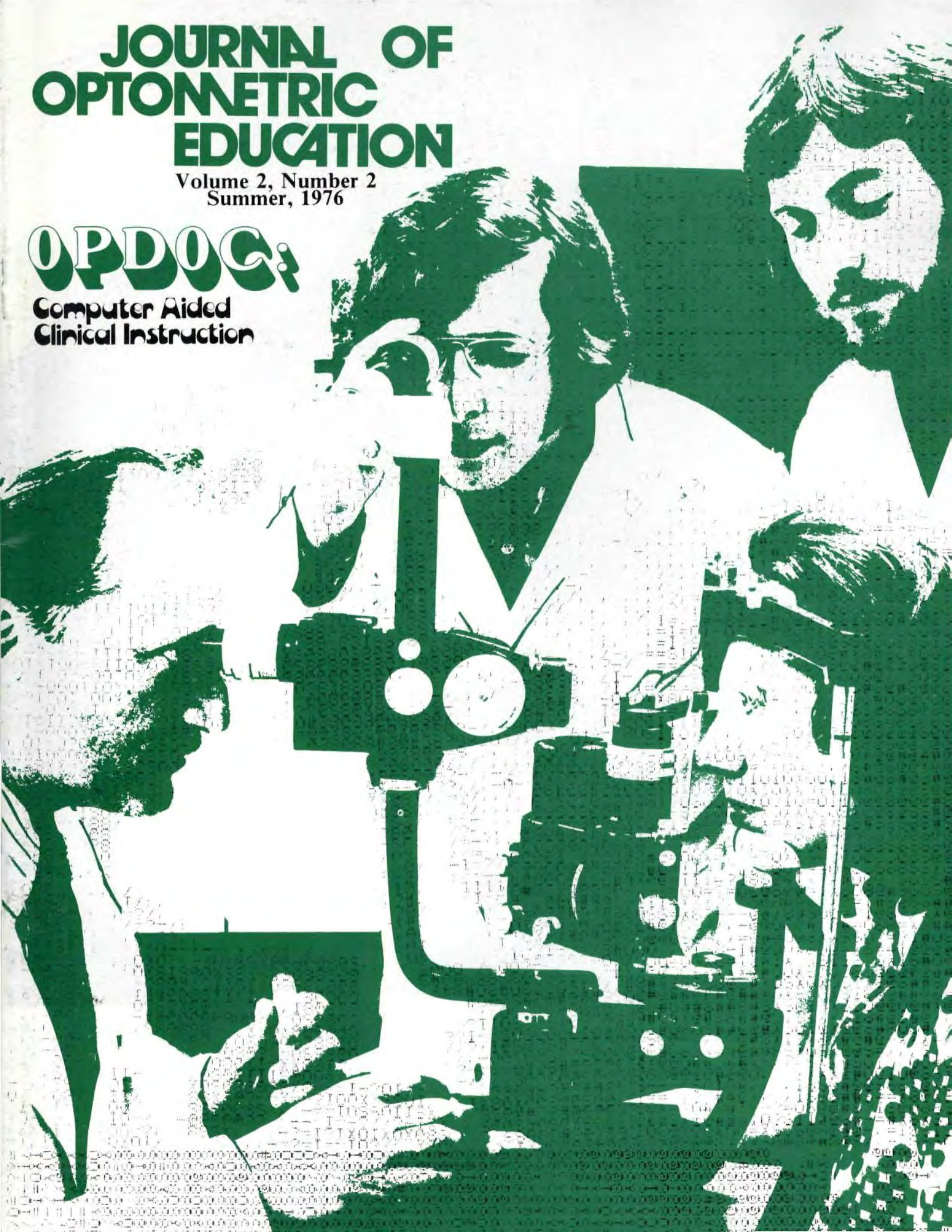
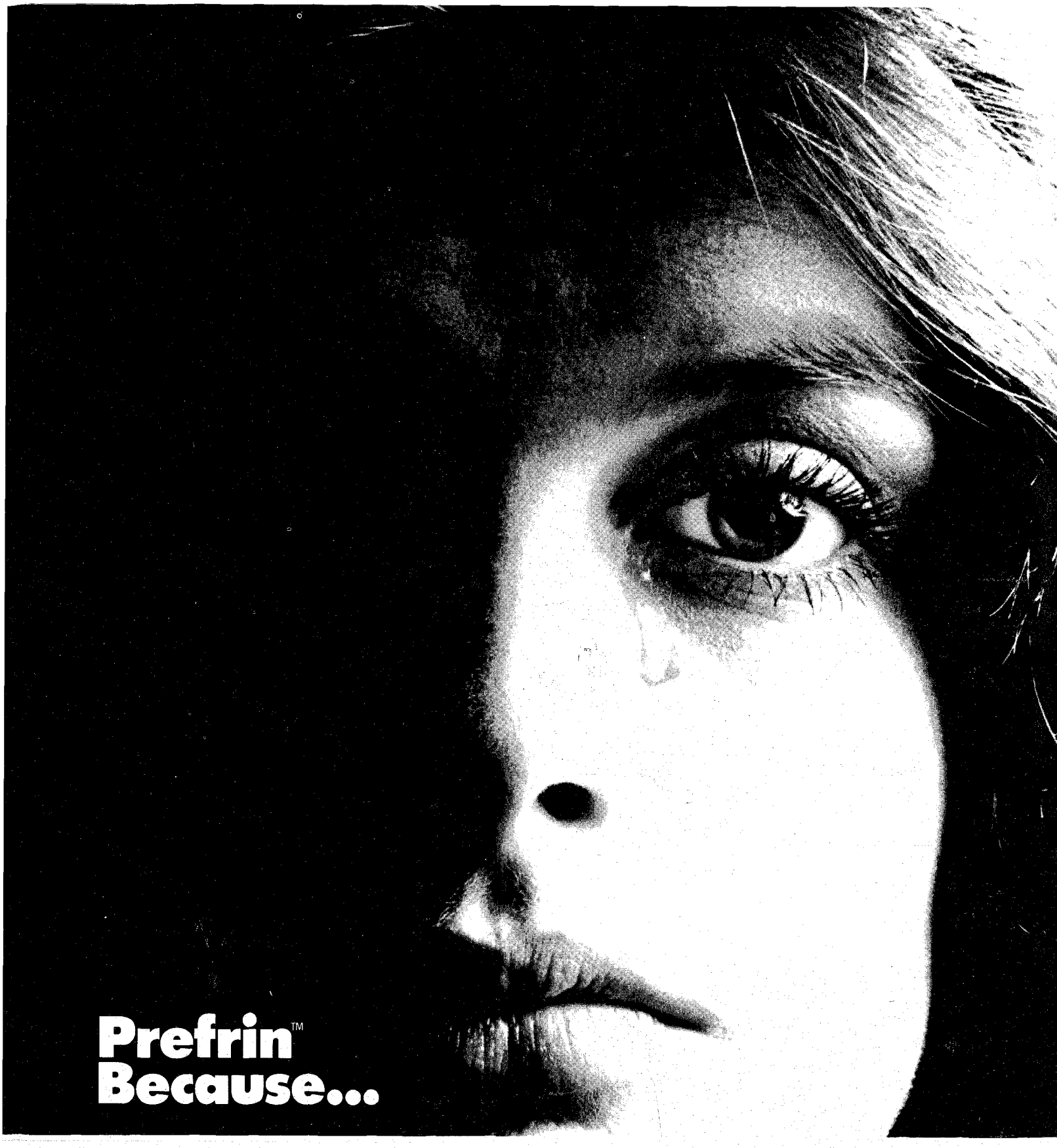
JOURNAL OF OPTOMETRIC EDUCATION

Volume 2, Number 2
Summer, 1976

OPDOC:
Computer Aided Clinical Instruction





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Official Publication of the Association of Schools & Colleges of Optometry

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Editor's Page

This issue of the *Journal of Optometric Education* provides a unique mix of original manuscripts and Association related views and policies. It also continues the popular commentary/forum for the discussion of current issues initiated in the Winter 1976 issue by the chairman of the Editorial Council, Dr. Chester H. Pheiffer.

The diversity of articles again demonstrates the wide range of issues being faced by optometric education. The *Journal* is proud to be able to assemble and publish these articles of interest to the entire profession.

In this issue Michel Hanen and Richard Kouzes discuss the clinical application of computer simulated training in optometric education. Computer application to clinical training has been established in other optometric programs, and this article discusses the usefulness of this approach to optometry.

Dr. Kermit Kors presents a short article on training optometry students in the fine art of adjusting spectacles. Dr. Kors mentions that as important as this skill is known to be, the degree to which it is possessed and practiced by men in the field varies greatly. An editorial comment discusses the perception of curriculum planners in relation to technical skills presented by the author.

The process of establishing a search committee to identify and select a Dean of Academic Affairs is outlined by Drs. John Siegfried and Anthony DiStefano. Both members of the Pennsylvania College of Optometry faculty, Drs. Siegfried and DiStefano offer suggestions and guidelines to other optometry programs who may wish to establish procedures for selection of a qualified person to this all-important post.

Libraries and their operation are the topic of a report prepared by the Association of Visual Science Librarians. This paper was developed from a workshop held in late 1973 which became the basis of a report to the ASCO Board of Directors in June, 1974. The report was prepared for publication in 1975 and is published here for the interest of all optometric institutions. The appreciation of the *Journal* is expressed to Ms. Elizabeth Egan and Mrs. Alison Howard for their assistance in preparing this paper.

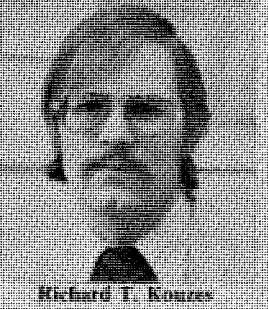
The last manuscript for this issue concerns policy positions taken by the Association of Schools and Colleges of Optometry concerning developing new schools of optometry. During the last several years the Association's Council on Institutional Affairs and a special committee working jointly with the American Optometric Association developed several position papers on new optometric programs. It all started in September of 1974 when the Association adopted a statement containing 12 guidelines for the development of new schools and colleges of optometry.

With this issue, a supporting statement providing background information on each of those twelve selected guidelines is presented. In addition, a National Plan for New Academic Facilities, as accepted by the ASCO Board of Directors, is presented. The national plan was accepted unanimously by the Board of Directors following several preliminary drafts and a lot of hard work on the part of many.

It is hoped that presentation of these reports, articles, and papers will focus attention on the wide variety of issues facing the profession. Readers' comments are encouraged as are original manuscripts on any issue related to optometry and the education of future optometrists.

In This Issue:

Michel E. Hanen



Richard T. Kouzes

Kermit Kors

John B. Siegfried

Anthony F. DiStefano

Editorial

ASCO: Prince or Pauper!

Searching for a useful purpose is an activity engaged in by almost all organizations in their early development. Through the years of its existence, ASCO served as a debating society and a forum for sharing information. It was a loose, unstructured, ineffective organization in that some of the member institutions were consistently not represented at official meetings by their chief academic administrator. Consequently its duly taken actions were not considered to be binding and were frequently set aside by those who did not attend the meetings.

The membership of ASCO was composed of strong individual units which constantly defended their own turf, went their own ways in "splendid isolation", and not infrequently behaved as though they individually represented all of optometric education. The Association had neither goals nor the structural organization to carry out goals. There was an obvious need for an organizational structure where actions were binding on its members, for improved communications, and for an executive secretary who could also effect the necessary contacts with the many bureaus, agencies, foundations, and funds that had become so important to all of optometric education.

First, in order of occurrence, ASCO solved the problem of representation and responsibility by incorporating in the District of Columbia. Incorporation had the effect of giving its actions legal recognition and made all members responsible for the decisions duly made and consequently binding on all its members.

Second, the member institutions of ASCO, after many years of debate and exploration, made the decision to open a Washington office and to hire an executive secretary who would be capable of carrying out the desired functions including effecting the necessary contacts.

Third, ASCO developed several modes of communication each with a specific set of purposes. Keeping communication alive in an organization as diverse as that of the schools and colleges of optometry is not an easy thing. It demands discipline, time, and energy on the part of many; including faculty, administrators, and practitioners.

Communication is fostered at the Annual Meeting and the Board of Directors meetings. Issues important for the future development of optometry are studied, debated and decided at these meetings. But, how many faculty are knowledgable about these issues and actions which may have a tremendous impact on their profession? All too few. **JOE** presents some of these activities in this issue and is developing plans to improve this area of communication.

ASCO's three Councils (how many faculty know of these?) are actually studying problems of concern to optometric education and presenting reports of some consequence.

However, the extent to which these reports continue to be buried in the minutes of the respective meetings and are not disseminated is equal to the extent of their effectiveness and probable impact. **JOE** can and should provide a useful outlet for these reports and actions.

Now that ASCO has achieved an organization that can and is taking positive action and making decisions that will determine the future of optometry as well as of optometric education, and now that ASCO has developed an organ for communication and in which articles pertaining to optometric education are presented, questions are being raised as to the usefulness of the organization and its publications. ASCO is now faced with a problem that plagued AOA during its early days when states disaffiliated for many reasons, including dues.

ASCO is under attack because it has lent a helping hand to AOF. In an attempt to provide more funds for optometric education, AOF made a bold and daring thrust in a new direction. Had it succeeded, everyone would have gladly partaken of the fruits of its labors. Surely, we can be appreciative of the efforts of the volunteers who have given so much of themselves for optometric education through AOF. Is our long standing concern for the financial stability of our free standing institutions about to be replaced by a concern for the inadequate funding of our affiliated colleges? It is interesting that some of the affiliated colleges which are having difficulty with ASCO dues are associated with academic health centers. This problem must be faced by ASCO during its June meeting.

Regardless of the action taken by ASCO, whether it abides by its constitution, modifies its constitution, or those members disassociate, the frail unity which has been nurtured in optometric education, the moderate progress which has been made in improved communication and the new outlet for faculty expression are endangered.

Optometry has grown by consolidating gains made. Surely ASCO members will behave likewise and reject the attempts to dismantle their organization—to convert prince to pauper.

Chester H. Pheiffer

FORUM

One of the reasons presented for ASCO to publish a quarterly journal was the need for a place to publish occasional papers that would expose them to a larger audience than was customary for photocopied editions.

The following paper, "A Call for Consensus," fits this category perfectly, in that it is a challenging, thought provoking paper. It will undoubtedly receive much support by those who believe that optometry must move in the medical direction in order to survive. It will, at the same time, cause consternation in those who believe that the full scope of optometry is not being offered to the public, that there is an unfortunate trend for optometrists to become junior medics, and that the truly unique and significant parts of optometry are being abandoned for the more medical approach.

"A Call for Consensus" raises questions which certainly should be fully aired. One who listens to practitioners soon discovers that optometrists have been providing primary health care for at least two decades. Starting with their courses in pathology and the stimulus to detect diseases, through self education by reading, observation, and consultation, they have learned to detect general health problems as well as more specific ocular related problems. Our first question now becomes,

(1) Should the knowledge, theory, tests and procedures necessary for the detection or diagnosis of general health problems be added to the curriculum? To the extent that this material would replace that now being self taught, the obvious answer would be 'yes'.

(2) To what extent should the curriculum be expanded to educate and train optometrists for the role of general health screening and health counseling? The curriculum at most of our institutions is already full to overflowing. What then is to be deleted? The most vulnerable area, in that it is not now included in the curriculums of all institutions, is vision therapy. A second area might be fabrication and dispensing, or mechanical and ophthalmic optics, or even geometrical and physical optics. On the other hand, the problem could be solved by simply adding another year to the program.

(3) To what extent should optometric education obtain concurrence from the profession before it makes, what may well be, a rather radical and far reaching change in the character of optometry? Since optometric education will determine the future of optometry—what optometry is to be—by what is taught, optometric education has an awesome responsibility. One which should not be treated either casually or lightly. The decision has already been made by some of our institutions in that they are now in process of implementing many of the changes put forth in this paper.

While this provocative paper generates still other questions deserving of answers, one rather strong disagreement must be noted:

We cannot concur that all optometric schools and colleges "must move to develop affiliations" with academic health centers. This single-minded approach does not appear to recognize that there are many health care institutions, hospitals, clinics, nursing homes, etc.—which are not associated with academic health centers but which do provide the environment needed and in fact, the environment they provide may be more appropriate than that found in the academic health care center. The Forum is open, the Lamp is lit.

