

Establishment of a School of Dispensing

Akila Ganesan, R. Krishna Kumar, L. Srinivasa Varadharajan, S. Viswanathan

Manager, Development,
Manager, Optical Sales,
Medical Research Foundation
18, College Road, Nungambakkam, Chennai – 600 006
Fax: +91 – 44 – 2825 4180

Principal, Lecturer cum Research Scholar,
Elite School of Optometry, Medical Research Foundation
8, G. S. T. Road, St. Thomas Mount, Chennai – 600 016

Phone: +91 – 44 – 2827 1616; 2234 6023; 2232 1835,
Cell: 98401 37626, 98407 86041, 93835 71222

Email: akila@snmail.org; kk@snmail.org, drlsv@snmail.org, sviji_2@yahoo.com

Abstract

Elite School of Optometry has been a pioneer in Optometric education for the last twenty years in India. The recent growth of optometric profession and the optical industry in our country necessitates a scientific and systematic education of optical dispensing personnel as well. Three primary modes of optical dispensing education have been worked out: (i) A 9-month “Distance Learning Programme” for Optical Sales Personnel; (ii) A 1-month “Certificate Course in Ophthalmic Dispensing” for practicing dispensing professionals to upgrade their skills; and, (iii) A 4-year “Bachelor’s Degree in Ophthalmic Dispensing” for higher secondary students. This document contains a proposal for the establishment of a School of Dispensing to carry out the above mentioned programmes. This document describes the programs with plans for a plausible location for the school, the total building space required, a budget for the establishment of the school, faculty recruitment procedures, administration structure and activities, etc.

1. Introduction:

(Information regarding the growth of optical manufacturing and sales industry in India needs to go here – May be Akila and/or Viswanathan can provide this.)

The Andhra Pradesh Eye Disease Study has found the prevalence of refractive errors in subjects aged 15 years or more to be 19.4% myopia, 9.8% hyperopia and 12.9% astigmatism in the urban population¹. Extrapolating to the whole country, the study has estimated the number of myopes in urban India to be 30 million, hyperopes 15.2 million and astigmats 4.1 million. Murthy et al have found about 8% prevalence of myopia and 7% of hyperopia in children in the New Delhi urban population². A more recent study has estimated the prevalence of refractive errors in people aged 40 years or more in rural Tamil Nadu to be 35% myopia and 18% hyperopia³. A large number of similar studies show the immensity of the problem of correctable visual impairments in children and adult population in India.

The All India Ophthalmological Society mentions in its website (<http://www.aios.org/about.htm>) that it has about 10,000 registered ophthalmologists. Most of them serve in the urban areas. Due to the lack of a proper definition of optometry and opticianry in India, it is very difficult to estimate the number of qualified optometrists/opticians. By the wildest stretch of imagination, the total number of qualified optometrists/opticians is not estimated to be beyond 10,000. In addition, there are about 30,000 optical outlets in India.

From the information given above, we find that:

- a) India has a large problem that can be prevented or easily managed.
- b) The number of eye-care professionals to patients ratio is abysmally small.
- c) A large proportion of the available pool of primary eye-care professionals might not have been properly trained.
- d) The optical outlets, sales and dispensing are handled by personnel who are not formally educated in the science of ophthalmic dispensing.

As a small step in alleviating these problems, we propose the creation of a School of Dispensing.

2. School of Dispensing: Creation of a School of Dispensing is proposed for achieving the following goals:

- a) To provide basic knowledge in ophthalmic dispensing to optical sales personnel and others.
- b) To provide specialized training for contemporary dispensing personnel.
- c) To create a pool of scientifically trained and qualified ophthalmic dispensing managers.

To achieve these goals, three educational programs have been thought out and described below.

(i) Distance Learning Program (DLP): This program is aimed at providing basic knowledge in ophthalmic dispensing to optical sales personnel. The duration of the course is 9 months. The mode of education is "correspondence". The student will learn the basics of: (1) optics, (2) ocular anatomy and physiology, (3) refractive errors and their corrections, (4) presbyopia and various lens designs, (5) frames and (6) tints. The course is offered in 8 modules during the first 8 months and a contact session will be held in the 9-month. Evaluation is done at the end of each month. This program has already begun and is being run by Medical Research Foundation in collaboration with Silmo-Essilor Trust from the Elite School of Optometry. In summary:

