JOURNAL OF OPTOMETRIC EDUCATION

Volume 9, Number 4
Spring 1984

Association of Schools and Colleges of Optometry

The Association of Schools and Colleges of Optometry (ASCO) represents the professional programs of optometric education in the United States and Canada. ASCO is a non-profit, tax-exempt professional educational association with national headquarters in Washington, D.C.

Journal of Optometric Education

ISSN 0098-6917

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Spring, 1984
Volume 9, Number 4

JOURNAL OF OPTOMETRIC EDUCATION

Official Publication of the Association of Schools and Colleges of Optometry

DEPARTMENTS

The **JOURNAL OF OPTOMETRIC EDUCATION** is published by the Association of Schools and Colleges of Optometry (ASCO). **Art Director:** Dan Hilst, Graphics in General. Business and editorial offices are located at 600 Maryland Ave., S.W., Suite 410, Washington, D.C. 20024. **Subscriptions: JOE** is published quarterly and distributed at no charge to dues paying members of ASCO. Individual subscriptions are available at $10.00 per year; $15.00 per year to foreign subscribers. Postage paid for a non-profit, tax-exempt organization at Washington, D.C.

Making Sense Out of Certification

Certification has been a topic of discussion among members of the optometric community for more than sixteen years. Many differing attitudes have developed during the years. Some of the concerns are personal—how will it affect me? Others may say that certification will fragment optometry, while others believe it will be beneficial for the profession in the years to come. Because the optometric profession has been slow to react to the growth of the profession, other organizations have developed programs of certification. Some organizations do not accept the fact they are in the business of certification, while other organizations—national in scope—advertise the fact they are the only organizations conducting a program of certification. Whenever a group develops a list of individuals who appear to have some expertise that others do not, or have not demonstrated, the process of certification has developed.

At the present time there is no national organization charged with the responsibility of coordinating certification programs or providing guidelines which would govern certifying agencies. Uniformity in certification programs would indeed make some sense out of certification. If consumers of vision care are not ultimately benefited, then certification is truly a program of ego building. It seems proper that the largest optometric professional association would be given the charge to carry out the mission of developing the coordination mechanism for certification. By the American Optometric Association accepting the challenge of such a program there is always a control through the House of Delegates where individuals or states may be heard. This means there will always remain the potential for membership input.

The 1968 AOA Study Committee concluded that optometry is a specialty program in itself, dealing with vision and eyes. The profession recognizes and accepts state licensure as sufficient evidence for any optometrist to perform any service within the scope of optometry. This is all well and good, but over the past decade and a half the profession has matured. The body of knowledge has increased. One person cannot do it all. This is why there are various sections in AOA, a national association interested in contact lenses and another national organization concerned with vision therapy. The AOA Project Team of Certification does not advocate specialization in optometry. It does, however, desire to make sense out of the many certification programs now being conducted. It also believes programs of certification in special interest areas should be the same from one state to another.

The plan being presented to the 1984 AOA House of Delegates is one that is workable, will create a quality certification program, and will establish direction to the now non-incentive continuing education programs now in existence.

The recommendation of a commission by the project team is sound. The commission will establish guidelines, policies, and procedures to implement the commission's responsibilities and activities. The commission would recognize specialties in optometry, only if and when such specialties meet the criteria for recognition and approve the qualification for certification in each recognized field of specialization in optometry to grant certification and recertification to qualified individuals. Finally the commission would serve as the coordinating agency and clearing house for information among organizations and groups representing the various recognized fields of specialization in optometry.

There are seven recommended criteria for specialties in optometry:

1) The area of specialization in the practice of optometry rests on a specialized knowledge of optometric sciences, which have their basis in the biological, and behavioral sciences, and not on the basis of managerial, procedural, or technical services, nor solely on the basis of the environment in which optometry is practiced.

2) The area of specialization shall be one for which specially trained practitioners are needed to better fulfill the responsibilities of the profession of optometry in improving the health and welfare of the public.

3) The area of specialization shall represent an identifiable and distinct field of practice that calls for special knowledge and skills acquired by education and training and/or experience beyond the basic optometric education and training.

4) The area of specialization shall be one in which schools of optometry and/or other organizations offer recognized education and training programs to those seeking advanced knowledge and skills in the area of specialty practice so that they may perform more competently.

5) The area of specialization shall be one in which there is an adequate educational and scientific base to warrant transmission of knowledge through teaching clinics and scientific base to warrant transmission of knowledge through teaching clinics and scientific and technical publications immediately related to the specialty.

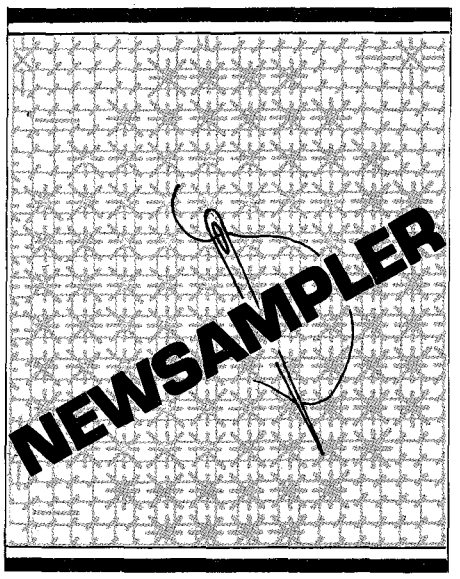
6) The area of specialization shall be one in which there exists a significant and clear health care demand to provide the necessary public reasons for certification, and

7) The area of specialization shall be comprised of a reasonable number of individuals who devote much of their time and practice to the specialty area or maintain special interest in the area of practice.

To conduct certification in any clinical area of practice there must be an organization capable to developing standards that define the specialty, create requirements for individual certification and recertification programs, develop and administer examinations. In brief, the organization must have the ability to carry out all of the mechanisms of a certification program under the guidelines developed by the commission.

One cannot deny the fact that certification is here today. For the benefit of the profession, the optometrist, and the public, a well organized certification program should be adopted that will make sense out of certification. □

Dr. Richard H. Kendall, O.D., Executive Director of the California Optometric Association, Chairman of the AOA Project Team on Certification.



Sabbaticals Established for Full-Time Faculty Members at ICO

The Illinois College of Optometry Board of Trustees' commitment to fostering clinical research and innovative teaching methods has resulted in a sabbatical leave policy for full-time faculty.

"The sabbaticals were established for research, study, writing or other creative endeavors contributing to a faculty member's professional development and effectiveness as a scholar and teacher," said President Boyd B. Banwell, O.D. "We are delighted three of our faculty are enriching themselves and, in turn, advancing ICO through this program of faculty development."

Darrell Schlange, O.D., associate professor in the Division of Optometric Sciences, completed his five-month sabbatical in the summer of 1982. He visited major infant vision research laboratories that study preferential looking techniques.

At the University of Houston College of Optometry, Dr. Schlange studied the newly-developed, computer-based PL technique for infant visual acuity testing developed by Ruth Manny, O.D., Ph.D., and Stan Klein, Ph.D. Dr. Manny and her associates use a Commodore VIC-20 computer with "Baby Bert" software that incorporates operant conditioning of the baby's responses.

Dr. Schlange also worked with Indira Mohindra, O.D., a noted researcher in PL techniques at Massachusetts Eye and Ear Hospital and at the Massachusetts Institute of Technology laboratory of Richard Held, Ph.D.

Yuzo Chino, Ph.D., associate professor in the Division of Basic Sciences and ICO's director of research, recently returned from his sabbatical in Japan where he was an invited professor at Tokyo's Women's Medical College and a visiting scientist at St. Marianna University in Kawasaki.

Peter Nelson, O.D., associate professor in the Division of Optometric Sciences and director of continuing education, currently is in the United Kingdom for a six-month sabbatical at the Optometry Department at City University in London where he will teach in the general and contact lens clinics in addition to a weekly assignment in the London Refracting Hospital's General Clinic and Moorfields Eye Hospital's Contact Lens Clinic.

American Interprofessional Foundation Members Meet

The 2nd National Meeting of the American Interprofessional Foundation was held at the Westgate Plaza Hotel in San Diego on February 12, 13, and 14, 1984.