A Call for Consensus

Optometry was born of the capacity of a small group of men to achieve consensus in a climate of conflict at a vital time. Prentice, Cross and others deserve much credit for this achievement; however, there must have been a general spirit as that expressed by Franklin at the Constitutional Congress when he implored the delegates that, "we must hang together..."

Optometry has often been able to muster coherent and cohesive action at the same time to hasten its professional maturity. The achievement of legislation in all states during a critical twenty-four year span; the imposition of school accreditation during the twenties; gaining status for optometrists in military services during the late forties and early sixties; achieving standard four-year degree programs and the common earned degree in the mid-sixties—all are crucial examples of this capacity.

None of these successes, taken singly, was as instrumental in determining the future of our profession as is the necessity of our achieving internal consensus concerning optometry's most effective role as a health profession. The time is now! Continued delay lessens the opportunity for ourselves to define that role. The fact that we must predict general elements of a delivery system that has not yet been created gives us pause, but if it prevents us from our task we will not be ready; and if we are not ready for the role we define, we will not achieve it.

While the future is not fixed, there are signs of what will come. These predictions seem well reasoned:

1. Optometry will continue to exist as an independent profession offering a primary entry point into the system.

2. We will continue to attract students of approximately the caliber and background of those presently applying.

3. There will be mounting pressure to relate roles to the nature and extent of education and training required to fill those roles.

4. Laws and policies will be brought into line with well-reasoned and effectively implemented changes in professional roles.

The following role model has been put forward as one which provides an achievable and effective place for optometry within the above projections:

The practice of general optometry will involve the application of knowledge of vision science to solve high incidence human problems; and will also involve certain functions which result from the general optometrist's serving as a primary health professional. These include identification of ocular and other health problems presumptively diagnosible by application of knowledge of vision science but definitely diagnosed and treated by other health professionals; screening for those general health problems which have high incidence, low visibility to those afflicted, high pay-off from early detection, and for which adequate screening procedures feasibly can be made available to general optometrists; counseling patients concerning health habits which can be taught and which have valid and significant preventive effects. These include the general optometrist's obligation to each patient. He must also be prepared for responsibilities in health education and health administration.

Among the reasons for optometrists assuming the expanded roles of general health screening and health counseling are these:

1. First-contact professionals are especially accessible to patients and can fill a gap in general health care which has been widening, in part, because fewer allopathic physicians are available as primary practitioners and fewer see patients on a timely basis for preventive or early detection of problems which have low visibility to the patient.

2. Education for the practice of allopathic medicine has never emphasized preventive health counseling or health screening.

3. Optometric students are capable of preparing for this role.

4. Optometric curricula can readily be adapted to such preparation if the educational climate permits and if sufficient appropriate patient populations are available.

5. Patients will be better served if optometrists become competent to assume these roles.

If we are to prepare for this role, it seems obvious that the following steps are essential:

1. A new curriculum must be developed which provides for achievement of relevent competencies.

2. The goal of 14 optometrists per 100,000 population becomes realistic, even modest. This goal can only be achieved by creating several new schools of optometry.

3. The appropriate academic climate for producing graduates with these competencies is the academic health center; no other existing environment serves these goals as adequately; therefore, we must move to develop such affiliations for all existing schools and require it of all new schools.

4. Much greater capacity for clinical research must be developed in optometry. Much more significant research must be generated with the mission of more effectively applying knowledge of vision science to the solution of human problems.

5. Formal, relevent, effective continuing education for practicing optometrists must be developed.

6. Optometric specialties must be created to fulfill those functions which apply vision science to human problems but which, because of infrequency or complexity, cannot be handled by the general optometrist.

7. Expanded instrumentation must be made available to general optometric practitioners.

8. Faculties must be developed which can fulfill these educational demands.

These tasks are formidable. They will be difficult even if all optometry unites behind acceptance of this role and achievement of these goals; without acceptance, understanding, and unified action then success in their achievement is unlikely.

It is most important that leaders of optometric education assume leadership regarding these projections and premises. If we are uncertain collectively, there will never be sufficient consensus and will among the leaders of the profession to proceed effectively.

It is requested, therefore, that each member of ASCO consider these propositions regarding: a) the projected future role of the general practitioner of optometry, and b) the assumptions regarding steps which need to be taken; and decide whether to act on them as ASCO positions or to offer alternatives.

William R. Baldwin, President
New England College of Optometry

OPDOC

Computer Aided Clinical Instruction

By Michel Edwin Hanen
and
Richard T. Kouzes

The quality and effectiveness of optometric education are dependent on the methods of instruction used by the educator. Dr. Les Janoff has raised several interesting points about optometric educators and their methods of instruction.[1] To our way of thinking, one of the most vital points raised by Professor Janoff is whether new optoxtric educators will be carbon copies of their graduate professors, or wheth they will utilize modern teaching theories and technology in order to achieve maximum learning conditions for their students.

Michel Edwin Hanen, O.D. is Associate Instructor at Indiana University, School of Optometry. Richard T. Kouzes, Ph.D. is a Research Associate at Indiana University, Department of Physics.

One technological tool that can be used to great advantage in education is the computer. It provides a very valuable adjunct to expensive clinical instruction by simulating an endless range of clinical cases for the optometric student to diagnose. Most im•ortantly, it facilitates learning by giving the student immediate feedback. In addition, once, programmed, the computer requires only limited amount of faculty supervision.

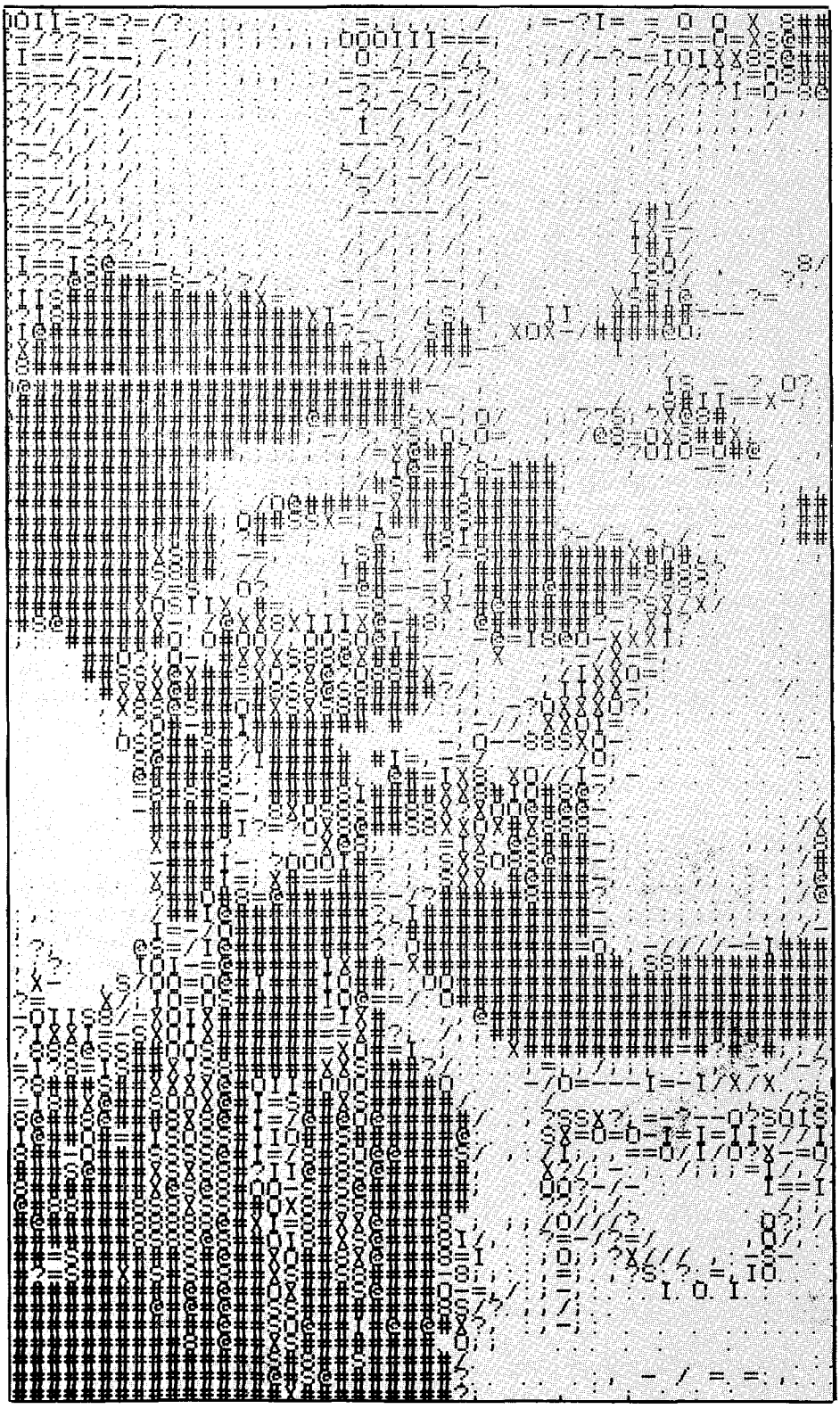
OpDoc is an attempt to utilize a computer for training and evaluating optometry students. During a student's optometric education, there is a conscious effort to afford the student a wide range of clinical experience. However, the variety of actual cases seen by a student varies from one student to another student. The structure of the curriculum assures each student of an equal opportunity to the theoretical aspects of physiological optics, ocular and general pathology, and clinical theories of optometry. However, there is no assurance that the clinical aspects of the curriculum will provide each student with a wide variety of patient-optometrist encounters.

OpDoc is a computer simulation of the patient-optometrist encounter, where the number of cases and the type of case is limitless. OpDoc is a FORTRAN program presently implemented on a Datacraft 6024 computer at the Indiana University Cyclotron Facility. The program provides for student usage through interactive CRT (cathode ray

tubes) displays. The scope of the present implementation is to show the feasibility and value of computer aided instruction in optometric education.

In developing OpDoc, we have attempted to provide a system through which all students may gain experience in dealing with a wide variety of patients and visual problems. By utilizing this system, the optometric educator knows that each student has had exposure to a finite number and type of patient symptomology. The optometric educator can also monitor the progress of each student in the development of his or her clinical skills.

Simulated encounters between patient and physician have been used for the past few years. Two methods of generating simulated cases were provided by deDombal, et.al.[3] Their first method is to generate a "stereotype" of the disease. In this procedure, they considered each attribute of the patient who would have the disease. Then they would generate the average of each attribute and come up with a "stereotype" of the disease. An ocular example of this method would be: a twenty-eight year old male with intention tremor, slurred speech, nystagmus, transient diplopia and "spotty" vision. This stereotyped patient has all the average symptomology of a person with disseminated sclerosis (multiple sclerosis). Their second method for generating simulated cases is through the use of random numbers in generating patient symptoms on a probability basis. Using the same ocular example, it is probable that the computer would generate a case that gave exactly the same symptomology. However, a certain percentage of the time the computer would generate a case which could be called an exception to the rule or the unusual case.



Harless, et.al.[2] listed the requirements for a computer simulation of a clinical experience as: (a6the computer must respond to an English language inquiry, and (b) a third party should not need to be present while the student uses the computer.

The generation of a case is by no means simple; it requires several days of work to eliminate any inconsistencies. Harless, et.al.[2] states that the computer must exhibit accessibility and cohesiveness. This simply means that the case must contain enough information to make the diagnosis possible, the information must be accessible, and the information must be self-consistent.

Our experience with OpDoc to date indicates a good degree of student acceptance and enthusiasm. Harless, et.al.[2] found a high degree of student enthusiasm, while Friedman[5] concluded that the computer simulation of a clinical encounter provides the student with a realistic patient encounter. It simultaneously provides the student with the need to plan his work-up and utilize clinical judgement. deDombal, et.al.[3], [4], had poor results withtheir computer simulation systems, though their program lacked a high degree of sophistication.

How OpDoc Works

The computer assumes the role of a patient with the student as the optometrist. The student picks a case, by number, with the aim of performing clinical tests and asking pertinent questions culminating in a (correct) diagnosis. The computer gives the student a case description including some sociological information about the patient and the patient's chief

complaint. The student has several "modes" which he or she can utilize in working up the case. These modes are: list, test, history, and diagnosis. The list mode provides the student with a list of all tests and case history questions that are answerable by the patient (computer). This list contains relevant and irrelevant items, so it does not guide the student to the proper tests or questions.

The test mode contains information about the results of optometric tests as if those tests were run on the patient. The student requests the information by naming the test that he or she would like to run. For example, the student can say tonometry and the computer will reply: result of test tonometry: OD 16mm Hg, OS 15mm Hg, 1:35 PM, Goldmann. This section usually contains upward from 20 tests for each case.

The history mode contains information about the patient's (computer) chief complaint or general history. The information is obtained by asking the computer a simply coded question. If one wishes to ask a question about the chief complaint, one types "C" (for chief complaint and the question in a few key words. For example, "G family history" is the code which asks the patient (computer) a question in the general history category. More specifically it asks about the patient's family history and any diseases present in that family. "C how long" is the code asking how long the patient has been experiencing his or her chief complaint.

The use of coded questions is for ease of programming the computer and is not an inherent limitation of computer aided instruction. Medical diagnosis programs have been developed which respond to normal language usage. The computer could be programmed to understand questions such as: "How long have you had these symptoms?

The diagnosis mode allows the student to diagnose the cause of the chief complaint and receive feedback about that diagnosis. If the diagnosis is correct, the student is told so. In addition, the computer informs the student as to the number of history questions asked, the number of tests run, and the cost to the patient. The last piece of information can be in the form of number of points to be charged under the relative value system or by assigning a dollar value to each test.

Optometric Applications of Computer Aided Instruction

We encourage the incorporation of computer aided instruction into the clinical training of optometry students. It provides the students with expanded clinical experiences and it allows the educator to determine the nature of those clinical experiences. Furthermore, computer aided instruction allows the educator to monitor the clinical judgement of each student clinician and to offer assistance in specific areas where the student is deemed deficient.

Computers provide a means for exploring the process of optometric diagnosis. By comparing the manner in which experienced clinicians approach a case with the manner in which new, inexperienced clinicians approach the same case, we could determine whether a specific process is involved. If so, an attempt could be made to define or delineate the process. Once the process is defined, more intelligent educational methods can be developed. Computers provide the educator with a tool for evaluating his or her teaching impact and for defining any process that may be involved in the acquisition of clinical judgement.

OpDoc is the first step toward a realistic system of computer aided instruction. It was implemented on a test basis and the student involvement indicates a positive response to this type of instruction.

Summary

A description of a computer-simulated encounter between patient and optometrist is presented. A discussion of the generation of such a system is presented. The uses of OpDoc are: (a) to simulate clinical encounters with patients, (b) to enhance the optometric students' clinical experiences, and (c) to study the process involved in the acquisition of clinical judgement. We strongly favor continued use and development of computer aided instruction.