- (a) Program Name: Distance Learning Program in Optical Sales
- (b) Aim: To education optical sales personnel in the basics of ophthalmic dispensing.
- (c) Qualification: Any optical sales person
- (d) Duration: 9 months
- (e) Mode of instruction: Postal (Correspondence)
- (f) Content: Basics of (1) optics, (2) ocular anatomy and physiology, (3) refractive errors and their corrections, (4) presbyopia and various lens designs, (5) frames and frames selection, and (6) tints.
- (g) Evaluation: Monthly evaluations. Questions will be sent along with the material every month. Students will have to send the answers before receiving the next module. A viva at

the end of the contact session in the ninth month will be held. All these marks will be added and scaled to 100 to determine whether student passed or failed.

- (h) Date of Enrollment: Jan 1, and July 1 of every year
- (i) Fees: Rs. 2500/- for the entire program.
- (j) Maximum Number of Students: 500 per class
- (k) Admission Procedure: First come first served following advertisement in leading national and optometry journals

(ii) Certificate Program (1mCP): This program is envisioned to provide advanced training/knowledge to practicing dispensing personnel. The course duration will be one month and the mode of teaching will be "Regular Classroom" type. The student will learn advanced topics in one or more of the following: (1) Ophthalmic lens materials/characteristics, (2) Correction of ametropia, (3) Ophthalmic Prisms, (4) Aberrations and ophthalmic lens designs (5) Multifocal and Progressive Lenses, (6) Tints and Coatings, and (7) Measurements for scientific dispensing, including power specification and measurement. There will be no evaluation but a certificate of completion of the program will be issued if the student attends all classes/labs/workshops. In summary:

- (a) Program Name: Certificate Program in Ophthalmic Dispensing
- (b) Aim: To educate and train ophthalmic dispensing personnel on advanced and latest areas of ophthalmic dispensing
- (c) Qualification: Any ophthalmic dispensing personnel with a minimum of three years of experience.
- (d) Duration: 1 month
- (e) Mode of instruction: Regular Classroom Instruction, Laboratory and Workshop
- (f) Content: One or more of: (1) Ophthalmic lens materials and characteristics, (2) Correction of ametropia, (3) Ophthalmic Prisms, (4) Aberrations and ophthalmic lens designs (5) Multifocal and Progressive Lenses, (6) Tints and Coatings, and (7) Measurements for scientific dispensing, including power specification and measurement.

- (g) Evaluation: None.
- (h) Date of Enrollment: 1st of every month
- (i) Fees: Rs. 2500/- for the entire program
- (j) Maximum number of students: 10 per class
- (k) Admission Procedure: Application sent to School of Dispensing with letter from employer stating the eligibility of the candidate to the program. In case of more than 10 applicants in a month, "first come first served" policy will be used. Remaining applicants will be considered for the next month.

(iii) Bachelor of Science in Ophthalmic Management (BSOM): This program will provide a rounded education in ophthalmic dispensing and optical sales management. Geared towards Higher Secondary graduates, this is designed to be a 4-year program similar to the B. S. in Optometry given by Elite School of Optometry (ESO) in collaboration with Birla Institute of Technology and Science (BITS), Pilani. The aim of this undergraduate degree is to impart basic knowledge in optics, ocular anatomy and physiology, ophthalmic dispensing and allied areas along with management skills to the students. The students will learn everything they have to know to scientifically dispense spectacles for various kinds of patients. They will also learn the rudiments of book-keeping, finance, marketing and management of an optical outlet. The students will be given hand-on training in the arts of grinding, lens-making, polishing and edging. They will also learn frames making, selection and fitting. Students will undergo one year of internship in various labs around the country and various optical outlets. In summary:

- (a) Program Name: Bachelor Science on Ophthalmic Management
- (b) Aim: To educate and train in the science of ophthalmic dispensing and optics sales management
- (c) Qualification: A pass with at least 60% of marks in the Higher Secondary Examination. Students must have had English as the medium of instruction in their higher secondary school and must have had mathematics and physics among the subjects taken.
- (d) Duration: 4 years

