



EVALUATING THE IMPACT OF INTEGRATED OPHTHALMOLOGY TRAINING ON FIFTH-YEAR MEDICAL STUDENTS: A COMPARATIVE ANALYSIS

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ABSTRACT

Background: Medical education has traditionally been centered around faculty expertise, often overlooking the clinical significance of unrelated details. In contrast, integrated teaching, which addresses all facets of a subject, offers a more holistic approach to learning. This study evaluated the impact of integrated ophthalmology training for fifth-year medical students. **Methods:** Fifth-year medical students participated in integrated ophthalmology training, which included comprehensive learning through interactive sessions and small group discussions. Following the training, students completed evaluation questionnaires and final exams. The performance of students trained through the integrated approach was compared to those who received conventional teaching. **Results:** Students who underwent integrated learning performed significantly better in their final exams compared to those taught via traditional methods. Furthermore, there was a notable increase in student satisfaction following the introduction of integrated teaching techniques. **Conclusion:** The implementation of integrated teaching in ophthalmology education has led to improved academic performance and higher student satisfaction. Over the past eight years, our department has successfully incorporated this approach into the curriculum, prioritizing interactive assessments and small group learning to enhance both clinical and theoretical knowledge in ophthalmology.

Keywords: - Integrated training, Ophthalmology education, Medical curriculum, Student satisfaction, Small group learning.

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INTRODUCTION

The current medical education curriculum often falls short in emphasizing clinical skills and patient interactions, which presents significant challenges for students in terms of their readiness for real-world medical practice. The fragmented nature of teaching, spread across various departments, results in a disjointed delivery of course material, hindering students' ability to achieve a cohesive understanding of the subject. [1] This gap between theoretical knowledge and its clinical application reduces the effectiveness of courses in

practical scenarios. In response, integrative curricula have been developed, combining basic sciences with clinical practice to foster a more holistic understanding. Teachers play a pivotal role in ensuring that expertise is covered comprehensively across all areas of learning. Through vertical integration, students are able to develop a deeper understanding of medical principles while simultaneously honing clinical skills, bridging the gap between theory and practice. Small group discussions, led by skilled instructors, promote context-driven

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learning and problem-solving, which are essential for skill development. [2] The integration of teaching methods in ophthalmology at the Medical School of Thessaloniki provides a well-structured framework aimed at improving both the theoretical and practical knowledge of students. The effectiveness of this approach is assessed through structured questionnaires and examination results, offering valuable insights into its success.

MATERIALS AND METHODS

A small number of student groups covered all clinical skills in an integrated teaching environment during. Faculty numbers decreased slightly (8 - 10) and students increased slightly (112 vs 123), and the faculty to student ratio dropped slightly (12.8 vs 13.9). In the last 3 years, there have been fewer postings due to the ongoing economic crisis, which resulted in a slight increase in faculty to student ratio. [3]

Integrated teaching in our department has been implemented throughout the previous eight academic years through a process that is interactive, objective, and interactive. As a result of students' critiques and evaluations, integrated teaching began. Seminars were substituted for lectures for the students. In addition to the theoretical background and clinical skills reading materials, all students were given access to all supplementary teaching materials prior to every classroom session. [4] Throughout each session, students demonstrated both theoretical and clinical skills. By spending equal time on both theory and practice, all students received standardized training. The students included in this survey were from the academic. During the finals week following fifth-year finals, anonymous questionnaires were administered to the students at a hospital's amphitheater.

Ten questions were included in the questionnaire, and students were asked to evaluate various aspects of their training, with the primary focus being on the readiness to practice ophthalmology. Grades ranged from one to two: unacceptable, three to four: inadequate, five to six: adequate, seven to eight: good, and nine to ten: very good. [5] Training posts, clinical skills lab content, and training time were also evaluated in addition to hospital access and department access.

Medical students are trained in 45 theoretical skills and 64 clinical skills in the ophthalmology program, and they are prepared for general practice by the quality of their training, as well as by the clinical skills taught, who are qualified to teach in general practice. As well as providing inpatient examinations and clinical training, the department identified five potential areas for improvement in ophthalmology education. An almost unchanged questionnaire was used to collect data during nine academic years. Since only a few changes were made to the faculty, only minor changes were made to the questionnaire regarding trainer assessments. A 28-question multiple-choice exam was required each semester for all students. [6] Each semester, clinical skills were assessed by oral examinations before written exams. There was a 70% theoretical skill examination component, while there was a 30% clinical skill examination component. The statistical analysis was conducted using SPSS (19.0, SPSS Inc, Chicago, IL, USA). The averages were calculated for each academic year and question. Independent samples and teacher-student interactions were tested using t-tests.

There was a statistically significant difference between student evaluation of the curriculum modification and the other relevant questions (the content of clinical skills laboratories, available training times, and ophthalmology training quality as a means of preparing medical students for general practice) between 1) the years when conventional methods were used last three years during which integrated teaching has been implemented ($P < 0.05$).

Students consider integrated teaching to be more effective than traditional teaching methods. Clinical skills and participation in clinics should be more important than studying theory when preparing students to practice inpatient and outpatient care. [7] Compared to traditional and integrated students, curriculum modifications had a significant impact on the final examination grade. Compared to students in the first group (5.52 out of 10) in the second group, the second group achieved a significantly higher grade (6.17 out of 10/mean + standard deviation). For students trained with the integrated method, graduation rates have improved statistically significantly since ($P = 0.001$, ANOVA).

Table-1: Comparing teaching methods, final exam scores, and semester assessments.