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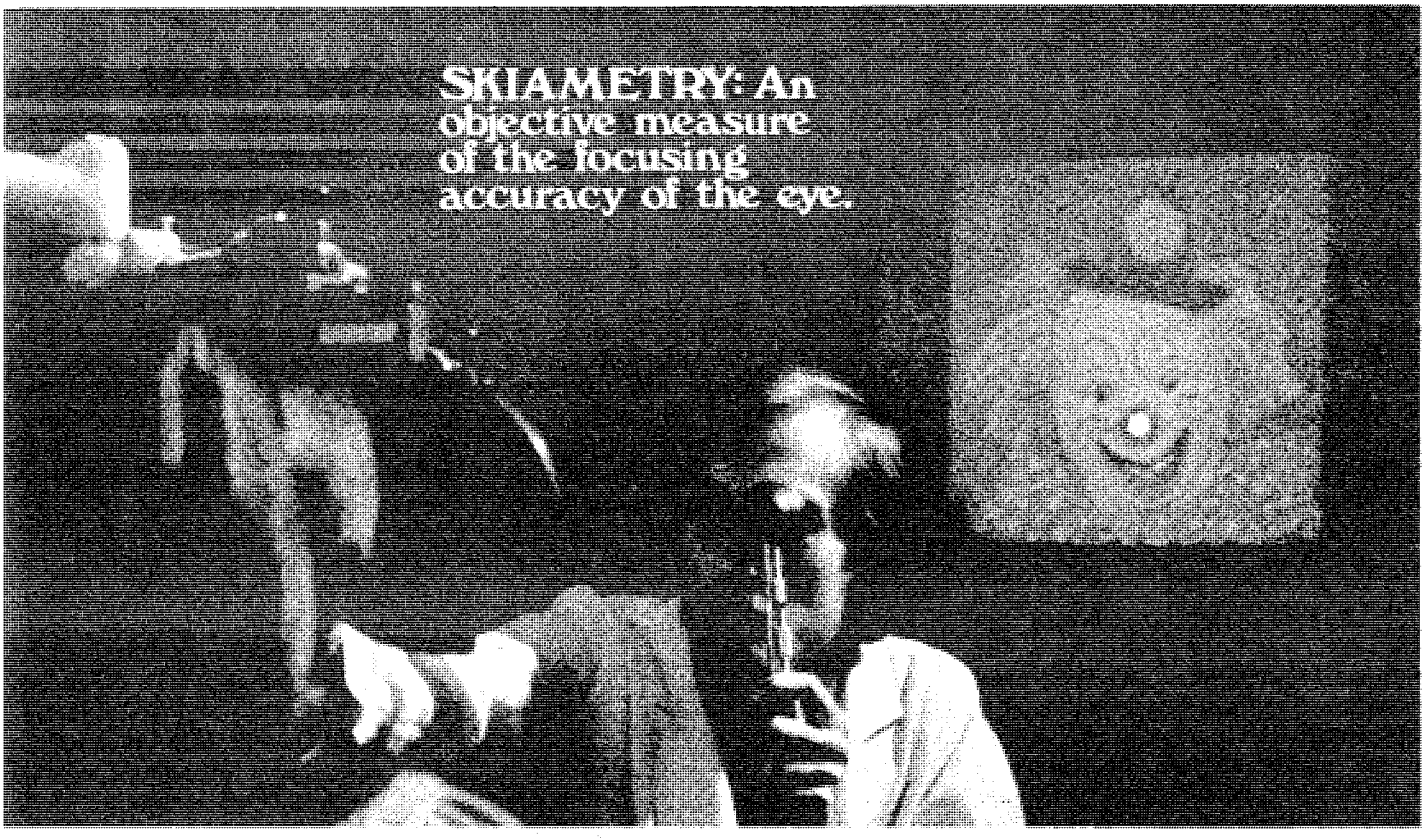
**The computer utilized in this research was supported in part by a grant from the National Science Institute.*



JOE: A Reflective Medium Focusing On Optometric Education.

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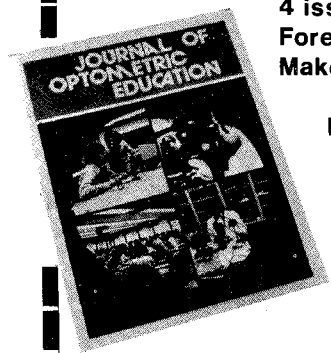

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Updating OCAT

The previous issue of the *Journal of Optometric Education* (Vol.2,No.1,Spring 1976) carried an article by Dr. Mildred E. Katzell, entitled "Characteristics of OCAT Applicants." This issue of the Journal updates some of the information contained in that article by analyzing major trends over the five years the test has been administered to an ever-increasing number of prospective applicants.

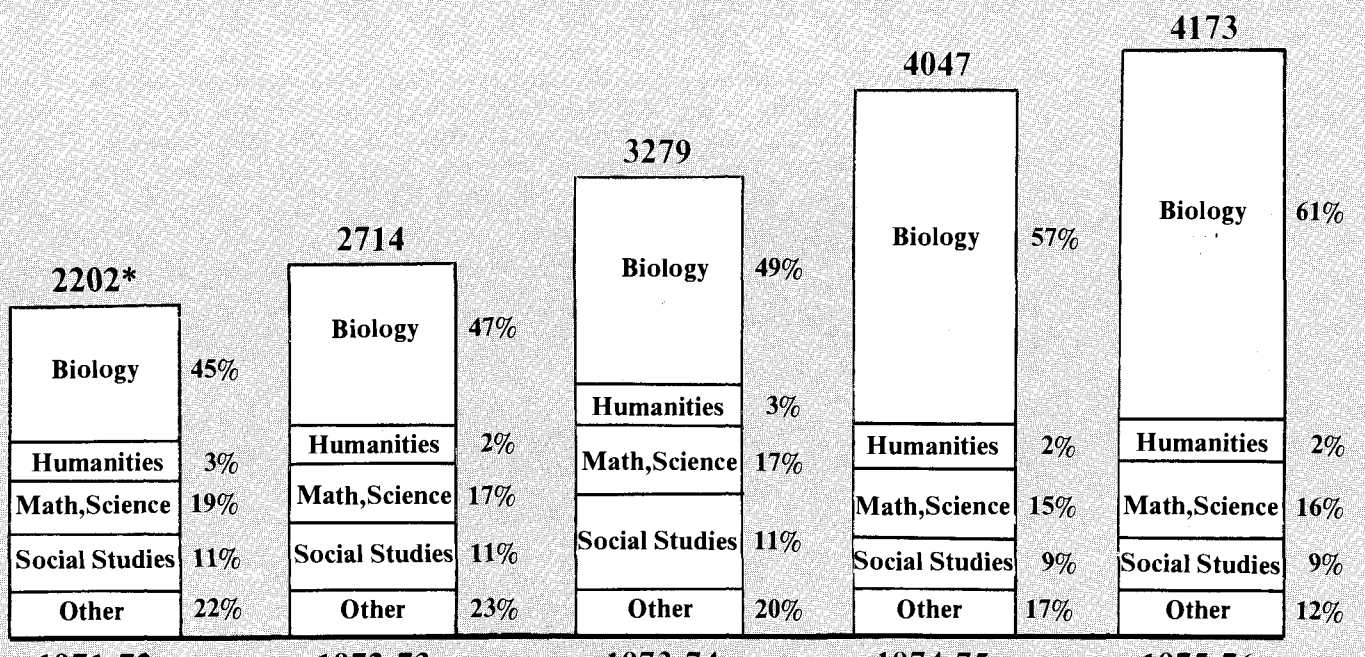
While no dramatic changes are apparent from the statistics in the following graphs on OCAT applicants, several well-defined long term trends are observable. The first is a steady increase in the number of female applicants. In the past three years alone the percentage of women taking the OCAT has doubled.

A second significant trend is the tendency of the applicants to be further along in their college program at the time of their OCAT examination. In 1975-76, more seniors took the test than freshmen, sophomore and juniors combined. Interestingly, the percentage of graduate students was lower than 1971-72 and 72-73, although it has risen 1% over last year's results.

The last year's OCAT witnessed the continued increase in number and percent of applicants who listed biology as their undergraduate college major. Growth in this category has been significant, showing a 12% increase in the last two years. The Humanities, Math, Science and Social Studies have all experienced a slight decrease as undergraduate majors for OCAT applicants, however that decline does not correspond to the trend toward Biology. Actually, the category known as "Other Major" suffered the most significant setbacks, dropping by 10% over the past five years.

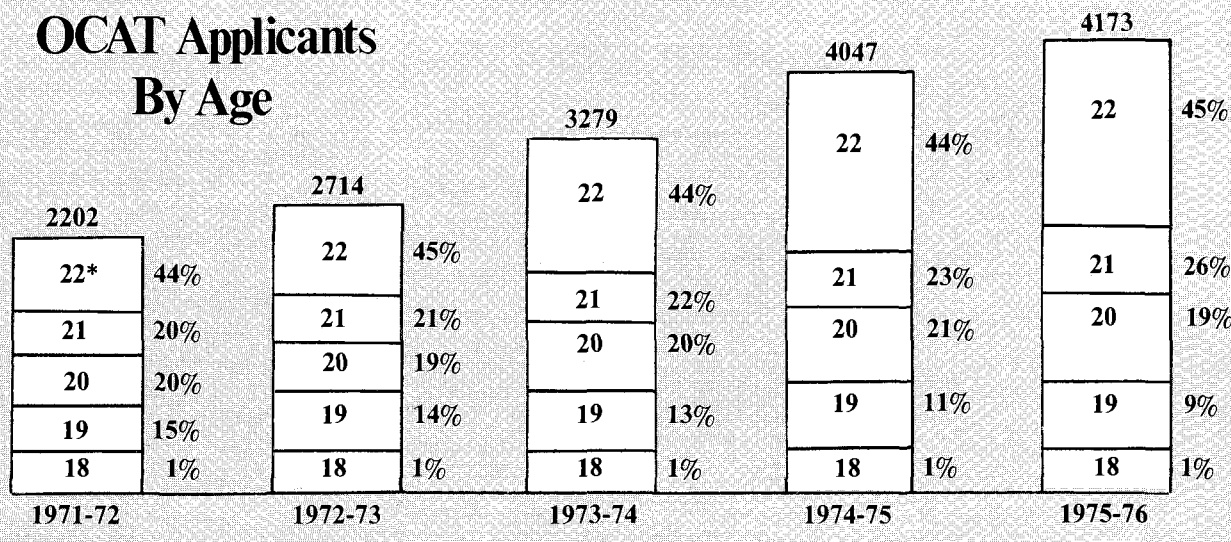
Geographically, the OCAT applicants are well distributed in proportion to the general population, except for the greater concentration on the eastern coast of the United States. Regional distribution of applicants has not varied significantly since 1971. Detailed information is available through the ASCO National office in Washington.

OCAT Applicants By Undergraduate Major



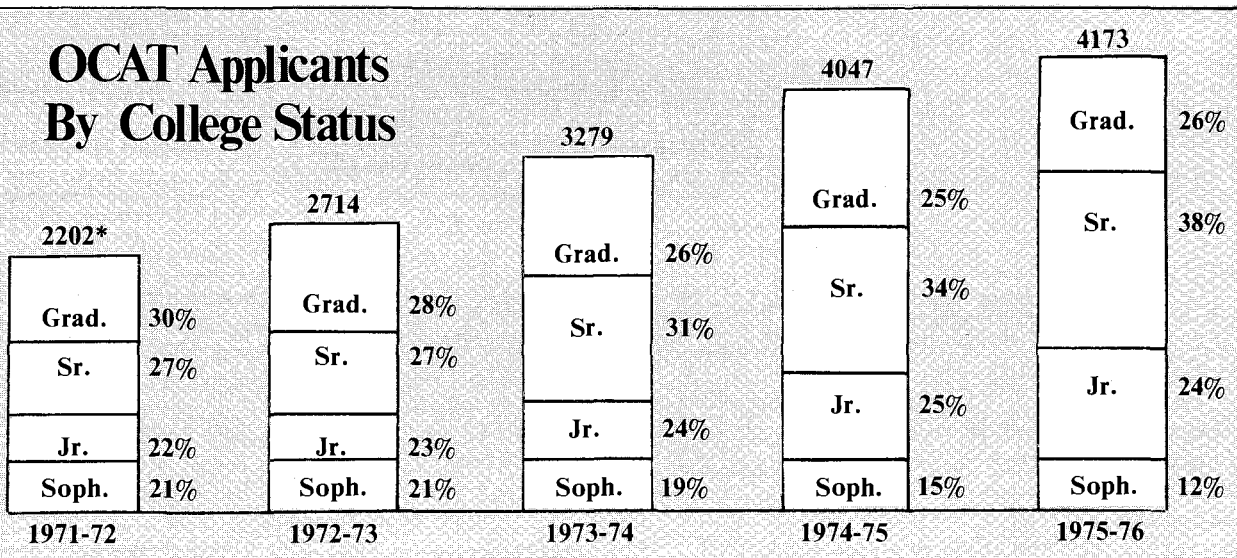
*Total Number of applicants

OCAT Applicants By Age



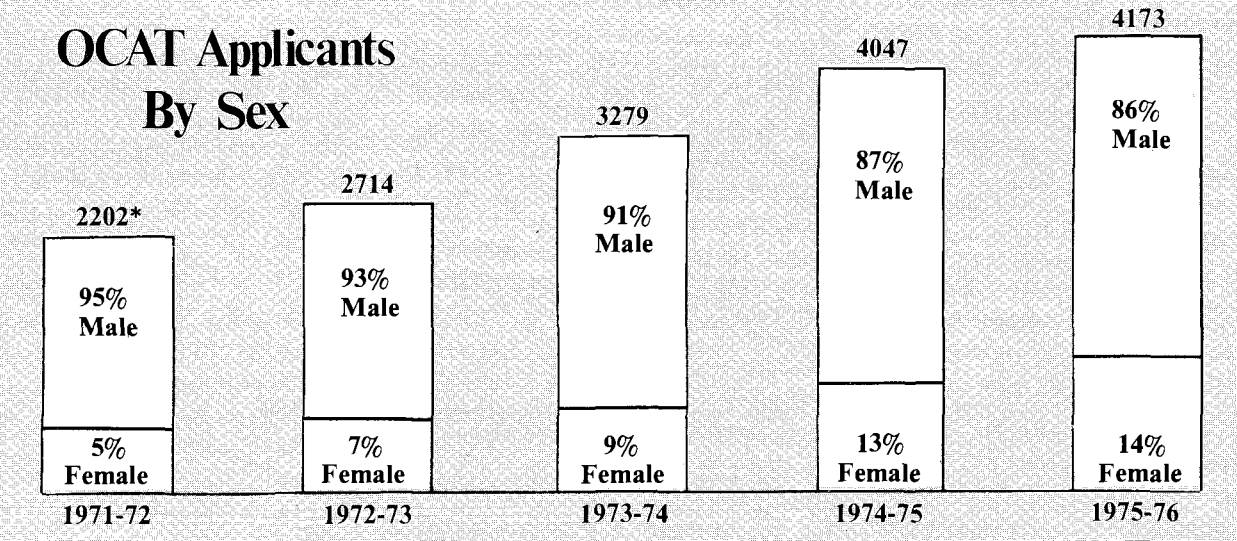
*For 1971-1973, all applicants aged 22 or over were grouped together.

OCAT Applicants By College Status



*Total Number of applicants

OCAT Applicants By Sex



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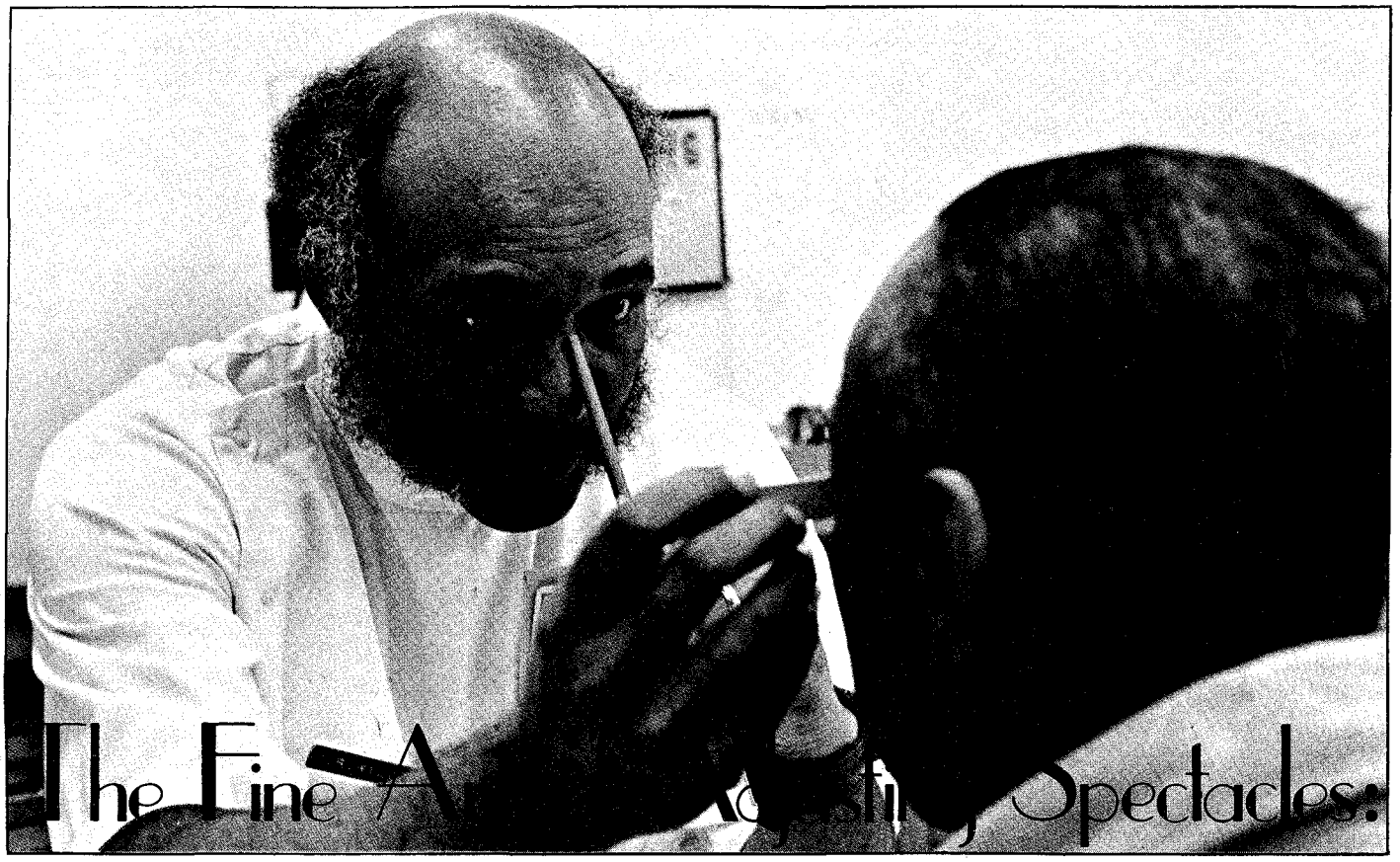

Photos by Bruce Reedy

The Fine Art of Fitting Spectacles: Teaching and Learning It

Editor's Comment: The following article represents in a very significant way a transition which is occurring in optometry and the different attitudes which frequently accompany such far reaching changes. Some members of the Journal's Editorial Board expressed concern about the possible contradiction between the subject matter of this article and current trends in optometric education. The reaction of the reviewers truly demonstrates the shift in optometry's attitude from that of supplying complete care to one of providing only professional services.