- (e) Mode of instruction: 3 years of class room instruction plus laboratory work and 1 year of internship at various labs and optical outlets around the country.
- (f) Content: The courses will be divided in to two broader categories:
(i) Optical Dispensing, and (ii) Optical Sales Management. Under "Optical Dispensing", students will learn (1) Undergraduate level mathematics similar to one taught to our B. S. Optom Students, (2) Basics of Ocular Anatomy and Physiology, (3) Geometric and Physical Optics, (4) Optical Instruments, (5) Ophthalmic lenses – various types and designs, manufacturing techniques, special properties, etc, (6) Optical Coating, (7) Frames – various types and designs, manufacturing techniques, special properties, etc, (8) Computer based lens design (Optional), (9) Advanced Mathematics (Optional), (10) Investigative techniques in Optometry Practice – introduction, (11) Occupation related Dispensing, etc. Under "Optical Sales Management", students will learn (1) Microeconomics, (2) Business Law, (3) Human Resource Management – introduction, (4) Accountancy (5) Marketing – introduction, (6) Financial Management – introduction, (7) Business Information System, (8) Psychology, (9) Communication, etc.
- (g) Evaluation: Continuous Evaluations similar to the one in our B. S. optom program.
- (h) Date of Enrollment: 1st Monday of August.
- (i) Fees: Same as paid by B. S. Optom students (which is currently Rs. 15,000/- per semester)
- (j) Maximum Number of Students: 30 per class
- (k) Admission Procedure: Same procedure as followed for our BS Optom students, namely, entrance test followed by an interview.

3. Ownership of the School: The school will be fully owned and run by Medical Research Foundation, 18, College Road, Nungambakkam, Chennai – 600 006.

4. Location for the School: The school could be located at the St. Thomas Mount campus of Medical Research Foundation at 8, G. S. T. Road, St. Thomas Mount, Chennai – 600 016. Small modifications to the exist structures and construction of a new building will make the School of Dispensing a reality.

5. School Administration: The school will be administered by the Elite School of Optometry. The Principal of the Elite School of Optometry will also be the Principal of the School of Dispensing. There will, however, be a separate administrative assistant for each program run by the School of Dispensing.

- (i) The Principal: The Principal will be responsible for the successful functioning of the school. The Principal will identify the duties for each of the administrative assistants and will delegate work accordingly. The Principal will be responsible for the financial stability of the school, the quality of education provided at the school and safety of students within the school premises. The Principal will also be responsible for providing timely reports to the Medical Research Foundation and for answering all questions related to the school raised by the management.
- (ii) Administrative Assistant for DLP: The responsibilities of the Administrative Assistant for DLP includes: (a) enrollment of students for this program; (b) timely dispatch of modules to the enrolled students; (c) correction of answers returned by the students; (d) answering all queries regarding the program; (e) preparation and timely publication of advertisement announcing the commencement of each session of the program (two sessions per year proposed); (f) arrange for the contact classes – including arranging for faculty and their board and lodging, venue and date, (g) keeping inventory of modules and certificates; (h) timely printing of modules; and (i) managing all financial aspects related to this program. The person is answerable to the Principal of the school. Currently, Ms. C. I. Kalyani is working in such capacity and reporting to Mr. S. Viswanthan.
- (iii) Administrative Assistant for 1mCP: The responsibilities of this administrator include: (a) enrollment of students to this program; (b) writing to various

optical outlets encouraging them enroll in this program; (c) arrangement of venue and faculty for each session; (d) timely printing of all course material; (e) coordinating workshops that are part of the program; (f) arranging for presentation of the certificate at the end of every month; and, (g) managing all financial issues related to this program. The administrator is directly answerable to the Principal of the school.

- (iv) Administrative Assistant for BSOM: This administrator's responsibility lies in the smooth running of the 4 year BSOM program. Specifically, these include: (a) enrollment of students for this program; (b) preparing class and exam schedules; (c) timely printing of course materials; (d) arranging for faculty transportation; (e) managing all events related to the School of Dispensing including convocation by interacting with other departments; (f) manage all financial issues related to the successful running of the program. This person will be answerable to Principal of the Elite School of Optometry¹.

6. School Building and Facilities: A separate building is sought for establishment of the school. The building will house four class rooms, an auditorium, an optics lab, a lens lab, a frames lab, individual rooms for administrators, a library, toilets, and a research lab. Description for each room/lab/office is given below.