Living Treasure Awards™ were presented to: Dr. Paul LaShorne of Seymour, IN; Dr. Robert Morrision of Harrisburg, PA; and Dr. George Iacono of Tucson, AZ. The Living Treasure Award is given to eye care practitioners who have made a significant contribution to the advancement of eye care.

Dr. Iacono and Dr. Morrision were honored for their work in the field of myopia containment and enhancement. Dr. LaShorne was cited for his contributions in the detection of health problems (such as high blood pressure, diabetes and arterial stenosis, etc.) in his optometric examination routine.

Drs. LaShorne, Morrision and Iacono also spoke and conducted workshops at the meeting, sharing their findings and expertise with their colleagues.

The problem of hyperphoria was addressed at the meeting by Dr. Akira Tajiri of Reedly, CA. Dr. Tajiri is a pioneer in the research and treatment of this condition.

Dr. Tajiri uses techniques of correcting hyperphoria, which cannot usually be detected by observation of the patient, but requires specialized testing by a competent practitioner. Some types of learning disorders in children can be attributed to hyperphoria according to Dr. Tajiri. If the children cannot see images properly, reading may become a difficult task. Parents may detect a problem when their children have trouble reading or doing other near tasks, but have no problem in comprehension of things told to them or read to them. The brain interprets material presented through the ears or other senses, but there is confusion in input from the eyes. Often these children have problems in sports since the eyes provide confused information to the brain and motor coordination becomes more difficult. In adults, small amounts of this vertical imbalance can result in headaches, seasickness symptoms, irritability, difficulty in sustained reading and a variety of other symptoms.

Other highlights included a presentation on Good Nutrition in Eye Care by Mrs. Janet Mansfield of San Diego, CA and the role of Vision in Sports Performance and Training by Dr. Wayne Martin of Seattle, WA.

The meeting also presented a consumer panel to its attendees. The panel, composed of persons not involved in the eye care field, presented patient concerns, confusions and needs to the meeting. The panel expressed the public confusion over the different roles of optician, optometrist and ophthalmologist. They were also interested and concerned with the effectiveness and/

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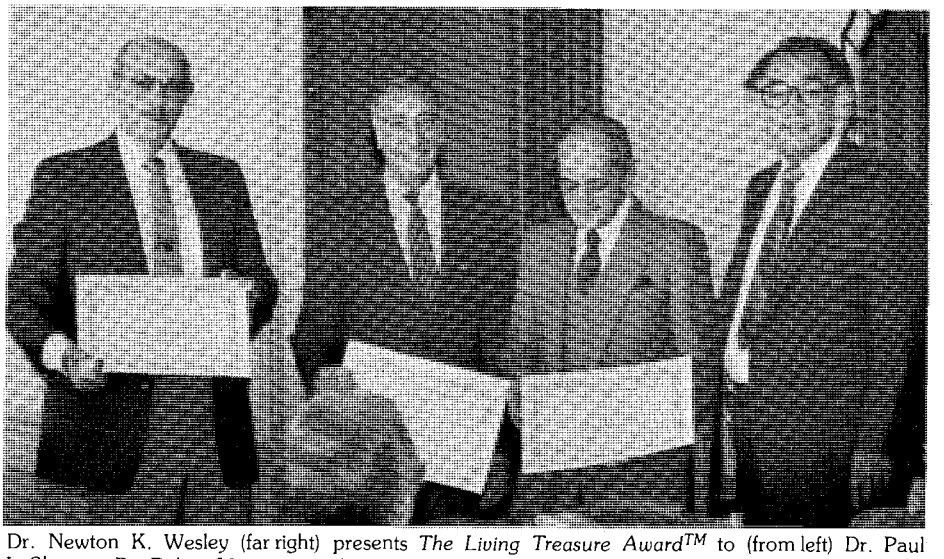
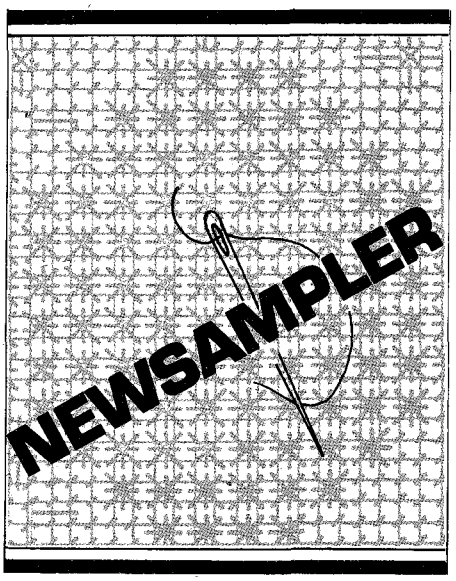


Dr. Newton K. Wesley (far right) presents *The Living Treasure Award*™ to (from left) Dr. Paul LaShorne, Dr. Robert Morrison, and Dr. George Iacono at the AIF Meeting in San Diego.



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or safety of the various vision treatments and surgery available today.

International Club Begun at ICO

The arts, sciences and heritage of five of the seven continents have met on Chicago's South Side in an Illinois College of Optometry International Club formed by more than 20 foreign students.

"We hope to educate and serve as a reference to ICO students and faculty about optometric education and practice in other countries and to integrate incoming and current international students academically and socially," said International Club President Lance Alpert, a student from South Africa.

Oscar Lillo, a second-year student from Spain, serves as club vice president and Alex Kouklakis, a first-year student from Greece, acts as treasurer.

Hyman Wodis, O.D., ICO assistant dean, professor and foreign student advisor, proposed forming the club and now serves as its faculty advisor. He and the club officers hope to plan activities involving all students to better acquaint American and foreign students with differing optometric procedures and different cultures.

Foundation for Funding Vision Research in Australia Established

Following discussions between The National Vision Research Institute of Australia, The Optometric Vision Research Foundation of New South Wales and The Vision Research Foundation of Australia there has been set up The National Vision Research Foundation of Australia.

This new body will become the center of a major fund raising drive to enable vision research projects to proceed and to provide grants and scholarships.

Every Australian capital city has at least one Vision Research Group involved in either basic or applied research work; in some cases more than three groups in one center are involved in research.

Professor Austin Hughes, Director of The National Vision Research Institute of Australia, says, "For a country of 14 million people, Australia has an extraordinarily large population of basic and clinical vision scientists of world standing. However, government funding is limited and there is no representative group for the professions involved in ophthalmic science. In addition, the increasingly multidisciplinary nature of vision research requires closer cooperation between ophtholmology, optometry and basic visual science."

The National Vision Research Foundation has been established with the aim of consolidating fund raising and management for vision research throughout Australia. It will work towards provision of block grants for groups, project grants, fellowships and scholarships for vision research regardless of profession or affiliation.

One initial goal will be upgrading of the facilities of the National Vision Research Institute of Australia.

SCCO Student Research Symposium Held

The Southern California College of Optometry (SCCO) held its Fifth Annual Research Symposium February 21 in Fullerton, CA. Thirty-one research papers were reviewed by SCCO faculty, from which 10 papers were selected for presentation at the Symposium. Optometric research is undertaken by fourth-year students at SCCO in partial fulfillment of graduation requirements.

"The Student Research Symposium provides a forum for SCCO students to report on new information based on results of their scientific endeavors," said SCCO Dean of Academic Affairs Douglas H. Poorman, Ph.D. "The variety and caliber of papers presented at the Symposium reflects the diversity of the field of optometry and the enthusiasm our students demonstrate in their quest for knowledge."

Monetary awards were given to the three papers judged as best at the event: First Place, $500; Second Place, $300; and Third Place, $200. First Place honors were awarded to Loryn B. Chapin for her paper entitled "Nerve Regeneration in the Corneas of Rabbits." Faculty Advisors for the project were Roger Beuerman, Ph.D., and Bernard Schimmelpfennig, M.D., Stanford University; and SCCO Faculty Advisor Richard P. Hemenger, Ph.D., O.D.

Second Place winners were Warren H.K. Chue and Debra L. McLaurin for their presentation, "Mydriatic and Cycloplegic Response to 1.0% Hydroxyamphetamine Combined with 0.05%, 0.1%, 0.25% and 0.5% Tropicamide: A Dose Response Study." Faculty Advisor for this project was K. Michael Larkin, O.D.

