (0.772) shows that there is no significant difference between the usage score with gender. 33.3% of ophthalmologists are in the age group less than or equal to 30. 48.7% of ophthalmologists are in the age group between 31 to 40. 17.9% of ophthalmologists are in the age group between 41 to 50. ANOVA is conducted to find out is there any no significant difference between the e-learning sites usage score and age groups. The p-value (0.762) shows that there is a significant difference between the usage score with age groups. The frequency table derived from the ophthalmologists' responses shows that Aurosiksha is the most popular e-learning site which holds the first rank and Eyerounds holds the second rank. The number of e-learning site usage per ophthalmologist is ranging from a single e-learning site to five different e-learning sites.*

**Keywords:** Ophthalmologists, Usage-E-Learning Websites

## 1. Introduction

E-learning have effectively used the technological developments and bestowed a new learning paradigm to the community. It barred up all the geographical restrictions in learning. It empowers the users a real time access and enable 24 \* 7 round the clock learning. It cuts down the travel /

accommodation costs associated with undertaking courses. It is flexible enough to cope up with individuals' learning speed, by providing a freedom to roll back / roll forward the lessons. It also enables the individuals to relearn the lessons and effectively reuse the learning resources. The e-learning sites for professionals enable them to sharpen their knowledge and skills in their geographical region itself. In particular, the professionals in the medical field who is servicing to the community need not to



relocate themselves from service for learning or updating their knowledge & skills. Thus, e-Learning not only helps the professional learners, it also helps the community in getting a continuing service.

A number of e-learning sites are providing high-quality learning perpetually for Ophthalmologists – Eye Doctors. The notable e-learning sites for ophthalmologists are as follows:

E-Learning sites for Ophthalmologists – Eye Doctors

**Table 1: e-learning sites for ophthalmologists**

1.	<b>QuantiaMD - Practical Medicine for Practicing Physicians</b> QuantiaMD (2017) is the largest social learning and collaboration portable platform for physicians. It partners with leading experts and institutions. It enables the physicians to learn from the top experts, enable them to ask questions and seek advice, empower them to solve challenging cases, value their knowledge by providing rewards, provide free CME credits.
2.	<b>Cybersight from Orbis</b> Cybersight (2017) is a global platform that helps eye health professionals to improve their skills and collaborate with the ophthalmic community. It provides live interactive lectures and advanced online training tools. It is honoured with the highest award of the American Telemedicine Association President's Award for Health Delivery, Quality and Transformation in 2010.
3.	<b>Webcasts: 2014 World Ophthalmology</b> WOC (2017) World Ophthalmology Congress® of the International Council of Ophthalmology provides more than 300 webcasts from the 2014 World Ophthalmology Congress® (WOC2014) online and available for free. It facilitates to search by subject and hear experts discuss surgical pearls, new instrumentation, as well as novel techniques and approaches for a wide array of procedures.
4.	<b>Aurosiksha</b> Aurosiksha (2017) Aurosiksha, developed by Aravind Eye Care System, is an online educational program that offers training material to learners and trainers. The material covers the theories, techniques and practical aspects of clinical and non-clinical management. The resources are designed to be interactive. It also includes an assessment and discussion tools.
5.	<b>Ophthalmic Edge</b> OEdge (2017) provides useful courses for ophthalmic professionals. It also provides practical tips and encouraging advice for living well with vision loss for patients.
6.	<b>Free Diabetic Retinopathy Grading Course</b> A free Online Self-Directed Diabetic Retinopathy Grading Course is available from the University of Melbourne, MinumBarreng, and the Centre for Eye Research Australia. The course is organized in several parts and includes practice quiz sessions for each. A final competency-based exam evaluates the ability of the doctors. It also provides a certificate of competency after successful completion.

7.	<b>ActioNed - Assessment Certification Training Interactive Ophthalmology Network</b> ACTIONed (2017) is an e-learning Web site that offers continuing education opportunities to ophthalmic allied health personnel. The site's online courses and assessments may count as continuing education credit toward various levels of JCAHPO certification or recertification.
8.	<b>ESCRS iLearn- European Society of Cataract &amp; Refractive Surgeons Congress e-learning portal</b> ESCRS (2017) is an online learning platform free for ESCRS members. It provides interactive, assessed and accredited E-learning content which includes surgical videos, diagrams, animations, quizzes and forums.
9.	<b>Scientific Methodology in Cataract, Refractive and Corneal Surgery</b> CRC (2017) is an online course of the Scientific Methodology in Cataract, Refractive Surgery and Corneal diseases is a 25 credits program, conducted over the period of one academic year, as two semester's course. The fall semester consists of 3 modules of a total of 10 credits, which are: Basic research methodology, refractive surgery and cataract surgery.
10	<b>Eyeroounds</b> EYEROUND (2017) is a service of the university of IOWA, Department of ophthalmology and visual sciences in Iowa City. The site contains images, videos and tutorials.
11	<b>Online Foundation Assessment for ICO Exams</b> FASSESS (2017) combines both learning and testing. The training materials are based on each of the three ICO examinations: Basic science, Optics & Refraction and Clinical Sciences. Candidates can access the assessments 24 hours a day.