- (i) Class rooms: Each class room will accommodate a minimum of thirty students. Each class room will have a black board, a computer with a powerpoint projector attached to it. Space required is a minimum of 400 sq ft (20 ft x 20 ft) for each class room. (Current class room sizes in ESO are approximately 30 ft x 20 ft = 600 sq ft.)
- (ii) Optics Lab: The optics lab will have a minimum of five tables so that 10 experiments can be done at the same time. The optics lab will be the place where students will understand geometric and physical optics principles by doing experiments using lenses, mirrors, prism, and light sources of various types including lasers. Space required is a minimum of 900 sq ft (30 ft by 30 ft). (Current Optics Lab at ESO is approximately 30 ft x 20 ft = 600 ft)

¹ To make things simple, it is my proposal (i.e., LSV's proposal) to make Uma the de-facto Administrator for this program and hire an assistant to Uma to help her out in activities related to the School of Dispensing.

- (iii) Lens Lab: A lens lab will have a manual edger, a pattern edger and a patternless edger. Students will learn the basics of lens making in this lab. This lab will also have lensometers on which students will be taught. Space required is a minimum of 1000 sq ft
- (iv) Frames Lab: In this lab, students will be taught how to make simple frames using cellulose acetate sheets and other materials. Space required is a minimum of 600 sq ft (30 ft x 20 ft).
- (v) Rooms for Administrators: Separate rooms for each administrator are sought. The rooms should be a comfortable office room with usual infrastructure along with facilities to store course materials. Space required is a minimum of 100 sq ft (10 ft x 10 ft) for each of the administrators.
- (vi) The Principal's Room: The principal's room will continue to be in the current place in the ESO building.
- (vii) Auditorium: The auditorium must be capable of accommodating a minimum of 300 people. The auditorium will have provision to be partitioned (using collapsible walls) in to two or three smaller seminar halls. Space required is approximately 2500 sq ft. The auditorium should also be equipped with "teleconferencing" systems so that students could listen to lectures given at the SN Main Auditorium/Conference Hall.
- (viii) Library: Ideally it would be great if we could expand the current library at ESO and bring in new material related to the School of Dispensing. This could be achieved by dismantling the current Computer Lab, Optometrists room, LSV's room and the optics lab at ESO. The library will also have an audiovisual room, an airtight room (for preventing sound escape) which would function as a discussion room where students and faculty could meet to discuss on research problems. Latest books, CDs and other educational instruction material in ophthalmic dispensing need to be bought. The library should also buy more copies of the currently available titles to cope with the increasing number of students. Journals subscriptions should be increased; faculty working in specific areas should give the titles of the journals that are essential for their teaching and research activities.
- (ix) Research Labs: Though no research activity is thought of currently in the Ophthalmic Dispensing specialty, there is a lot of interest in various other areas

of research relating to Optometry and Vision Science. However, we might want to think futuristically and expect to have materials design or coating lab in the premises. Hence a research lab that is at least 1500 sq ft is asked for. The lab could be partitioned into smaller areas or work tables. Moreover, a psychophysics laboratory space for LSV is required (since his lab space will be consumed in to the expanded library).

- (x) Computer Labs: A lab with at least twenty terminals is envisaged. The students will have access to the internet. All standard Microsoft Office and Visual Studio software must be made available to the students. In addition, statistical tools/software (like SPSS) and optical design software (like Code V) should also be made available to the students. Matlab should be made available as well. A space of 500 sq ft is assumed necessary for this lab.
- (xi) Faculty Rooms: Rooms for at least 5 faculty members are requested at this time.
- (xii) Toilets: Separate toilets for women and men in the new building will be required. Both Indian and Western water closets must be available in the toilets.
- (xiii) Hostels: We would also like to explore the possibility of building a hostel common to both genders. It is a long standing wish of our students from outside of Chennai that ESO had its own hostel. A hostel that could accommodate at least 10 female students and 5 male students would be ideal to begin with.

Total building space required (excluding the hostels) is approximately 11,000 sq ft.

7. Facilities: Besides the usual infrastructure needed for the efficient running of an academic institution, the following facilities are also required for the School of Dispensing:

- (i) Furniture: For all class rooms individual chairs with foldable writing pads are needed. At least one chair in every class room should be designed for the left handed students.
- (ii) Computers: Twenty computers are needed for the students' computer lab. These computers should be networked and firewalled. Computer Lab should be designed in such a way that it serves as a model for other in alleviating

computer vision syndromes. All administrators and faculty should be provided with a computer. The computer configuration should be the latest available in the market at the time of the starting of the school.

- (iii) Play Grounds: The Volley Ball and Badminton courts in the campus should be made in to full professional level courts.