"Comparative Ophthalmic Preservatives Cytotoxicity Measured by Depression of Corneal Respiration," won Third

Pictured (l-r) are the SCCO Student Research Symposium finalists: First Place, Loryn B. Chapin; Third Place Catherine E. Harrison and Karen K. Toki; and Second Place winners Warren H.K. Chue and Debra L. McLaurin.

Place honors for Catherine E. Harrison and Karen K. Toki; Faculty Advisor Siret D. Jaanus, Ph.D.

Each paper, presented within a 15 minute format, was evaluated by a panel of seven judges in six areas relating to both content and delivery. Judges were James E. Bailey, M.Opt., Ph.D.; Robert M. Boynton, Ph.D.; Peter A. Simmons, Ph.D.; Frederick Cresitelli, Ph.D.; Edward I. Goodlaw, O.D., D.O.S.; Miles D. McCarthy, Ph.D.; and Bettye Smith, Ph.D. Kenneth E. Brookman, O.D., Ph.D., served as coordinator of the Student Research Symposium.

The Symposium is supported by a grant from the California Optical Laboratories Association in memory of Roy Marks, O.D., D.O.S., F.A.A.O. Dr. Marks served as Executive Secretary of the Association from 1973 until his death in 1979. Student Research Symposium expenses are provided by the Dr. John R. Dean Endowment for Research. Dr. Dean is a 1923 graduate of the College.

Keeping Up with People...

An Ohio State University optometrist is creating quite a spectacle outside his office with a starry-eyed display.

His celebrity eyeware collection exhibits both the eyeglasses and a photograph of the famous person wearing the glasses.

Arol R. Augsburger, clinical associate professor of optometry, started collecting eyeglasses from celebrities last spring. He displays them in a showcase at the Optometry Building, 338 W. 10th Ave.

He's hopeful the collection will help the average person feel more comfortable about wearing glasses when he or she sees that someone famous and admired has worn them, too.

"The purpose [of the collection] is to call attention to good vision for successful people," Augsburger said.

Part of being successful is being able to perform at optimum levels, Augsburger said. Without good vision, people have difficulty performing well.

In addition, people who feel uncomfortable about how glasses may alter the way they look can find comfort in seeing that celebrities have learned to cope with the change in appearance, he said.

Augsburger admits that the glasses in his collection are not unique or unusual, but that they are of interest because of their former owners.

Dr. Arol Augsburger, O.D.

Augsburger also is the curator of the Optometry Museum located in the basement of the Optometry Building. The museum is the home for antique eyewear and instrumentation dating back to the 1600s.

It's difficult to gauge at this early stage just how much Augsburger's display is comforting prospective eyeglass wearers. He said, however, that while sitting in his office, he often hears people laughing as they stop to peek at and enjoy his unusual spectacles.

Barry J. Barresi, O.D., director of Outreach Clinical Programs, has been elected to the Governing Council of the American Public Health Association (APHA). Dr. Barresi is one of three optometrists on the Council. Over 50,000 memberships in the APHA make it the largest organization of health care professionals in the nation.

Dr. Barresi has also been appointed to the Curriculum/Development Committee of the AOA's Geriatric Optometry program. The Committee will be responsible for developing a textbook on the subject.

Speaking of books . . . Dr. Barresi's new text "Ocular Assessment" has recently been released. Dr. Barresi edited the publication in which five SCCO Faculty are listed as contributing authors. They are: Morris Applebaum, O.D.; Larry M. DeDonato, O.D.; Neal N. Nyman, O.D.; John W. Potter, O.D.; and Michael W. Rouse, O.D.

Michael R. Spinell, O.D., of Huntingdon Valley, has received the prestigious Diplomate Certificate in Corneal and Contact Lenses from the American Academy of Optometry. This award is presented to select eye care professionals who successfully complete a series of exams that test their knowledge of all facets of corneal and contact lens care. Dr. Spinell is now recognized as one of approximately 150 professionals throughout the world who have been presented this symbol of outstanding academic achievement.

An Associate Professor of Optometry at the Pennsylvania College of Optometry (PCO) Dr. Spinell completed the exams after three years of intensive study. Individuals are normally allotted five years in which to finish the test. The test consisted of clinical, oral and written exams, identification of pathological slides and the presentation of case reports on some of Dr. Spinell's patients.

Dr. Spinell, a 1970 PCO graduate, is the sixth PCO staff member to have been honored with this certificate. He joins Associate Professors of Optometry Elwood H. Kolb, O.D.; Herbert L. Moss, O.D.; and Joel A. Silbert, O.D. and Assistant Professors of Optometry Mitchell J. Fink, O.D. and Harry Kaplan, O.D. in this select category.

Joel S. Waldstreicher, O.D. has been appointed Director of Continuing Education for the State University of New York's State College of Optometry. An Assistant Clinical Professor at the College and specialist in vision training, Dr. Waldstreicher will be working closely with various optometric groups, private practitioners and College faculty to offer programs to meet the needs of the expanding profession.

During the next few months, Dr. Waldstreicher will be planning courses to meet the State relicensure requirements of the new diagnostic pharmaceutical agents (DPA) law.

A graduate of Columbia University, School of Optometry and the Massachusetts College of Optometry. Dr. Waldstreicher also holds a Master of

(continued on page 31)

Teaching Clinical Teachers

D. Leonard Werner, O.D.

Clinical teaching has long been a problem within the health professions. While most educators in these disciplines agree that their clinical faculty are the key persons in their programs, the ones directly responsible for the most vital aspects of the health education process, there is little specific agreement relating to such essential concerns as:

1. How do we identify people with potential as clinical educators?
2. Once identified, how do we prepare them to function in this role?
3. Once functioning, how do we evaluate their effectiveness?
4. How do we use this information to aid in their continued growth and development?

The universality of these problems is of such dimension that one can review the literature of all of the health professions and observe the commonality of this situation. Nobody has found the answers to the puzzle, although there is reason to believe that we are closer to solving some parts of it.

Tikoff likens the clinical teacher to an endangered species because of the high attrition rate. He suggests that they are similar to the shock troops of the Ottoman Empire Era in that they are perceived to be of lower class in the educational system performing hazardous duties with the greatest risks and fewest rewards.[1] The clinical faculty must perform two difficult tasks simultaneously, patient care and teaching, and with each encounter (s)he places professional reputation and license "on the line."[2] The recompenses of this activity are limited since the clinical faculty is often at the back of the line when the rewards of the teaching profession, tenure and promotion, are dispensed. One of the reasons given for this apparent inequity is that we do not have the traditional criteria to judge clinical as we do with the didactic teaching. This may be further compromised by the observation that "in no other field does the nature of the material demand of the teacher this degree of preparedness without preparation."[3] Finally, we have the dilemma of the clinical educator who is either untrained and/or inappropriately scheduled to perform significant research, which is often considered to be required for advancement in academia, and whose clinical teaching skills may go unrecognized.

Clinical teaching began in an apprenticeship system and to some extent hasn't varied greatly with time. The success of the apprentice system required a special relationship between the student and mentor. This chemistry is also the hallmark of good clinical teaching. Along with this relationship, which often has too little time to develop, is the need for the teacher to have the breadth of styles to teach the entire group assigned to him/her. When one views the large amount of research and writings relating to teaching in general it becomes apparent that relatively little research (and training) has gone into clinical teaching. Those studies published have identified the attributes of the clinical faculty person and rated those that aid and those that distracted from effective clinical teaching. Stritter, Hain and Grimes[4] and others[5,6,7,8,9,10] reported that the most effective teacher has enthusiasm, dynamism and energy. (S)he sets objectives for students and teaches problem solving as opposed to factual recall, encourages student questions and provides feedback. Students should be active participants in the environment created by the effective teacher. (S)he is accessible and provides time for discussion, is friendly and students perceive (s)he enjoys dealing with them. The competent faculty person is also interested in both the students and patients and is sensitive to their needs and encourages students to share their feelings, values and experiences. Mattern[3] and others[11,12,5] indicated the additional need on the part of the clinical faculty to establish their clinical credibility. The interns and residents must respect the faculty person's knowledge and skills.