This paper aims to study the usage of e-learning sites among Ophthalmologists – Eye Doctors. A survey method is used to obtain the ophthalmologists' usage of the e-learning sites. This particular study is a part of the ongoing study "Information Needs, Sources and Seeking Behaviour of Ophthalmologists in Academic Eye Hospitals in India".

## 2. Review of Literature

E-learning sites pave a new way of learning to the professionals in the medical field. It enables them to learn and sharpen their skills as well as to serve the community relentlessly.

In 2006, Ruiz, J. G., Mintzer, M. J., & Leipzig, R. M. (2006) examined about the impact of e-learning in

medical education. The authors provide an introduction to e-learning and its role in medical education by outlining key terms, the components of e-learning, the evidence for its effectiveness, faculty development needs for implementation, evaluation strategies for e-learning and its technology, and how e-learning might be considered evidence of academic scholarship.

In 2012, Sztriha, L. K., Varga, E. T., Róna-Vörös, K., Holler, N., Ilea, R., Kobeleva, X., & Sellner, J. (2012) studied about the e-learning preferences of European junior neurologists. The objective of the study was to explore some aspects of the e-learning activity of European junior neurologists. In the study, most of the participants reported that, the internet is used specifically to learn neurology at

either at an average frequency of once weekly or more than once a week. The most frequently accessed web resources are free written educational materials.

Only very few studies were conducted about the usage of e-learning sites in medical field. The author of this paper couldn't able to find any studies, particularly in ophthalmic field which leads to this study. The main aim of the study is to get more insights about the usage of e-learning sites among ophthalmologists.

### 3. Objectives of the study

- ❖ To examine the usage of e-learning sites among both male and female ophthalmologists,
- ❖ To find out the usage of e-learning sites among all the age groups of ophthalmologists,
- ❖ To find out the popular e-learning sites used by the ophthalmologists, and
- ❖ To examine the pattern of e-learning sites usage by the ophthalmologists.

Hypotheses of the study

1. There exists no significant difference between the e-learning sites usage with gender.
2. There exists no significant difference between the e-learning sites usage with age group.

### 4. Methodology

This study aims to find out the usage of e-learning sites among Ophthalmologists. A structured questionnaire is circulated to the ophthalmologists to record all the e-learning platform sites they are using. The questionnaire provides a checkbox for

each e-learning site (referred in the Table 1) where the ophthalmologists can tick mark if they are using the site. The questionnaire enables the ophthalmologists to mark more than one e-learning site if they are using. The Questionnaires are randomly distributed among the ophthalmologists in Aravind Eye Hospital, Pondicherry, India and 39 ophthalmologists are e-learning users. Collected data were organized by using Ms-Excel and analysed by using SPSS.

### 5. Important Terminologies

Ophthalmologists: Doctors who completed MBBS and any ophthalmology degree like Master of Surgery (MS), Diploma of Ophthalmology (DO), Doctor of Medicine (MD), Diplomate of National Board in Ophthalmology (DNB).

### 6. Analysis and Interpretation

A structured questionnaire was randomly distributed among the ophthalmologists in Aravind Eye Hospital, Pondicherry, India. Among them, 39 ophthalmologists had responded as e-learning users. Their demographic details are as shown in Table 2.

**Table 2: Ophthalmologists Demographics**

Characteristic	Count	Percentage
<b>Gender</b>		
Male	22	56.4%
Female	17	43.6%
<b>Age group</b>		
Less than or equal to 30	13	33.3%
31 to 40	19	48.7%
41 to 50	7	17.9%
<b>Total</b>	<b>39</b>	

Among the 39 ophthalmologists, 56.4% are male and of 43.6% are female. 33.3% of ophthalmologists in the age group less than or equal to 30. 48.7% of ophthalmologists are in the age group between 31 to 40. 17.9% of ophthalmologists are in the age group between 41 to 50.

Testing the Hypothesis 1: There exists no significant difference between the e-learning sites usage and gender

Each response of e-learning site usage is considered as 1 and the e-learning sites usage score is calculated per respondent for all the 11 e-learning sites. The Mean (SD) of the score of Male and Female is 2.5 (1.185) and 2.0 (1.172) respectively. To find out the mean difference between the e-learning sites usage score and gender, t-test is used. P-value less than 0.05 is considered as statistically significant. The p-value (0.772) shows that there is no significant difference between the e-learning sites usage score with gender.