8. Accreditation: All efforts must be made to get the degree awarded by BITS Pilani under the BITS, Pilani Off Campus Programmes scheme.

9. Faculty: With two schools being in the same campus, it would be cost effective in the long run to hire some research faculty common to both the School of Optometry and School of Dispensing. Ideally, people who have had two to three years of post-doctoral training should be recruited for subjects in optics, ocular physiology / anatomy, ophthalmic optics, visual neuroscience. For all other subjects, effort should be made to use the current ESO faculty or hire visiting faculty as is done by ESO currently for various subjects. The pay should be as decided upon by the management; for full time appointees, pay should be commensurate with qualification and experience.

10. Budget: Following is an approximate budget for capital investment for the establishment of the school of dispensing. The numbers are only approximate and could differ substantially from the actual values.

| No. | Item | Cost (Rs.) |
|-----|---|--------------|
| 1. | Building - 11,000 sq ft at a maximum of Rs 750 per sq ft | 82,50,000.00 |
| 2. | Computers – 30 nos at Rs. 30,000 each | 9,00,000.00 |
| 3. | Office furnishing – tables, chairs, storage space, etc | 60,000.00 |
| 4. | Class room furnishing – chairs tables, black board, projectors, etc – 4 nos | 5,00,000.00 |
| 5. | Optics Lab – tables, equipments, blackboard, etc | 5,00,000.00 |
| 6. | Lens Lab – edgers, lensometers, tables, chairs, etc – all 2 nos | 50,00,000.00 |
| 7. | Frames Lab – 5 benches | 25,00,000.00 |
| 8. | Auditorium – Projectors, chairs, podium, mics, speakers, amplifiers, etc | 3,00,000.00 |

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|--|-----------------------|
| 9. Research Lab – partitioning, computers, tables, etc | 1,50,000.00 |
| 10. Computer lab – Tables, chairs, blackboard, etc (excluding computers) | 1,00,000.00 |
| 11. Faculty rooms furnishing (five nos) | 1,00,000.00 |
| 12. Air-conditioning (at 1.0 tonne rating for each 100 sq ft; at Rs. 15,000 per tonne) | 16,50,000.00 |
| 13. Electrical fittings, fans, etc | 5,00,000.00 |
| 14. Printers, LAN, etc. | 1,00,000.00 |
| 15. Water – storage, distribution (drinking fountains), etc | 5,00,000.00 |
| 16. Others – Corporation Fees, Drainage work, Parking Space, etc | 25,00,000.00 |
| TOTAL | 2,31,10,000.00 |

11. Recurring Costs: Following is an approximate annual recurring cost:

| No. | Item | Cost (Rs.) |
|-----|---|---------------------|
| 1. | Salaries – 5 permanent faculty @ an average of Rs. 20,000/- pm | 12,00,000.00 |
| 2. | Salaries – Visiting Faculty at Rs 250/- per hour and Rs. 150/- for conveyance for every visit to the campus – 12 faculty per semester– 51 hours per faculty per semester – 2 semesters per year | 4,89,600.00 |
| 3. | Salaries – 5 Staff at Rs. 12,000/- per month | 5,76,000.00 |
| 4. | Electricity | 60,000.00 |
| 5. | Phone | 60,000.00 |
| 6. | Library | 1,00,000.00 |
| 7. | Lens Lab | 1,00,000.00 |
| 8. | Frames Lab – 5 benches | 1,00,000.00 |
| 9. | Optics Lab | 50,000.00 |
| 10. | Stationery, computer supplies, etc | 1,00,000.00 |
| 10. | Maintenance (House keeping) | 1,00,000.00 |
| 11. | Convocation and other events | 1,00,000.00 |
| 12. | Miscellaneous | 50,000.00 |
| | TOTAL | 30,85,600.00 |

12. Revenue Generation:

- (a) Capital Investment: Essilor has shown interest (verbal) in the establishment of such a school of dispensing. Following EIVOC 2005, we got the information that Jayanth and his team are actually looking forward to seeing a proposal from our side. Other companies like Corning could also be approached for funding the capital investment for this program.

- (b) Recurring Costs: After four years of establishment of the school, the school would bring in about Rs. 10 Lakhs in term of fees from various programs. For the deficit, avenues like endowments have to be explored.

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3. Raju P, Ramesh S. Ve, Arvind H, et al (2004) Prevalence of Refractive Errors in a Rural South Indian Population. IOVS **45**(12): 4268 – 4272.