In its drive towards professionalism, optometry has decided that fitting and dispensing are technical aspects and are to be delegated. At least one college has reported that ophthalmic optics and dispensing have been made electives in its curriculum. How many other colleges have taken this position are unknown to the editor at this time.

Thus we can see that optometric education is moving to reduce or eliminate instruction on fabrication, fitting, and dispensing of spectacles from the curriculum. Another aspect of the transition is optometry's struggle with commercialism which has stimulated a move to remove materials from the optometric office. The consequence of this change surely would be the elimination of fitting and dispensing from the curriculum.

On the other hand, optometry's wide geographical distribution which is not paralleled at present by a similar distribution of dispensaries is provided as the reason why there is a continued need to teach the knowledge and skills required in the art of fitting and dispensing.

Dr. Kors certainly makes a good case for the problems involved and the difficulty of teaching the knowledge and skills associated with quality fitting and dispensing. In fact, Dr. Kors goes so far as to suggest that the present quality of fitting and dispensing leaves much to be desired.

By Kermit Kors

Ask any successful optometrist about the importance of adjusting spectacles and how it relates to patient satisfaction and practice building. You may be surprised that this simple semi-technical skill is rated on a par with other services requiring the utmost of the doctor's professional skill and knowledge and judgment.

This is not to say that adjusting a frame so that it holds the lenses in proper optical alignment and is also comfortable is any more or less important than, for example, eliminating severe symptoms with a proper iseikonic lens prescription or simply prescribing minus lenses to correct a myope from 20|200 to 20|20. A chain is no stronger than its weakest link, and this is the analogy that places the adjusting of spectacles in proper perspective with other professional skills and knowledge.

Important as this skill is known to be, however, the degree to which it is possessed and practiced by men in the field varies greatly. (Even though the average optometrist will tell you that his skill at adjusting is considerably above average.) All of which suggests that some critical appraisal should be made of how adjusting is taught, or might be taught, and perhaps more importantly how it is learned in our schools and colleges of optometry and perhaps even continuing education courses.

The purpose of this paper is to examine philosophically the technical

nature of the skill and how it may best be taught by teacher and learned by student in a formal presentation of the material. Much of the skill must ultimately be acquired over a period of time through practice and observation. Men with truly superior adjusting skills, for the most part, have had to teach themselves. They must also have had the initial advantage of truly superior mechanical aptitude. Further consideration is given to the optimum amount of time that should be devoted to the teaching of this subject and also where the formal teaching should end and the self teaching begin.

Sometimes the question is asked, "Is this subject material more appropriate to a trade school than to a University curriculum?" This writer believes that the subject must be taught and taught well because it is essential.

For the purpose of this paper it is convenient to divide the teaching/learning sequence for adjusting spectacles into three phases:

Phase I: The initial teaching/learning of mechanical principles, i.e., what holds the frame on, what makes it comfortable or uncomfortable, how to use the hands and/or tools to make adjustments, etc.

Phase II: Teaching/learning through application of mechanical principles on patients and through observation of the techniques of others.

Phase III: Self-teaching on one's own patients in one's own practice.

Phase I can clearly be taught as a laboratory course in which the instructor demonstrates broad principles and techniques and the student duplicates them. If the student has had some bench work experience in the ophthalmic optics laboratory, and this should be a pre-requisite, he will already be able to use his fingers and hand tools to mount lenses and to make preliminary adjustments of the frames. In the laboratory, these adjustments can first be illustrated on the blackboard by means of line drawings. The actual technique of making the adjustment with fingers or tools can then be demonstrated by the instructor and duplicated by each student. These line drawings should help answer the question "why adjust spectacles?" by showing how they may be made to 1.) stay on the patient's face, 2.) in a position that is comfortable and 3.) provides optimum optical performance.

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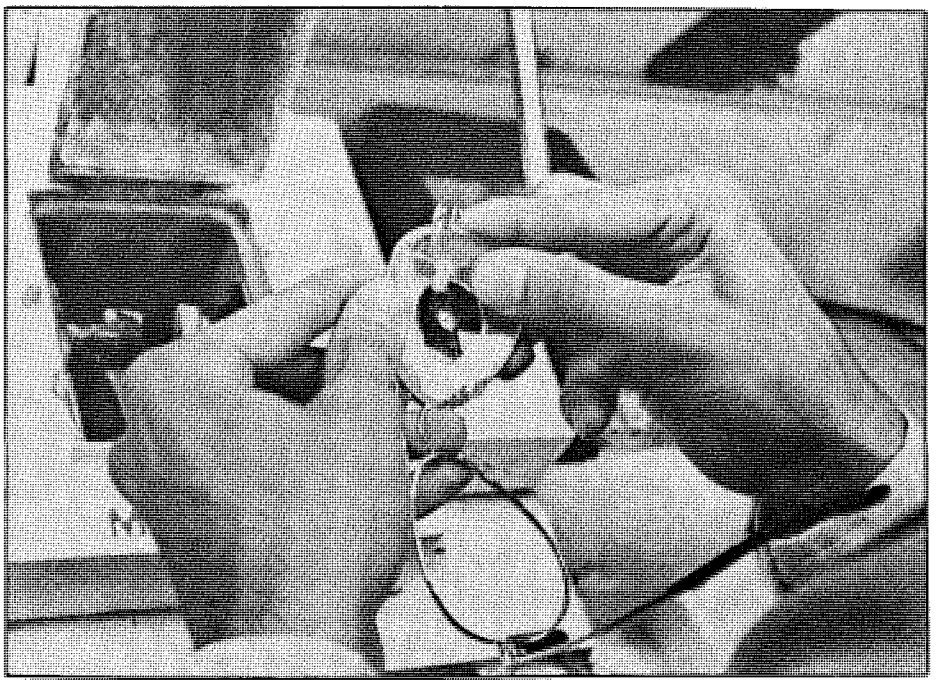


During the teaching/learning process that occurs in Phase I, the student is looking forward to his first contact with a patient. Students can never be completely prepared psychologically for this contact. But they can be reassured, first of all that their training is adequate, and secondly that they will have adequate professional back up when they begin to work with patients. Principles of patient control are discussed in Phase I. In a manner of speaking, there is more teaching than there is learning in Phase I.

Phase II involves learning through actual application of the mechanical principles taught in Phase I. The essential element of Phase II is that patients are involved and their satisfaction with results is required. Students must understand that Phase II, unlike Phase I, involves more learning than it does teaching, meaning that students have a responsibility for teaching themselves as they work with their patients.

Students must be given adequate professional back up. They can learn a great deal from listening to the patient's compliants of tightness, looseness, discomfort, distortion, blurred vision, etc. and watching an experienced adjuster interpret these complaints and correct them.

Patient control is learned in Phase II principally through observation and practice although it can and should also be taught by the instructor on a one-to-one basis.

Phase III is where the real learning of the fine art of adjusting is most likely to occur. In most situations the student will have graduated and will be working in his own practice or in association with another optometrist. The graduate will be highly motivated to please patients and in addition will feel the full weight of responsibility for results—good or bad.

Self-teaching is important here. As a matter of fact almost *all* learning in Phase III is the result of self-teaching. The graduate will learn how *not* to adjust frames by observing the way other optometrists have adjusted a patient's spectacles and listening to the patient's complaints. He or she will also learn from those patients who return for subsequent adjustments. If the graduate is fortunate enough to be associated in practice with a skilled adjuster, he may also learn many subtleties of the art from observation.

The attitude of the student should be, throughout his period of learning in school and extending on into private practice, one of striving for perfection with each adjustment for each patient.

The student's self-confidence, lack of it, or need for it, is crucial to the successful teaching of this skill. Factors affecting self-confidence must be recognized and dealt with appropriately. It is paradoxical that students do at times make the most difficult professional decisions with regard to matters affecting the patient's visual condition with what seems like reckless abandon. These same students, placed in a position where they need only adjust a patient's spectacles, may lose this brash self-confidence and regress to the pre-sophomore level. The initial lack of self-confidence, before contact with clinic patients, is quite normal and should be expected since students have a tendency to fear the

unknown. If this lack of self-confidence persists into the period when students are working with patients the problem may be neither a lack of skill nor fear of the unknown. These students should be given special instruction in the psychology of patient control.

It is also helpful if students—and instructors—understand that any successful fitting or adjustment of spectacles is achieved through a series of approximations. There will most likely be several trips from the fitting table—where an assessment is made of the fit of the frame—to the laboratory work bench—where adjustments are made out of sight of the patient and then back to the fitting table for reassessment. The fit of the frame will (or should) improve with each adjustment. Eventually the spectacles will fit well enough for the patient to wear them out of the office.

Then there is the concept of the two-hour adjustment, meaning that the frame fits well enough that the patient will wear it out of the office and will be able to tolerate the spectacles without discomfort for two hours. As the student's skill increases he will be making twenty-four hour, thirty-six hour and occasionally forty-eight hour adjustments with increasing frequency. If a patient can tolerate a frame for seventy-two hours he's over the hump and won't need further adjusting until he sits on them, breaks a lens or otherwise mistreats them.

Other Considerations
Physical Fit vs. Optical Fit

Adjusting spectacles is sometimes considered to be a part of "Ophthalmic Optics" or "Mechanical Optics." If the skill and art of adjusting spectacles is taught as part of the Ophthalmic Optics Laboratory it is not so much because there is similarity of subject material as it is for convenience.

Consider: 1.) Frames with lenses mounted in them are available or can be made available as part of a related laboratory exercise (otherwise frames with lenses would have to be purchased at a prohibitive and unjustifiable cost). 2.) The same hand tools and equipment are used in both instances and are available in the ophthalmic optics laboratory. 3.) The instructor who teaches "Ophthalmic Optics" or "Mechanical Optics" will probably also be qualified to teach adjusting.

There are more differences in course subject material, however, than there are similarities and if adjusting spectacles is expanded to include frame selection, with aspects of styling and merchandising, the differences become even more obvious. This author would prefer to place frame adjusting in some special distinct classification, or sub-classification, such as "Ophthalmic Dispensing" even though it may be taught as part of an ophthalmic optics laboratory course.

There are differences, of course, between physical fit and optical fit and both must be considered when adjusting spectacles. The purely mechanical aspects of the art are much more difficult to teach and to learn and to apply than are the few relevant principles of ophthalmic optics, which constitute a very small portion of that overall subject area.

Merril J. Allen has summed up very succinctly the optical principles that apply to frame adjusting. (This reference is worth reading and perhaps re-reading.) His thesis is essentially that the optic axis of each lens should be made to coincide with the corresponding visual axis of the patient. This is illustrated eloquently with several excellent, easily understood diagrams. Intelligent application of these principles will solve more patients' complaints than any amount of tinkering with base curves, putting in prism, taking out prism, etc.

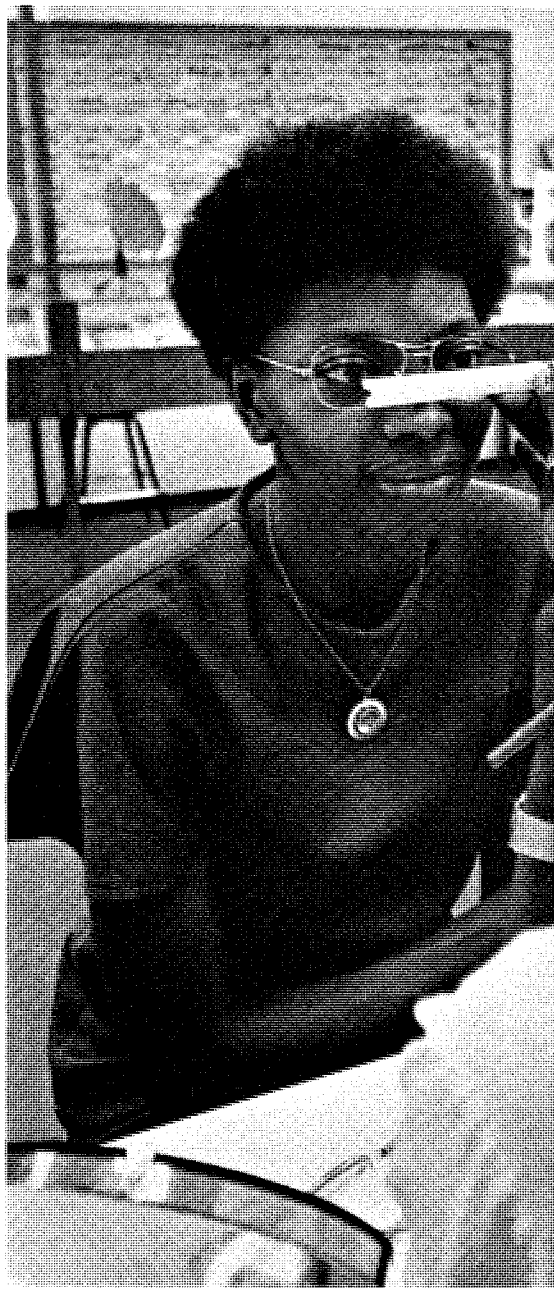
In connection with this, students should be taught to deliver spectacles and to adjust spectacles, particularly high plus or high minus Rx's in the vision examination room. Aside from the psychological advantages, which are formidable, it is possible to optimize the optical position of the lenses in front of the eyes while the patient is looking at an acuity chart and reporting subjectively the position that serves him best. This technique also enables the optometric assistant to apply principles of ophthalmic optics to the adjusting procedure without necessarily understanding them.

Frame Selection vs.
Frame Adjusting

Any course in frame *adjusting* must surely include a list of criteria for a properly fitting frame. It should be emphasized that the same criteria can be applied at the time the frame is initially selected. Indeed, the better the initial job of frame selection the less the amount of subsequent adjusting that must be done. Many of the frustrations experienced while adjusting a patient's spectacles could have been avoided with a little more care and patient control during frame selection.