While much writing has gone into the identification of the positive attributes of the excellent clinical faculty, there is also some agreement concerning what that person should not be. The poorest clinical teachers were arrogant, disliked teaching (or gave that impression), lacked self-confidence, were inaccessible, unorganized, dogmatic and boring.[12] Evans and Massler[5] added other negative traits of clinical faculty. They found that negative and caustic individuals were considered poor teachers. They concluded that effective teaching was not synonymous with popularity; liking the teacher and learning from the teacher are separate and distinct. One of the most significant results of their study was to recognize that students related differently to specific approaches, with the top 10-15% of the class being more positively oriented to the more theoretically based faculty while the weaker students preferred more demonstrations of clinical techniques by their faculty. They concluded that a well balanced program has the people and ability to meet all of the needs of all of their students. The institution must also create a teaching atmosphere and a time schedule which allows this to flourish.[3,13,14] This implies that time must be allowed for proper preparation.

"The most effective teacher has enthusiasm, dynamism and energy . . . sets objectives for students and teaches problem solving . . ."

Optometry shares the dilemmas of the other health professions in attempting to elevate the level of clinical teaching and clinical teachers. At a workshop on optometric clinical education the most important problem identified related to the selection, development and retention of clinical faculty.[15] The methods itemized for the selection of potential clinical faculty were the traditional ones of interviews, guest lectures, evaluating publications and direct clinical observation. While all of these are of

Dr. Werner is Professor of Optometry at the State University of New York, State College of Optometry.

some help, they have varying relationship with the task to be accomplished, which is the teaching of an intern or resident within the patient care setting. The interview might give one some appreciation of the personality and communication skills of the prospective candidate and the direct observation of this person (if accomplished without disturbing the doctor-patient relationship) will possibly indicate how (s)he relates with and treats patients. However, these identified skills are but a part of clinical teaching. We cannot always learn from an interview or observation how this candidate will teach and render patient care simultaneously in the pressure of the teaching setting. Observing guest lectures or reviewing the candidate's publications are even less rewarding for this specific task.[16]

Once we hire our faculty we then must attempt to evaluate their effectiveness. Student involvement in this process is essential since the students are the ultimate consumers of the product. Student evaluations using properly designed forms and carried out in an atmosphere that is consistent with the importance of the task has been shown to be quite valid and reliable, more so than peer review.[6,11,17] One important aspect of the clinical teaching program that is extremely difficult to identify, even with student input, is missed teaching opportunities. One study of observed ward rounds reported that in 75% of the situations the clinical teacher missed opportunities to make significant patient observations with the student.[18] The more recent innovation of video taping holds the promise of observing clinical teaching in an unobtrusive fashion and also to provide the feedback mechanism to the faculty and students involved.[19,20]

In spite of the conventional wisdom that suggests that clinical teachers are born, there is increasing evidence that

Clinical Teaching Evaluation (Student Evaluation of Instructor)

Teacher: _____

Class Year of Evaluator: _____ Date: _____

Circle Appropriate Clinical Specialty Area:

PCO CL VT

Low Vision Special Test

Other: _____

Rating Scale:

1 = Poor 4 = Good

2 = Fair 5 = Excellent

3 = Adequate 6 = N/A

	RATING
a) **Preparation for clinical teaching encounter** (e.g., equipment availability, previous patient record reviewed, knowledge of room and student assignments).	
b) **Clinical teaching began punctually.**	
c) **Devotes full time to teaching/patient care activity during session.**	
d) **Sets clinical teaching objectives for encounter** (e.g., appropriate methods identified for children, elderly, handicapped.	
e) **Makes maximal use of the patient as a teaching vehicle** (e.g., uses all appropriate available clinical methods while patient is present, such as alternate testing procedures and/or therapy approaches.	
f) **Clinical teaching oriented toward patient's primary problem.**	
g) **Applies and teaches problem solving method to patient care** (e.g., explains the "how" and "why"(s) he arrived at clinical decision to student.)	
h) **Is enthusiastic about clinical teaching.**	
i) **Teaches doctor patient communication skills to student.**	
j) **Provides timely and appropriate feedback to student on his/her performance.**	

k) **Comments:** (Use other side if necessary) (e.g., What advice would you give future students regarding this teacher? What comments would you make to this instructor regarding his/her clinical teaching?)

clinical teaching skills can be taught. Although such behaviors as enthusiasm, role modeling, general knowledge and clinical experience are important, they do not represent the entirety of clinical teaching. In nationwide surveys of a clinical instruction in medicine, Meleca[20] and Jewett[21] reported that the skills needed for clinical teaching can be improved when it is recognized that they may differ from those needed in the classroom and may also have to vary in specific clinical teaching environments. They and others[22,23] reported that the vital element in an improvement program is the cooperation and endorsement of both the students and the clinical faculty.

The identification of the weaknesses of clinical faculty and their remediation are separate yet inter-related elements. As mentioned earlier, a potentially good vehicle for this is the use of videotaping. This should be accomplished with the knowledge and agreement of all of the people being taped: the student, faculty and patient. Gerbert[18] reported that none of the patients in her video study objected to this process and only 6% felt it changed the visit; however, 30% of the physicians felt it altered the visit in some way, and 25% of the physicians reported feeling personally uncomfortable. (It was not revealed whether it was those physicians who were uncomfortable who also felt the video camera altered the encounter.) The advantage of videotaping is that it allows for replay of the patient visit as often as necessary, which can be extremely useful for remediation. It also allows the observer to see aspects of the encounter that are essential in the evaluative and corrective process.

A program for clinical teaching development is now possible with videotaping as the key vehicle in the process. Programs of this nature have been

Clinical Teaching Evaluation (Clinical Chief's Evaluation of Faculty)

Teacher: _____ Date: _____

Evaluator: _____

Rating Scale:

1 = Poor 4 = Good
2 = Fair 5 = Excellent
3 = Adequate 6 = N/A

	RATING
a) **Preparation for clinical teaching encounter** (e.g., equipment availability, previous patient record reviewed, knowledge of room and student assignments).	
b) **Clinical teaching began punctually.**	
c) **Devotes full time to teaching/patient care activity during session.**	
d) **Sets clinical teaching objectives for encounter** (e.g., appropriate methods identified for children, elderly, handicapped.	
e) **Makes maximal use of the patient as a teaching vehicle** (e.g., uses all appropriate available clinical methods while patient is present, such as alternate testing procedures and/or therapy approaches.	
f) **Clinical teaching oriented toward patient's primary problem.**	
g) **Applies and teaches problem solving method to patient care** (e.g., explains the "how" and "why"(s) he arrived at clinical decision to student.)	
h) **Is enthusiastic about clinical teaching.**	
i) **Teaches doctor patient communication skills to student.**	
j) **Provides timely and appropriate feedback to student on his/her performance.**	

k) **Comments:** (Use other side if necessary)

reported and appear to be viable for optometry. The program that I propose has the potential for success in an arena that has seen few successes.[22,23,24,25,26]

Proposed Faculty Development Program

Any program of this nature must have the interest and support of the faculty, for without that it is literally doomed. Therefore, the first attempt should be with volunteer faculty with the agreement and acknowledgement of all that it is not for evaluative purposes and the results will not influence their standing. In order to assure this, it is suggested that it be a program administered by a committee of clinical faculty.

Stage I—A clinical faculty evaluation form was developed by a committee of faculty, clinic administration and students. Specific behaviors were identified as appropriate for faculty evaluation. This form allows for self, peers and student input. Initially we have instituted these for student evaluation of clinical faculty as well as clinic chief evaluation of the same faculty. These forms were presented to the entire clinical faculty to acquaint them with the criteria with which they are measured. Clearly this itself helps to evaluate the teaching process because it makes it quite clear to all the expectations of the institution. The fact that all instructors had representation in its formation helped in its acceptance. One item on the form that is revealing is the request to interns, "What advice would you give future students regarding this teacher?"

Stage II—A process will be created to evaluate this program utilizing the same forms. Since these forms are distributed and completed quarterly, we can compare evaluation score changes with time, using those who do not participate in the videotaping portion as a control group with those who do.

Stage III—Utilizing staged encounters we can improve the standardization of the evaluative document and its criteria.

Stage IV—Once satisfied with the tool, real-life encounters should be taped. The teacher(s) involved should observe the initial screening of these videotapes to allow for self-evaluation.

Stage V—The entire group will observe the videotape and a discussion is led by the doctor taped evaluating the encounter based upon criteria established. At this time alternative teaching and patient care strategies can also be discussed.