Number of medical students	Teaching method	Final examination score ^a (mean ± SD)
60	Conventional	7.00±1.31
57	Conventional	5.18±1.45
45	Conventional	2.48±1.33
70	Conventional	6.44±2.45
56	Conventional	2.45±2.44
47	Conventional	2.42±2.36
54	Integrated	3.15±2.25

70	Integrated	3.30±2.25
62	Integrated	3.45±2.34

DISCUSSION

Traditional medical school curricula separate the preclinical and clinical years. A specialist teacher teaches the students in the area of their interest through lectures. Specialist topics are sometimes placed a great deal of emphasis by doctors since they do not encounter them frequently during their clinical practice. [8] Medical students have difficulty integrating clinical knowledge with basic science knowledge because of this teacher-centered approach. This method does not link medical students' ophthalmic curriculum together. Teaching styles vary among the teachers, which is also causing a problem. The curriculum is delivered to students by a specialist with appropriate subspecialty training. The focus of specialists on their areas of expertise leaves little time for primary care training. [9]

The curriculum of our department has been transformed from conventional to integrated after eight academic years and a transparent, interactive evaluation process. In terms of undergraduate learning, studies showed that exams and curriculum were crucial. As part of this significant curriculum modification, students participate more in seminars than lectures. [10] The students acquired both theoretical and clinical skills in addition to clinical skills. Regardless of their subspecialties, tutors distributed their teaching time evenly between theoretical and clinical components.

Using integrated teaching instead of conventional teaching significantly affected students' grades, according to this study [11]. Students' final examination grades are higher after implementing integrated teaching, and this is an objective metric. Active student participation may have been facilitated by the availability and preparation of teaching materials

before each class. In addition to the curriculum revision, lectures that reduced student participation and attention were eliminated and a large portion of the teaching time was devoted to small groups. [12-13] This study used student evaluations of their training as a subjective outcome measure, and related research indicates that students in an integrated curriculum make more accurate diagnoses than those in a conventional curriculum. [14] Posttraining evaluations showed that students thought their ophthalmology training had been adequate from a theoretical and clinical perspective. Continuity of clinical skills training and constant availability of a single member of the teaching staff have been reported to improve student satisfaction with integrated teaching.

CONCLUSION

There has been extensive research on the benefits of integrated teaching in medical education. An integrated teaching study of this kind shows how the concept can be applied to a particular specialty before being adopted by medical faculty members. The evidence also supports the claim of superiority of integrated teaching over conventional instruction over a long period of time. The teaching process improved significantly in terms of student satisfaction as a result of this process compared to prior years. Additionally, integrated teaching also improved student grades in Ophthalmology after it was introduced. Adding problem-based learning to the clinical skills section of an ophthalmology curriculum may improve clinical skills. This study's results may also be beneficial to other medical schools as well as curriculum innovations. Students can learn both theoretical and clinical skills in small groups in a successful ophthalmology training program.

REFERENCES

- Jonas HS, Etzel SI, Barzansky B. (1989). Undergraduate medical education. *JAMA*. 25(262), 1011–1019.
- Shah M, Knoch D, Waxman E. (2014). The state of ophthalmology medical student education in the United States and Canada, 2012 through 2013. *Ophthalmology*. 121(6), 1160–1163.
- Steedman M, Abouammoh M, Sharma S. (2012). Multimedia learning tools for teaching undergraduate ophthalmology: results of a randomized clinical study. *Can J Ophthalmol*. 47(1), 66–71.
- Li JZ, Chan SC, Au M, (2014). . Review of a medical student-run surgery lecture series and skills lab curriculum. *Can J Surg*. 57(3), 152–154.
- Custers E, Ten Cate TJ. (2002). Medical students attitude towards and perception of the basic sciences: a comparison between students in the old and new curriculum at the University Medical Centre Utrecht, *The Netherlands. Med Educ*. 36, 1142–1150.
- Dahle LO, Brynhildsen J, Behrbohm Fallsberg M, Rundquist I, Hammar M. (2002). Pros and cons of vertical integration between clinical medicine and basic science within a problem-based undergraduate medical curriculum: examples and experiences from Linköping, Sweden. *Med Teach*. 24(3), 280–285.
- Rao KH, Rao RH. (2007). Perspectives in medical education implementing a more integrated, interactive and interesting curriculum to improve Japanese medical education. *Keio J Med*. 56 75–84.

8. Shimura T, Aramaki T, Shimizu K, Miyashita T, Adachi K, Teramoto A. (2004). Implementation of integrated medical curriculum in Japanese medical schools. *J Nippon Med Sch*. 71, 11–16.
9. Regehr G, Norman G. (1996). Issues in cognitive psychology: implications for professional education. *Acad Med*. 96, 988–1002.
10. Davis J, Chryssafidou E, Zamora J, Davies D, Khan K, Coomarasamy A. (2007). Computer-based teaching is as good as face to face lecture-based teaching of evidence based medicine: a randomised controlled trial. *BMC Med Educ*. 7, 23
11. Karthikeyan K, Kumar A. (2014). Integrated modular teaching in dermatology for undergraduate students: a novel approach. *Indian Dermatol Online J*. 5(3), 266–270.
12. Schmidt HG, Machiels-Bongaerts M, Hermans H, ten Cate TJ, Venekamp R, Boshuizen HP. (1996). The development of diagnostic competence: comparison of a problem-based, an integrated, and a conventional medical curriculum. *Acad Med*. 71, 658–664.
13. Lam FC, Lim LT, Dutton GN. (2011). Short sessions of intensive structured teaching: an effective form of undergraduate ophthalmology teaching? *Med Teach*. 33(11), 950.
14. Li JZ, Chan SC, Au M, (2014). Review of a medical student-run surgery lecture series and skills lab curriculum. *Can J Surg*. 57(3), 152–154.

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