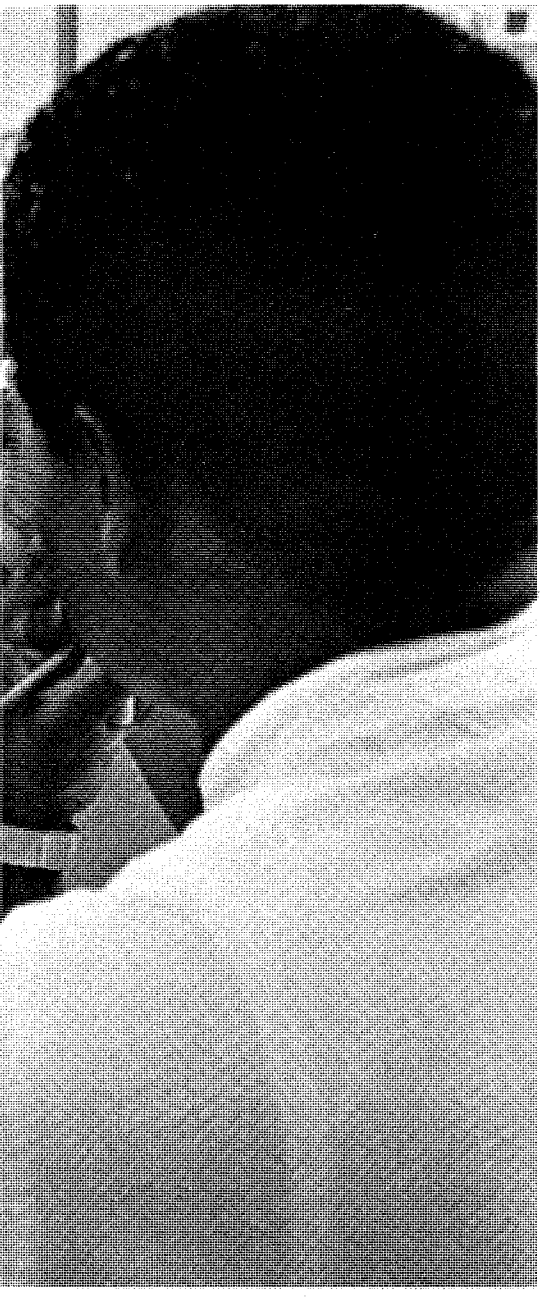
Adjusting by Optometrist
vs. Adjusting by Assistant

Optometrists must learn to adjust spectacles, even though this work may be done by an assistant, for the following



reasons: 1) most optometrists will begin their professional careers doing the adjusting themselves, 2) the optometrist may have to train the assistant, partially if not completely, 3) the optometrist is *responsible* even though the doctor may delegate the duty to an assistant and 4) the optometrist should be able to recognize complaints that arise from improper fitting and adjusting and to differentiate them from complaints requiring prescription changes or other, perhaps more serious, optometric or medical procedures.

It should be noted, at this point, that poor adjusting by an assistant might be better tolerated by the patient than poor adjusting by the optometrist, and therefore less harmful to the growth of the practice, although either situation would be deplorable.



Positive Attitude vs. Domination

Students should be taught to listen to the *patient's* evaluation of the fit of the frame and to ask for it when it is not immediately offered.

Some practitioners will make an adjustment to a frame, put it on the patient's face and say, "That's better, isn't it?" The patient is technically free, of course, to respond with either a "yes" or a "no". If the doctor's personality is stronger than that of the patient, however, there may be an unwonted element of domination, or what used to be called Mesmerism, affecting the response.

Students should be taught to ask, "How does this feel now?" hoping to elicit a spontaneous, unstructured positive reply. If the adjustment is correct, it's much better to have the patient say so in his own words and allow the patient to be further convinced by his own testimony. If further adjustment is required it's also much better to hear *that* from the patient, than to have a meek patient walk out feeling dominated and wearing a frame that he knows doesn't fit. If the patient can't respond either way the student can be taught to probe with, "Do the glasses feel too tight, or too loose? Do they pinch? Are they going to slide down your nose?" and then follow, if need be, with the positive and constructive, "They look like they fit well to me. They should be satisfactory now. Try them a few days and see how they "wear." If they require further adjustment phone for an appointment."

Professional Attitude and Practice Building

Optometrists should accept the responsibility of doing the best they can for each patient who comes in their office. Just doing the best job for each patient, however, is not enough to build a practice unless the patient knows, and is thoroughly convinced, that the optometrist has performed his services very well and very conscientiously.

What we are talking about is professional attitude and behavior - helping the patient understand that a valuable service has been rendered in a professional manner. Optometry students should be made to understand, and see in proper perspective, the value of professionalism in their frame selection, dispensing and adjusting procedures.

Little things can be important:

1.) Handling the frame and lens with the obvious care that an optical device, scientifically designed and made with precision, deserves.

2.) Carefully cleaning the lenses and frames before placing them on the patient's face.

3.) Cooling the frame before placing it on the patient's face. Cool frames "feel better already?" and an unexpectedly warm frame, that causes a patient to jump, is a very bad mark against the optometrist.

4.) Tightening a loose rivet.

5.) Lubricating a loose or tight hinge with hot beeswax to make it open and close like the door of an expensive car.

6.) Replacing a worn screw before it causes trouble.

A word about the quality of the lenses or frame is no more than endorsement of the manufacturer than it is a self-endorsement of the optometrist who cares enough to provide his patients with the best. Patients do appreciate this and they have no way of knowing unless they are told.

There are many other legitimate ways in which the red carpet can be rolled out for patients without wasting valuable office time or otherwise increasing the doctor's overhead. Most patients can sense professional care in the doctor's attitude. This need not be left to chance, however, it can be verbalized and since this is more direct will probably be more effective. Students can, and should, be taught these principles and techniques.

Optimum Time for Teaching Adjusting

The optimum time for teaching adjusting can be stated only in terms of the factors affecting it. It does not take a great deal of time to teach the basic techniques. To teach proficiency in these techniques may take much longer if, indeed, it can be taught at all.

The requirements of the school clinic in which the student is enrolled must also be considered. If the student has adequate professional back-up, the amount of formal pre-clinic teaching required will be less. If the clinic requires relatively more proficiency of entering students, then the school administration must be prepared to spend relatively more time in their pre-clinic training. Students do not learn adjusting with one exposure. As in other teaching, we are dealing with residuals. We can only try to reduce the number of residuals with each exposure to the material until finally we are teaching on a tutorial basis. Quality of the teaching program should be judged by the successful students as well as by the more "visible" residuals.

Ideally, teaching by a teacher should end where self-teaching, by the student, begins. Some allowance must be made for natural overlapping of the teaching/learning experience as well as for natural differnces in mechanical aptitude and insight among students.

The attitude of the student is perhaps the most important consideration of all. Students with a little humility and a lot of self-confidence with patients, who recognize their own role of self-teaching in the teaching/learning process, will learn in much less time, and with much less "teacher teaching" than those who have been allowed to believe that the material can be spoon fed to them and who then wait for that to happen. It is beneficial to explain to students, in the beginning, how they must go about *learning* the *FINE ART OF ADJUSTING SPECTACLES.*

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Searching for a Dean: The Process

By John B. Siegfried
and
Anthony F. DiStefano

The search for a Dean of Academic Affairs is one of the most crucial processes confronting academic institutions today. While this is true for all educational institutions, it is especially true for small, young, and evolving professions such as optometry, whose educational institutions play a critical role in determining its future. Within the overall academic leadership role that the schools and colleges of optometry play, the Dean of Academic Affairs has a vital influence on the direction of the Institution, and on its academic successes and failures. Consequently, the decision to select a Dean of Academic Affairs requires effective procedures for the recruitment, screening, and nomination of candidates. These procedures should be accountable to the entire academic community, and to this end should involve some combination of the faculty, students, alumni, trustees and administration.

The objective of this article is to outline the Dean Search process recently employed at the Pennsylvania College of Optometry and to offer suggestions and guidelines to other institutions who are contemplating such a search. The outline is structured procedurally and includes the formation of a Search Committee, the organizational tasks of the Committee, the nature of communications with applicants and candidates, and the actual screening process. In addition, the interviewing process is discussed and an "Interviewer Rating Sheet" is presented (Fig. 1). The applicability of the procedures to a wide variety of institutional conditions is also discussed, particularly with respect to affirmative action and equal opportunity provisions. It is hoped that institutions considering a search for a new Dean of Academic Affairs will find these guidelines helpful and be spared much of the time, effort, and expense that has accompanied some of the trial and error learning that has taken place in the past.

Too often, the President or Vice-President of an institution has directly appointed the Dean of Academic Affairs. This approach has sometimes left members of the campus community feeling deprived of involvement in a decision that was justifiably perceived as directly affecting their future. Since this approach is generally not favored in academic communities, other alternatives to the search process have been sought. A broadly based Search Committee has evolved as the most useful strategy to fill vacancies that occur within an institution: The establishment of a Search Committee implies that an outside person is being sought for the position, and can adversely affect institutional loyalty and morale, especially if there is an internal candidate for the position. Although this may initially be seen as a negative effect of the search process, once the Committee has conducted an honest and thorough search the advantages will be obvious to both internal and external candidates, as well as to the academic community as a whole.

The first step in the search process, therefore, is the formation of the Search Committee. In order to accomplish this, several questions must be answered. These include how the Search Committee is to be structured, who and how many will serve on the Committee, what groups will be represented on the Committee, and how their selection will be made? While these questions may be answered differently depending upon the particular institution, the following is the approach which was used at the Pennsylvania College of Optometry:

The President of the Institution formally appointed the Search Committee, named its chairperson, and selected the Committee members based upon their demonstrated concern for the College, their understanding of the role of Optometry for the future, and their willingness to express an opinion and substantiate it with solid arguments. The Committee, composed of ten members, included three students and seven faculty members, three of whom also held administrative positions. Included among the three students was the President of the Student Council. At PCO this working group of ten people was found to be an effective size, however, in some cases, alternative modes for the appointment of the Committee must be developed depending on the requirements of the Institution.

Once the Search Committee was officially established, the President of the Institution formally charged its members. His charge included a specific time schedule, the number of final candidates that should be tendered to the President, the financial resources available to the Committee, the administrative concerns during the search process, and the discretion that should be used during the process. The operating time table ran a comfortable six months, beginning on the first week of September with the official establishment of the Search Committee and terminating on the first week of March with the Committee's nominations being forwarded to the President of the Institution. Scheduling a specific decision date was very important to the activities of the Committee, as it determined the operating time table required to complete specific tasks. The Search Committee was expected to transmit the names of a maximum three qualified candidates to the President. Sufficient financial resources were budgeted to allow for candidate and committee member expenses incurred during the search process, and the posting and advertising of the announcements for the position. The President of the Institution attended the first meeting of the Search Committee and formally expressed administrative concerns regarding the Committee's task. The following are the major points which were emphasized:

1. Members of the Committee had been specifically selected because of their ability to say what they think, and to debate and argue on a variety of points of view;

2. Proceedings of meetings must be

held in strictest confidence; moreover, every effort should be made to ensure that *no* candidate knows who the other candidates are; not even the person who is ultimately selected should know who the other candidates were; very accurate minutes must be kept;

3. The Committee members were encouraged to read the *Selecting of Academic Administrators: The Search Committee* (Kaplowitz, 1973);

4. Desirable attributes of the person to be selected were discussed:

(a) he or she must be associated with Optometry and have demonstrated academic excellence in professional education;

(b) he or she must have experienced graduate education at some level in addition to the optometric curriculum;

(c) he or she must have some experience in administration of either educational programs or some form of health delivery system;

(d) he or she must have a good attitude toward excellence in teaching, and the techniques and methodologies available; and most importantly;

(e) he or she must have a flexible approach toward the future of the profession.

5. A list of the potential candidates was suggested for the Committee's initial search;

6. The fact that a Dean of Academic Affairs in a private independent Institution has a significantly different role to play than his counterpart in a University was discussed.

The Search Process

The Committee met for many hours during the Fall Semester in order to refine the definition of the task which it was about to undertake and to formulate in its own mind the characteristics of a well qualified applicant. Ways of advertising the position were discussed, i.e., in which journals to place advertisements and how most effectively to ensure that all possible candidates were made aware of the position. Postable announcements were sent to all the Schools and Colleges of Optometry, local, state and national organizations, and also to certain individuals whom it was felt would be promising candidates for the position. Problems of affirmative action—equal opportunity were discussed and were met by advertising in the *Affirmative Action Register,* and in general, advertising the position as widely as possible. The importance of keeping careful minutes of Committee deliberations was emphasized, with special care given the setting down of specific reasons why certain candidates were *not* selected. Much time was spent in preparing a job description, which while being specific, would not be too narrow. Deadline for application was determined to be the first of January, and therefore, the Search Committee did not actively review applications until that time. Letters were sent thanking applicants for sending *Curriculum Vitae* and supporting materials. Once the deadline had been reached, preliminary screening was begun. This consisted of a round of meetings of the Search Committee to evaluate applicants in terms of their paper credentials. At this time, the Committee was looking primarily at *Curriculum Vitae* in order to reject the applicants whose credentials were clearly inappropriate.

After the Committee had finished this first phase of the screening process, requests were sent for letters of reference for those candidates remaining in the pool. Upon receipt of all the remaining credentials, Committee members ranked the candidates. Those individual rankings were then pooled, and candidates were placed in an overall order. It had been decided that the budget would allow the invitation of six candidates for an interview (together with their spouse, if they chose). The top six ranked candidates were invited at a rate of approximately one per week. All candidates went through precisely the same interview schedule which was designed to be a very busy experience. The philosophy behind the interview schedule was that every group and individual in the College community should have a chance to see and/or interview each candidate. To that end, each candidate was asked to arrive by noon on Wednesday and to spend Wednesday afternoon interviewing with the Search Committee and with a small group of student representatives. Wednesday evening was given over to a colloquium for which the candidate was invited to speak on a topic of his choice. This was the one event to which everyone in the College community was invited; faculty, administration, students, alumni, and board members. Thursday, the candidate interviewed with each of the five divisions of the College, and Thursday evening he attended a social with the Search Committee and selected guests. Friday morning, the candidate met with the President, the Dean of Student Affairs, and once again, finally, with the Search Committee.

Before departing Friday afternoon, several candidates commented upon the tediousness of the interview schedule; however, it was our feeling that tight scheduling was necessary in order to accomplish our goals within a reasonable period of time, and within a reasonable budget. Rating instruments (Fig. 1) were given to every member of the faculty and student body who participated in interviewing the candidates. These were turned in to the Search Committee as aids in making decisions. Finally, the Search Committee individually rated the six candidates as a result of the interviews, using the instrument shown in Fig. 1. Based on the ratings, candidates were rank ordered. The outcome was clear, and the Committee submitted a list of acceptable candidates to the President. The President reviewed the credentials of these final candidates, and selected one for submission to the Board of Trustees of the College for its approval.

Had the President not accepted any of the final candidates submitted by the Committee, a meeting of the Committee and the President would have been arranged to discuss the nature of the refusal. If no consensus was reached at this meeting regarding the final candidate, the Committee would have had to continue the search process. This possibility was precluded during the Pennsylvania College of Optometry search by the Committee keeping the President informed of the progress and direction of the search.

Conclusion:

At the Pennsylvania College of Optometry the outcome of the search for a Dean of Academic Affairs was a success, utilizing a Search Committee. In addition to the obvious advantage of assuring the nomination of the most qualified individual for the position, the search process previously outlined had several other merits:

1. It provided an opportunity for the entire academic community to evaluate the final candidates and to have meaningful input into the nomination process. Needless to say, involving these people in the actual decision making process will encourage greater acceptance of the decision and its implications.

2. It educated the academic community, especially faculty and students, to the importance of the position of

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Dean of Academic Affairs, and its proper role and impact on the direction of the Institution.

3. It stimulated students, faculty, and administration to collectively reflect on some of the problems within the Institution and on the role of the Dean of Academic Affairs in attacking and resolving these problems. It was a fascinating experience to observe the mental energy that was generated within the Institution during each interview cycle. A unique opportunity was provided for the Institution to take a hard look at itself, its expectations, and its relationship to the position of Dean of Academic Affairs.

4. It provided an opportunity for the Institution to receive expert opinion from outside evaluators, in the persons of the candidates themselves. This benefit was not recognized early, but became apparent as the interview cycles proceeded. Each candidate brought into the Institution his own background and perspective on optometric education and in fact acted as a mirror for some of our Institution's pluses and minuses.

5. The search process gave each candidate a unique opportunity to review and evaluate all aspects of the academic community.

6. Assuming that the process would yield a successful candidate, the search served as an ideal orientation for both the successful candidate and the academic community to each other. Usually when a new Dean of Academic Affairs comes to an Institution, he requires several weeks and possibly months to become oriented to the new environment. The search process minimizes the amount of transition time required for the new Dean, inasmuch as he or she will have already been exposed to many of the key people within the Institution.

Given all the above advantages of the search process, it is highly recommended to other Institutions seeking a Dean of Academic Affairs, or for that matter any other administrative or quasi-administrative position. For example, the process can be utilized in searching for a Dean of Student Afairs, a President of the Institution, key departmental or divisional directors, etc. Thus the process has a wide variety of institutional applications. At a time when the profession needs the most capable leadership available, it is imperative that the selection of these leaders be conducted in the most intensive, honest, and accountable process possible.