Conclusion

It should be apparent to the reader that this development program has not been completed at the time of the submission of this manuscript. It is hoped that this paper will act as a stimulant to dialogue within and among the colleges of optometry. It is anticipated that another article will follow to report on the results of this program. In the interim the author would appreciate all comments and suggestions.

It also should be obvious that I did not shed any light on the first problem identified, "How do we identify people with potential as clinical teachers?" Perhaps as the process identified in this article is refined we can tape Residents and Fellows in teaching and patient care activities to identify those who appear to have the potential to become excellent clinical teachers. This, too, may be material for a future article for J.O.E.□

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Minimum Separation:

Not Always Occurring at the Symmetry Points

Michael P. Keating, O.D.

For a thin lens in air, the minimum separation between a real object and its conjugate real image occurs at the symmetry points. Since the symmetry points are part of the set of cardinal points for any optical system, there tends to be a belief that minimum separation always occurs at the symmetry points. However, for many systems the minimum separation doesn't occur at the symmetry points, and there are some systems in which the symmetry points actually give a local maximum in the separation.

Introduction

It's well known that for a converging thin lens in air the minimum separation between a real object and its conjugate real image occurs when the object and image are at the symmetry points of the lens. Since the symmetry points of the lens are each twice the focal length away from the lens on opposite sides, the minimum separation between the real object and its conjugate real image is four times the focal length.

The symmetry points are part of the set of cardinal points for any optical system. Therefore, it might seem reasonable to assume that the minimum separation between a real object and its conjugate real image also occurs at the symmetry points for optical systems other than thin lenses. But surprise! The reasonable assumption is wrong! Even for a system as simple as a single spherical refracting surface, minimum separation between a real object and its conjugate real image doesn't occur at the symmetry points!

The minimum separation properties are usually not explicitly discussed in optics texts.[1-6] From my experience on the Optics Test Construction Committee of the Optometry National Board and from conversations with faculty at several different optometry schools, it appears that the fact that minimum separation doesn't always occur at the symmetry points is not well known. Therefore, I feel that a short discussion would be worthwhile.

In Section 2, I discuss in some detail the symmetry points and minimum separation for a single spherical refracting surface. In Section 3, I briefly comment on the relationship between the symmetry points and minimum separation for a coaxial system of multiple spherical refracting surfaces.

Single Spherical Refracting Surface

Consider a single spherical refracting surface with an object space index n_o, an image space index n_i, and a dioptric power P. The general imaging equation for such a surface is

$$n_i/v = P + n_o/u, \quad (1)$$

where u is the object distance and v is the image distance. (The standard Cartesian coordinate system is assumed, and light is traveling to the right.) The general lateral magnification equation is

$$m = n_o v / n_i u. \quad (2)$$

Paraxially, when an extended real object is at optical infinity, the conjugate real image is inverted, much smaller than the object, and in the secondary focal plane of the surface. As the real object is moved closer to the surface, the conjugate real image moves away from the surface and gets larger (see Fig. 1).

Since the image starts out smaller than the object and ends up larger than the object, there must be an intermediate object position that results in a conjugate image with a size equal to that of the object. The equal sizes occur when the object and image are at the symmetry planes (respectively marked $2F_1$ and $2F_2$ in Fig. 1). Since the conjugate real image is still inverted relative to the object, the lateral magnification is -1 for the symmetry planes. The object distance u for the axial symmetry point is given by

$$u = -2\, n_o / P, \quad (3)$$

and the conjugate image distance is

$$v = +2\, n_i / P. \quad (4)$$

The separation or distance w from an object to its conjugate image is given by

$$w = v - u. \quad (5)$$

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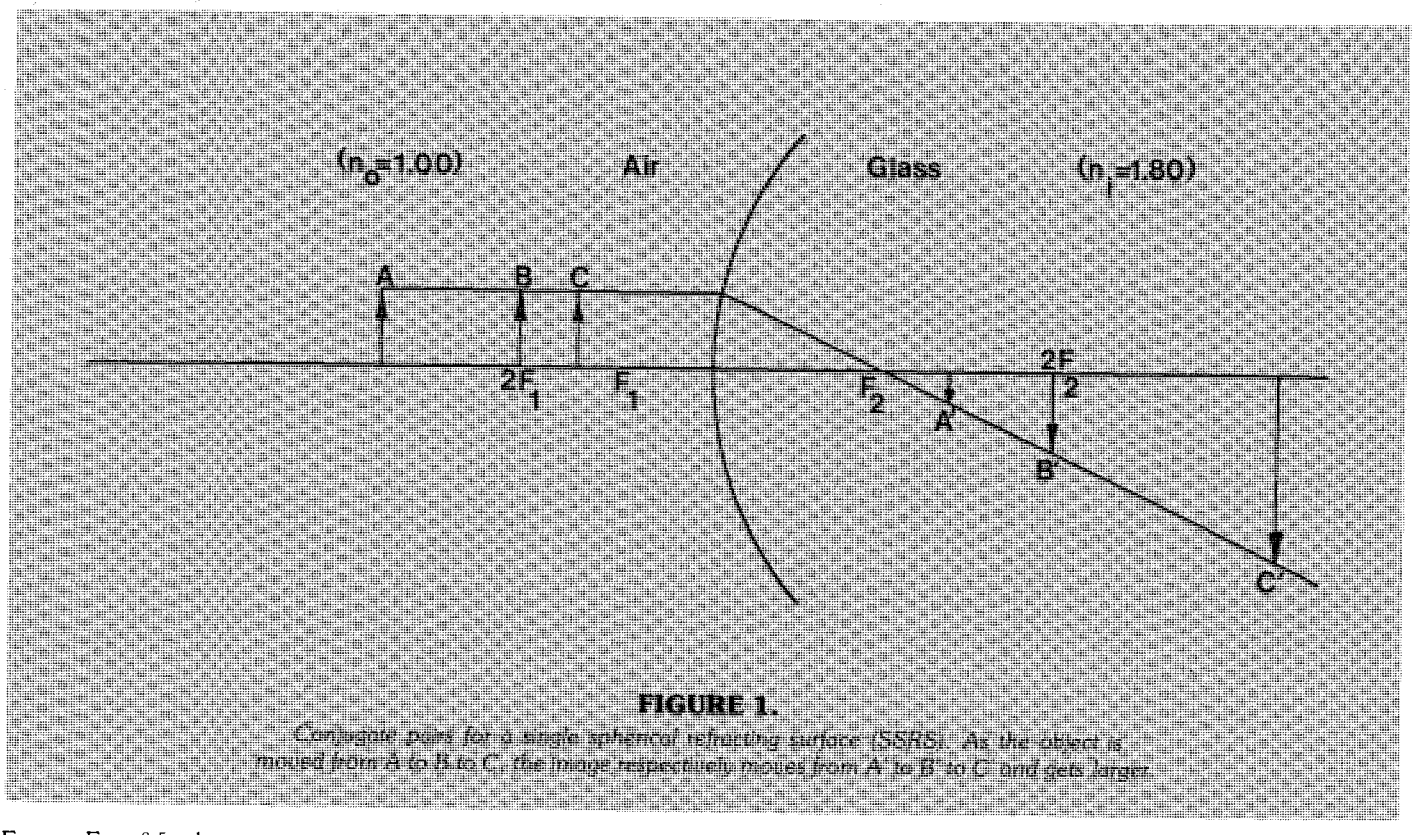

FIGURE 1.
Conjugate pairs for a single spherical refracting surface (SSRS). As the object is moved from A to B to C, the image respectively moves from A' to B' to C' and gets larger.

From Eqs.[3-5] the symmetry point separation is

$$w = 2\,(n_o + n_i) / P. \quad (6)$$

The minimum separation between a real object and its conjugate real image is an extreme of the separation function w. The extremes of a function occur either at the end points of the function or at the critical points of the function. The critical points are those points for which the derivative of the function either is equal to zero or doesn't exist.[7]

For an SSRS, the minimum separation between a real object and its conjugate real image occurs at a critical point given by a zero derivative. The equations for the minimum separation are found as follows. First Eq. (1) is solved for the image distance v, and the result substituted into Eq. (5) for the separation w. Then the derivative of the separation w with respect to the object distance u is found and set equal to zero. The result is a quadratic equation for two critical point object distances u.