**Group Statistics**

	Gender	N	Mean	Std. Deviation	Std. Error Mean
E-learning sites usage score	Male	22	2.5000	1.18523	.25269
	Female	17	2.0000	1.17260	.28440

**Independent Samples Test**

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
E-learning sites usage score	Equal variances assumed	.085	.772	1.312	37	.197	.50000	.38098	-.27193	1.27193
	Equal variances not assumed			1.314	34.739	.197	.50000	.38044	-.27254	1.27254

Testing the Hypothesis 2: There exists no significant difference between the e-learning sites usage and agegroup

**Descriptives**

e-learning sites usage score

	N	Mean	Std. Deviation	Std. Error	95% Confidence Interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
					Less than or equal to 30	13		
31 to 40	19	2.2632	1.24017	.28451	1.6654	2.8609	1.00	5.00
41 to 50	7	2.5714	.97590	.36886	1.6689	3.4740	1.00	4.00
Total	39	2.2821	1.19095	.19070	1.8960	2.6681	1.00	5.00

**ANOVA**

e-learning sites usage score

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	.807	2	.403	.273	.762
Within Groups	53.091	36	1.475		
Total	53.897	38			

The Mean (SD) of the e-learning sites usage score of the age groups, Less than or equal to 30, 31 to 40, 41 to 50 are 2.15 (1.28), 2.26 (1.24) and 2.57 (0.97) respectively. To find out the mean difference between the e-learning sites usage score and age groups, ANOVA test is used. P-value less than 0.05 is considered as statistically significant. The p-value (0.762) shows that there is no significant difference between the e-learning sites usage score with age groups.

**Table 3: Usage of e-learning sites among ophthalmologists**

SI No.	E-learning site	No. of ophthalmologists using the site	Percentage	Rank
1	Aurosiksha	18	46.2%	1
2	Eyerounds	13	33.3%	2
3	Cybersight from Orbis	8	20.5%	3
4	Webcasts: 2014 World Ophthalmology	8	20.5%	3
5	ActioNed	7	17.9%	5
6	ESCRS Congress	7	17.9%	5
7	Online Foundation Assessment for ICO Exams	7	17.9%	5
8	QuantiaMD	6	15.4%	8
9	Free Diabetic Retinopathy Grading Course	6	15.4%	8
10	Scientific Methodology in Cataract, Refractive and Corneal Surgery	6	15.4%	8
11	Ophthalmic Edge	3	7.7%	11
	<b>Total no. of e-learning site usage</b>	<b>89</b>		

A frequency table (Table 3) is derived from the ophthalmologists' responses. To find out the popularity of the e-learning sites among ophthalmologists, each e-learning site is ranked based on the no. of ophthalmologists using the site. For ranking the sites, Ms-Excel Rank formula is used. The result shows up that Aurosiksha is in the first rank and it is most popular site among the ophthalmologists. 18 ophthalmologists are using Aurosiksha. Eyerounds secures the second rank by having 13 ophthalmologists' users. 8 ophthalmologists are using Cybersight from Orbis and Webcasts: 2014 World Ophthalmology. 7 ophthalmologists are using ActioNed, ESCRS Congress and Online Foundation Assessment for

ICO Exams. 6 ophthalmologists are using QuantiaMD, Free Diabetic Retinopathy Grading Course and Scientific Methodology in Cataract, Refractive and Corneal Surgery. 3 ophthalmologists are using Ophthalmic Edge.

**Table 4: Pattern of e-learning sites usage**

No. of E-learning sites usage	Ophthalmologists Count
1	14
2	8
3	10
4	6
5	1

The frequency table (Table 4) shows up that the number of e-learning site usage per ophthalmologist is ranging from a single site to five different e-learning sites. 14 ophthalmologists have used only a single e-learning site in the list. 8 ophthalmologists have used two e-learning sites. 10 ophthalmologists have used three e-learning sites. 6 ophthalmologists have used four e-learning sites and only one ophthalmologist has used five e-learning sites.

## 7. Conclusion

A structured questionnaire is randomly distributed among the ophthalmologists in Aravind Eye Hospital, Pondicherry, India and 39 ophthalmologists responded as e-learning users. Among the 39 ophthalmologists, 56.4% are male and 43.6% are female. A t-test is conducted to find out is there any no significant difference between the e-learning sites usage score and gender. The p-value (0.772) shows that there is no significant difference between the usage score with gender. 33.3% of ophthalmologists are in the age group less than or equal to 30. 48.7% of ophthalmologists are in the age group between 31 to 40. 17.9% of ophthalmologists are in the age group between 41 to 50. ANOVA is conducted to find out is there any no significant difference between the e-learning sites usage score and age groups. The p-value (0.762) shows that there is a significant difference between the usage score with age groups. The frequency table derived from the ophthalmologists' responses shows that Aurosiksha is the most popular e-learning site which holds the first rank and Eyeroounds holds the second rank. The no. of e-learning site usage per ophthalmologist is ranging from a single e-learning site to five different e-learning sites.

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