Interviewer Rating Sheet

Each of the items below deals with a characteristic of the candidate which is felt to be important. Indicate your rating by a check at the appropriate point on the scale. The exact point at which you rate is less important than the general impression.

1. The candidate demonstrates concern with excellence in teaching, and the techniques and methodologies available.

Not Concerned — Concerned

2. He/she is concerned with research programs and demonstrates an ability to stimulate and encourage research efforts.

Disagree — Agree

3. He/she demonstrates flexibility of approach to the future of the profession of optometry.

Rigid — Flexible

4. He/she demonstrates a potential sense of fairness in his/her dealings with both students and faculty.

Unfair — Fair

5. The candidate seems sincerely motivated for the position of academic dean.

Not motivated — Motivated

6. He/she seems academically qualified for the position of academic dean.

Not qualified — Qualified

7. The candidate demonstrates the leadership qualities necessary for the position.

Disagree — Agree

8. He/she demonstrates the ability to interact with and relate to other people.

Disagree — Agree

9. Considering all the above qualities which are applicable (including others that you have added below), how would you rate this candidate?

Low — High

Additional comments:

Guidelines and Standards for Visual Science Libraries

By Association of Visual Science Librarians

Standards for school, university, college, and special libraries have been developed in the past years, but there is nothing yet referring to the specific requirements of optometric, or vision sciences, libaries.

This paper is an attempt to provide minimum standards and to set guidelines for physical facilities, budget and staff requirements, and development of collections in order to provide the required services and meet the information needs of the schools of optometry.

There are now 13 schools of optometry in the United States and 2 in Canada, each with some form of library service. Libraries serving schools of optometry are usually small and fall into one of the 3 following types: A. The independent library for a school physically or administratively unconnected with a parent institution. B. The branch library designed to serve an optometry school within a university, and able to draw on the resources of the general university library. C. The library which includes optometry with other sciences, as part of a university library system. No one of these types of libraries is necessarily better than another. Each has its advantages and disadvantages, and all three types have functioned well for the schools they serve.

It is hoped that these Guidelines will be flexible enough to encompass all three types of libraries, will provide a measure for the assessment and evalua-

It is hoped that these Guidelines will be flexible enough to encompass all three types of libraries, will provide a measure for the assessment and evaluation of existing optometry libraries, and will serve as guidelines in the establishment of new ones.

Collection

A vision science collection serving a college of optometry will reflect the institutional objectives and administrative organization of the college or of the college and its parent institution.

The varied institutional context of the libraries makes a statement of objectives and a definition of subject parameters imperative if any evaluation is to be consistent. This will help insure that the instructional needs of the educational program and the research needs of graduate students and faculty are adequately met and developed for each library.

The collection should include books, journals, and other materials needed to accomplish these objectives. Excellence should be maintained by routinely acquiring significant currently-published books and journals falling within the scope of the collection and by systematic weeding practices. Non-book materials may be included either in the library or in a separate audiovisual media department.

Availability of related material within a larger collection of which the optometry library is a part, or proximity to other large collections in the area, will allow a greater degree of specialization. If the collection must serve all of the informational needs of its users, broader parameters must be defined.

The following list includes the subject coverage of a vision science collection. The subjects are arranged by Library of Congress classification scheme; each general area includes relevant subtopics. The list cannot be considered complete, but rather should be regarded as a general outline to be modified according to local requisites. No attempt is made to include general reference materials such as dictionaries, encyclopedias, atlases, or directories.

Suggested collection levels are these:

1. General information needs.

2. Adequate to support study of subject areas as related to vision care.

3. Adequate to support study through the Doctor of Optometry (professional) degree.

4. Adequate to support graduate study through the Ph.D. degree with some assistance from outside libraries.

Service

The library's clientele should be provided with knowledge of and access to bibliographic and informational resources in the field of optometry for all courses in the optometry curriculum, as well as in support of research in vision science, as set forth in the institution's objectives.

The library's clientele will include some or all of the following: the students and faculty in the optometry and physiological optics curricula; the academic community outside the school of optometry; practicing optometrists and vision scientists in the community; and others in the community at large who need bibliographic and informational services in the field of vision science. The library's community will be defined by the educational policies of the institution and the financial resources available for library service.

All users should have the following services available to them:

1. An efficient system of access and circulation of library material, including access to photocopy services.

2. General and specialized reference and bibliographical assistance.

3. User instruction and assistance.

4. Access to other libraries through interlibrary loan or through network systems.

5. Announcement of library resources and services through appropriate publications, such as a library newsletter, handbook, acquisitions list, etc.

6. Reserved book services for the teaching program, the number of duplicate copies being considered in policy and budget decisions.

Specific user groups should have special services made available to them, e.g., new students should have a formal instructional program; graduate students should be provided with special formal instruction covering retrospective and current vision science bibliography, in depth; faculty should have liaison through which they receive current awareness service and inform the library on course content and assignments.

The library should be open a minimum of 40 hours per week.

Archival services. If the library is expected to assume archival services for the optometric institutions it serves, extra space, equipment, and staff with specialized training will be needed, and therefore additional budget.

Operational Budget

Budget should be adequate to meet the standards.

Separate budget considerations will have to be made for the three types of optometry school libraries:

A. The independent library for a school physically or administratively unconnected with a parent institution. This type needs a wider range of basic

materials than do the other two types; and the full expense of the library is borne by the school.

B. The branch library designed to serve an optometry school within a university. Such a library is able to draw on the resources of the general library; and in addition, a varying portion of the costs of the library may be subsumed in the univeristy library budget rather than by the school of optometry.

C. The library which includes optometry with other sciences, as part of a university library system. Reference works, especially, can be shared with other departments in such a library; and varying portions of the costs may be assumed by the university and by the school of optometry.

Budget considerations should include personnel, printed materials, supplies, equipment, furniture, binding, user services expenses (information services, copy service, and cooperative library projects) and audiovisual equipment and materials if included in library operations.

Budget for personnel. Personnel salaries must be consistent with regional and institutional salaries. Tables from recent students on salaries for librarians may be found in recent journals. (1, 2) (Obviously adjustments for inflation are necessary, and new studies must be consulted in the future.)

Budget for printed materials. This budget will depend upon two factors: character and extent of the curriculum (number of courses, degrees, and specializations offered and how far these reach into such related fields as education, psychology, public health, medicine, pediatrics, etc.); and the availability of materials from parent institutions or cooperating libraries.

The largest budget will be needed by Type A, the free-standing school of optometry library which must operate almost entirely within its own resources. Type B library budgets will vary according to the historical development of the various associated library units and the feasibility of sharing resources. Type C libraries may be operated entirely by the parent institution, so that budgets can be isolated and identified only with difficulty, or must be estimated by using percentages.

In order to establish a basic collection and purchase serial back-files, a new library will need from double to triple the usual budget during its first 3 to 5 years.

Standards will be presented in terms of the items ("items" will for the most part represent monographs, but because of the way library statistics have been recorded will also include documents, single volumes of serials, and other pieces) added annually and the number of subscriptions maintained, with examples of amounts spent in the year 1972-73. These figures must be considered against the following background: 1. Inflation has affected library purchases to an extreme degree because so many publications are of foreign origin, and the prices have been raised by devaluation as well as by inflation. 2. Published literature in science increases geometrically in that it is estimated to double every 8.1 years. 3. The bulk of this increase is in periodical literature.

Access to a broad range of serials is required because of the interdisciplinary nature of vision science and because of the dispersion of subject matter in scientific journals, as stated in Bradford's Law of Scattering. (4,5) This law states that "If scientific journals are arranged in order of decreasing productivity of articles on a given subject, they may be divided into a nucleus of periodicals more particularly devoted to the subject and several groups or zones containing the same number of articles as the nucleus, when the numbers of periodicals in the nucleus and succeeding zones will be as $1:n:n^2 \ldots$" (4)

Unpublished data collected by Harold R. Gibson during preparation of *Vision Index* indicate that for vision science 190 journals provide approximately 90% of the articles being indexed, while the total number of journals from which at least one article is indexed is around 940. It must be borne in mind that articles published in the widely-scattered periphery may be of high value, and that some articles in the nucleus may be of negligible value. The optometry library will need to select according to the curriculum, research, and special needs of the school which it serves; thus, the "nucleus" of most-fruitful periodical titles will vary with each school.

The data below gives the recommended number of new items (multi-volume or single-volume books; pamphlets; other separately published printed matter; microform reproductions of any of these) and annual subscriptions which an optometry library should have either on its own shelves or within a few hours' access.

Recommended number of new items to be added annually	**600 to 2000**
Recommended number of annual subscriptions	**200 to 400**

The number of titles published in the field of vision sciences varies and is increasing. In 1972-73, the bound volumes (including bound journals) added to various type A and B libraries ranged from 175 to 2000; the monograph budgets in these libraries ranged between $750 and $18,000. Similarly, the number of serial subscriptions varied between 61 and 240, whereas the serials budgets provided from $1200 to $6000. It was not possible to obtain comparable figures from the type C libraries. Free and non-budgeted items are included in the above data, and therefore per-item costs cannot be figured. Furthermore, the higher figures are from a newly-developing library, whose costs will naturally be more during the first years of growth.

In gauging budget increases to allow for inflation, the following facts (6) may be helpful. The average price for U.S. hard-cover books in 1973 was $12.20—139.1% of the average price in 1967-69. In 1974, the corresponding figures are $14.09 and 160.7%. U.S. hard-cover books on science averaged $17.34 (136.9%) in 1973, and $20.83 (164.4%) in 1974, reflecting both a higher price per book and a slightly faster rate of increase. The average price indexes for U.S. periodicals were 202% and 220% for the same two years respectively. Average prices for periodicals vary according to subject field, and those for medicine, chemistry and physics, psychology, engineering, and general science (vision science draws from all these fields) are all rising more rapidly than the average for periodicals as a whole. (7)

A list of serials developed by the Visual Science Information Center (VSIC) forms a suggested base for selection; that is, many of the USIC titles should be available in the library itself or in nearby libraries, always depending upon the particular scope of the library in question. (8) The USIC list makes no attempt to include titles scattered widely through many disciplines which regularly include small but important number of articles on vision. The 1973 list contained eleven indexing and abstracting serials, one hundred thirty-four English language serials, and sixty-one foreign language serials.

Binding. Budget should be sufficient to bind all materials intended for indefinite retention.

Miscellaneous. Sufficient budget should be provided to include subscrip-

tion fees to information services and cooperative library projects.

Sufficient budget should be provided to cover expenses of library personnel for professional meetings and other professional activities.

When new programs are introduced into the curriculum, budgets should be increased to provide for additional materials and services as needed.

Budget should be provided for copy service as needed.

Additional budget should be provided for duplicate copies acquired in direct support of the curriculum.

Budget for computer terminals linking the library to various data centers may soon become necessary to insure excellence of service.

Staff

The quality of library service depends ultimately upon the capability of the professional and support staff and the conditions of their employment. The competence of the staff depends upon the educational background and experince of the personnel. In addition, the relationship of the library staff with the teaching faculty and the administrative officers is vital to the development of library service.

The actual staffing requirements of optometric libraries will vary with the type of library and with the services expected, e.g., whether or not audiovisual services are combined with the library or are provided by separate staff in a different location, or whether cataloging is performed on site or furnished by a separate service. The following should provide guidelines for the staffing of all libraries.

The head of the library should be a full-time professional librarian who holds as a minimum requirement the MLS from an accredited library school. A ratio of 2 FTE support staff to each professional librarian is usually considered adequate.

The head librarian should be directly responsible to (as in the independent colleges of optometry) or have immediate liaison with (as in the schools which are parts of larger institutions) the chief administrative officer who is in charge of the educational program. The professional staff should have faculty status and be active participants in faculty committees and the educational planning of the college.

It is the librarian's responsibility to maintain the collection and services described earlier in this document. It is also the librarian's responsibility to carry on the business of the library: management of the staff; selection, acquisition, classification, etc., of materials; design and use of space; preparation of budgets; etc. In these operations the librarian must have full cooperation from the business offices of the school.

Physical Space

Too often, vision libraries are planned by non-librarians, unfamiliar with library procedures and requirements. This is unfortunate in that decisions made early in planning construction may either create permanent problems or eliminate them. Space planners should have clear ideas about not only the square feet, number of reader spaces, and amount of shelving necessary for the library, but also the relationship of different areas, traffic flow, security, location, and even the appearance and "feel" of the library.

The library should be situated close to the school which it serves, preferably centered in the traffic pattern among classrooms, faculty offices, and departmental offices, making it easy for all patrons to drop by. Lockers outside the library for personal belongings help reduce clutter in reading areas. Security for the collection, especially when the library is closed, is essential, as book and journal losses have become serious problems in recent years. The single entrance/exit (other than fire doors) should be constructed so as to permit an electronic surveillance installation, should it become feasible. Keys should be limited to the necessary library and custodial personnel. Shelving for unbound serials should be readily visible from the charge desk, to help reduce losses.

Requirements for space for library materials, for readers, and for staff are outlined below. (9,10) A certain amount of flexibility in the application of these standards is desirable. Factors which can temper space requirements include, for example, the availability of other study space nearby; the hours of library opening; the amount of use of related libraries; amount of audiovisual material in use, and whether or not there are separate quarters for these; types of technical services performed; and circulation policies.

Shelf space. Adequate shelf space in a new library should allow for 10 years' growth. A good working shelf space allow 100 books maximum per standard stack section, or 18 linear feet. (All standard library furniture and shelving are constructed in three-foot units; a stack section of standard seven-foot height consists of six shelves, three feet wide.) Thus a 5000-volume collection requires at least 50 stack sections, or 900 linear feet. In addition, a minimum of three feet between stack sections needs to be maintained. A calculation of 0.1 square feet of floor space per volume may give a rough guide as to space needed to store the book collection; but arrangement of shelves, inclusion of readers' spaces in the stacks, and growth projections for the library may all cause variations in this figure.

Service areas. The circulation charge desk should be long enough to accomodate two attendants at times of peak load. It is easier for the desk attendant to maintain control of exiting traffic if he faces the users as they approach the exit. Circulation, reserve, and reference services may be separate or combined, depending on the size of the library. A minimum of 80 square feet per FTE staff member for these functions should be planned. If technical processing—cataloging, receiving, binding preparation, etc.—is done in the library, more staff space will be necessary. Type A libraries, which perform all technical services, will need at least double the staff area required by Type B libraries. Since optometry libraries are usually small (under 20,000 volumes) and operate with minimum staff, it is helpful if all staff quarters, including the librarian's office, can be reasonably near the charge desk and exit. The librarian should have a separate office and telephone, yet be readily approachable from the reading areas.

Reserve books require separate shelf space and may be housed near the circulation desk. Expansion space should be available for reserves. Reference works are somtimes separated from the collection and discrete space provided for their use; sometimes this space is part of the general reading area. If an optometry library is part of a larger library, vision reference will be housed together with works from related science fields. Whatever arrangement is adopted, the use of these often cumbersome volumes should be aided by easy access, and space should be provided for simultaneous consultation by several users.

More important than the amount of space is the physical arrangement, which should provide proximity of reference works to the reference librarian, catalog to circulation, circulation desk to entrance/exit, and arrangement of staff space such that it does not interfere with user space, and vice versa.

Readers' space. Traditionally, college libraries have planned 6.25 square feet

of reader space per FTE student. Another guideline is one seat for every five students. For a non-circulating library, many more seats are required; for a library open long hours, fewer may be necessary. If students live near campus, they may spend more time studying in the library; a commuting population tends to check material out to read elsewhere. It is important to provide both individual study spaces (carrels) and tables for larger groups. Closed rooms, reasonably well soundproofed, large enough for six to eight students to study together, are desirable. Areas planned for microfilm reading require adjustable lighting and on-the-desk lamps for note taking.

The library itself should be well lit, temperature controlled, attractive, and reasonably quiet. Display cases, comfortable furnishings, carpeting, a pleasing color scheme, well-placed signs, and other "non-essentials" are vitally important factors which determine to some extent not only how much the library will be used but also how the students and faculty feel about the library.

Multimedia

Development of multimedia, or audiovisual methods of recording knowledge, has raised the question as to which and how many such materials a library should include in its collection. Beyond the general principle that libraries should include all forms of recorded knowledge, a decision must be made as to which of these are appropriate and practical for any given special library and any individual section.