Only one of the two solutions to the quadratic equation applies to the real object—real image case. From this solution, the object distance for minimum separation is

$$u = -\,(n_o + \sqrt{n_o n_i}) / P. \quad (7)$$

Then from Eq. (1) the conjugate image distance can be found and is

$$v = +\,(n_i + \sqrt{n_o n_i}) / P. \quad (8)$$

> ***"The minimum separation between a real object and its conjugate real image is an extreme of the separation function."***

From Eqs. (2), (7), and (8), the lateral magnification equation for the minimum separation situation is

$$m = -\sqrt{n_o / n_i}. \quad (9)$$

The minimum separation can be obtained from Eqs. (5), (7) and (8), and in simplified form is

$$w_{min} = (\sqrt{n_o} + \sqrt{n_i})^2 / P. \quad (10)$$

Note that Eqs. (7), (8), and (10) are different from Eqs. (3), (4), and (6) for the symmetry points, and that the lateral magnification at minimum separation, Eq. (10), is not equal to -1. Clearly, for a single spherical refracting surface, the minimum separation between a real object and its conjugate real image doesn't occur at the symmetry points.

Multiple Spherical Refracting Surface Systems

The box in Fig. 2 represents a coaxial system of spherical refracting surfaces with a central thickness q, and respective object and image space indices n_o and n_i. The distance from the front surface of the system to the object is u, and the distance from the back surface of the system to the image is v. The separation w between a real object and its conjugate real image is

$$w = v - u + q. \quad (11)$$

The minimum separation can occur at the endpoints or at the critical points of w. As for the single spherical refracting surface, the critical points are found by setting the first derivative of w with respect to u equal to zero. The result is again a quadratic equation for the critical points. It follows that the critical points occur for object distances u and image distances v that give a total lateral magnification of

$$m = \pm\sqrt{n_o / n_i} \quad (12)$$

The symmetry points still occur at a lateral magnification of -1. For unequal object and image space indices, Eq.

(12) clearly shows that the symmetry points are not critical points, and thus the minimum separation between a real object and its conjugate real image doesn't occur at the symmetry points.

However, when the object and image space indices are equal, Eq. (12) simplifies to ± 1. In the latter case, the symmetry points ($m = -1$), and the principal points ($m = +1$) are critical points for the separation function w.

The sign of the second derivative of w specifies whether w is a local maximum or a local minimum at the critical points. It can be shown that the sign of the second derivative of w at the critical points is determined solely by the sign of the equivalent dioptric power of the system.

It turns out that for a multiple refracting surface system with equal object and image space indices and a *positive* equivalent dioptric power, the symmetry points do give a local minimum in the separation. A converging thin lens in air is the simplest example of such a system.

On the other hand, for an equi-index system with a *negative* equivalent dioptric power, the symmetry points give a local maximum in the separation. An example is a system consisting of a +8.00 D thin lens in air located 50 cm in front of a +5.00 D thin lens in air. The two lens system has an equivalent dioptric power of -7.00 D.

Conclusion

For coaxial systems of spherical refracting surfaces in which the object and image space indices are not equal, minimum separation between a real object and a real image doesn't occur at the symmetry points. The simplest example is a single spherical refracting surface.

For coaxial systems of spherical refracting surfaces in which the object and image space indices are equal, the minimum separation between a real object and a real image can occur at the symmetry points when the equivalent dioptric power is positive. However, when the equivalent dioptric power of an equi-index system is negative, the symmetry points give a local maximum in the separation between a real object and its conjugate real image.

According to Southall, the symmetry points were introduced by Toepler in 1871 under the name negative principal points, and later renamed the symmetry points by S.P. Thompson.[8] Apparently the name "symmetry points" together with the fact that the minimum separation for a thin lens in air occurs at the symmetry points has led some people to the misconception that minimum separation always occurs at the symmetry points. Perhaps the same "negative nodal points" would not have been as seductive! □

"The minimum separation between a real object and its conjugate real image doesn't occur at the symmetry points."

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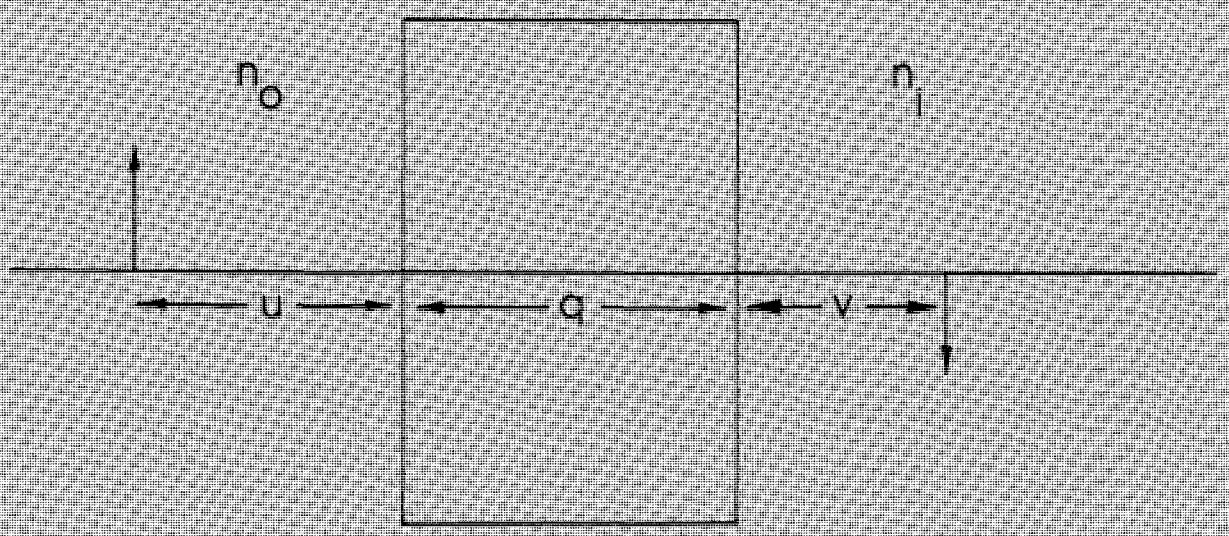

FIGURE 2.

The box represents a multiple spherical refracting surface (MSRS) system with a central thickness of q. The object space index is n_o and the image space index is n_i. The distance from the front surface of the system to the object is u, and the distance from the back surface of the system to the image is v.

Skills in Clinical Teaching:

A Faculty Development Program for Resident Optometrists

Laurence C. Bauer, M.S.W., and Arthur Alexander, O.D., FAAO

Introduction

Residents at the Pennsylvania College of Optometry are required to participate in patient care activities, and to teach optometry students who rotate through the College's Eye Institute.[1] Since these teaching responsibilities confront the residents with a challenge which few had been prepared to handle, a clinical teacher preparation program is included as part of the total residency program. The program is designed to increase the clinical teaching skills of resident optometrists.

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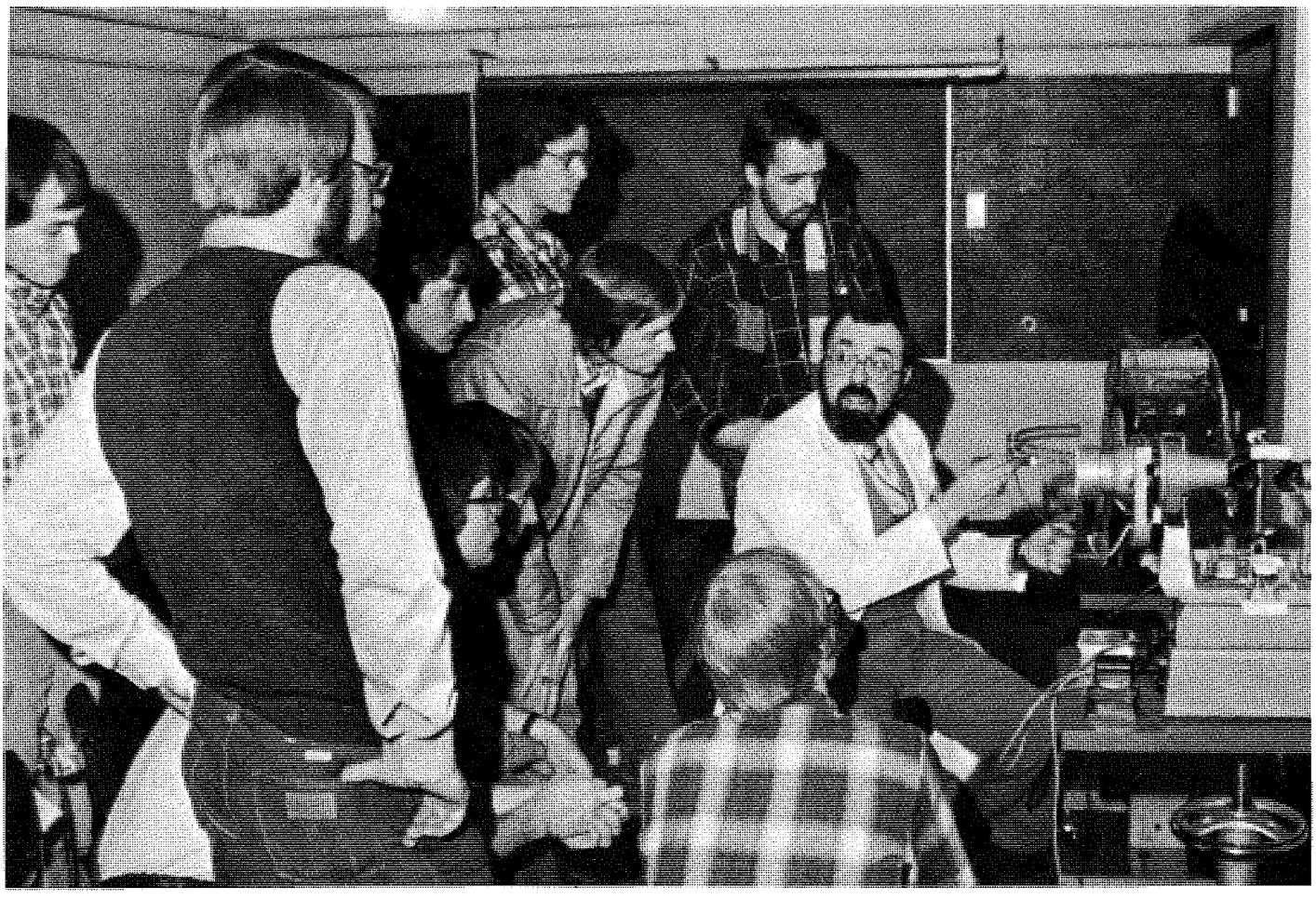
Overview of the Program

Each year between 1980 and 1982, a workshop was offered by the Office of Faculty Development of the Department of Family & Community Medicine of The Milton S. Hershey Medical Center, Pennsylvania State University. The workshop focused on a set of communication skills and a model of instruction which had proven helpful to clinical instructors in other primary care settings. It also provided a means to evaluate the effects of the workshop. The evaluation measured changes in the residents' skill level, and evaluated participant opinion regarding the helpfulness of the training immediately following and again, six months after the program. The workshop was offered to a total of 25 participants: 8 residents and 1 faculty person in 1980, 7 residents in 1981; 9 residents in 1982. In 1980 and 81, the workshops involved three days of training, and were offered at a site away from the college. The 1982 workshop was of-



fered at the college and involved 2 days of training.

Description

The overall purpose of this workshop was to improve the resident's clinical teaching ability. The particular objectives of the training were:

- To review basic educational concepts pertinent to clinical teaching.
- To introduce participants to a set of communication skills useful in clinical teaching.
- To introduce participants to an action oriented model of clinical teaching.
- To provide practice opportunities so that participants could develop expertise with the communication skills and the model of clinical teaching.
- To stimulate participants to review their attitude toward clinical teaching.

To accomplish these objectives, a skills-based model of clinical teaching was presented. The model of clinical teaching and the process used to instruct the residents were developed by The Carkhuff Institute of Human Technology, Amherst, Massachusetts, through a Health Resources Administration grant.

Content

The teaching model used in the workshop is based on Robert Carkhuff's formulation of the human problem solving process (Figure 1).[2]

As learners, we explore where we are. What knowledge and skills do we have to help us solve a problem with which we are confronted? If we cannot readily solve the problem, we need to identify our deficits. What do I need to learn to resolve this problem? Can I apply my existing knowledge and skills in a new way or do I need to use a resource to learn new information or a new skill? Finally, now that I've understood what I need to do, how will I proceed until I've resolved the problem?

A facilitative clinical teacher allows and expects a student to reveal what (s)he knows about a given patient's problem. Once the student has shared his/her assessment of the problem and thoughts about diagnosis and treatment the teacher is able to focus his/her instructional activity. While an effective clinical teacher should act as a role model in the area of clinical problem solving, it is not appropriate to take over the handling of every patient's problem

Human Problem Solving

Exploration — Understanding — Action

FIGURE 1

and place the student in the role of passive observer. The clinical teacher's job is to direct the student through the problem solving process. Figure 2 shows some of the implications of the model for clinical learning.

There is an explicit assumption which underlies this model. Learning begins from the learner's frame of reference. This means that the effective clinical teacher begins with an assessment of what the learner knows and doesn't know. Once the instructor has assessed the learner, (s)he can focus his/her instructional activity. Teaching is more than sharing a set of facts and procedures. As Mager points out, "If teaching were the same as telling, we'd all be so smart we could hardly stand it."[3] An effective teacher assesses the learner's knowledge about a problem area and how the learner organizes his/her problem solving activity.

The model overviewed above provides a cognitive structure for the clinical teaching process. Yet like most interactions between people, how a teacher interacts with a student is often more critical than what the teacher has to say. The best clinical advice when given in an interpersonally distasteful manner may not be heard by the student whose psychological defenses have been triggered. This is not to say that being "nice" is the answer. It does mean that useful clinical advice needs to be presented in a manner that facilitates the student's willingness to listen.

A large portion of the workshop is focused on a set of interpersonal skills which will improve a clinical teacher's ability to engage a student in the problem solving process. These interpersonal skills fall into two areas. A clinical teacher needs to get the student's perspective and give his/her perspective about the situation, cause and the direction.

The teacher's ability to get the student's perspective and to give his/her perspective will determine how accurately the problem is explored and the accuracy with which the cause of the problem will be identified. The skills will also influence the student's willingness to talk about his/her deficiencies. The get/give process is the basis of effective clinical teaching.

During the workshop, a number of skills that will improve the clinical teach-

Phases: Exploration	Understanding	Action
Situation	**Cause**	**Direction**
What does the student know about the situation? 1) The patient's problem 2) The reason for the problem 3) How to treat the problem 4) Is the student capable of handling the problem?	If the student cannot proceed: What is the cause of this student's inability to solve the problem? What knowledge and/or skill does (s)he need to learn in order to proceed?	How will the student learn?

FIGURE 2
Clinical Learning

er's ability to involve a student in the get/give process are discussed and practiced. The following breakdown overviews the relevant skills.

I) Getting the student's perspective involves:

a. Communicating interest in the student

The teacher's ability to communicate an openness to a student as well as a readiness and enthusiasm to teach.

b. Gathering information about the student's performance

The teacher's ability to collect accurate information about the student.

c. Asking facilitative questions

The teacher's ability to ask questions that encourage the student's presentation of information.

d. Demonstrating understanding of what the student says

The teacher's ability to show that (s)he has understood the student's perspective.

II) A teacher can give his/her perspective through a series of techniques

a. Use of genuineness

The teacher gives his/her perspective by sharing his/her feelings about the student and/or the student's work.

b. Self Disclosure

The teacher can give his/her perspective by sharing experiences which may support or alter the student's perspective.

c. Description

The teacher's ability to objectively state what (s)he has seen or heard.

d. Confrontation

The teacher's ability to present incongruities or discrepancies in the student's problem solving.

Teaching Methods

A variety of instructional methods are used to help the participants acquire the skills. This begins with the workshop leader (first author) who models use of the communication skills throughout the training experience. This type of role modeling allows the participants to experience the effects of the skills.

A micro-teaching strategy is used for each of the skills introduced. This involves a Tell-Show-Do method. Each skill is introduced and the steps involved in the performance of each skill are reviewed. After the content of the skill has been reviewed a series of practice exercises are used to help the participants acquire the skill by putting it into action.

"Faculty development activities can be successful if the skills clinical teachers need to learn can be defined in clear and concrete terms."