Complicating the question, particularly for optometric and other health science libraries, is the creation of audiovisual, multimedia, or educational materials centers, in which new teaching methods are being developed to handle large classes or speeded-up course work by means of electronic technology.

The housing, servicing, and lending of audiovisuals requires special facilities: special cases and cabinets; packaging and handling arrangements for multiform sets (e.g., slides, text, and cassette which belong together); enclosed areas, possibly with controlled lighting and soundproofing; repair equipment and expertise; specially arranged electrical outlets; etc. The future of audio-visuals clearly includes television instruction. Schools which have pioneered in these fields are now producing their own materials. All these facts indicate that a long-term policy dealing with multimedia should become part of any optometry school's planning; and for the library, the extent of its involvement must be predicated upon its space, equipment, and personnel. The library which is expected to emcompass multimedia should be so planned from the first, as the questions involved begin with architecture and floor plans. Problems arise from a lack of delineation of functions between the multimedia center and the library and a failure to plan for staff, space, and equipment for these different functions.

Dental schools, which have often provided relevant examples for optometry schools, have documented recommendations for multimedia. (11) Separate departments for educational television and visual aids are outlined which involve separate staff for production and maintenance and separate space for viewing, listening, and storage.

A current survey of optometric schools shows no uniform practice regarding multimedia. Four schools have multimedia departments. Of these, two handle all services within the department, and two ask the library to manage certain kinds of record-keeping and circulation services. Three of the schools have photographic laboratories and/or other partial multimedia departments, and two of these schools expect the library to organize and circulate at least some audiovisual material. One school expects to combine the multimedia services entirely with the library. Usually audiovisual material relegated to the libraries is part of class assignments, whereas material used as teaching aids by the instructional staff is kept by the instructor using it.

In making the following recommendations, the Association of Visual Science Librarians takes into consideration the evolving status of multimedia departments and attempts to recognize viable choices.

1. The preferred long-term goal is a multimedia production department coordinated with the library, so that audio and visual media are available for study and teaching. Each department must be adequately staffed.

2. Current practices in each school may dictate the evolution of multimedia practices locally, and individual local developments may result in a wide variety of practices representing many degrees of combination with, or separation from, the library. Whatever the degree of separation or togetherness, there must be budgeting which realistically recognizes the necessity for special staff for production and maintenance; special space and equipment for storing, servicing, and presenting materials; and knowledgeable planning for common space and staff, so that the library and the multimedia enhance, rather than hamper, each other.

3. If there is currently no budget in the school for multimedia, the library budget should include an amount committed to purchase of audiovisual materials. Conventional book and serials budgets cannot be presumed to cover the high cost of audiovisual materials; and the budgets for conventional library materials should not be diverted to multimedia, which are notoriously expensive.

Creation of these *Guidelines and Standards* should in no way imply that a high degree of uniformity among optometric libraries is an end goal. Guidelines should direct and strengthen without curtailing the diversity which naturally develops among scattered institutions, a diversity which is a source of experiment, comparison, and ultimate strength.

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Report on ASCO Policy Positions

Over the years, ASCO has taken positions on a number of issues confronting the profession and its educational system. Typically, these issues were brought to the attention of the Association at one or more of the regular quarterly Board of Directors meetings. Since by plan, at least two of these meetings are held in conjunction with larger gatherings of optometrists and research scientists (the Annual Congress and the Mid-winter Academy meeting), the participation is not exclusively limited to Board members.

The system used to study and draft preliminary statements is by and large the Council structure. There are three major councils roughly dividing responsibilities between and among student affairs, academic affairs, and institutional affairs. The chairperson on each council sits with the Board and presents positions taken by their Council. The Chairmen are also members of the Executive Committee of the Association, which is responsible for interim direction of Association activity between Board meetings.

Specific examples of activities that ASCO has undertaken culminating in policy positions include statements on inclusion of optometric education in federal health manpower legislation. ASCO acts in conjunction with the AOA on all legislative matters and cooperates on a larger scale than simply health education issues.

In addition, ASCO has worked to standardize professional program length, degrees granted, and has requested and received standards from various sub-units of the school programs such as library operations. This latter study was completed with the aid of the Association of Visual Science Librarians.

Currently, the Association is developing guidelines in a number of critical areas. Specifically, the Association has either developed or has set the wheels in motion to gain a concensus on the issues of a curriculum model, pharmacology guidelines, residency training, and development of non-cognitive admissions instruments.

The curriculum model (begun in the mid '60's) and residency projects are ongoing activities. This Annual Meeting in June will hear a progress report on these issues when the Council on Academic Affairs reports.

The Association has taken a leading role in the development of new schools of optometry. In 1974, then President, Dr. William R. Baldwin, requested Dr. Henry Peters, chairman of the Council on Institutional Affairs to present a draft statement of appropriate conditions for the development of any new professional degree-granting program in optometry.

The draft was taken under advisement by the Board of Directors at its September, 1974 meeting. After due deliberation and amendment, the statement was accepted and adopted as the position of the Association. Subsequently, the statement was presented to the AOA's Council on Optometric Education. The Council then adopted the statement of guidelines for its own use.

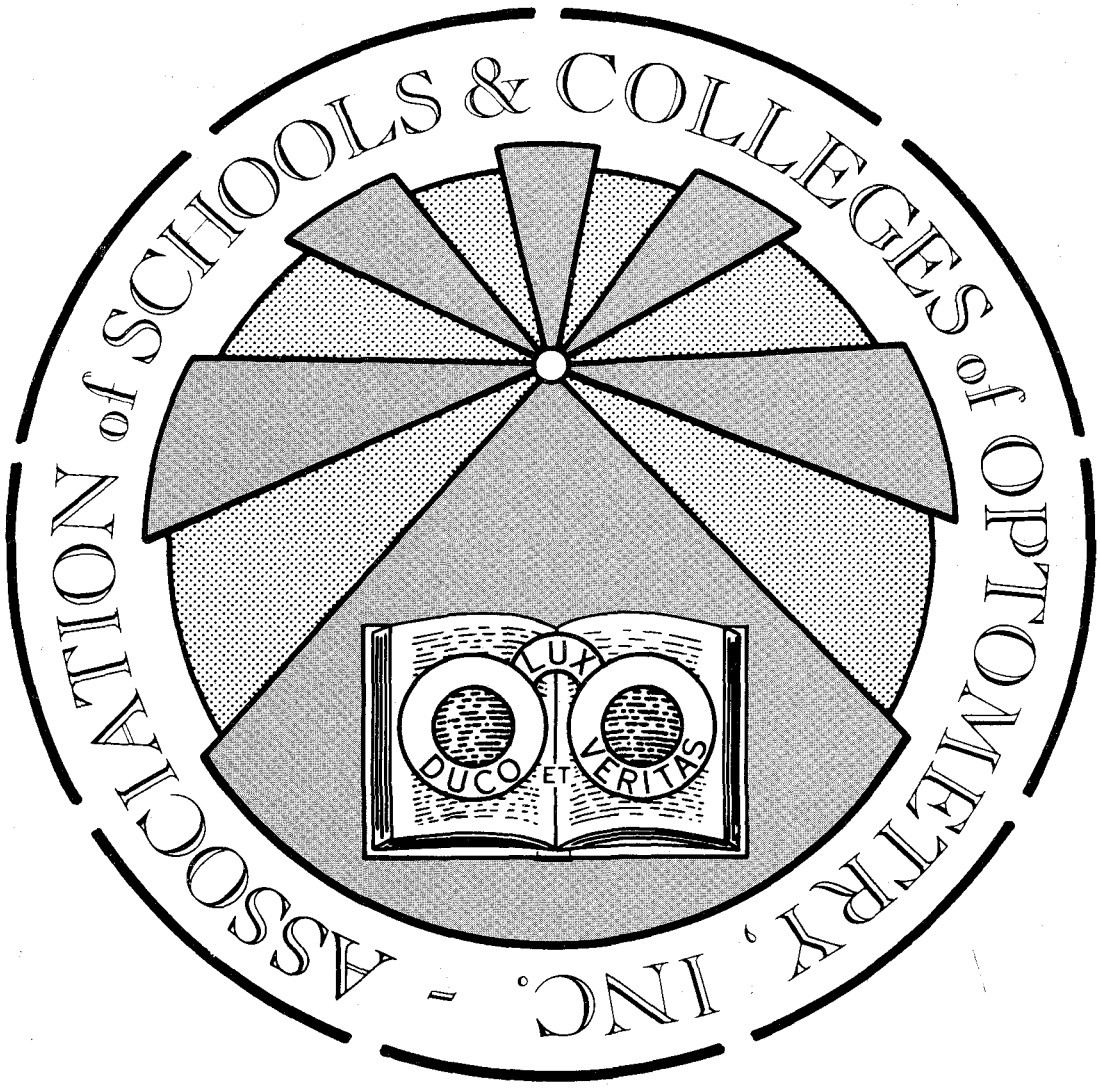
At its most recent meeting in March of this year, ASCO's Board of Directors adopted two additional policy statements with far reaching implications for the future of optometric education. The first is a supporting statement for the Board's new guidelines for the development of new schools and colleges of optometry. Point by point, the supporting statement explains and amplifies the guidelines while providing insight into the thinking that lay behind their adoption. The Board emphasizes that many years of collective experience in optometric education went into planning and development of this statement.

In conjunction with the supporting statement on guidelines for new schools, the Board approved a National Plan for New Academic Facilities for Optometric Education. The plan is designed to help meet the ever increasing demand for optometrists through an optimal distribution of funds and resources in the states and a coordinated approach to optometric education on the national level.

The National Plan was developed by a joint Task Force of individuals selected by the American Optometric Association and ASCO. Since both the AOA and ASCO were interested in the subject matter, ASCO named the same individuals as its own ad hoc committee to prevent the production of two documents purporting to guide the profession on the same issue.

The ASCO ad hoc committee presented drafts of the National Plan at three regular Board meetings in 1975-76. The plan gained unanimous approval of all 12 active members present and voting in March of this year.

All three documents, the Guideline statement, its Supporting Statement, and the National Plan for New Academic Facilities for Optometric Education are reprinted here.



ASCO Statement on New Schools and Colleges of Optometry

Historical Overview

The current and projected manpower shortage in optometry is well documented and has been recognized not only by the American Optometric Association, but also by the manpower studies carried out by the federal government and by regional and state educational groups. Clearly, the experience in trying to initiate new schools in the 1950's and 1960's was traumatic and frustrating. It was also instructive since without a clear understanding of the constraints on our present schools and colleges of optometry, the profession runs the serious risk of perpetuating some of these problems. To show concern for the future development of optometric education, ASCO developed the guidelines as an expression of the conditions for optimum development of optometric education. Therefore, the guidelines address themselves to a substantial number of concerns that relate to the organization, administration, location, size, funding, curriculum, and overall resources of a new school that would, if properly constituted, assure its optimum development.

Rationale

1. The guidelines are future-oriented. Existing schools and colleges of optometry, each having its own distinctive history in striving towards excellence in education, may initiate unique and innovative approaches in pursuit of the guidelines. Clearly, it would be inappropriate to regard the guidelines as the only direction in which presently constituted schools may continue to develop.

Regardless of the setting of a new school, it is incumbent upon that institution to fulfill the standards of educational excellence necessary to meet the accreditation standards of the AOA Council on Optometric Education. Optometry must be selective and mature in choosing institutions that will provide the educational environment needed to assure the future development of the profession.

"Existing schools and colleges of optometry, each having its own distinctive history in striving towards excellence in education, may initiate unique and innovative approaches in pursuit of the guidelines."

2. A second major force in this consideration is the emerging role of the optometrist in a changing health delivery system. This role, now almost a cliche in AOA policy formulation, is still not clearly understood by the profession, particularly in the educational, patient care, public health, and professional responsibilities that it imposes.

Defined as a primary health care practitioner, the optometrist is concerned with all aspects of health care and has responsibilities to examine, diagnose, treat, prevent and/or manage visual and ocular problems. Consequently, the optometrist, as a primary health care provider, must be concerned with:

a. The enhancement of visual performance and, therefore, human potential;

b. A greater knowledge of differential diagnosis and increased competence in vision therapy and patient management;

c. The provision of education in health care as a means for improving the quality of life; and

d. The development of, participation in, and understanding of, optometry's role in a multidisciplinary setting.

To implement such a role concept, it is imperative that optometric education relate closely with the education and training of other health providers.

3. Each guideline statement will be addressed individually, but it should be emphasized that they are based on the collective experience of the chief administrative officers of our present schools and colleges of optometry. We are committed to the development of optometry as *a viable independent health profession that serves the role of primary provider of health care and the treatment of vision disorders, integrated into the health delivery system, and responsive to the public need.*

The Statements

1. The first statement relates to the location of a new school in the academic health center of a state university, *under appropriate conditions.*

a. While not the sole acceptable location for the placement of an optometry school, a health science center with its allied resources does represent the option that most clearly meets the conditions expressed above, particularly if the academic health center administration actively supports this development.

b. The academic health center is oriented to teaching, research, and service for the health professions. Funding patterns on a per student cost basis, faculty/student ratios, faculty salaries, facilities development, research support, and commitment to community services are all significantly more advantageous than in other branches of the university or for existing schools of optometry outside such centers.

c. The intellectual resources of an academic health center are substantial. A school of optometry in an academic health center can share these resources: a health center library, basic health sciences faculty and facilities, research laboratories and institutes, support services such as animal facilities, computer center, audio-visual and learning resources center, electronic and machine shops, and many specialized research facilities. It would be almost impossible for a school of optometry to gather independently together such resources. Sharing these resources represents a cost-benefit to the institution which can only enhance the quality of the end product of the academic program.

d. The academic health center provides an opportunity for interdisciplinary interactions, generally a commitment to the development of the team delivery of health services and the option for optometry to develop a vital role in the health services delivery system. The academic health center presents opportunities for optometry to participate in a wide variety of clinical programs, to develop a significant role in such programs, and contribute its unique knowledge and skills. In an academic health center, it is possible to begin this interaction and cooperation at the student level in basic sciences, nurture it through clinical training in affiliated programs, and build it into health care delivery systems.

e. Optometry has largely existed in splendid isolation from the other professions. This has led to a misunderstanding of optometry's role and a lack of appreciation for the significance and quality of its services. Prestige may be a self-serving concept, but there is no doubt that the prestige of optometry and optometric education is enhanced by being located in an academic health center. Such a location gives it enhanced access to various state and local agencies, governmental bodies, and centers of influence in the community.

f. The development of statements and their circulation to agencies of higher education provided an opportunity for the profession to make a major step in its manpower development and educational program planning. Clearly, the concept of developing schools of optometry in academic health centers is an acceptable and saleable proposal. The Association for Academic Health Centers, the Southern Regional Education Board, the New England Board of Higher Education, the Commissions of Higher Education of the States of Maryland, Virginia, Florida, North Carolina, South Carolina, Georgia, and Louisiana have all endorsed this concept. At no time in the history of optometry has there been such active interest in the development of new schools of optometry from such influential bodies.

2. Statements #2 through #7 are related to the "appropriate conditions" that could ensure the optimum development of a school of optometry in an academic health center. These "appropriate conditions" could:

a. Protect the independence of the profession;

b. Secure the administrative support;

c. Assure the integration of the teaching-research-service aspects of the program; and

d. Provide the opportunity for interdisciplinary development.

3. Statement #8 relates to the recommended size of the entering class for a school of optometry. This is a complex issue involving estimates of potential funding, numbers of

faculty to form a "critical mass" to cover the various vision science and clinical areas of the curriculum and support a viable research program, potential facilities development, required patient load, and many others. It involves, too, the degree of personal time and instruction available to each student, the faculty/student ratio. It involves the development of support services for each element of the program. The larger the school the more complicated and costly the administrative structure required. Based on the intriguing and attractive possibility of developing regionally supported schools, and looking at the manpower needs of such potential regions together with the potential funding for such institutions, and the other factors mentioned above, we come to the recommendation that an entering class size of approximately 60 students is appropriate. This is clearly a judgmental recommendation, considering an intricate number of interrelated factors, but based on the collective experience of the academic administrators.

4. Statement #9 relates to the size of the community (i.e., a large geographic area) needed to support the clinical program of a school of optometry of the size recommended. This guideline again is also based on the experience of our existing schools, some of which meet this recommendation and some of which do not. The problem is to provide each student with a number and variety of clinical patients (and vision problems) to provide an optimum educational program without disrupting the practices of private optometrists in the community. With a class size of 60 students there will be approximately 120 students in the clinical program in most present curricula. This requires between fifteen and twenty-thousand patients per year to support the program. Thus, the recommendation that schools be located in communities or areas that can draw from at least 200,000 population.