The following provides an illustration of this process for the skill of demonstrating understanding of what the student says. The behavioral steps involved in performing this skill include:

1) Pay attention to the student
2) Observe the student's non-verbal behavior
3) Listen to the student's verbal behavior
4) Review the important content expressed by the student
5) Identify any strong feelings expressed by the student
6) Give a response which summarizes the feeling(s) and key point(s) expressed by the student.

A series of practice exercises encourage the participants to use this skill. Participants are shown a series of videotaped student expressions to which they are asked to write a response demonstrating their understanding of what they heard. Each participant's response is discussed and constructive feedback concerning how to be more accurate and/or succinct is provided. During a second role play exercise, participants are asked to use the skill in a simulated teacher-student interaction. Discussion and constructive feedback follow. Each exercise is designed to provide the participants with an opportunity to test their learning in an atmosphere that is supportive.

Evaluation Methods and Results

In order to evaluate the impact of the training, two methods of evaluation were used, a performance test and participant evaluation.

Performance Testing

In the performance test the participants were asked to construct their most helpful response to a student presenting a clinical problem. They were tested immediately before and after the workshop occurred.

The 1980 and 1981 groups were tested with a pencil and paper form of the performance test in which they read a statement from a student and wrote their response. In the last workshop, a set of 3 videotaped stimuli, developed by the Carkhuff Institute of Human Technology, were used before and after training. These stimuli involved optometric students who were videotaped as they presented a clinical problem to a preceptor who remained unseen on the tape. The participants were put in the

TABLE 1
Performance Test Scores

	Pre-Workshop Scores	Post-Workshop Scores
	Mean (S.D.)	(Mean (S.D.)
1980	1.1 (.18)	3.1 (.35)
1981	1.1 (.09)	2.7 (.40)
1982	1.5 (.35)	3.2 (.34)

TABLE 2
The Average Responses of the Twenty-Five Participants Immediately After the Workshop

	Strongly Disagree 1	2	3	4	Strongly Agree 5
"Most of what was covered in this program will not be very helpful when I get home"	1.8				
"The staff at this workshop seemed very competent."				4.8	
"I feel good about this workshop experience."				4.4	
"I feel better about being a teacher because of this workshop."				4.1	
"I would recommend this workshop to a colleague."				4.4	
"Too much time was spent on non-productive activities."	2.1				
"The presenters were poorly prepared."	1.1				
"The workshop leader(s) seemed to be using the skills they were urging me to use."				4.7	
"I was satisfied with how much I actively participated in the workshops."				4.0	
"There were enough practice opportunities available for each new skill presented."				4.0	
"The teaching skills were presented in a clear and understandable way."				4.4	
"The other people who participated in this course with me facilitated my learning."				4.3	
"My expectations for these workshops were met."				3.8	
"I felt comfortable asking questions during the workshop."				4.3	
"I was given constructive, helpful feedback on my use of the skills taught in this workshop."				4.6	

position of responding as if the student had directed the problem to them. In either case, participants were allowed three minutes to construct their responses to each item.

The responses were rated using an index of facilitative communication developed and validated by Robert Carkhuff, Ph.D. (Carkhuff, 1969). The index is a criterion-referenced, 10-point scale with a high of 5 and a low of 1. Ratings of 1.5, 2.5, etc. are possible. One rater rated and later re-rated each response. Agreement in 90% of the ratings was achieved. The results are presented in Table 1.

The goal of the workshop was to bring the participants to a minimally acceptable level of skill performance, which is a 3.0 on this scale. The 1980 and 1982 groups both achieved slightly above the goal level. The 1981 group average was slightly below the 3.0 level. Examination of the scores for the three groups revealed that 20 of the 25 participants had achieved a minimally acceptable or better score after the training. While these results are based on only three responses after training for each participant, we believe this method does provide an efficient way of monitoring the impact of the training.

Participant Response

A second evaluation instrument was used to elicit participant opinion regarding the helpfulness of the training. Participants were asked to complete a fifteen item questionnaire. The average response to each question for all 25 participants is shown in Table 2. The response indicated that the participants felt the material covered in the program was relevant to their work, the training was conducted in an organized and effective manner, and they did learn as a result of the training.

Six months after the training an eleven item questionnaire was sent to each participant. Results from the three groups showed that the participants believed the material covered in the course was relevant to their teaching situations, the workshops had helped them become better teachers, and they would recommend the program to other residents and faculty. They also suggested that the program could be improved by adding a follow-up session held two to three months after the initial training.

Conclusions

Based on our experience we have reached the following conclusions:

1) Faculty development activities can be successful if the skills clinical teachers need to learn can be defined in clear and concrete terms, and if sufficient opportunities for practice and constructive feedback are incorporated into the training.

2) Instruction in interpersonal and clinical skills can improve an instructor's performance.

3) Residents find the opportunity to participate in this type of faculty development to be rewarding and productive.

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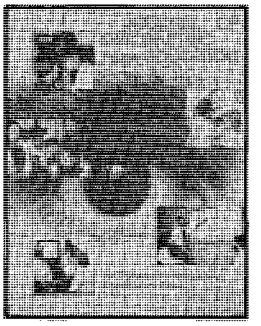

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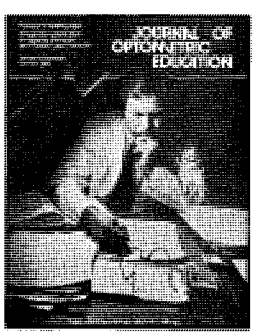

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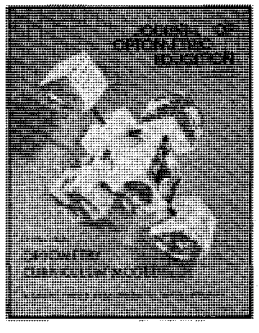

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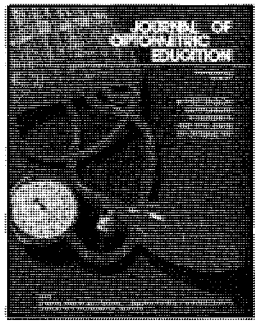

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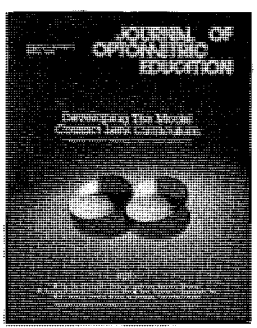

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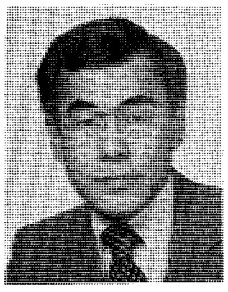
(continued from page 7)

Science degree in Education from Yeshiva University.

Dr. Roy K.A. Wesley has been elected president of the National Eye Research Foundation by its Board of Directors. Dr. Wesley intends to "provide a new atmosphere of commitment and participation by eye care professionals in order to enable them to rededicate their lives to the quality of professional eye care in the best interests of the public."



Roy Wesley, O.D., Ph.D.

Dr. Wesley has been a member of the National Eye Research Foundation Board of Directors for 11 years and a member of the Executive Committee of the Foundation for the past 3 years.

The Foundation is international in membership. Continuing education for the eye care professions is provided through meetings and symposia held in the United States and abroad and also by the publication of a journal of scientific and clinical findings. The Foundation sponsors students in ophthalmology and optometry through annual scholarship grants and also provides support for research scientists working on specific eye care problems.

Dr. Wesley holds his doctor of optometry degree from New England College of Optometry in Boston.

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The *Journal* is a national quarterly publication of the Association of Schools and Colleges of Optometry. Its circulation encompasses all U.S. and foreign accredited optometric educational institutions, as well as private practitioners, government leaders and others in the health care field. Established in 1975 as a forum for the exchange of information pertinent to optometric education, the *Journal* now represents the only publication devoted entirely to the educational aspect of the profession.

All authors wishing to submit manuscripts are directed to comply with the attached guidelines. Manuscripts will be formally reviewed by experts in the selected subject area, and authors will be notified of reviewer recommendations.

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Tables or charts should be typed on a separate page, numbered, titled and cited in the text. Tables should be numbered consecutively and tailored to fit within column width or page width. Line and halftone illustrations should be of high quality for satisfactory reproduction and should be submitted in duplicate if possible. Illustrations must be numbered and cited in the text. Please do not bend, fold or use paper clips on photographs.

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