5. Statement #10 relates to the creation of new schools as regional resources for manpower development and as service centers. The analysis of manpower needs on a state-by-state basis indicates that there are many states having optometric manpower needs too small to justify a school of optometry serving only a single state. The concept of developing schools to serve regional needs, the consortium concept, has been readily accepted by commissions of higher education. Several such consortia are currently under development (Virginia-West Virginia-Maryland, North Carolina-South Carolina-Georgia), while others are in the investigation stage. Further, the concept seems to be of significant interest to the Federal health manpower administrators. It appears that this is an innovative and creative idea that will aid in developing state support for the development of optometric education of a greater magnitude than the contract program.

6. Statement #11 is related to a commitment to a program of excellence and the funds necessary for such a development. Making such commitments in advance, even in principle, are essential ingredients to the program. This should be self-evident.

7. A faculty-student ratio of not less than one faculty member per five students is based on the experience of present optometric academic administrators. While not all present schools meet the recommendation of 1:5, all agree that it would be desirable.

Summary

1. ASCO Statement of New Schools and Colleges of Optometry is a set of recommended guidelines for the development of new schools to meet the manpower requirements necessary to support the profession and to service the vision care needs of the public.

2. It addresses the problem of the selection of the optimum educational environment for the development of the profession toward its stated goals in terms of role and scope of service.

3. The statement serves as guidelines to the profession and its various organizations for the development of optometric education based on the collective experience of optometric educators.

4. It also presents a functional and innovative plan for optometric education that is exciting and acceptable to state, regional, and federal educational authorities concerned with health professions education.

Accepted by the Board of Directors
Association of Schools and Colleges of Optometry
March 4, 1976

ASCO Statement

Adopted Unanimously by the Board of Directors of The Association of Schools and Colleges of Optometry, Washington, D.C. September 12, 1974

This statement is prepared to present the conditions the Association of Schools and Colleges of Optometry holds are important to the development of new schools.

1. Under appropriate conditions, the most advantageous location for a new school or college of optometry is in the academic health center of a state university.

2. Optometry should have separate status as a professional school or college, administratively on the same level as medicine and dentistry, within the health center.

3. There should be strong central administrative support for the school or college of optometry and commitment to interdisciplinary development and interaction.

4. There should be shared basic health science programs for students of the health professions where appropriate.

5. There should be the opportunity for development of optometric clinical services in the various patient care facilities of the center.

6. There should be the opportunity to develop interdisciplinary research programs of mutual interest.

7. There should be a commitment to graduate and continuing education for the further development of practicing optometrists and future educators.

8. The size of the entering class of professional students should be approximately 60 students.

9. The school should be located in a community of at least 200,000 population to provide an adequate clinical base for the program.

10. The school should, where possible, be a regional resource for the development of optometric manpower and vision care referral service.

11. There should be a commitment of both adequate capital funds and operating support to provide for the orderly development of a program of excellence in optometric education.

12. There should be an established faculty-student ratio of not less than one faculty member per five students.

National Plan for New Academic Facilities for Optometric Education

Introduction

The following national plan for new optometric educational institutions takes into account the distribution of existing institutions, the need for their preservation, and public support from states which they serve.

Concerning new schools, it is designed to serve three major needs: appropriate geographic distribution; special attention to most critical manpower needs; and creation of financial support bases from states or groups of states representing populations and other resources sufficient to justify the need for a school with enrollment of at least fifty students per class.

It is absolutely essential that our profession give this activity highest priority. Optometry depends on its educational institutions not only for its existence, but the vitality of the profession is directly resultant from the quality of education the schools provide and their adequacy in meeting manpower needs. Therefore, we cannot give attention to insuring an optimum future without first establishing well the educational base on which it depends.

Optometry schools are too few in number and too limited in resources to permit optimum development of the profession or to provide for the needs of the Nation's citizens. For a number of reasons (which include failure within the profession to fully understand the necessity of developing new schools and strengthening existing ones, medical opposition to our educational development, and relatively low visibility of our profession in the public perception) new schools have not come into being in anything like the number needed. We are also beset with the difficult task of financing optometric education without adequate public funds.

The profession has recommended a ratio of 14.3 optometrists in practice per 100,000 population for many years. It is recognized that we have not been able to keep pace with the population for more than twenty years. The profession presently is on the verge of a major loss of manpower due to the retirment of post World War II graduates.

To maintain a ratio of 14.3 optometrists in practice per 100,000 population (population base 270,000,000) a total optometric population of 38,000 (all in full time practice) must be attained. To maintain the present national ratio of 9.1 optometrists per 100,000 population, a total of 25,000 must be attained by 1990. There are now approximately 20,000 optometrists. Attrition projections indicate an average loss of 800 per year from the optometric manpower pool over the next fifteen years. If no graduates were entering the pool during this period, a total of 12,000 would be lost and the number of optometrists practicing in 1990 would be approximately 8,000. Therefore, in order to meet the projected need for a total of 38,000 optometrists in 1990, existing and new schools must produce 30,000 new optometrists during the next fifteen year period. To maintain the present ratio of 9.1 optometrists in practice per 100,000 population, the existing and new schools must produce 17,000 new optometrists during the next fifteen year period. We are now, with many classes swollen beyond capacity, producing approximately 1,000 per year and cannot produce more for at least five years even if all new schools needed had enrolled students this fall.

Although inadequate, by even conservative projections, it is proposed that the goal of the national plan be to produce 1,500 graduates per year by 1985. This means that we must strive to attain a national average of one optometrist per 9,000 citizens by approximately the year 2000 with optimum distribution of schools as proposed herein. Distribution of optometric manpower within separate states will move closer to the national mean and the profession will be able to accommodate to the almost certain eventuality that need and demand will draw much more closely together.

The following guidelines are recommended for developing a national plan for optometric educational facilities:

1. Each state should provide public funds for the education of optometrists and each state should have an adequate educational source for its residents.

Presently there is a marked imbalance of funds generated by states to provide support for optometric education. There is also great disparity in ability of residents of the various states to gain admission to an optometry school. If the public is to be properly served it is imperative that optometrists, legislators, and all others interested in the most efficient development of health resources strive to ameliorate these two problems. Individual states which have less than the national average, should accept the obligation to support financially a portion of the education of sufficient of their residents to generate graduates in numbers to achieve the current national ratio of optometrists to

population. Those states that have attained a ratio equal to or better than the current national ratio should accept the obligation to provide financial support to at least maintain their current ratio of optometrists to population.

2. Existing schools and current planning within and among states should be incorporated into a total national plan as should historical relationships between states.

While many existing schools may need to adjust to serve different populations or be transformed to achieve appropriate funding or optimum educational environments, each represents an irreplaceable resource. The Southern Regional Educational Board (SREB) and the New England Board of Higher Education (NEBHE) have completed plans, implementation of which resolve problems in these regions. The Western Interstate Commission of Higher Education (WICHE) has begun activities in this area. Not only should the national plan use these resources, but borders of these educational compact regions should not be breeched. States which already have cooperative enterprises or a history of working together should be paired when feasible.

Optometrists, state associations, and states are urged to work with the existing school or schools that are within their recognized educational compact region.

3. Guidelines established by the Association of Schools and Colleges of Optometry and approved by the Council on Education should be applied to the national plan.

4. Geography and population should be considered for new academic facilities. See Appendix I.

Schools will undoubtedly serve as the major continuing education resource for optometrists. When possible they should be located so that substantial number of optometrists may be served with the least inconvenience involving travel and accommodations. Patient populations for clinical training must also be available. Finally, these factors are related to class size. Schools should not develop in locations which are not accessible and which do not provide adequate clinical training opportunities.

The timing and location for establishing new facilities should be directly related to the ability of state(s) financial support in accordance with these stated guidelines. Efforts by individual optometrists and state optometric associations should be expended in accomplishing the first item of these guidelines.

I.D.#	Area Served	Population (1990)	Grads. Yr*
(A)	**Intra State**		
1	Northern California (6)*	15,250,000	64
2	Southern California (6)	15,250,000	80
3	Upper New York (24)	11,500,000	72
4	Lower New York (24)	11,500,000	64
(B)	**Single State**		
5	Alabama (50)	4,000,000	50
6	Florida (34)	10,250,000	64
7	Illinois (1)	14,500,000	80
8	Indiana (18)	7,000,000	60
9	Michigan (30)	12,000,000	64
10	New Jersey (23)	10,000,000	64
11	Ohio (24)	13,500,000	64
12	Texas (40)	15,500,000	80
(C)	**Multi State**		
13	GA (46) NC(42) SC (45) (SREB)	12,500,000	72
14	AR(33) LA(43) MS(48) (SREB)	9,500,000	64
15	MD(49) VA(44) WV(27) (SREB)	14,000,000	72
16	KY(28) TN(39) (SREB)	8,750,000	72
17	AZ(37) CO(31) NV(38) UT(35) WY(9) (WICHE)	10,000,000	64
18	ME(11) MA(3) NH(20) RI(6) VT(26) CT(27) (NEBHE)	15,750,000	72
19	PA(16) DE(41)	14,250,000	80
20	KS(14) MO(21) NB(15) OK(19)	13,500,000	64
21	AK(40) HI(28) ID(8) MT(5) OR(4) WA(13) (WICHE)	11,000,000	72
22	IA(10) MN(17) ND(12) SD(7) WI(22)	14,500,000	64
	Special		
	D. C.	1,000,000	
	Puerto Rico	5,000,000	
		270,000,000	1500

*Numbers in parentheses represent rank in number of ODs per capita.
**Graduates per year entering full-time practice.

Priority in national efforts by optometry should be given to assisting in the development of new schools serving states or regions in which manpower needs are greatest, public commitment to alleviation of the manpower needs has been expressed, and which are willing to commit adequate funds to ensure sound educational programming.

In California and New York, factors of manpower requirements and population are such that two schools of optometry should be supported in each. In Alabama, Florida, Illinois, Indiana, Massachusetts, Michigan, Missouri, New Jersey, Pennsylvania, Tennessee, and Texas these factors justify maintenance of a school serving each state. In some instances it may be feasible for certain of these states to join with others in creating interstate or regional institutions. All states not mentioned above should join in planning with other states to create regionally financed schools.

It is believed the following distribution of optometry schools represents judicious application of these guidelines and criteria, and the best hope for effective and efficient achievement of our limited manpower goals. Certain variations are feasible, perhaps even advisable, however, departure should involve consideration of alternatives for other states which are part of projected interstate arrangements.

This provides a minimum of 22 schools - without considering Washington, D.C. and Puerto Rico. Entering classes would need to average ten per cent higher; because of student attrition and failure of some graduates to enter full-time practice. Schools serving states, such as Alabama, which are substantially below manpower requirements might find it necessary to increase enrollment above that projected for a period of time. Class sizes should, in any case, range from 50 to 90 and would average only slightly more (68 vs 60) than that indicated in the ASCO position paper. With the exception of the population served by the

Alabama school (4,000,000) the population base ranges from 7,000,000 to 15,750,000 with a mean of 12,250,000.

Of the four schools listed under (A) (serving intrastate needs) three now exist. UCB and SUNY with academic health center affiliation, and SCCO with affiliation and state funding, would fulfill all existing criteria. A new school serving upper New York needs to be created.

Single schools serving primarily single states (B) now exists in Alabama, Indiana, Michigan, Ohio, and Texas. All of these are public. New schools need to be developed in Florida and in New Jersey. The major effort required is to create regional programs serving multiple states. Activity here can be divided into two categories:

1. *Transformation of Existing Schools* - Pacific University College of Optometry serving states listed after number 21; Southern College of Optometry serving states listed after number 16; Pennsylvania College of Optometry serving states listed after number 19; and Massachusetts College of Optometry serving those states listed after number 18.

2. *Creation of New Schools* - Serving states listed after numbers 13, 14, 15, (SREB), 17 (WICHE) and 20 and 22 in states not members of educational compacts.

Freedom of Choice - The new facilities in combination with existing schools should develop a national plan which would maximize freedom of choice of students to enroll in optometric institutions outside their region.

Accepted and Approved
Association of Schools and Colleges of Optometry
Board of Directors
March 5, 1976

Appendix I Population Estimates For Each State, Based on Growth and Mobility Projection by United States Department Of Commerce Are:

State	1975 Population	1990 Population	% Increase	1975 Grads.	Pop. Grads/mill.
Alabama	3,527	3,957	12.2	8	2.2
Alaska	331	430	29.9	1	3.0
Arizona	1,991	2,724	36.8	2	1.0
Arkansas	2,001	2,357	17.8	13	6.5
California	22,248	30,528	37.2	102	4.6
Colorado	2,442	3,268	33.8	7	2.9
Connecticut	3,314	4,377	32.1	9	2.7
Delaware	607	818	34.8	0	0
Dist. of Columbia	780	820	5.1	0	0
Florida	7,608	10,241	34.6	41	5.4
Georgia	4,928	6,204	25.9	10	2.0
Hawaii	834	995	19.3	0	0
Idaho	742	882	18.9	3	4.0
Illinois	11,760	14,477	23.1	41	3.5
Indiana	5,527	6,852	24.0	39	7.1
Iowa	2,884	3,230	12.0	15	5.2
Kansas	2,304	2,606	13.1	12	5.2
Kentucky	3,315	3,803	14,7	9	2.7
Louisiana	3,840	4,628	20.5	6	1.6
Maine	1,010	1,122	11.1	4	4.0
Maryland	4,384	6,068	38.4	8	1.8
Massachusetts	6,022	7,354	22.1	25	4.2
Michigan	9,523	12,051	26.5	38	4.0
Minnesota	4,055	5,071	25.1	17	4.2
Mississippi	2,245	2,466	9.8	4	1.8
Missouri	4,902	5,887	20.1	14	2.9
Montana	712	816	14.6	6	8.4
Nebraska	1,537	1,790	16.5	7	4.6
Nevada	589	903	53.3	10	17.0
New Hampshire	814	1,096	34.6	1	1.2
New Jersey	7,783	10,152	30.4	15	1.9
New Mexico	1,062	1,265	19.1	6	5.7
New York	19,100	22,897	19.9	71	3.7
North Carolina	2,680	3,072	14.6	9	3.4
North Dakota	612	641	4.7	4	6.5
Ohio	11,239	13,619	21.2	48	4.3
Oklahoma	2,689	3,245	20.7	12	4.5
Oregon	2,273	2,940	29.3	7	3.1
Pennsylvania	12,045	13,360	10.9	71	5.9
Rhode Island	992	1,181	19.1	3	3.0
South Carolina	2,680	3,072	14.6	5	1.9
South Dakota	666	715	7.4	1	1.5
Tennessee	4,119	4,903	19.0	22	5.3
Texas	12,104	15,474	27.8	30	2.5
Utah	1,158	1,523	31.5	7	6.0
Vermont	478	605	26.6	3	6.3
Virginia	4,975	6,179	24.2	13	2.6
Washington	3,710	4,810	29.7	10	2.7
West Virginia	1,692	1,668	-1.4	4	2.4
Wisconsin	4,708	5,893	25.2	13	2.8
Wyoming	339	388	14.5	0	0
	213,880,000	265,423,000	(mean) 24.1	806	(mean) 3.7
DC & Puerto Rico	5,000,000	6,000,000	24.0	1	.3

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.

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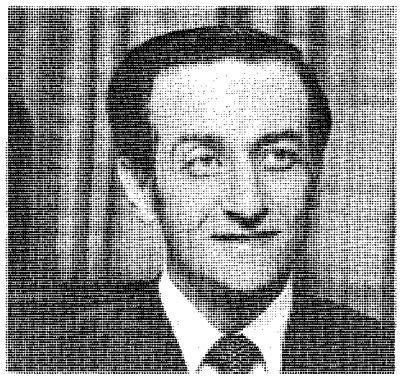

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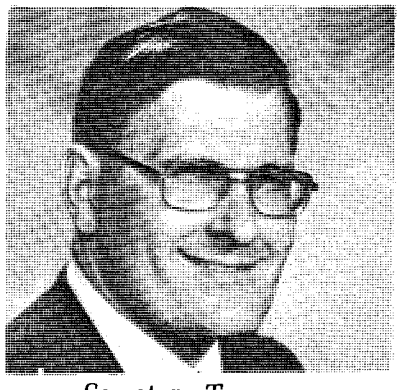

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